THE UNIVERSITY OF TENNESSEE
AGRICULTURAL EXPERIMENT STATION
Knoxville

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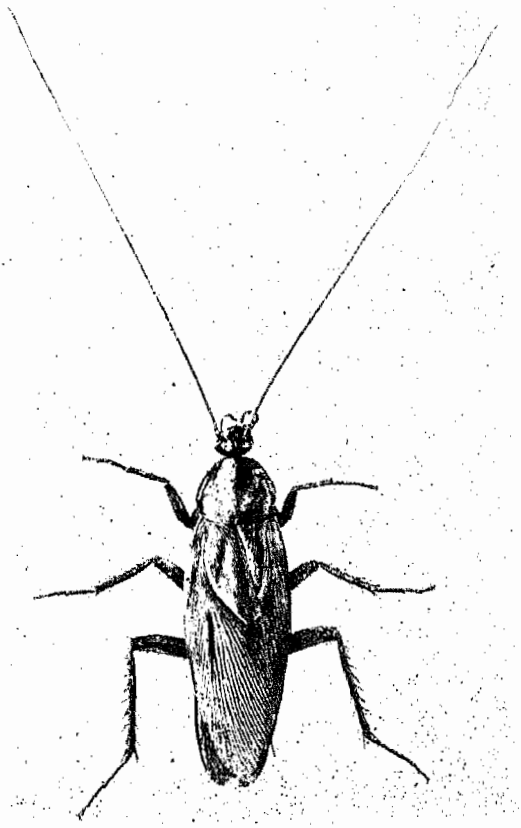
HOW TO COMBAT CERTAIN PESTS OF THE HOUSEHOLD

BY
S. MARCOVITCH
Entomologist



The American cockroach. Natural size.

THE UNIVERSITY OF TENNESSEE
AGRICULTURAL EXPERIMENT STATION
Knoxville

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Bulletins of this Station will be mailed free to any farmer in the State. Write Agricultural Experiment Station, University of Tennessee, Knoxville, Tennessee.

HOW TO COMBAT CERTAIN PESTS OF THE HOUSEHOLD

By
S. Marcovitch
Entomologist

Many inquiries are received at the Experiment Station every year regarding methods for the control of insect and other pests of the household. Since considerable information on the subject has been collected in connection with a project on fluorine compounds, it has seemed worth while to bring the data together in bulletin form.

CLOTHES MOTHS

The adult clothes moth is a small, buff-colored insect, about ¼ inch in length. Two species (*Tinea pellionella* and *Tineola biselliella*) commonly occur in Tennessee. The moths do not feed on the clothing, but lay their eggs in it; the eggs hatch into worms, or larvae, and these larvae, about ¼ inch in length, are responsible for the actual damage done. They do not attack garments that are being worn, but injure clothing and other materials that are stored away in dark closets.

Only materials of animal origin, such as woolens, feathers, piano felts, furs, rugs, and carpets, are attacked. Even the woolen fluff that gathers in the cold-air shafts of hot-air furnaces has been found to be a source of infestation (Spencer, 1931).

Control

Where proper care is exercised, there should be no damage whatever from clothes moths. First of all, frequent sunning and brushing of all woolens, in order to dislodge eggs and worms, will be of immense help in preventing infestation.

Storage of garments.—In the spring of the year, all clothing, blankets, furs, and other articles not in use, that are subject to damage, should be stored away in a large, tight trunk or cedar chest. The volatile oil of cedar wood has been found to kill newly hatched larvae of the clothes moth, but not full-grown worms.

At temperatures of 40°F. and below, clothes-moth larvae are not able to develop. The storing of furs, rugs, and woolens in cold-storage plants therefore offers a ready means of protection.

Paradichlorobenzene.—To make doubly sure of protecting clothing stored in trunks, paradichlorobenzene may be used at the rate of ½ pound for each 25 cubic feet of space. It should be tied in a

muslin bag and placed on top of the clothing, and the trunk closed. Being volatile, it will form a gas, which will diffuse throughout the enclosed area. Where tight paper garment bags are used, the paradichlorobenzene may be placed within them, or, if this material is not available, naphthalene flakes may be substituted.

