

"ACARINA," OR MITES.

The Red Spider, "*Tetranychus sp.*," and the Clover Mite, "*Bryobia pratensis*," often found on apple, plum and many ornamental trees from England, Eastern Canada and the United States, the eggs being deposited around the base of the small twigs and laterals.

Pear Blister Mite, "*Eriophyes pyri*," in the bud scales of pear-trees from England and the United States.

This about completes the list of insects that have arrived in British Columbia as undesirable immigrants, and have been treated accordingly.

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BOMBYCIA IMPROVISA, EDW. AND ITS CONGENERS.

In Dyar's list of orth American Lepidoptera (1902) the name "*tearlii*" Edw. is given as a synonym of *Bombycia improvisa* Edw. On our finding two *Bombycias* in the Duncans District of Vancouver Island somewhat alike, it was at first thought that one was merely a variety of the other, namely, "*improvisa*" the species and "*tearlii*" the variety. But for the last two or three years I have felt convinced that the two forms were distinct species. This conviction has recently been confirmed by Messrs. Barnes and McDunnough in the September, 1910, number of the New York Entomological Society (Vol. XVII., No. 3), where, under the heading of "*Bombycia fasciata*, new species," is given a description of the moth which we have been inclined to regard as "*tearlii*" Edw., but which Messrs. Barnes and McDunnough state is not that species. I may remark that the insect figured in Holland's "Moth Book" as *B. tearlii* Edw. is evidently *B. improvisa*, Edw.

For the benefit of anyone who has not the Journal of the New York Entomological Society to refer to, I will quote the description and remarks, as follows:

Bombycia fasciata, new species.

"Collar and prothorax ruddy brown: patagia crested, gray, edged with dark brown; posterior portion of thorax gray; abdomen smoky brown; base of legs clothed with rosy hairs; primaries, ground color light purple brown, suffused at base and terminal portion of wing with light whitish green and crossed by a broad median band of the same color; the basal green portion of wing is bordered by an indistinct geminate, outwardly oblique, subbasal line, angled inwardly

on submedian fold and filled with light green; at a short distance beyond, a geminate t, a. line filled with ruddy brown runs parallel to subbasal line, outer line of the two being broadly black; median area with small black spot in cell and a wavy black median shade exterior to spot; t, p. line geminate, almost perpendicular, slightly outcurved opposite cell, incurved on submedian fold; inner line deep black, space between ruddy brown; at a point beyond t, p. line, equal to distance between subbasal and t, a. lines, a perpendicular, lunulate, pale green line, the area beyond this being almost entirely whitish green; below apex of wing a slight black curved line, continued indistinctly as a greenish shade edged with dusky to anal angle, often entirely absent; terminal black line slightly lunulate; fringes rosy gray. Secondaries dark smoky gray, lighter along outer margin with traces of black subbasal line and lighter median band. Beneath smoky, banded with lighter, costa, apex of wing and fringes rosy; small discal spot on secondaries.

"Expanse, 37.5 mm.

"Habitat,—Duncans, Vancouver Island (Oct. 1-7), 2 males, 9 females.

"Type, Coll, Barnes.

"This species, which is very constant in markings in all specimens before us, we consider distinct forms both '*improvisa*' Edw. and '*tearlii* (sic) Edw. The latter species can at once be separated by its dull gray color and lack of contrasting markings; the median area is scarcely lighter than the remainder of the wing and there is no green whatever present; Dyar is evidently in error in making it synonymous with '*improvisa*' Edw. The green basal area of '*improvisa*' is more limited than in '*fasciata*' and of a decided apple green shade; the broad suffusion of greenish in the outer portion of wing bordered inwardly by geminate line is almost lacking in '*improvisa*', being confined to an apical patch continued as a waved line; the course of the t, a. line also differs in the two species; in '*improvisa*' it is strongly oblique below costa and well angled inwardly on submedian fold; in '*fasciata*' it is much less oblique and the angle is not prominent; this latter distinction holds good in six specimens of '*improvisa*' and eleven of '*fasciata*' compared by us."

My own observations entirely agree with the foregoing descriptions and remarks pertaining to '*improvisa*' and '*fasciata*', with the exception that all the markings which Messrs. Barnes and McDunnough call "black" are in my specimens a very dark chocolate brown.

