

blossoms of peach, pear, apple and cherry are attacked and the settings of fruit totally destroyed. Those trees in the orchard immediately adjoining rough land suffer most, it would appear, for in such uncultivated places the nests of the species may be found. It is particularly interesting to note that no aphids exist on the trees at the time the fruit is in bloom, consequently the nectar remains the sole attraction. Later in the summer the ants attend the aphids of the Cottonwood poplars. Certain *Tischeria* Leaf-miners of the apple are noticeably worse in orchards near the timber line, and certain Bud Weevils are adopting fruit trees as hosts following the destruction of their own food plants. Slugs, while not insects, are animals very commonly found in the moist alluvial soil of the Lower Fraser Valley, and may frequently be observed under decaying leaves and vegetation in the "bush." Injury has been observed to young corn (maize) plantations in the spring by these animals and their presence is indicated by the peculiar slimy remains about the plants and the "shredding" of the young tender leaf shoots.

Most of these insects mentioned, it will be seen, are especially related to the forest or virgin lands of the Province, and this relation constitutes a remarkably interesting phase of the study of economic entomology in the West. The majority of the more important orchards pests of British Columbia are identical with those in other Provinces of the Dominion, and their life histories are very similar only in some cases slight variations occur owing to differences in climatic conditions. But as these variations take place within the Province itself, specific insects will, it is hoped, be dealt with on subsequent occasions.

LIFE HISTORIES OF NORTH AMERICAN TINEINA.

BY ANNETTE F. BRAUN, CINCINNATI, O.

Choreutis inflatella Clemens.

Brenthia inflatella Clem., Proc. Ent. Soc. Phil., II, 5, 1863; Tin. No. Am., 209, 1872.

Var. *virginiella* Clem., Proc. Ent. Soc. Phil., III, 505, 1864; Tin. No. Am., 257, 1872.

Choreutis inflatella, var. *virginiella*, Dyar, List N. A. Lep., April, 1915

No. 5519a; Kearf., Jn. N. Y. Ent. Soc., X, 111, 1902; Busck, Proc. Ent. Soc. Wash., V, 219, 1903.*

The larvæ of this species were found in great numbers feeding on leaves of *Scutellaria lateriflora* L., a plant which grows commonly on low-lying grounds around Cincinnati. A slight web is spun on the upper side of a leaf, causing the margins to approach. Within this folded leaf the larva feeds, picking out the substance here and there, but usually leaving the lower epidermis intact. Toward the top of the plant, where the leaves are small, several are drawn together. The cocoon is spun within a fold of a leaf, which has, as a rule, not been previously attacked by the larva. It resembles the cocoon of other species of the genus.

The larvæ, which were nearly full-grown when collected, September 9, yielded imagos from Sept. 21 to 28. The entire series, some 18 or 20 specimens, represent the varietal or more common form of the species, in which all the metallic scales are violet-coloured.

***Aristotelia salicifungiella* Clemens.**

Gelechia salicifungiella, Clem., Proc. Ent. Soc. Phil., III, 508, 1864; Tin. No. Am., 262, 1872.

Aristotelia salicifungiella Busck, Proc. U. S. N. M., XXV, 798, 933, 1903; Proc. Ent. Soc. Wash., V, 220, 1903; Dyar. List N. A. Lep., No. 5599, 1, 1902.

This species has several times been recorded as bred from cecidomyid galls on willow, but without definite observations on its larval habits. I have bred a number of specimens from larvæ feeding on leaves of *Salix longifolia*, the original food plant. The larva stretches a very loose irregular network of silken threads between the leaves of the terminal or lateral shoots, but does not draw the leaves together. It feeds within, eating portions of the leaves. Pupation takes place (in the breeding jar) either between two leaves or amongst the debris in the bottom of the glass. The cocoon is spun of silk and particles of earth. Larvæ taken July 6, varying from very small to nearly full grown, produced imagos from July 29 to August 7.

Larva: Head pale straw coloured; body pale green, with a

*Only the reference to the original description, and references to papers subsequent to Dyar's List are given. For other references, see Dyar's List.

number of very fine, somewhat broken, faint blackish lines along the back and sides.

It would seem that the original association of the larva with cecidomyid galls was merely accidental, due to the frequency of the occurrence of these galls on this species of willow, from which, in this case, remarkably enough, they were almost entirely absent.

The ornamentation of all the bred specimens is very constant, and the brick-red colour easily distinguishes them from their nearest ally, *A. fungivorella* Clem.

***Recurvaria dorsivittella* Zeller.**

Gelechia dorsivittella Zeller, Verh. zool.-bot. Ges. Wien, XXIII, 267, 1873.

Recurvaria dorsivittella Busck, Proc. U. S. N. M., XXV, 813, 1903; Dyar, List N. A. Lep., No. 5603, 1902.

The larva feeds on sweet gum (*Liquidambar styraciflua* L.) and is common in Clermont County, O., where the sweet gum forms a large part of the forest over the flat, undrained areas.