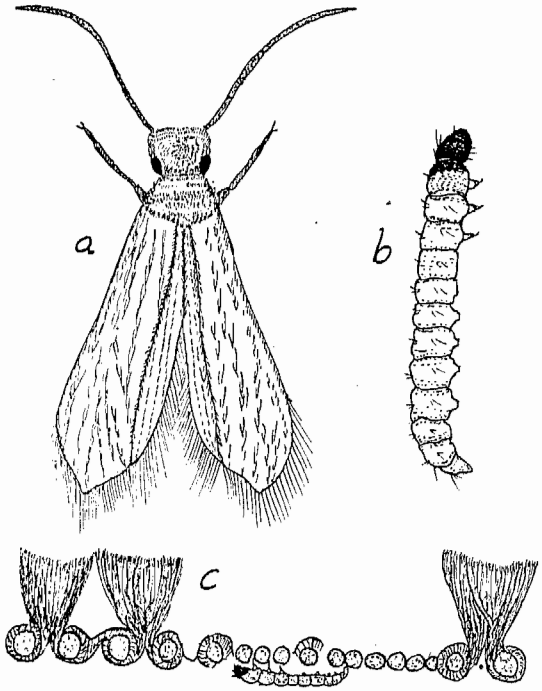

Fig. 1—The clothes moth. a. Adult, b. larva (enlarged); c. diagramatic section of mohair covering illustrating feeding of worms from beneath.

Sales agents sometimes sell paradichlorobenzene in the form of small cones, to be placed under cushions of upholstered furniture. Such a method of treatment is worthless, because the gas is soon dissipated. To be effective, the gas must be confined. One way of confining it is to throw a large canvas or sheet over the piece of furniture to be fumigated, making the enclosed area as nearly air-tight as possible. Papers should be placed on the furniture under the sheet, and about one pound of paradichlorobenzene scattered over them, and allowed to remain for several days. This process, however, is somewhat laborious. The use of the mothproofing solution described below would seem to be much simpler and more effective.

Mothproofing.—The fumigants discussed above must be renewed at least once a year. The ideal material would render the fiber moth-

proof. Among the many compounds tested for this purpose, sodium fluosilicate has been found to be one of the most satisfactory.

Minaeff and Wright (1929) found that wool possesses a great affinity for the fluosilicates, somewhat akin to that of a dye. For use, the sodium fluosilicate is dissolved in warm water, at the rate of 1 ounce to 1 gallon. The material to be treated should be immersed in the solution or sprayed. A light spraying on the surface will not give the best protection. The aim should be to soak all parts so as to leave a deposit of the sodium fluosilicate when the liquid has

Fig. 2—Spraying a mohair-covered chair with a saturated solution of sodium fluosilicate as a permanent treatment for moths.

evaporated. The fabric will thus be impregnated with the poison, and will be mothproof for all time. Mothproofing with a solution of sodium fluosilicate is especially adapted for rugs, carpets, and the mohair of upholstered furniture. We have had excellent results from treating rugs that were heavily infested with clothes moths. Rugs sent to commercial cleaners may have to be re-treated with the mothproofing solution if continuous protection is desired.

TOBACCO BEETLES

Frequently the stuffing that is used in upholstered furniture becomes infested with the larvae of the tobacco beetle (*Lasioderma serricorne*). Although a pest of dry tobacco, it feeds on a variety of

materials. It is also known as the "tow bug." The larvae are small, curved, and about ⅛ inch long, and when present will be found on the floors under the furniture. Excellent results against this pest can be obtained by pouring a solution of the sodium fluosilicate into the furniture stuffing (Marcovitch, 1929).

Fig. 3—Larva of the carpet beetle. Enlarged.

CARPET BEETLES

The larvae of the carpet beetle (*Anthrenus scrophulariae*) feed on a variety of materials, such as furs, woolens, and carpets, in much the same manner as those of the clothes moth. They differ from the latter in being dark brown in color, broad at the head end, and tapering at the other end, from which long hairs project. Upon becoming full-grown they change into small, dark beetles, about ⅛ inch long. This pest is controlled in the same way as the clothes moth.

