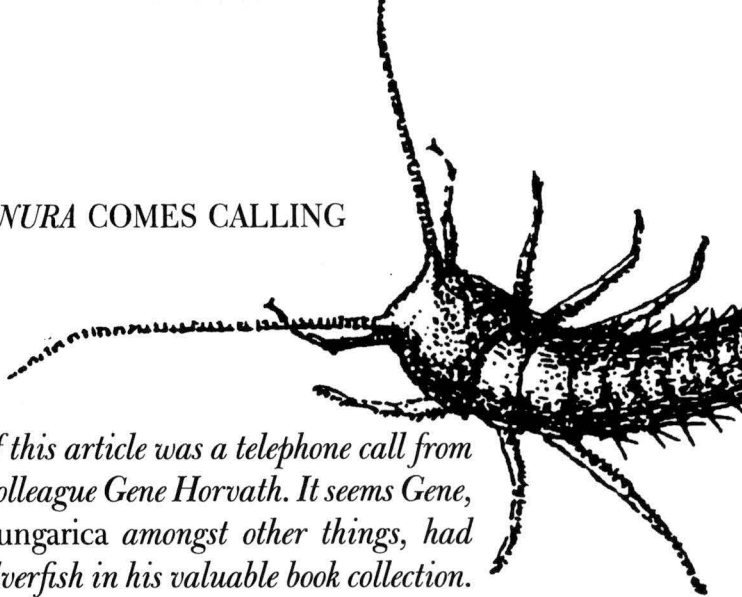


# BOOK PESTS

OR, WHAT TO DO WHEN *THYSANURA* COMES CALLING

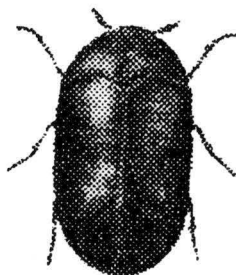
*Richard Hopkins*



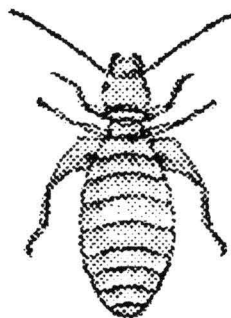
*THE ORIGIN* of this article was a telephone call from my friend and colleague Gene Horvath. It seems Gene, who collects Hungarica amongst other things, had located a few silverfish in his valuable book collection. Not only that but Gene wondered what he would do if he ever decided to donate his book collection to an academic library. For one reason and another I never got back to Gene with a definitive answer, and so this article is one attempt to make amends.

It seems that silverfish, order Thysanura of the class Hexapoda, are, according to pest control officer R. Cory of the Glenbow Museum, just one type of book pest that includes carpet beetles, the lowly booklouse, the silverfish itself, and the delightfully named "firebrat." As Cory explains:

**CARPET BEETLES.** The most common types of damaging insects that are found on archival materials in Alberta are carpet beetles. These spend most of their life stage in their larval form, so the most common signs are their casings (which are between 2 and 8 mm long) and frass (excrement). Carpet beetle casings are distinguished by their long "tails" (several hairs at one end of the casing).

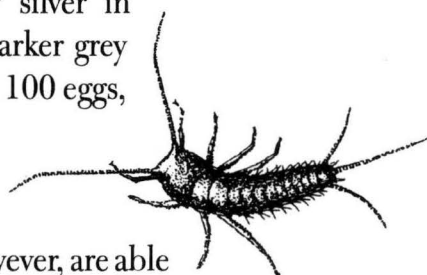


**BOOKLICE.** Less common in Alberta, although still present is the booklouse. These are mere specks to the naked eye, but if there are other signs of damage, a microscopic search may reveal their presence. They are only 1 to 2 mm long and look like ants with distended abdomens. Damp and mouldy collections are potential food sources for these insects, so by keeping a collection dry and atmospheric conditions relatively stable, the incidence of these insects should be very low.



