

# To Fight the Pests.

Timely Household Warfare That Has To Be Arranged For.

The Mosquito, Flea, Housefly, Cockroach and Moth. With Which the Householder and Mankind Has to Contend, and How to Devise Means to Overcome Them.

Prof. Henry Skinner recently lectured at the Academy of Natural Sciences in Philadelphia on household pests and insects injurious to vegetation. Prof. Skinner is an entomologist, and spoke especially of insects which the ordinary man comes in contact with most. An abstract follows:

Insects possess marvelous fecundity, and hence the necessity for repressive measures used properly, carefully and frequently. While we are killing one stage the others may be hatching out, so that unless we repeat the remedy we may have a new crop that will do almost as much damage as the previous one. There are probably 60 different species that may be included under household insects. They are not all inhabitants of the house, but in one way or another find their way there and therefore interest us. Nothing short of labor and trouble will avail to rid us of them. Any good collection of United States mosquitoes would number twenty distinct species, this being the number so far described; though in all probability our country would afford twice that number. Mosquitoes abound in the Arctic regions, and are exceedingly annoying to travelers in cold countries. Biting them with such severity that people returning from Alaska bear the marks, in some cases, for several years thereafter. All mosquitoes live in stagnant water, and commonly undergo their transformations in rain barrels, sewage water, cesspools and drains. A female mosquito's egg mass will contain 500 eggs laid together and floating on the surface of the water, to which the mass is impervious. The young hatch out of the egg mass in about sixteen hours. The larvae breathe through little tubes which they stick up through the water, remaining under water for probably a minute. A blacking-box containing kerosene and fastened upon the end of a broomstick thrust under mosquitoes upon wall or ceiling causes them to drop in and die. The draining of all marshy places (where the mosquitoes undergo their transformations) also destroys them. Another method is putting kerosene on the water, the film from which not only kills the eggs when the female deposits the egg mass on the surface of the water, but also kills the young larvae. An ounce of kerosene to fifteen square feet of surface is a very good proportion. Dragon flies destroy adult mosquitoes both in the larval and perfect state. The flea infests the dog and cat, and when we walk over the floor of an infested house jumps up on our ankles and wrists and bites very voraciously. The flea undergoes its transformations in various kinds of dust and debris from animals, as wigs or mats that cats and dogs sleep on. Against all household insect pests one of the greatest preventives is absolute cleanliness, by getting rid of all dust, filling up all cracks in the floor, housecleaning, and taking up carpets twice a year. A good flea-bait is pyrethrum, which should be plentifully applied to dog or cat thus infested, wrapping the animal in a towel (to exclude the air) for half an hour, then removing the towel, when the fleas will be found dead in great numbers. Putting meat on fly paper is practically useless. The only flies caught in that way are those accidentally jumping on it. Put some kerosene in the little tin tray of a carpet sweeper and wheel over the carpet, when the fleas are carried in and killed by the kerosene. Or wrap sticky fly paper on the ankles and march up and down the room, when the fleas jump up and are caught in great quantities upon the paper. In a flea-ridden college the janitor in that way quickly banished the pest—putting on thick rubber boots before attaching the fly paper. The house fly is the species that infests cats and dogs, though, of course, other species sometimes found on man. The house fly is extremely annoying and very important among household insects, as they are the carriers of refuse matter (which may be loaded with bacteria), fly into the house and alight on food, and carry, in all probability, such diseases as yellow fever, cholera, etc. While the common

species does not bite, an allied species, much resembling it, does, and sometimes carries contagious matter and injects it under the skin. Removal of all food or other matter to which the house fly is one of the best preventives. They may be excluded by screens. Flies undergo their transformations in horse manure, and by destroying it the larvae are destroyed. In the future we will have automobile wagons, trolley cars and fewer horses used in cities, when a house fly will be almost a thing of the past. From egg to perfect state is about ten days. A number of generations thus appear in a single season, which will account for the enormous swarms seen. Another species of fly is found in houses, but only incidentally. Sometimes it is very destructive—wantonly soiling clothes or like articles, and damaging them so that they are absolutely worthless.