ROACHES

Nearly every household becomes infested at one time or another with roaches. Generally they are not very destructive, but are annoying and offensive. Three species occur in Tennessee. The largest is the American roach (*Periplaneta americana*), being nearly two inches long. The Oriental roach (*Blatta orientalis*) is about one inch in length and dark brown in color. The female is almost wingless. The smallest and commonest species is the German roach (*Blatella germanica*).

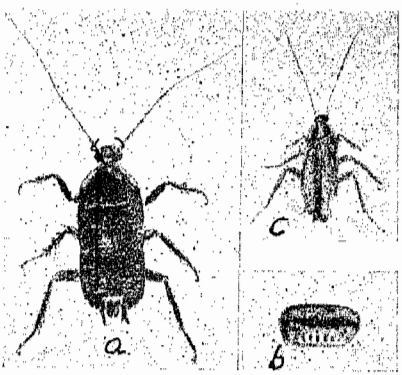

Fig. 4—a. Oriental roach; b. egg pod of Oriental roach. c. German roach. Natural size.

Control

Sodium fluoride.—There are many proprietary roach powders on the market, the active principle of which is generally sodium fluoride. It is of interest to note that this material was advocated as long ago as 1896, by Higbee, for the control of roaches,

and is still in use. In 1915, Shafer pointed out the process by which sodium fluoride becomes effective. Some of the powder adheres to the legs and antennae of a roach that runs through it, and this seems to cause an irritation which stimulates the roach's "cleaning-up" habit. In the process of cleaning itself, the roach draws its antennae and legs through its mouth and swallows enough of the chemical to cause death.

Sodium fluosilicate.—In our work we have found sodium fluosilicate to be more toxic than sodium fluoride. We have also obtained good results with barium fluosilicate (Dutox). These materials are

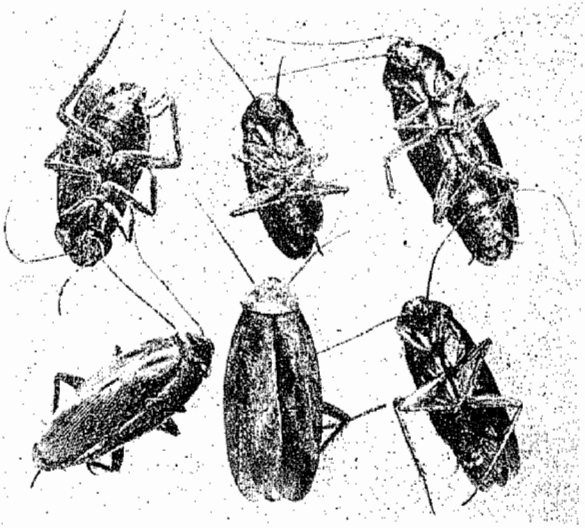

Fig. 5—Roaches killed with fluosilicate powder.

white powders, and can be used pure or mixed with equal parts of flour. For use, the powder is dusted over the places frequented by roaches, such as the baseboards, cracks, and corners of the kitchen floor. The powder should not be swept up, but allowed to remain, especially in the corners and the crevices of floors. If the basement of the house is infested, the powder should be dusted there also, and allowed to remain. After this treatment, it may be expected that the roaches will disappear. Sometimes a few will be seen in spite of the treatment. This is especially true of the Oriental roach. In such cases we have found them breeding out of doors or in garages, and the breeding places become sources of reinfestation.

The fondness of roaches for bananas may be made use of. Place pieces of banana in the center of a newspaper on the basement floor, and pour a ring of the fluosilicate powder around them. To reach

the banana, a roach must walk through the powder, and will thus get a dose of the poison.

The fluosilicate is most effective as a dry powder. In damp places or basements, a bait may be more successful. In New Jersey, a bait consisting of small particles of stale bread, with 4 per cent sodium fluosilicate, was found effective. The mixture is moistened with water to form a damp mash, and scattered about where the roaches will find it.

The fluorine compounds are poisonous to the human body when consumed in quantity. Care should be exercised, therefore, to keep them out of foods and away from children.

