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## A NEW SPECIES OF PLANT-LOUSE INJURIOUS TO VIOLETS.

BY THEODORE PERGANDE, WASHINGTON, D. C.

Among several species of insects which have lately come to the notice of the Division of Entomology of the U. S. Department of Agriculture, through their ravages upon greenhouse violets, is a little species of plant-louse known to florists as the black or brown aphid. The species is now very generally distributed in the United States and occurs in Canada, although it was not known until within five or six years from the time of writing. As it appears to be undescribed, I propose the specific name *violæ*, and have placed it in the genus *Rhopalosiphum*, to which it appears to belong. The following description is submitted, pending a more detailed account of the injuries and a consideration of remedies which it is expected will shortly be published by the Department of Agriculture.

### *Rhopalosiphum violæ*, n. sp.

Apterous females dark cherry-brown and polished, the larvæ and pupæ generally somewhat paler. Eyes dark brown, third joint of antennæ more or less distinctly of a paler colour than the body, the remaining joints black. Legs purplish, the femora darkest towards the end and the apex of the tibiæ and the tarsi black. Nectaries purplish. Head and thorax of the pupæ generally paler than the rest of the body.

Winged females also dark cherry-brown or purplish-brown, the antennæ, thoracic lobes, terminal two-thirds or more of femora, apex of tibiæ and tarsi black; rest of the legs of a dull yellowish colour, with a tinge of purple. Nectaries and tail dusky. Wings clear, the veins strong and black and conspicuously shaded; stigma black; stigmal vein short

and strongly curved. Antennæ of all, very long and slender, reaching considerably beyond the end of the body; joint six with its spur is much longer than the third, joints four and five are subequal in length, and each of them somewhat longer than the third; there are numerous sensorial tubercles on joint three and a few on joint four, while all of them are sharply serrate. The first joint is very much the stoutest, and bulging out strongly about the middle at the inner side; frontal tubercles prominent and gibbous at the inner apical angle. Legs long and slender. Nectaries clavate, reaching to the tip of the abdomen. Tail short and inconspicuous. Length of winged and apterous females about 1.6 mm. expanse of wings about 5 mm.

Type No. 4,467, U. S. National Museum. Many specimens. Type locality, Washington, D. C.

This is a singularly handsome species, which in the peculiarly short and strongly curved stigmal vein and strongly shaded venation reminds one of *Callipterus*; while the gibbous frontal tubercles recall those of some species of *Myzus*. There is also a queer tendency of losing one or both branches of the third discoidal vein, the stigmal and sometimes one or both of the veins of the hind wings. In one of the wings of one specimen the second and third discoidals arise from the same spot, while these two veins of the other wing arise from a common petiole.

These plant-lice are very numerous at the crown of violet plants, preventing the young leaves from unfolding or checking their development. Many are also found in the petioles and on the under side of the leaves.

## ON TWO GENERA OF MITES.

BY NATHAN BANKS, EAST END, VA.

In 1871, Thorell published his description of *Rhagidia* in a paper entitled, "Om Arachnider fran Spetsbergen och Beeren-Eiland." He placed it in the family *Eupodida*, from the other genera of which it differed principally in the great size of the mandibles. In 1876, Cambridge, in his paper "On a new Order and some new Genera of Arachnida from Kerguelen's Land," described *Pœcilophysis* as the type of a new family and a new order. He was unaware of Thorell's mite, yet there is but one prominent difference between them, *Pœcilophysis* is said to have eyes on the frontal tubercle. Neither of these authors gave any reference to any species of Koch's genus *Scyphius*, to which their forms bear a great resemblance. Koch described about a dozen species of this

genus, many of which are doubtless only forms of one species. In the modern European literature, nothing is done with Koch's species of this genus, save by Oudemans (1897), who identifies four of the Kochian names. Oudemans, however, appears to be ignorant of the fact that there were several other names for this genus besides *Scyphius*, for he thinks, since *Scyphius* is preoccupied, that the genus must have a new name.

However, in 1886 it received two names, *Norneria* from Canestrini and *Scyphoides* from Berlese. The former has the priority, and is used by Berlese in his "Acari Italiani." Canestrini pleaded the impossibility of identifying Koch's species, and described both of the Italian forms as new, in which he has been followed by Berlese. Neither of the Italian authors appear to be aware of either *Rhagidia* or *Pœcilophysis*, else they would have mentioned the similarity between these forms; and Berlese omits these genera from his list, which professes to be complete for the world. There is not, however, any doubt that *Rhagidia* is generically the same as *Scyphius*, and *Rhagidia* has priority over all the other names proposed to replace *Scyphius* (which is preoccupied). *Pœcilophysis*, in spite of its alleged eyes, is not, in my opinion, distinct from *Rhagidia*. The *Scyphoides* of Karpelles (1891) is evidently a different genus, but somewhat allied to *Rhagidia*.