*Silverfish and firebrats are invariably discussed together, so they must belong to the same species of insect. A pamphlet produced by Agriculture Canada in 1981 offers the following explanation:*

**SILVERFISH AND FIREBRATS.** Silverfish and firebrats are slender, wingless, scale-covered insects about 13 mm long when full-grown. They have two long slender antennae, and three long stiff appendages at the tip of the abdomen. Silverfish are uniformly silver in colour; firebrats are grayish, mottled with darker grey scales. A female of either insect may lay 10 to 100 eggs, in undisturbed corners and crevices or in the open. The newly hatched young look like the adults. They grow slowly, taking one to three years to reach full size. The females, however, are able to lay eggs when they are three months old. Silverfish have been known to survive for more than 300 days without food.... Silverfish prefer temperatures between 22 and 27 degrees Celsius; firebrats thrive best at 27 to 41 degrees Celsius. Both flourish when the relative humidity is high.... When the insects are disturbed, they run away quickly and hide.



*So all of these are the enemies of books. "Thank you for the biology lesson" notes the curious book collector but what should I expect from these little pests? Article after article is quick to enumerate the types of damage that can be inflicted on a book collection by these miniscule invaders:*

"They eat the starch sizing in the bindings of books and along the edges of pages."

"Separating book bindings can be a telltale sign of insects targeting binding glue."

"Silverfish and firebrats eat mainly material of vegetable origin, particularly substances containing starch and sugar. They damage glazed paper, and glued or pasted materials such as bookbindings and wallpaper."

"Silverfish are common household pests in North America, feeding on starchy materials such as wallpaper, books, or starched clothing."

Now thoroughly alarmed, the gentle book collector quickly turns his/her attention to effective remedies to counteract the little pests. And working on the notion that the best offence is a good defence, attention should first be turned to preventing the little buggers from even gaining a foothold in your book collection. How is this done? First of all by keeping your collection clean and dry.

Sanitation is important but not entirely effective in reducing populations because insects often reside between wall partitions, in insulation materials, in books and papers, among book shelves and in other protected places. However, be sure to remove old stacks of newspapers, magazines, papers, books and fabrics plus foodstuffs spilled and stored for long periods of time. Often reducing available water and lowering the home's relative humidity with dehumidifiers and fans is helpful. Repair leaking plumbing and eliminate moisture around laundry areas. Lighting a dark, sheltered area may force these insects to move to new sites where they can be controlled more easily. Once the infestation has been eliminated, sanitation will help prevent reinfestation.

Sanitation alone will not eliminate an infestation, although it may prevent new ones from starting. Moving old papers, boxes, books and clothes from the attic to the basement will help remove food and hiding places. Moth crystals placed in boxes in the attic will also help.

Silverfish and firebrats, like many other household pests, thrive best where they are undisturbed for long periods. Vacuum and clean your house often, and do not leave stored books and clothing undisturbed for long periods of time.

And it is at this point I can finally answer Gene's question about donating book collections to libraries or archives. If the library or archives is run by professionals like those at the Glenbow Museum, then they are likely to have preventive measures in place to guard against insect infestations.

At the Glenbow Museum these problems have been avoided by means of a prevention program. To date there has been no infestation of the library and archives, and very little insect material indeed has been found there. All materials entering the museum must undergo visual inspection for evidence of insects, and depending on the material it is then frozen at  $-30$  degrees

Celsius for one week after which it is reexamined and then refrozen if any signs of activity remain. This is repeated until no traces of insect life are left. The freezing process is necessary because even if all visible insect remains have been removed, there could still be thousands of microscopic eggs present which cannot be removed manually. Freezing at the prescribed temperature will kill all insect life stages.

*Okay, so the diligent book collector should remove his/her books from the shelves once in awhile to thoroughly dust them off. This should prevent insect pests from gaining a foothold and is also probably a good preventive measure to keep the dust from damaging or soiling the books as well. The trouble is, who in this busy world has the time to do this on a regular basis? The answer here is that if we don't have time for prevention that perhaps we had better turn our attention to cure.*

*One problem with cures is that they can be an environmentalist's nightmare. Too often the cure is a spray or a powder with an ominous name like Lambda-cyhalothrin, Deltamethrin, Cyfluthrin, Cypermethrin or Piperonyl Butoxide. These come with directions that offer such dire warnings as "Do not spray pets," "Prior to treatment, aquariums and fish bowls should be covered, and birds, such as canaries, removed from the area," "Open and ventilate before re-occupying," "Do not apply this spray to surfaces or utensils that may come into contact with food," "Do not use dusts where children and pets may contact dusted surfaces!" I don't know about you but at this point I think it is time to call "Real-Pro Pest Control!" I, for one, plan to live another day to actually read the books in my collection!*