SILVERFISH

A quickly moving, pearl-gray insect, nearly ½ inch long, is often seen in homes, especially among books. Because of its glistening appearance, it is called "silverfish" (*Lepisma saccharina*). It can be easily identified by its three long tail-like appendages. Silverfish sometimes become very numerous, and, being fond of starchy materials, have been known to damage books severely.

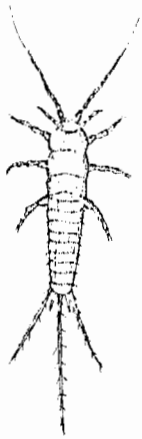

Fig. 6—The silverfish. Enlarged.

Control

Since silverfish crave starchy food, they can be controlled by the use of a mixture of 1 part of sodium fluosilicate or sodium fluoride to 5 or 8 parts of wheat flour. This mixture should be scattered around the places frequented by the pests. Pyrethrum, or insect powder, may also be dusted upon the bookshelves or at other places where the silverfish are found.

HOUSE FLIES

House flies (*Musca domestica*) are so common everywhere that their presence is taken as a matter of course. Since they breed in manure and all kinds of filth, they have been found to be carriers of typhoid fever, dysentery, cholera, and other diseases. Flies should therefore be regarded with suspicion and destroyed whenever possible. The eggs are deposited in manure and decaying matter, and hatch within 24 hours. In warm weather the maggots become full-grown in four or five days, after which they change to brown puparia. In four more days the adult flies emerge. Since each fly

is capable of laying an average of 400 eggs, with from 12 to 15 generations in a single season, it is easy to see that houseflies can multiply at an enormous rate.

Control

Removal of breeding places.—The most important measure in the control of flies is the removal of all breeding places. Manure, where flies generally breed, should be removed at least once a week and spread over the ground or fields. Flies can not breed in dry manure that is exposed to the rays of the sun.

Other measures.—Fly traps, fly paper, and screens are all very helpful in reducing the number of flies.

Poisoning.—In our work, sodium fluosilicate has been used successfully as a house-fly poison. A saturated solution (1-154, or about one teaspoonful dissolved in a pint of water) is readily imbibed by the flies, especially when no other food or water is about. The solution should be exposed in shallow dishes near windows where the flies congregate. A piece of bread placed in the dish may add to its attractiveness. The flies succumb within 30 minutes after taking a drink of the fluosilicate solution. Since sodium fluosilicate is not volatile, only the water need be replenished as it evaporates (Marcovitch, 1929). A room can be more quickly rid of flies if it is

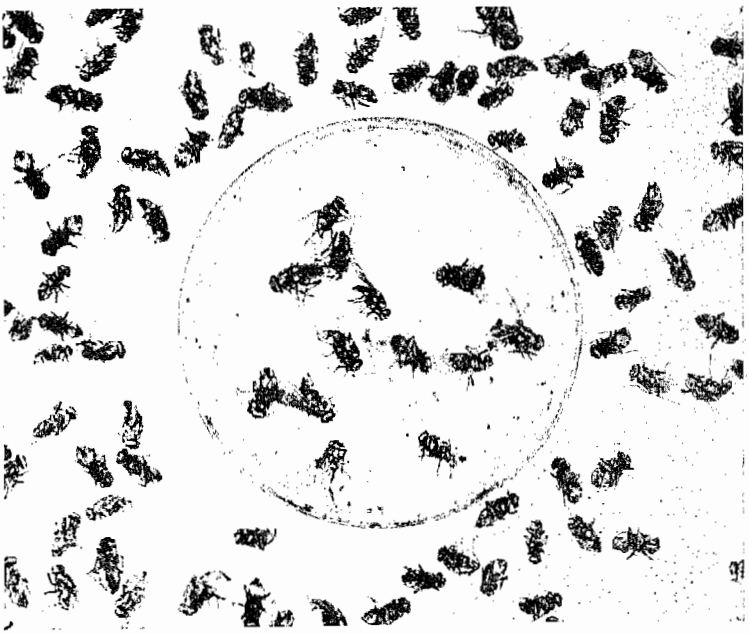

Fig. 7—House flies killed by sipping a solution of sodium fluosilicate.

darkened and a dish of the solution placed near one of the windows where some light is allowed to enter.

