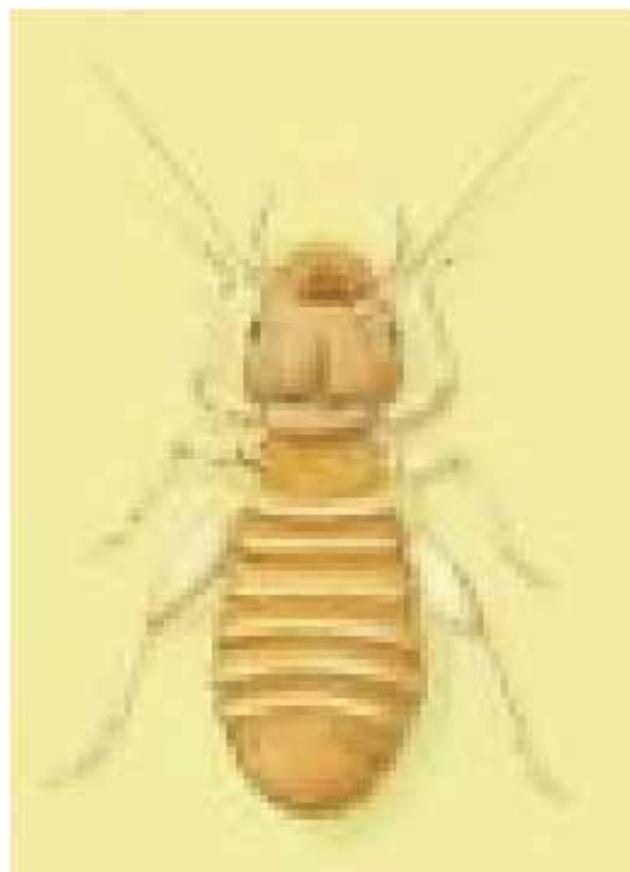


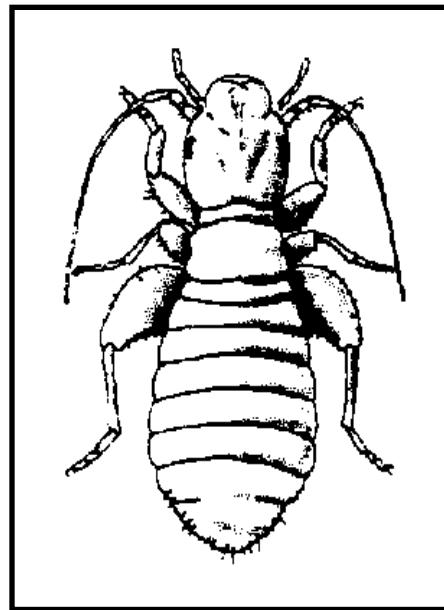
CHAPTER 26

THE BEST CONTROL FOR BARKLICE OR BOOKLICE OR PSOCIDS



BARKLICE OR BOOKLICE OR DUST LICE OR PSOCIDS

Appearance. Most species are free-living and not pests, but several species of book lice are found indoors, e.g., the common booklouse- *Liposcelis divinatorius* (Mull). They are of rather similar appearance and they all have a superficial resemblance to some other lice species- hence their names. They are very small insects with soft bodies, cream to gray or light brown in color. Four wings (like cellophane) are usually absent from those found indoors although other outside species possess the two pairs. A pair of wing-pads may also be present. In many species, males are absent, parthenogenetic reproduction being the rule. Their antennae are long and thread-like, 11-50 segmented. The head is relatively large as are the antennae, but the eyes are poorly developed. The femora on the hind legs are enlarged as though it were able to leap, but such is not the case. The insect, however, can and does run quickly and it is this habit which usually causes the occupants to be aware of its presence. One interesting habit shown by the species *Trogium pulsatorium* (Linnaeus) is the tapping noise which it produces by vibrating its abdomen against a material such as paper. It is probable that the first reference to the 'Death Watch' concerned this book louse and not the wood-boring beetle. See also section in Chapter 29 on Stored Product Insects!



ORDER - Psocoptera (previously called Corrodentia)

FAMILIES - *Trogium*, *Liposcelis*, *Lachesillia*, *Psyllipsocors*, *Lepinotus* and *Psocathropos*

TYPE METAMORPHOSIS - Gradual/simple or paurometabolous metamorphosis.