I will now proceed to give my reasons for considering that "*improvisa*" and "*fasciata*" are distinct from each other and the latter worthy of being raised to the rank of a species.

In both cases the images bear a superficial resemblance to each other, but anyone well acquainted with the insects would have no difficulty in separating them. The greatest difference, however, lies in the time of appearance and also in the early stages of the insects. To take the time of appearance first, *fasciata* is on the wing from the end of September to about the middle of October, and just when it is getting worn and over, *improvisa* puts in a first appearance quite freshly emerged; and continues for a fortnight or so after *fasciata* has practically disappeared. In some years, however, the two species overlap a little.

With regard to ova; at the present time I have eggs from both species—*fasciata* laid 9th to 12th October—*improvisa* laid 23rd to 28th October. Perhaps it would be plainer to contrast the other special differences of the ova in separate columns.

FASCIATA.

1. Laid singly and promiscuously attached (lengthwise) to box.
2. Shape, cylindrical, with rounded ends; about one-third longer than broad. Length, half a line. Breadth one-third of a line. Sculptured with longitudinal striations, strongly marked.
3. Color (after the first few days when they were the usual greenish yellow), medium brown with a somewhat iridescent purplish tinge.

IMPROVISA.

1. Laid end to end regularly (in lines containing varying numbers of eggs) like strings of elongated beads, and attached firmly to box.
2. The same, but the size considerably smaller and with the striations not so pronounced.
3. Greenish yellow at first, afterwards purplish brown with a greenish tinge, like bloom on a plum. Not as iridescent as *fasciata*.

So far as the egg stage is concerned, the foregoing may be relied upon to apply to the respective species.

With regard to the larvae, the following descriptions are taken from my notebook for 1908, in which year I possessed examples of both species, but they all died when nearly full grown, so that I cannot positively say which was which. Assuming, however, that the earlier larva turned to the earlier moth (*fasciata*) and the later larva to the later moth (*B. improvisa*), the following notes would hold good:

B. fasciata, Barnes and McDunnough.

Larva (nearly full fed) beaten from wild cherry. May 8th, 1908. Color, dirty brown, underside lighter, a central lighter band runs from the head to anal segment where it ends in a point cut off by a transverse chocolate colored line. This marking is the

most conspicuous on the larva. There are six other dark lines, three on each side of the central band near the head at the hinder part of the 1st, 2nd, and 3rd segments pointing diagonally forward from the central band. At the base of the last pair of marks are indistinct bands margining the central band. The central band has a central line widening a little on each segment except on the last three, where it is barely traceable. Head pinky brown with blackish blotches. There are groups of three and four dark dots on both sides of each segment, situated in the darkish band on each side of the central band and also dots below the spiracles. There is a short putty colored line extending backward from each spiracle.

B. improvisa, H. Edw.

Ova hatched at the beginning of May, 1909. Larva quite small when one larva of *fasciata* found wild half grown and another full fed. General appearance of the larva when young the same in both species. Newly hatched larvae chose wild cherry out of several food plants offered them and continued feeding on the same until they died. At the end of May *improvisa* much brighter in color than *fasciata* and of a more orange brown. The markings are distinctly mustard yellowish. The central channel ends posteriorly in light brown transverse marking and not in a dark one like *fasciata*. Above the spiracles the subdorsal area is a tawny brown.

All the larvae (5) found dead in sleeve (on growing wild cherry) 5th June. They were flaccid as if killed by heat. The largest was then $1\frac{1}{4}$ inch long.

To sum up the most striking differences, *fasciata* larva was full grown about the second week in May, whereas *improvisa* would have been full grown about the second week in June. *Fasciata* is duller than *improvisa* and has not the distinct mustard yellowish markings along the sides, nor the arrangements of shading which give the impression of diamond shapes down the back. On the other hand, the markings behind the head and on the anal segment are darker in *fasciata* than in *improvisa*.

Of course further experience with the early stages will be required to ascertain if the differences I have noted are constant or not, and it will be necessary to breed the separate forms right through, before one can speak with any degree of certainty, but perhaps the foregoing may be acceptable, pro tempore, as a contribution to the subject.

I may state that my "rough and ready" and incomplete descriptions of the larvae were noted for my own information and not with the idea of publication.

GEO. O. DAY.

"Sahlatston," Duncans, B. C., 14th Nov., 1911.