Formaldehyde is another solution that may be used to kill flies. The following formula is recommended:

40 per cent formalin ..... 2 tablespoonfuls
Milk ..... ½ pint
Water ..... ½ pint

The mixture should be exposed in shallow dishes, as directed above for sodium fluosilicate.

Chemical treatment of manure.—Since the prompt removal of manure is often not practicable, many attempts have been made to discover a larvicide for treating manure. Of a number of materials tested, Cook, Hutchinson and Scales (1914) found borax to be the most suitable. They recommend applying .62 pound of borax to every 10 cubic feet (8 bushels) of manure immediately upon its removal from the stable, followed by a sprinkling of two or three gallons of water.

In a test of borax compared with sodium fluosilicate, the latter material was found to be the more efficient (Marcovitch and Anthony, 1931). A 1-100 borax solution in manure was no more toxic than a 1-600 solution of sodium fluosilicate. In greater dilutions, the newly hatched larvae may develop into flies. Neither material was found to possess ovicidal properties. Both borax and sodium fluosilicate act as stomach poisons, producing mortality only when the treated manure is actually eaten.

Whether it is practical to use sodium fluosilicate for treating manure will depend on local conditions. For best results, the chemical should be dissolved in a barrel of water at the rate of 1 pound to 20 gallons. This solution should be sprinkled on the manure daily so as to wet thoroughly all the fresh manure that is removed each day. Since the newly hatched maggots are much more easily killed than older larvae, such a daily treatment should prevent all breeding of flies.

Borax used in amounts greater than .62 pound for 8 bushels of manure has been shown to be detrimental to most plants. At the Tennessee Station, as much as 300 pounds of sodium fluosilicate per acre was not found injurious to plant growth, while 150 pounds per acre proved even stimulating.

TERMITES, OR "WHITE ANTS"

In recent years there has been a persistent demand for information on termites (*Reticulitermes flavipes*). Termites resemble true ants in appearance and in their habit of living in colonies. Being white in color, they are popularly called "white ants," or "flying ants." Those in our locality are subterranean in habit, and must have a source of moisture in order to live. The food of termites is primarily wood or other cellulose material. These pests always work

inside of the wood and away from the light, leaving the outer surfaces untouched. Eventually little more than a shell remains of joists, sills, and subfloors.

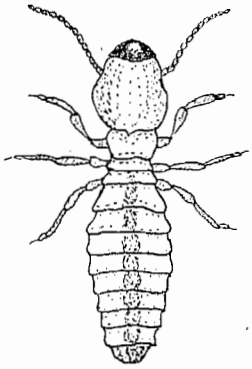

Fig. 8.—Termite worker. Enlarged

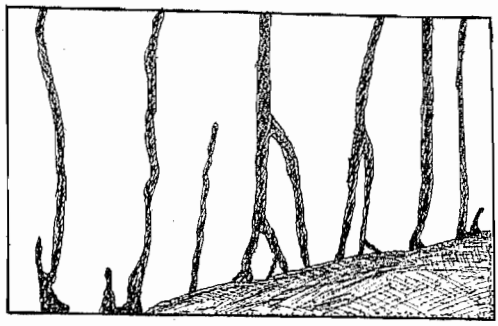

Fig. 9.—Mud-covered tunnels of termites over concrete wall.

Fig. 10—Termite tunnels on a fence post.

One sure sign of the presence of termites is the sudden appearance of "winged ants" in a dwelling or other building. These are the kings and queens of the colony seeking new quarters. The swarms appear in the spring and fall of the year when the adults fly out to found new colonies. This is the only time in the life cycle that the termites expose themselves to light. To avoid the light, the workers often build mud tunnels over concrete foundations in order to reach the woodwork of the house. The presence of these mud passageways is another indication of termites.

Control

Breeding places.—The first essential in keeping termites out of homes is to avoid having any wood come into contact with the ground. Builders often fail to remove grading stakes and wooden concrete forms, and these later become sources of infestation. When preparing to build, one should rigidly specify that no form of wood shall remain in the ground near the structure. All refuse wood, such as stumps, roots, and loose pieces, should be removed. Complete dryness of the basement and good ventilation are important means of rendering buildings safe from attack.

