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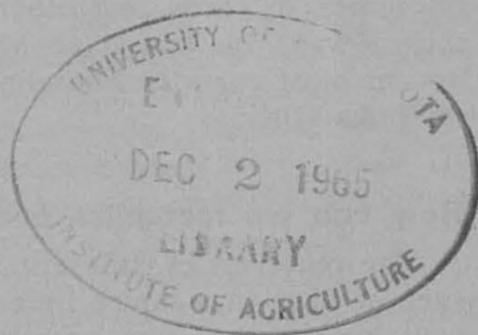
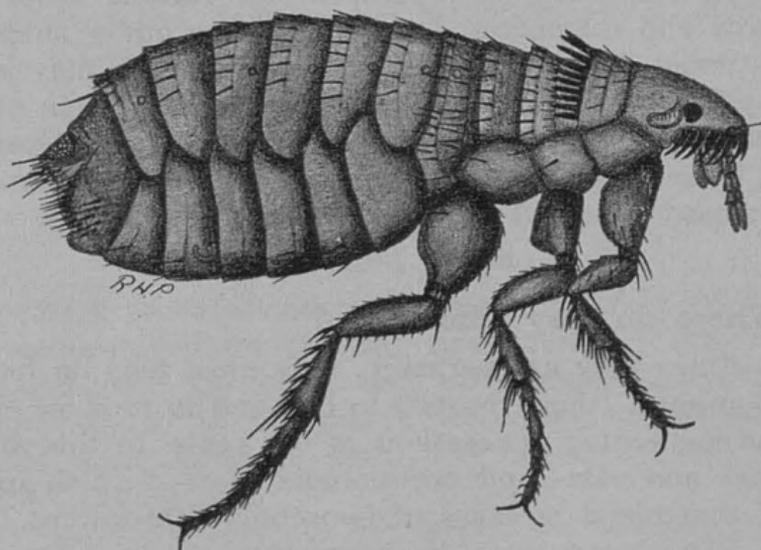
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FLEAS

AS HOUSEHOLD PESTS

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Fleas as Household Pests

"A reasonable amount o' fleas is good for a dog, keeps him from broodin' over bein' a dog, mebbe." Perhaps! But when fleas begin to increase in numbers and transfer their attention to other members of the household, then there is a demand that something be done. This folder gives preventive methods for treating household pets and the most effective control for household flea infestations if they do occur.

What are fleas?

Fleas are small brown wingless insects about one eighth of an inch long or roughly the size of a pin-head. The adults are parasitic on various kinds of birds and mammals. Their bodies are oddly shaped, flattened from side to side, so that they may slip rapidly between the hairs or feathers of their host. Their legs are well developed for jumping. Because of their small size and "hard shell," they are almost impossible to kill by crushing in one's fingers.

Where do they come from?

Since they are parasitic, they must feed on blood of animals (their "hosts") to live and to produce eggs for succeeding generations of the pests. In this area, dogs and cats—and occasionally man—furnish most of that blood in cases of household infestations.

Flea infestations in basements, other rooms of the house, in yards, and other outdoor situations can thus always be traced to some animal host nearby—in most cases to household pets, more rarely to rat infestations.

How can we recognize flea bites?

The reactions of different individuals to the presence of fleas in a house may be quite variable. It is well known that one person may be literally tormented by their numerous bites while another may be almost unaware of their presence. This is not only due to the differences in individual sensitivity to flea bites, but to preferences of the fleas themselves.

Flea bites are hardly felt at the time they are inflicted, but a hard red itching spot soon appears about the puncture and fades into the surrounding skin. The bite area may become pustular and a troublesome infection may result from scratching.

Is there danger of disease transmission by fleas?

Fleas are capable of transmitting serious diseases such as bubonic plague, endemic typhus, and tularmia. Fortunately the possibility of their transmitting these diseases to man in Minnesota is very unlikely.

Can flea bites be prevented?

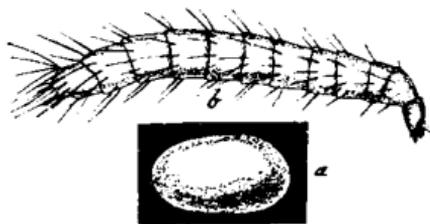
Several of the newly developed repellents are apparently effective against fleas and will keep them from biting. Dimethyl phthalate and Rutgers 612 (ethylhexanediol) are the better known materials now appearing on the market. The mixture of repellents known as 6-2-2 developed during the war is also recommended (6 parts dimethyl phthalate, 2 parts ethylhexanediol, 2 parts indalone).

How can irritation from flea bites be relieved?

For those who are extremely sensitive to flea bites, various cooling preparations often give relief—calamine lotion, menthol, camphor, carbolated vaseline, or a 2 per cent solution of carbolic acid. But to rout out the real source of the trouble, other control measures must be taken against the fleas themselves and their breeding places.

Where do fleas breed?

To understand how DDT or other insecticides are used to control these pests, the general breeding habits of fleas must be understood. We have already pointed out that adult fleas must have blood to complete their life cycle. There is "no such animal" as a "sand flea" breeding exclusively in sand without warm-blooded animals upon which the adults feed! Instead, there are "dog fleas," "cat fleas," "rat fleas," and dozens of other kinds of fleas that feed on a number of different kinds of animals.



Egg (a) and larva (b) of the dog flea (greatly enlarged)

Most of these fleas lay their eggs on the body of their unwilling hosts. The eggs do not remain in the hair of the animal, but are soon shaken off or fall to the floor or ground where they continue their development. From here on, their life cycle resembles that of a butterfly or moth, the eggs hatching into tiny, maggotlike larvae which feed and grow and even spin an inconspicuous cocoon from which the adult bloodsucking flea emerges.