Note: The most common pests in homes are the booklice *Liposcelis spp.* and the *Trogium pulsatorium* (Linnaeus) or larger pale *Trigiid* or death watch. At least 287 species and at least 24 families are known just in the U.S., but only about 20 are commonly found inside. They run erratically.

Egg - Average of 57 eggs are laid by female, usually near a food source.

Nymph - Resembles adult in appearance, but they are smaller in size.

Adult - Fertile male and female but females can reproduce by parthenogenesis. They prefer dark, damp, warm and undisturbed locations. Adults are about 1/32" - 1/4" long with soft bodies- they look very much like miniature termite workers. Some are wingless like the common booklouse and others like the death-watch have very small scale-like wings. Both sexes may be found indoors or outdoors. Most "indoor species" do not develop full, functional wings. **They feed on fungi, mildew and/or mold spores and occasionally on starchy materials.**

TYPE MOUTHPARTS - Chewing

DESCRIPTION - See http://www.kcl.ac.uk/ip/bryanturner/other/psocid_pictures.html and <http://www.psocodea.org/>

Adult - Usually no males are found as females can reproduce without them. Booklice are minute, soft-bodied, wingless insects 1/25" to 1/13" long. Colorless to grayish or brown. They are not related in any way to lice and have chewing mouthparts. The other (winged) species are not usually found inside. Smaller than a pinhead.

Adult trogiids have small scale-like wings and brownish spots on their pale colored bodies. The female can make a ticking sound by striking or tapping her abdomen against paper, etc. up to 5 - 6 times per second.

Nymph - Booklice nymphs usually are colorless and become grayish as maturity is reached. Very minute insect.

Usually goes through 3 - 4 molts. The Trogiid nymphs go through 5 molts.

Egg - White to "bluish-pearly", oval-shaped and sticky and covered with a crusty covering of whatever material on which they are laid singly; large, about 1/3 of size of the adult insect.

HABITAT - Live both indoors and outdoors but they usually prefer damp, warm undisturbed situations. When found on books, they are usually feeding on microscopic mold. Outdoors they inhabit bark where they feed on mosses and lichens. They can also be found in grass, leaves and damp wood.

NATURE OF INJURY - Presence in warehouses, cupboards, walls, boxes, paper, libraries, upholstered furniture, spanish moss, oats, homes, bees' nests, etc. in large numbers causes visual concern. They feed on microscopic molds and can damage books when they eat the starchy glue, paste and sizing in the bindings and can damage the edge of pages. Dead bodies in the dust will probably contribute to asthma attacks. They also have been found feeding on the eggs of the Angoumois grain beetle. They may visually upset occupants.

HARBORAGE POINTS - Inside they prefer damp, warm, undisturbed areas where microscopic mildews or molds grow. At times Booklice can be found in insect collections, stored foods, e.g., cereals, on damp grain or flour and upholstered furniture. This is an indication the materials are too damp and molding. Use a dehumidifier and remove cardboard boxes, books and papers from damp storage areas. Booklice are often found under flat objects, e.g., books, boxes, boards, loose wallpaper and in drawers, closets, and around old books and papers. They feed on microscopic molds and are prevalent in damp, humid situations because molds commonly grow in such a habitat. **Use a dehumidifier, a non-dripping air conditioner and/or fans.**

