

The European Satin Moth is spreading in the Lower Mainland, especially in the district round New Westminster, and in this connection I have observed a sort of change in their food habits. An outbreak in Maillardville began in 1921 on Lombardy poplar. Near these were three large Russian Poplar trees which were not affected in 1921. In 1922 (last year), by the end of June, the Russian Poplars were completely stripped of leaves, and the caterpillars were massed along the bare limbs, while the Lombardy Poplars nearby were almost untouched. The owner cut off all the limbs and the tops of the Russian Poplars, the caterpillars then swarmed on to his house in masses, and were played upon by fire hose under good pressure, afterwards dying and drying up in thousands. Plenty of them, however, pupated, and enough moths emerged to do damage next season.

I might record among my captures last season a beautiful, newly emerged specimen of the rare moth *Aemilia roseata*, on July 2nd, and in September of a specimen of *Papaipema insulidens*. The season, on the whole, however, was not particularly good for collecting.

In conclusion, I would express the hope that our deliberations at this annual meeting may result in much benefit to the Society.

Yours,

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THE EUROPEAN EARWIG IN BRITISH COLUMBIA

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In his book on the "Orthoptera of North-Eastern America," W. S. Blatchley states that "about 400 species of earwigs have been described, mostly from tropical and semi-tropical countries, where they are common along the sea-coast. Many of the species are cosmopolitan in distribution, their form enabling them to hide readily in the crevices of ships and their cargoes, and thus be borne to all parts of the earth. Inland they are scarce, especially in temperate and cold regions. Only fifteen native or established species of earwigs are at present known from America, north of Mexico."

Canada, until a few years ago, only possessed one species, *Labia minor* Linn, an introduction from Europe originally, which had been taken from several widely separated points throughout the Dominion. This species, commonly known as the "Little Earwig" and so called from its length, which is only 4-5 mm., is recorded from Quebec, Ottawa, Manitoba and Salmon Arm, B. C.

We have now to record a second species for Canada in *Forficula auricularia* Linn, the so-called European Earwig. Thus far the Coast cities of Vancouver and New Westminster are the only points in Canada known

to be infested, and there is a strong possibility that Victoria may also harbour the pest. This species is also European in origin and cosmopolitan. From its habits it bids fair to become a pest of some importance in places where it finds conditions suitable to its reproduction. It is described by Blatchley as follows: "Dark reddish-brown; basal joints of antennae, sides of pronotum, hind margins of abdominal segments, forceps and legs paler; tegmina and wings dull yellow. Tegmina one-half longer than pronotum. Forceps of male about as long as abdomen, their legs flattened and broadened at base, then usually curved almost into a semi-circle, armed on the inner side at base with a large quadrate crenulate tooth, and another at beginning of curve; legs of female forceps slightly curved, crenulate on inner margin and crossing at tips. Length of body 10-12 mm.; of tegmina, 2 mm.; of forceps, male 4-7 mm.; female 3 mm."

The first specimens of *F. auricularia* actually reported for British Columbia were taken alive by the author in September, 1916, at Vancouver, in the hold of the SS. Talthybius, on arrival from Europe and Asia. This was adventive material of a kind that undoubtedly had been imported in the holds of trans-Pacific vessels for many years. Comstock, in his 1901 Manual of Insects, refers to this insect on the Pacific Coast, and Morgan Hebard records a note by Fieber in Lotos 3, 254, 1853, as adventive American material. This insect, however, was not long to remain in the holds of vessels alone. In 1912 a male and a female were captured at Newport, Rhode Island, in the New England States of America. In August, 1919, reports of the presence of this insect were received from the neighborhood of English Bay, in the city of Vancouver, and in 1920 the reports increased in numbers. An examination revealed the fact that the insects were widespread through the "west end" of the city and in Stanley Park. In 1921, specimens were seen on the foliage of trees in the boulevards of Vancouver and New Westminster. The numbers found undoubtedly indicated an earlier introduction than 1919. Curiously enough reports of the presence of this insect arrived almost simultaneously at many coast cities in America, following the Newport introduction in 1912. In 1914, Kingston, R.I., announced its presence; Seattle in 1915; East Aurora, New York State, in 1917. One observation has led to others, and it is doubtless probable that search will reveal these insects at many seaport towns not now recorded as infested.

The avenues of introduction are numerous. In addition to the direct importation through merchandise at the ports, these insects have been taken in nursery stock, bulbs and plants imported from Europe.

For instance, T. I. Beaulue captured some specimens in Holland nursery stock at Montreal in the autumn of 1914, and T. D. Cockerell found adults in Dutch tulips imported into Boulder, Colorado, in 1918. E. R. Sasseer observed them in the soils around imported florist stock in the eastern United States.

These insects are well-known pests in Europe and Australia, where they cause material damage to flowers and vegetables in the gardens by feeding upon tender green shoots. The petals and stamens of ornamental flowers are freely devoured and roses frequently suffer. They are also carnivorous in that they destroy sluggish larvae in the soil, feed upon dead animal matter and upon the dead and dying of their own species.

They are more objectionable in houses where, being mainly nocturnal in habits, they secrete themselves in upholstery, under cushions, rugs, in verandah awnings and in every conceivable place to avoid light or noise.

As to their life habits, it is supposed that only the females survive the winter, their eggs being deposited in the autumn in garden soil. Young larvae make their appearance in the spring (April and May), feeding by night on grass and plants at soil surface. They usually become full-grown in mid July and in late summer, congregating in great numbers in crevices around houses for mating purposes. The adults may also find their way into houses, where their presence is a source of considerable worry to housewives, not so much from their injurious habits as their unpleasant natures.

In control, sodium fluoride mixed in equal parts with flour sprinkled in houses where the insects are common will appreciably diminish their number. In gardens, in soil adjoining houses, the use of naphthaline, soot or lime, applied in autumn, will in some measure deter them in their converging habits. In the open garden, poison baits for the larvae may be used in May and June. Paris green and stale bread, 1 part to 16 parts by weight, mixed with water, is fairly satisfactory. The bread, which is broken up into fine particles, and the poison should be mixed dry and water added to make a mixture, which, when broadcasted over the lawn or garden, will break up into small particles. This is the control measure recommended by D. W. Jones of the U.S. Department of Agriculture. Three applications over ten days are suggested, warm evenings being chosen for the operations.

B. B. Fulton, of the Oregon Experimental Station, used wheat bran, 1 gallon; sodium fluoride, 6 ounces, and molasses $\frac{1}{2}$ pint, with enough water to moisten. This is broadcasted over the garden at dusk, as with the other bait, and the formula given is considered sufficient for an ordinary city lot.

These baits are applied against the young larvae feeding on the soil surface, and advantage is taken of the carnivorous habits of both larvae and adults.

In England, inverted flower pots filled up with straw or hay are used as traps for the adults. Being night feeders, they hide during the daytime, and advantage is taken of this habit to entice the adults to traps which may be examined and the contents destroyed daily.