*One possibility is to purchase a "Pest Offense" unit, "electronic pest control at its finest!" This is an electronic unit that plugs into any wall outlet and covers approximately twenty five hundred square feet. "It works through the wiring and creates an impulse so your house or office becomes one giant pest repellent!" It is effective against roaches, ants, spiders, silverfish, earwigs, rats, mice and bats. Unfortunately it comes with somewhat of an ominous if unexplained warning, to wit "You do not want Pest Offense in your home if you have a hamster, a gerbil, a mink, a guinea pig, a tarantula or a chinchilla." Oh well, forget it. I am not getting rid of Harry the Hamster or Fang my petx*

*tarantula just to protect my book collection! Still at \$29.90 U.S. plus shipping and handling it might be an option for those of you fortunate enough not to own a hamster, gerbil, mink, guinea pig, tarantula or chinchilla (please see <http://www.rdomac.com/pestoffense/>).*

*So we have established that you are not really into self-destruction, and don't want to spend a fortune on bringing in a professional. You would rather spend your hard earned money on buying more books! Well thanks to a Web site called the Dollar Stretcher ([www.stretcher.com/stories/990524a.cfm](http://www.stretcher.com/stories/990524a.cfm)) we can offer you some much safer and cheaper advice on home remedies:*

Sprinkle WHOLE, not ground, cloves where you have silverfish. Apparently they do not like the scent and will leave you (and your belongings) alone. *Donna P.*

Keep your drains closed when they are not in use. I was surprised at how that helped around here. *DMK*

Try sprinkling regular table salt around your baseboards and all drain pipes and other cracks and crevices. Besides being cheap, salt is not harmful as other pesticides to children and pets if they should come into contact with it. Of course you will need to repeat this from time to time. *Krista*

I also had a problem with silverfish in my basement. One trick that helped me was to moisten a newspaper (so that it was damp but not soaking), roll up the newspaper and tie it with an elastic. Do this at night and the next morning slowly open up the newspaper (it should be full of silverfish). Next either burn the newspaper or empty it into a garbage can outside the house. Do this every night until the newspaper no longer has any silverfish in it. *Stefanie P.*

The only thing I have found to work for most creepy crawlies – roaches, silverfish, ants, etc. – is boric acid (the main ingredient in Roach Pruf). It is cheap and it lasts as long as it does not get damp. It is a powder that can be poured into cracks, dusted under sinks, and blown under the stove and refrigerator. You can buy it at most hardware stores. Just buy a plastic picnic ketchup/mustard bottle with a pointed top that closes. This works best for getting it into the tight places that it needs to go. If the powder gets damp, just reapply. It will take a few weeks for all of the bugs to die, but you probably won't see them again. The powder sticks to their legs and then they drag it back into their nests where it kills others as well. Good luck! *Julie P.*

Silverfish (and any other crawling-bug pests – cockroaches, earwigs, ants, centipedes, etc.) can be safely, efficiently and cost-effectively controlled with diatomaceous earth (available in specialty garden stores). It looks and feels like talcum powder and usually costs less than \$10 for a five-pound bag (a lifetime supply). It is non-toxic to humans and pets since it scratches the outer casing or breathing structure of insects and bugs, causing them to dehydrate. A pest only has to walk through some of it and they are as good as dead! As long as it remains dry, it is effective continuously, forever. Just apply a thin line of diatomaceous earth along baseboard cracks – or anywhere else pests appear, or dust a specific area. If you know what your particular pest likes to eat, you can also make simple “traps” with a dish of diatomaceous earth and some tasty bait placed where you have the problem. One of the best methods of continuous pest control is to dust the space between your walls or under cabinets.

Kim

*Probably the best thing to do is some preventive maintenance, taking the books off of the shelf periodically and dusting them. However, if you should ever spot one of the slippery customers scuttling quickly towards the shade, or if you pick up one of your books and find one of the little monsters neatly inserted between the pages, you know there is something you can do about it. If you are the nervous type you can always call in a professional pest control expert to nuke the little varmints with a potent chemical cocktail. If you are more politically correct, I hope that some of the home remedies provided above will work effectively and safely for you. Here is wishing you, gentle reader, and particularly my friend Gene Horvath, many happy years more of book collecting and reading undisturbed by *Thysanura* and his pesky companions, the book louse, the carpet beetle and the aptly named firebrat.*