These small, white, wormlike larvae live in lint, dust, and other debris under the bedding of their host or in cracks in the flooring. In heavy infestations, they may be scattered throughout the house, particularly in cool, damp basements during the hot summer months. Sometimes they are found in lawns, yards, and in sandy areas, but always associated with some host animal—a household pet or even a stray dog that has taken to sleeping under the front porch at night!

The larvae feed on organic matter—often on the dried blood discharged by engorged fleas. In a week or 10 days, they complete their larval growth and spin delicate, silken cocoons, camouflaged with bits of lint and dust. Within these cocoons, they change to pupae, and the adult fleas may emerge a few days later, seeking out host animals—or man—to feed on blood and start the cycle all over again.

How long do fleas live?

Adult fleas may live for some time without food. Many people have been dismayed to return home after several weeks' vacation and find the house, especially the basement, literally alive with hungry fleas waiting for an opportunity to get a good blood meal!

Fleas may remain in their cocoons throughout the winter. Thus an infested basement that is not cleaned may produce a large population of fleas in a second season. Sometimes new tenants in a house, without a dog or cat of their own, move in to reap the harvest of fleas already sown by some previous pet.

What can be done to get rid of fleas?

It is usually useless to point out to the sufferer from flea bites that the simplest way to get rid of fleas in the house is to get rid of the cat or dog. People keep pets because they are fond of them, fond enough, in most cases, to tolerate some fleas along with their pets if necessary.

But this seemingly inseparable combination of house pets and fleas can be broken up very efficiently through the use of DDT. When properly applied, various forms of this new insecticide are very effective, both in killing adult fleas on dogs and flea larvae in basements, kennels, and even outdoors on lawns. With DDT's long-lasting or residual effect, most flea infestations can be eradicated in a single treatment.

● Treat Household Pets

Dust containing 10 per cent DDT plus some quick-acting insecticide, such as pyrethrum, rotenone, or one of the thiocyanates, may be used directly on dogs or other animals, except cats, for controlling adult fleas. About 1 tablespoon of 10 per cent DDT

powder should be sufficient for an averaged-sized dog. Dust it into the hair as you would any other flea powder.

In most cases, it is not safe to use DDT powders on cats because of their habit of licking themselves and the danger of ingesting enough DDT to make them sick or even kill them. Pyrethrum or rotenone dusts should be used instead, and the paralyzed fleas collected over a newspaper as they drop off and burned before they recover.

DDT alone is a slow-acting insecticide; on dogs it often stimulates the fleas before it kills them. Dogs with heavy infestations of fleas are thus likely to show far more discomfort immediately after treatment than before, scratching incessantly as the fleas run through their coats. Most commercial flea powders containing DDT include an additional fast-acting, paralyzing toxicant—such as those mentioned above. These insecticides quickly paralyze the fleas while the DDT insures that they will never recover.

DDT dusts on dogs will last 10-14 days before most of the material is shaken out. Dusting at two-week intervals should completely prevent flea infestations on dogs or the establishment of fleas in the house or yard.

● Treat Infested Parts of the House and Yard

Infested Rooms

DDT oil solutions containing 5 per cent DDT are recommended for treating flea-infested floors, rugs, upholstered furniture, and other surfaces where a conspicuous white residue would be objectionable. One quart of 5 per cent DDT oil spray will treat 1,000 square feet.

Apply the solution throughout the infested rooms. Avoid wetting varnished surfaces with the spray since the finish may be affected by the oil solvent. Oil sprays may also be used in basements. *Never use such oil solutions on animals or on lawns.*

DDT oil emulsions are also effective. Most DDT oil emulsion concentrates contain 25 per cent DDT. By diluting each part of the emulsion concentrate with four parts of water, a 5 per cent DDT oil emulsion spray can be prepared. Such DDT oil emulsion sprays can be used wherever the 5 per cent DDT oil solutions are indicated. They can also be used in basements and on other building surfaces. Do not use such concentrated DDT oil emulsions on animals or plants.

Basements and Outdoor Areas

Ten per cent DDT dusts are also effective in killing both adult and larval fleas in the bedding of pets, in basements, houses, bare ground under buildings,

and in lawns. These DDT dusts can be applied by means of hand-operated garden dusters. About 1 pound of 10 per cent DDT dust will treat 1,000 square feet of infested floor space.

Five per cent DDT oil emulsion sprays or oil solutions as described above can be used in basements and other buildings but *not* on lawns.

DDT sprays made from wettable spray powder can also be used for flea control where an obvious white residue is not objectionable. In basements, yards, and farm buildings, a 2½ per cent DDT spray (2 pounds of 50 per cent wettable DDT powder in 5 gallons of water, or 3 cups of 50 per cent DDT spray powder per gallon) can be applied in an ordinary hand-operated, air-pressure, garden sprayer. Care must be taken to keep such DDT suspensions well agitated—otherwise the DDT particles will settle out.

By combining the use of DDT dusts on host animals and dusts or other DDT preparations on pet sleeping places and other parts of an infested house, building, or yard, a single treatment should relieve even a very heavy infestation. Although fleas may be noticed for a few days after treatment, the DDT will eventually kill them and the infestation will soon disappear.

Fumigation

In case of a general infestation, fumigation with burning sulfur or with hydrocyanic acid gas may be carried out if desired. The house must be completely vacated if the latter highly dangerous gas is used. It is somewhat expensive but brings prompt results. Fumigation should be carried out by properly trained, experienced operators.

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