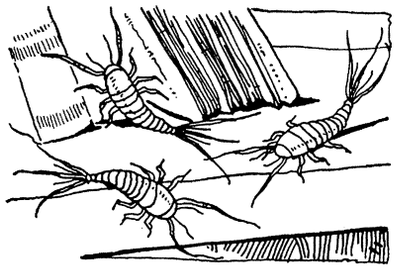
ENTOMOLOGY

NATURE RAMBLINGS



Silverfish

➤ ONE of the most bothersome of household insect pests, that does not suspend operations even in the winter, is the silverfish, a bristle-tailed insect seldom seen and hard to catch when it is seen.

Its tapering body suggests a fish, and it is covered with glistening little scales, so the name is not inappropriate. Also it slips through the fingers that try to imprison it, like a wet fish.

Silverfish will turn up in the best-kept of houses, and indeed are especially likely to appear in homes that boast a library. For they are among the most troublesome of book pests. They will eat paper, being particularly fond of high quality papers with a glazed surface. They may also eat the paste that holds the binding together, and if their nefarious work goes on long enough, it may require the rebinding of whole sets of volumes. By the same affinity for glue or paste, they are enemies of wall paper.

Besides ruining books and wall paper, the silverfish aims at the destruction of anything held together with paste or gum. It plays havoc with starched clothing, chews at the gum-glazed cardboard labels in museum cases, and gets into stored cereals and other starchy foods. It is fond of rayon and may cause serious damage to fabrics made of this fiber.

The silverfish multiplies most annoyingly. Like several other insects, it does not need a water supply to exist. The water needed for life is obtained by chemical processes within the body. The insect just manufactures it as required from its food material.

Silverfish are among the most primitive insects, according to the classification schemes of naturalists. Their body-structures are little specialized, their reactions are among the least complex known, and they have no wings. They have a number of relatives, including the so-called bristletails, and these all have the same shy and furtive habits.

Efforts to discourage these pests have been made by bookbinders who "dope" their paste with arsenic. More effective in controlling silverfish is DDT, used either as a spray or a dust. When this pest-killing chemical is applied thoroughly to the spots where the insects occur, death comes quickly, and a deposit of the chemical remains to kill those that later crawl over the treated surface. Pyrethrum sprays also kill the pests, but they act only upon direct contact with the silverfish and do not have a lasting effect.

It is rather in the nature of these seclusive pests to be in places not normally treated for their occurrence. Attics or basements, for instance, where books, magazines, papers and clothing are often accumulated make excellent hide-outs.

Representatives of the Department of Agriculture's Bureau of Entomology and Plant Quarantine vouch for the statement that one species, called the firebrat, is a vertitable salamander, preferring to live in the vicinity of a fireplace, furnace or other hot spot. It crawls rapidly over hot bricks or metal and shows the most surprising immunity from the effects of high temperature.

Science News Letter, February 10, 1951

PHYSICS

Reds Could Study A-Test

It was only necessary to wait for radioactive dust to be borne by the wind into Russian controlled territory. Samples can be collected by plane.

➤ THE RUSSIANS probably have been studying the Nevada atomic explosions beginning last Sunday, weather permitting.

It was not necessary for spies to have gained access to the Nevada testing grounds, or for a new Klaus Fuchs to transmit secret reports to the Russian embassy. The Russians had only to wait until telltale clues as to the kind and size of the bombs exploded in Nevada were borne by the winds across the Atlantic and Europe and into Russian controlled territory.

There is nothing we can do about this—just as there was nothing the Russians could do to prevent us from finding out when they exploded their first bomb in 1949.

The prevailing winds in the northern hemisphere always travel from west to east at altitudes between 10,000 and 30,000 feet. When, by an atomic explosion, millions of microscopic particles are thrown into the air at these altitudes, they will travel from west to east around the earth. At any point, if enough of those particles are caught so that an analysis can be made, scientists can tell what those particles came from.

The Russians could send planes aloft, probably equipped with Geiger counters shielded from the effects of cosmic rays to determine any unusual radioactivity in the air. Air scoops in the planes could collect samples of the microscopic particles and tests could then be made.

If the Russians collected a large enough sample, they will be able to tell whether the Nevada A-bombs were made of uranium or plutonium. From the tiny particles of the casing of the bomb, they will be able to tell what material was used to enclose it.

The United States is using such planes, not only to detect A-bomb explosions, but also to prospect for uranium and other radioactive materials in the ground. It has been reported that France has a plane so equipped.

Stations for the study of cosmic radiation from outside our atmosphere will be able to detect unusual amounts of radioactivity in the air. The radioactivity from the Nevada explosions was of a different quality than cosmic radiation and the Russians should be able to detect this difference.

Instruments for the detection of earthquakes can be checked. However, little can be told from seismographs—perhaps there will be a barely discernible wiggle.

At a press conference, Atomic Energy Commission Chairman Gordon Dean was asked whether the spread of radioactive particles from the Nevada explosions was being kept track of in this country. He answered that such might be a reasonably intelligent assumption.

It was perhaps by these methods that we discovered the Russians had exploded an A-bomb in 1949. These instruments picked up in the United States evidences of the three Eniwetok and two Bikini explosions.

As these radioactive particles travel with the wind they disperse through the atmosphere. For best results, the Russians should