*Gryllus domesticus* is the cricket on the hearth, which does a great deal of harm to the clothing of the Atlantic coast life-guard. At Cape May last summer they were very much annoyed with the swarms of this insect. The cricket, which will eat almost anything in the clothing line. Another species of cricket is found south, very voracious and destructive. The Chinese put two such male crickets in a bottle and so irritate by stirring them that they get fighting, and they thus enjoy a cricket fight. A bottle as some other people would a dog fight or a cock fight. Crickets are used for bait for fishing. Fishermen have put them into a box for the next time needed, and on going to examine the box there was only one big cricket left, the rest having been eaten. There was no possible way of getting out of the box, and they had eaten each other up until the last cricket was left alone, which accounted for its plumpness when found. In *Gryllus assimilis*, another variety of cricket, the male's wing covers are rough and are rubbed together and then rubbed together, producing that peculiar singing noise that is so well known.

The so-called Buffalo moth is not a moth at all. The beetle is less than one-eighth inch long, dark, with broken white lines on the back. It does a great deal of damage in carpets. Steam may be used, or, if it is not thought desirable to take up the carpets, cover them with a cloth or paper which has been moistened and then cover them with a hot iron. This makes hot steam underneath the cloth, and it permeates the carpet, destroying the eggs and larvae. Another plan is to use naphthalene or tar camphor in goodly quantity, especially in dark places. These pests, the dark, hairy, wingless beetle, the ordinary house moth is the commonest of all the little moths, being the progenitor of the caterpillar or larvae which feeds on silk, wool, and other animal fibers. One of the best remedies to keep this insect in check is to expose articles to the light, also beating, which knocks out the eggs and kills the young larvae. The damage is usually done under cover of darkness. Regarding woolens, there is a sure way to protect them from these insects. These insects are not nearly so likely to deposit eggs where there is an odor of tar, camphor, naphthalene, carbolic acid, or anything of that kind; but after a time where goods of that character are put away, the odor is gradually dissipated, and then the damage is likely to be done. Moths fly around and lay their eggs, it should be remembered always in using these remedies, that insects are rapid breeders.

If these poisons are used to protect furs from moths, a good method is to put the furs in a pasteboard box, put in a plentiful supply of naphthalene, then paste a strip of paper along the box lid so as to prevent access of air, and keep the air in the box charged with vapor so that the insects do not get air to breathe, and in that case they die or cease to feed; it makes them very sick. Another method of protecting goods on a large scale is to use cold storage, a temperature of 20 to 40 degrees Fahrenheit preventing propagation. The tapestry moth feeds on draperies and upholstery, carpets and other heavier goods than ordinary house moth. It eats into the fabric, if the fabric be thick enough, and forms a burrow there. The white ant is really not an ant, but belongs to the order of neuroptera, and has been known for a long time on account of its very great destructiveness. This species has wingless males, winged males, king and queen, soldiers and workers, comes out in large swarms from rotten stumps in enormous flights (being distributed in that way), and seeks another nest; and very often, by watching the place where it comes, a great deal of damage can be prevented. The damage is done by the male workers. They burrow into the timbers of various kinds, into logs and underpinnings of dwellings. They are also destructive to ships, and frame buildings have been known to fall down from the ravages of the insects, especially in the tropics. They are also exceedingly destructive to libraries to books and documents. Public documents have been put away in unsafe places, and some years afterwards, when sought, have been found to have been destroyed entirely by this species. As remedies, all decaying wood should be destroyed around buildings. No old stumps should be allowed to remain where this species can breed. The foundations of all buildings should be cement or stone, and all out-of-the-way places that contain old stumps should either be removed or treated with kerosene. A very sound timber or building material of other character should be used. This species is very destructive and insidious and gets into places not likely to be examined. The ants make all the galleries. All the destruction in the wood is brought about by that. In the soldier variety the large jaws are conspicuously used in fighting and tearing one another to pieces, or in protecting the colony against the enemy. The ants are used in fighting and tearing one another to pieces, or in protecting the colony against the enemy. The ants are used in fighting and tearing one another to pieces, or in protecting the colony against the enemy.

An insect called *Monomerium pharaonis*, one-eighth inch long, is found in sugar, in bread boxes, and around washstands, and is a great annoyance. The best remedy is to find the nest of the ant, capture the queen, and destroy the species in that way; but in case of inability to find the nest and queen, where the insects are small or infest closets and drawers, the first thing to do is to fill up all the cracks, up with plaster of paris or other material, thus destroying their abiding places. Bisulphide of carbon is also used, being injected into the cracks and closets, and the insects are killed. Insects may also be poisoned. A jar of oxide of zinc was kept on a washstand where these little insects crept around in numbers, constituting a great annoyance. A little arsenic was mixed in with the ointment. They were either all killed or else communicated the poison to their kind, and they soon left. *Monomerium pharaonis* is very destructive to museum cabinet specimens. Fill small tin pans with water

and set under the respective feet of the cabinet. If they actually get into the drawers where the specimens are there is nothing more effective than naphthalene. Tar camphor balls are also an effective remedy.