A tube of brownish silk and frass, about 1 cm. long, with a diameter of about 1 mm., is spun along a vein on the underside of a leaf. The tube is open at both ends, but at each end the free side projects slightly over the opening. Along the sides of the tube, and around each end, the larva eats irregular patches of leaf substance, leaving the upper epidermis and veins; gradually it feeds farther from the opening of the tube. When found during the later larval stages, the leaf, near the vein, where the tube is attached, is usually perforated with irregular holes, due doubtless to disintegration of the epidermis where the underneath part of the leaf was consumed during the early larval period.

At pupation, the ends of the tube are closed.

The larvæ were collected August 27 and continued to feed for a couple of weeks. Imagos in May of the following year.

***Elachista prælineata*, n. sp.**

Face gray, shining; head blackish behind. Palpi fuscous beneath, paler above; terminal segment with its tip and a broad band in the middle fuscous. Antennæ blackish with paler annulations; last one or two segments pale.

Thorax black, with a few scales at its posterior end, and at the tip of the patagia white. Fore wings black; base white with a faint yellow tinge; a slightly curved narrow white fascia at 2-5, about equally distant from the base on either margin; at 4-5, a triangular white costal spot, whose inner edge is almost on a line with the inner edge of a similar dorsal spot, placed a little nearer the base. Cilia around the apex white, elsewhere concolorous with wing.

Legs black, silvery on their inner sides, tarsal segments tipped with white. Hind tibiae with a spot in the middle and the apex conspicuously white.

Expanse: 6.5-7.5 mm.

Eight specimens, Cincinnati, O., August 2-8.

Occasionally, especially in males, the fascia and pair of spots are very narrow, but still distinctly defined.

The larva is a miner in leaves of *Hystrix patula* Moench., a common tall grass in dry hillside woods. The mine starts as a narrow line, scarcely visible on the upper side, and gradually enlarges into a blotch, with its greatest width 4 or 5 mm. Except in the wider portions of the blotch, the parenchyma near the lower side only is consumed; even in the broadest part of the blotch some of the parenchyma near the upper epidermis is left, giving the mine a speckled and greener appearance on the upper side, so that the mine is more distinctly visible on the lower surface where the epidermis is whitish. Pupa enclosed in a few criss-cross silken threads. At the time the larvæ were collected, July 18, many of the mines were deserted.

***Theisoa constrictella* Zeller.**

Oecophora constrictella Zeller, Verh. zool.-bot. Ges. Wien, XXIII, 291, 1873.

Theisoa constrictella, Dyar, List N. A. Lep., No. 6130, 1902.

The larva feeds under a web on the lower surface of leaves of white elm (*Ulmus americana* L.) and cork elm (*Ulmus racemosa* Thomas). A whitish silken tube crosses from the base of the petiole to the underside of the leaf, but is not attached to the petiole except at the base. From the mouth of this tube a thin web spreads over the basal part of the leaf; gradually covering more and more of the breadth of the leaf as the tube is lengthened.

The web is, however, in large part confined to the half of the leaf upon which the tube opens. The tube is of but little greater density than the web and is chiefly defined by the frass which collects along its sides.

The cocoon is a thin oval silken affair, spun between two leaves or on the ground, and is very similar to that of the species of *Chrysopeleia*.

The larvæ from which the above notes were made were collected July 3 near Cincinnati; one imago appeared July 30. A later generation of larvæ produces the imagos which appear in May of the following year.

***Psacaphora engelella* Busck.**

Psacaphora terminella Westw.

? Syn. *Mompha engelella* Busck, Can. Ent., XXXVIII, 123, 1906; Proc. Ent. Soc. Wash., XI, 96, 1909.

At the time of describing *Psacaphora* (*Mompha*) *engelella*, Mr. Busck noted its very close resemblance to *Psacaphora* (*Mompha*) *terminella* Westw. of Europe. I have succeeded in rearing a number of specimens, and the life history is identical with that of the European *P. terminella*. The larva mines leaves of *Circaea lutetiana* L. The earliest mine is a narrow thread-like, sometimes spiral, tract, which abruptly enlarges into a small blotch. Several successive blotches are formed, the last occupying almost half of one of the larger leaves. The mines were collected July 3. At this time many of the larvæ were full grown and ready to leave the mines preparatory to pupation. The cocoon is yellowish, flattened, tapering at the posterior end, broadly rounded at the anterior end where the two sides form a lip-like opening to admit of the emergence of the adult. Imagos emerged July 22-27.

These bred specimens agree in all respects with a number of flown specimens in my collection from one of the type localities (Pittsburg). As would be expected, the golden colour of the bred specimens is a little deeper—more orange—and the metallic margining of the basal black blotch is more conspicuous.

Although I have no specimens of the European *P. terminella* for comparison, the fact that the descriptions are practically the same, and that the food plant is native both to Europe and North America, strongly support the synonymy suggested above.



1915. "Annette F. Life histories of North American Tineina." *The Canadian entomologist* 47, 104–108.

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