INTELLIGENT PEST MANAGEMENT® CONTROL - Psocid control is best achieved by simply reducing the food sources and lowering and keeping the humidity below 50%. There is no practical way to prevent them from entering your building, so the best and first approach is to find the reason for the moist condition and correct or reduce the moisture problems and/or to reduce the temperature. Stop or control the micromolds and you control this pest. Use a dehumidifier or air conditioner, increase air flow with fans, clean with enzymes and/or borax and/or raise the temperature and dry out the areas. They desiccate very rapidly when warm temperatures are combined with relative humidities of less than 33%. When found on books or products, this means the books or products are moldy and need to be dried out in the hot sun or microwave them for 30 - 60 seconds, but the sun or microwave may damage some books and/or products. Vacuum the area thoroughly and seal all cracks and crevices with patching plaster and/or caulk. Dispose of all moldy articles. Use a small heater or hair dryer to warm and dry any infested localized areas - be sure to turn off the heater when any surface becomes too hot to touch. Raise the total temperature to 120° F. or below freezing for 1 hour for any article, room and/or building and you also destroy this pest. Try using pestisafes®, e.g., talcum powder or food-grade DE as a drying agent. If you insist on using a poison, use a non-volatile one that has a drying action such as boric acid or silica aerogel; then lightly dust in cracks and crevices, behind books, attics, crawls and other areas that preclude human/pet exposure; borax or sodium borate applied to the surface will often permanently control the mold, fungus and mildew. Wear a respirator and proper safety equipment. **Any household product that will control fungi**, e.g., 2% formalin, salt water, borax, sodium borate, chlorine bleach or ammonia (but never in combination) solutions **will also eliminate the mold/pest**. Clean with a little borax, ½ c. per gallon hot water. Lightly dust with food-grade DE. Occasionally large industrial sites that are infested may be fumigated or mopped and/or sprayed with borax or disodium octaborate tetrahydrate. Routinely mist, spray or clean with diluted Safe Solutions Enzyme Cleaner with Peppermint which will safely help control both the mold and pests. Remove leaf and grass litter from around the foundation and caulk or seal all cracks, crevices, windows, doors and/or voids. Vacuum bathrooms regularly especially if corn starch based cosmetics are used. **Routinely clean with Safe Solutions Enzyme Cleaners with peppermint and sodium borate.**

Caution: Sometimes people with booklice or psocids in their hair are misdiagnosed as having head lice and/or think they have head lice and begin to treat these normally innocuous pests with dangerous, volatile synthetic pesticide poisons! Use Lice R Gone® to quickly and safely control these pests. Exposure to volatile synthetic pesticide poisons is akin to that of an exposure to nerve gas. An Australian research team from Newcastle University and Sydney's Environmental Medical Center has discovered a causal link between Chronic Fatigue Immune Dysfunction Syndrome (CFIDS) and exposure to synthetic pesticide poisons. In their study, 25 CFIDS sufferers had twice as much DDT and hexachlorobenzene in their blood as a control group of healthy people matched for age and sex. Gulf War Veterans also suffer from similar CFIDS symptoms, e.g.,

flu-like illness, allergies, infections, neurological and muscular symptoms. Note: The returning Gulf War troops also are producing a tremendous increase in birth defects in their subsequent children. It is interesting that we *protected* them during the war with synthetic insecticide poisons and repellents. The Australian CFIDS patients also had higher levels of dieldrin and heptachlor epoxide than the control group. DDT was banned in the U. S. in the 70's, but not banned until 1980 in Australia. The chlordane/heptachlor we banned in the U. S. was still being exported and used in Australia until 1997! A Doctor I know is "curing" MS patients simply by reducing their organochlorine levels. Chlordane, while technically an organophosphate, is also chemically very similar to an organochlorine. A study at Hamadan University in Iran has reported an increase in congenital malformations in Iranian children exposed to chemical warfare. The study also concluded that parental exposure to chemical weapons (neurotoxins) may be associated with an increased risk for several birth defects *Vet Ham Toxicol* 94 Dec 36(6):562-3. A Finnish study looked at the relationship between birth defects and maternal agricultural work in 1,306 pairs of infants with oral clefts. A dramatic increase in oral clefts was noted in those mothers with pesticide exposure when compared with unexposed agriculture workers. Seven mothers of infants with facial clefts were exposed to synthetic pesticides, but only 3 control reference mothers had been exposed (odds ratio 1.9[95% CI+0.4-8.3] *Epidemiology* 1995 Jan; 6(a):23-30. Various compounds in pesticide poisons substitute for estrogen and other neurotransmitters. As these toxins integrate themselves into body functions and interactions - the body's entire system is put into jeopardy and begins to malfunction because the toxins do not function exactly as the natural substances they are replacing. The body may even stop producing the natural substances as the toxic ones take their place. As the body tries to detoxify itself and repair the damage caused by the pesticide toxins, it may divert vital chemicals away from other functions, e.g., creating digestive enzymes, which then prevents the body from properly absorbing the nutrients needed to detoxify and carry on other necessary functions. There may be an inability to handle carbohydrates and/or fluctuations in blood sugar bringing with it mental and physical fatigue, confusion, memory problems, mood changes, hallucinations and even mental illness. Sensitization to these toxins and even to natural substances create even greater allergic reactions following exposure(s). The resulting allergies alone can product consequential disorientation, mood changes, breathing problems, learning disabilities, memory deficits, loss of bladder and anal sphincter control and a whole host of health problems beyond the *normal* reactions of sneezing, flu-like symptoms, hives and itchy eyes. When an individual's "maximum-allowable" toxic exposure has been reached, the result may be multiple chemical sensitivity (MCS) and the health impact on that individual is totally disabling. Because the MCS individual's immune system is now substantially weakened, any subsequent toxic, bacterial or viral assault can result in a complete loss of balance/ function and/or death. **Use only the pestisafes® that have not caused any irritation to the occupants; some people will react to milk, so be careful and check (with all occupants if possible) before using anything inside, especially a second time!**