Wood treatment.—All wood that is set in the ground, including the sleepers, should be thoroughly impregnated with creosote or other suitable chemical. Arsenic, copper fluoride, or zinc chloride will give efficient protection, not only against termites, but also against those fungi that cause decay.

For termites in supporting timbers, we have used powdered sodium fluosilicate successfully by placing it in ¼-inch holes bored into the wood. As the "white ants" have the habit of grooming and licking each other, a single individual walking through the dust can poison a large number of others.

Fig. 11—Work of termites in the main entrance to the Agricultural Building, University of Tennessee.

Ground treatment.—If the "winged ants," or termites, make their appearance, a careful inspection of the woodwork should be made for the source of infestation. Badly damaged wood or supporting timbers should be replaced, and the ground beneath drenched with kerosene or a 10 per cent solution of lye. Any mud tunnels on the foundation walls should be destroyed, and the ground beneath treated with one of the materials mentioned above.

In California, Light, Randall and White (1930) recommend for ground treatment a 10 per cent solution of magnesium fluosilicate instead of sodium arsenite, on account of the danger involved in the use of the latter. No doubt sodium fluosilicate would also be effective. The sodium compound is soluble only to the extent of ½ per cent, but its solubility can be increased by the addition of ½ per cent alum (Minaeff and Wright, 1929).

POWDER-POST BEETLES

Like termites, the powder-post beetles (*Lyctus* sp.) feed on wood. Their work can be distinguished from that of termites by the presence of small, round emergence holes 1/16 inch in diameter, as well as little piles of borings, or "sawdust," scattered over the in-

Fig 12—A chair infested with the powder-post beetle.

fested timbers. Where termites are present, the galleries run with the grain of the wood, and there is no powder.

Control

The larvae in rustic porch furniture may be destroyed by painting with kerosene or orthodichlorobenzene. Three parts of kerosene and one part of creosote is also said to be effective.

Wood susceptible to the attacks of powder-post beetles should be protected by treatment with paint or linseed oil. The beetles deposit their eggs only in open pores of wood. The treatment will not kill the insects already within the wood, but by closing the pores will tend to prevent egg-laying by the beetles.

FLEAS

Where dogs and cats are kept, fleas often become numerous enough to attack man. In Tennessee, we have the dog flea (*Ctenocephalus canis*) and the cat flea (*C. felis*). Fleas lay eggs loosely on the animals and in the litter of their beds. The eggs hatch into tiny worms, which feed on animals and vegetable refuse. Upon becoming full-grown, the worms spin a cocoon and change into adult fleas. The whole life cycle may be passed in from three to five weeks.

Control

Treatment of animals.—To avoid flea infestation in homes, it is best to keep dogs and cats out of doors. Animals infested with fleas should be given a bath of warm water to which has been added 4 tablespoonfuls of creolin or creosote dip for each gallon of water. Dry powdered derris or pyrethrum is also effective and should be sifted into the fur. By standing the animals over a paper, one can collect the fleas as they drop, and burn them.

Other measures.—Where fleas have become established, the litter of the animal's bed should be removed and burned. It is possible to destroy fleas in basements by spraying the floor with kerosene, care being taken, of course, to keep fire away. Five pounds

of flaked naphthalene or paradichlorobenzene scattered over the floor of any closed room in the home is said to be effective within 24 hours. In living rooms the use of pyrethrum, or insect powder, should be beneficial. Bad infestations may require fumigation with hydrocyanic acid gas. *Complete directions should be obtained before using this poisonous chemical.*

CHIGGERS

Practically everybody has at some time been attacked by chiggers (*Leptus americanus*). These minute mites burrow into the skin and cause severe itching. The adult mites are not injurious, and are conspicuous because of their bright red color. The eggs are laid in the ground. Upon hatching, the young crawl up on the tips of grass and the leaves of bushes and fasten themselves to the bodies of passing animals or man. Walking through fields of blackberry bushes where poultry and cattle abound is apt to result in a bad attack. Chiggers normally live on turtles and reptiles, but on man they crawl down the hair follicles and soon die. Their presence sets up an intense irritation, which is often followed by severe infections in susceptible people.