The pavement ant swarms sometimes in enormous numbers. It does not do a great amount of harm, but people want to get rid of them, one method being scalding with boiling water. In the burrows of the species have bi-sulphide or carbon bisulphide, and immediately cork them up. The black ant is equally common with the little red species, and the remedies are practically the same as those just mentioned.

To destroy the common cockroach requires absolute cleanliness, entire absence of food material, and the filling up with plaster of paris of all cracks around sinks, floors, loose washboards, or anything of that kind. All their abiding places should be closed up, and the insects killed. A good supply of borax powder around along the edges of the washboard and all around the floor is a good method of keeping this species in check; but the pest can be entirely obviated by preventing exposure of scraps to feed on, and by filling up all cracks so they have no abiding place.

Another insect, *purulus farinalis*, feeds on grain, and is about three-fourths of an inch long. It undergoes its transformation in the various kinds of stored grains, not only the grain itself, but in the various flours and meals, and will feed on stored potatoes and other food. The usual remedy for all these insects that feed on stored goods and grains is bisulphide of carbon. They all have similar habits, and the bisulphide vapor rapidly destroys the larva of this and other insects injurious to fruits and like articles.

The cheese-skipper, feeding on cheese and dried beef, is exceedingly small. The only preventive is covering such food material with screens, putting screens in the windows, or keeping such articles in screened sideboards or closets. After the materials are infested there is little to be done. Against the larva that infests preserves, the only protection we have is screens to keep out the adult fly. Another method of prevention is heating the canned goods or preserves up to a certain temperature, whereby the eggs are destroyed. If the jar is opened and only part eaten and the contents left exposed, they soon become infested.

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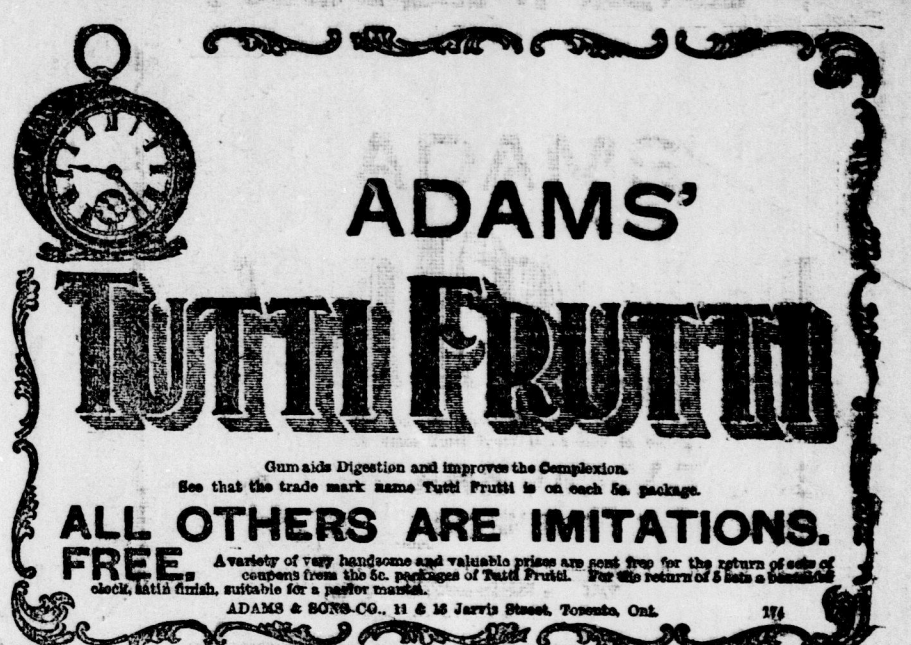
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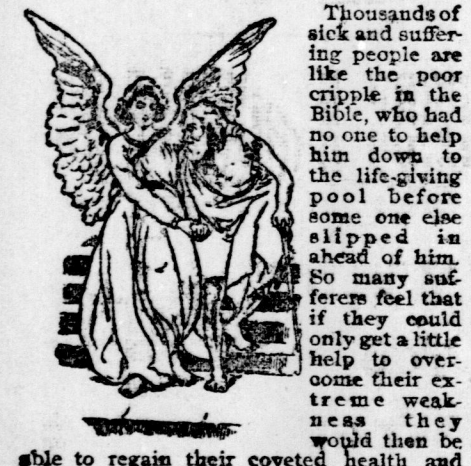
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