Toxic exposures to volatile, synthetic neuro-toxins or pesticide poisons may also result in the alteration of cells lining the nasal passages. These cells send messages through the olfactory nerves directly to the limbic center of the brain. The limbic center of the brain is responsible for a whole multitude of vital functions; once the system is compromised and the cells are sensitized, only a few molecules of the toxin/allergen can trigger an immediate reaction that can negatively effect the entire body. So, a sensitized individual will react severely to substances that are not even perceptible to the average person. Symptoms can range from fatigue, flu-like symptoms, headache, incontinence, memory loss, disorientation, mood changes, confusion, nausea, abdominal cramps, diarrhea, arthritic-like pain, tremors, bloody noses, memory dysfunction, learning disabilities, loss of motor skills, hyperactivity, heart problems, vision and hearing loss respiratory problems, birth defects, aplastic anemia, cancers, neurological impairment, kidney and liver damage, skin lesions, leukemia, brain tumors, heart attacks, etc.

Scientists in Israel have demonstrated in mice that the maternal immune system may adversely modify the response of the embryo to various environmental toxins that can cause birth defects. *Clin Exp Immunol* 1994 Dec:98 (3):513-9. Women are 3 times as likely to have children who get leukemia if they are exposed to pesticides during pregnancy. *Health Gazette* 95; 18(6):3.

Vietnam Vets (including my friend Bob Tonning) exposed to toxic insecticides and herbicides are also producing subsequent children with abnormally high incidence of diabetes. I have reviewed *competitive integrated pest management* programs that actually state they will continue to spray volatile, synthetic pesticide poisons as a preventative even when and/or though the account has no pests...amazing!

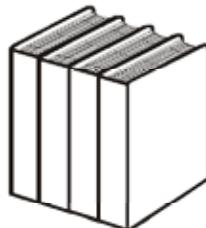
We are needlessly destroying our DNA, our children, our air, our water, our food, ourselves and any possibility

of a healthy future. There is no need to destroy ourselves with synthetic pesticide poisons which do not even control the pests (especially when there are no pests)! Intelligent pest management® safely eliminates the cause, but to use the real cure you have to have a brain; is it too late? G-d forbid! **We are not supposed to be lemmings running to our death.** Volatile, synthetic pesticides kill - they do not protect! Please stop using or exposing yourself, or your family or this world to any more volatile, synthetic pesticide poisons! **Use pestisafes® and continue them only if no one reacts.**

Typical First Strikes for Book Lice

1. Eliminate moist environmental conditions and reduce the relative humidity below 50% and you will prevent their development and/or eliminate the molds upon which they feed.
2. Routinely clean with ½ c. borax and/or 1 - 2 oz. of Safe Solutions Enzyme Cleaner per 1 gal. water.
3. Mop/vacuum bathrooms regularly. Turn on the lights and fans or air conditioner.
4. Remove cardboard and clutter.
5. Dispose of moldy materials and dead insects, abandoned bird, bee and wasp nests and foodstuffs. Routinely throw out all garbage.
6. Lightly dust with talcum or medicated body powder or Safe Solutions, Inc. food-grade diatomaceous earth.
7. Temperatures above 115° F. are lethal in a few minutes.
8. Spray Not Nice to Bugs®.
9. Keep air space under all potted plants, especially on window sills.
10. Keep your home (especially your kitchen and bathroom) cool and properly ventilated.
11. Always store dry foods in a cool, dry place.
12. Repair all leaking pipes and other leaks.
13. If the problem persists, read the rest of the chapter.

Note: If you need to fumigate books, place them in a clean garbage can or similar receptacle and add enough dry ice to fill the container. You will see the clouds. Be careful not to touch the dry ice with your hands or to breathe the gases.



*Safe Solutions products may be purchased online at:
<http://www.safesolutionsinc.com>
or by telephone at:
1-888-443-8738.



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