Control

Sulphur is the best preventive known. When going into fields where chiggers are likely to be found, it is advisable to sift powdered sulphur into the clothing, hose, and shoes. Lawns infested with chiggers may be dusted with sulphur at the rate of 50 pounds per acre.

Bathing.—If one has been exposed to chiggers, a hot bath with salt water or strong soap will relieve the irritation. The soap should be allowed to remain on the body for 10 minutes. Iodine or ammonia applied to the affected parts is also beneficial.

ANTS

Several different kinds of ants, at one time or another, find their way into homes. The nests are usually built out of doors, but when food is left about, the ants will enter homes and become a nuisance.

Control

Carbon disulphide.—Sometimes it is possible to trace the ants to their nest. When a colony is located, it can be destroyed by pouring into the nest one or two tablespoonfuls of carbon disulphide or kerosene.

We have had good success with powdered sodium fluosilicate dusted over the runways and haunts of ants. Since these insects

have the habit of licking their feet, they are thus easily destroyed. The very small species of ants do not seem to be so easily controlled.

Poisoning the queen.—When ants are really troublesome, it becomes necessary to poison the queen, the mother of the colony. This can be done with a dilute poison mixture, which is carried by the workers to the queen. A good ant poison may be made up according to the following directions: Dissolve 4 grams of sodium arsenite or 6 grams of sodium fluosilicate (about 1 teaspoonful) in a pint of water. Add ½ pound of granulated sugar and ½ pound of strained honey, and mix thoroughly. Bits of sponge should be soaked in this syrup and placed in perforated tin boxes, which are left where the ants can reach them. Good results are often obtained at once, but occasionally several days may be required.

BEDBUGS

Even the scrupulous housewife may be troubled with bedbugs (*Cimex lectularius*), owing to the fact that they often migrate from one house to another. In the South they are also called the "chinch." Bedbugs have sucking mouthparts, and, being flat, are able to hide away in the cracks and crevices of beds and walls during the daytime. At night they come out of their hiding places to seek human blood.

Control

Iron or brass beds, because they have fewer cracks, will harbor fewer bugs than wooden beds. Kerosene forced into the cracks and crevices with an oilcan, wherever the bugs are found, is a common remedy. Several treatments, at intervals of three or four days, will be necessary. The liberal use of pyrethrum, or insect powder, in beds is also helpful.

Bad infestations may require fumigation with hydrocyanic acid gas. *This material is so poisonous that one should obtain complete directions before using it.*

BOOK LICE

Book lice (*Atropos* sp.) are very small whitish insects, about 1/20 inch in length. Houses that have been closed for a long time, or that have become damp, will frequently be overrun by these tiny insects. They can then be seen scampering among books, papers, and upholstered furniture, although they are not known to be destructive. Proper airing and ventilation should discourage them. Dusting shelves and places frequented by these insects, with sodium fluoride or sodium fluosilicate, will destroy them.

GRAIN WEEVILS

Not infrequently small brown beetles ⅛ inch long will be found crawling around in flour and cereal products. Since these pests breed in the products handled in groceries and mills, they are easily introduced into the home. Two species are commonly found, *Tribolium confusum* and *Oryzaephilus surinamensis*.

Control

Cleaning bins.—Foodstuffs badly infested should be destroyed. All insects are susceptible to high temperatures, and the weevils can therefore be readily destroyed by the use of heat. Infested material should be placed in shallow pans and heated in the oven for 20 minutes at a temperature of 135°F. If desired, the cereal or flour can then be run through a fine sieve to remove the insects. To prevent reinfestation, it is necessary to clean the storage bins of all infested material.

Fumigation.—For fumigation, a container as nearly air-tight as possible should be used. A good barrel or tin box is satisfactory. After the grain or cereal is placed in the container, the carbon disulphide is poured into a shallow dish on top of the infested material. One pound of carbon disulphide will fumigate 100 cubic feet. For a barrel of average size, 2 ounces should be enough. After the liquid has been applied, the container should be covered as tight as possible and left to fumigate for 24 hours at a temperature of at least 70°F. Since carbon disulphide does not always kill the eggs, it is advisable to repeat the fumigation within two or three weeks. *The fumes of carbon disulphide are explosive; hence, no fire of any kind should be allowed near the container.*

RATS AND MICE

In view of the fact that rats cause a loss of $200,000,000 a year, and that they are agents in the spread of diseases, such as the bubonic plague and trichina, their destruction should be encouraged in defense of human life.

Control

Food supply.—To curtail the food supply of rats and mice is the first essential in their control. Garbage and table refuse should be placed in metal garbage cans. Food should not be allowed to remain where it is accessible to rats and mice. Traps may also be used to advantage.

Poisoning.—A poisoning campaign is often successful in destroying large numbers of rats. Barium carbonate is one of the standard chemicals. It is used at the rate of 1 part to 4 parts of bait, such as meat, fish, or bread. *Barium carbonate is poisonous to human beings, and should be handled with caution.*

In the *Eastern Rodent Control News* for January, 1929, mention is made of the successful use of sodium fluosilicate for the control of rats in Sweden. The following bait was used:

Potatoes (boiled and crushed)	4 lbs.
Sugar (granulated)	1 lb.
Oatmeal	1 lb.
Bologna sausage (ground)	½ lb.
Bacon (unsalted, melted to lard)	½ lb.
Nutmeg	1
Water	1 qt.
Sodium fluosilicate (well mixed)	2 lbs.

Most of the rats were reported to have died in their burrows underground. For best results, the bait should be distributed in the evening, care being taken to prevent it from being found by other animals.

In a few tests at the Tennessee Station, sodium fluosilicate powder has been successfully used in bread-and-butter sandwiches. One seedman in Knoxville keeps sodium fluosilicate on the floor between the bags of seed and the wall. He claims that the rats and mice do not like to walk through the powder, and hence keep away.

Powdered red squill has recently gained favor as a rat poison, because it seems to be harmless to most other animals. Red squill comes from an onion-like plant of the lily family. One ounce of the powder is mixed with a little water to form a paste. This paste is then added to 1 pound of ground meat such as Hamburg steak, and thoroughly mixed. Other good baits are fresh fish, canned salmon, and oatmeal. The bait is scattered, in quarter-teaspoon pieces, where the rats have been feeding.

Where rats have taken to living underground they may be killed by blowing calcium cyanide into the burrows.

SOME CHEMICALS USED IN THE CONTROL OF HOUSEHOLD PESTS

Sodium fluosilicate is a white, granular, non-volatile, odorless powder, with an acid reaction. At room temperature, it dissolves in water at the rate of 1 ounce to 1 gallon. Because of its acidity, it is more toxic than sodium fluoride. Sodium fluosilicate, when properly used, is safe about the home, but is poisonous when swallowed in liberal quantities. The dry powder is one of the most effective roach powders we have.

Sodium fluoride is a neutral salt. It is similar in appearance to sodium fluosilicate, but more soluble, 1 gram dissolving in 25 cubic centimeters of water.

Paradichlorobenzene is a volatile, white crystalline substance, with a boiling point of 174 C. It is more volatile than naphthalene. The gas is heavier than air, non-inflammable, and does not bleach or discolor metals or fabrics. Paradichlorobenzene is a useful fumigant about the home, being toxic to insects and harmless to human beings. The vapor is effective only when concentrated within an enclosed area, such as a chest or trunk.

Carbon disulphide is a nearly colorless, very volatile liquid, with a boiling point of 46 C. The commercial substance is yellowish, and has an offensive odor. The gas is highly inflammable and explosive when mixed with air; hence, *no fire of any kind should be allowed near carbon disulphide*. In spite of the fire hazard, this substance is still one of the most satisfactory insect fumigants. Since the vapor is over 2½ times as heavy as air, it sinks to the bottom of an enclosed container.

Pyrethrum, or insect powder, is a yellowish powder made by grinding the dried flower heads of the pyrethrum plant. The active principle is a volatile oil which is deadly to all forms of insect life but harmless to human beings. Since the oil is volatile, only fresh powder should be used, and it should be stored in tight containers.

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