*Rhagidia* is thus a world-wide genus, known by the large mandibles and its resemblance to *Solfugida*, a fact noticed by both Thorell and Cambridge. The genus will stand as follows:

RHAGIDIA, Thorell, 1871.

*Scyphius*, Koch (preoccupied).

*Pœcilophysis*, Cambridge, 1876.

*Norneria*, Canestrini, 1886.

*Scyphoides*, Berlese, 1886.

It is impossible to tell how many of Koch's names represent good species; however, omitting these, there are the following species in the genus:

*Rhagidia gelida*, Thorell—Behring Island, Nova Zembla, Siberia.

" *kerguelensis*, Cambr. (*Pœcilophysis*)—Kerguelen.

" *gigas*, Canestr. (*Norneria*)—Italy.

" *clavifrons*, Canestr. (*Norneria*)—Italy.

" *hamata*, Kr. and Neum. (*Scyphius*)—Japan.

" *japonica*, Kr. and Neum. (*Scyphius*)—Japan.

" *pallida*, Banks—United States.

\* \* \* \* \*

In the Ann. Entom. Soc., France, for 1864, Lucas described, on page 206, a curious mite from Algeria and Tunis. He called it *Rhyncholophus* (?) *plumipes*. It differed from the ordinary species of this genus in a number of minor characters, but was chiefly remarkable in having on the hind tarsi a dense plume of long hair. Frauenfeld, in the Zool.-bot. Ges. Wien., XVIII., p. 892, records having received specimens from Spain and Corfu, which he considers this species. He does not give any description of his forms, so it is not possible to tell whether they were the same species or not. Then, Haller, in his paper—Beit. zur Kenntniss der schweizerischen Milbenfauna—gave a figure and description of a mite, which he considered Lucas's species, from specimens collected in Switzerland. There are, however, numerous differences between his form and that described by Lucas, so there is no doubt that the Swiss species is new. In 1893, Birula, in Horæ Soc. Entom. Ross, p. 388, under the heading of "*Rhyncholophus* (*Macropus*) *plumifer*," describes an allied mite. He gives no reference to Lucas, and probably did not know of *R. plumipes*. The subgeneric name, *Macropus*, is not mentioned in the text of the article. His species came from Russian Armenia. C. F. George, in Science Gossip, Vol. III., p. 150 (1896), records *R. plumipes* from the Isle of Jersey; it is not certain that it is the species of Lucas. Now, in 1897, Cambridge, in the Proc. Zool. Soc., London, p. 939, gives the description and figure of a new genus and species of mite from Algeria—*Eatonia scopulifera*. He refers to Birula's paper, but not to that of Lucas or Haller. A glance at his figures and description shows that it is the same as *Rhyncholophus plumipes*, without the shadow of a doubt.

Now the question arises, "What is the name of this mite?" All of these mites have the same peculiar structure of the hind tarsi, and undoubtedly form a natural group of generic rank. The first name proposed, *Macropus*, by Birula (which is not mentioned by Cambridge) has been used several times in Zoology, and so is not available. *Eatonia* has been used at least twice before, and also becomes inapplicable. It is therefore necessary to create a new name for the genus. I propose *Lucasiella*.

As to the species, Cambridge's species is the same as that of Lucas. Haller's form is not the same, and may be called *L. Halleri*. Birula's species is a good one, so that there are at least three species of this genus in the Mediterranean region, which may be tabulated as below :

1. Body granulate ; rostrum with a long spine ; palpi tapering, straight ; last joint of leg iv. not swollen.....*L. plumipes*.  
 Body with scales or flattened hairs.....2.
2. Frontal tubercle with short spines ; last joint of leg iv. swollen.....*L. plumifer*.  
 Frontal tubercle with very long spines ; last joint of leg iv. not swollen.....*L. Halleri*.

## LUCASIELLA, Banks.

*Rhyncholophus*, Lucas (in part), 1864.*Mucropus*, Birula (preoccupied), 1893.*Eatonia*, Cambridge (preoccupied), 1897.*L. plumipes*, Lucas, 1864—Algeria, Tunis, Corfu, Spain, Isle of Jersey.*Eatonia scopulifera*, Cambr., 1897.*L. plumifer*, Birula, 1893—Russian Armenia.*L. Halleri*, Banks, 1899—Switzerland.*R. plumipes*, Haller (nec Lucas).

## NEW GENERA AND SPECIES OF EPHYDRIDÆ.

BY D. W. COQUILLET, WASHINGTON, D. C.

*Psilopa flavida*, n. sp. ♂.—Yellow, polished, the third joint of antennæ, except the lower side, dark brown ; hairs and macrochætæ black, a vitta reaching from humerus to insertion of wing, and another on middle of pleura, black ; abdomen, except first segment and middle of the second, black, with a strong violaceous tinge ; knob of halteres greenish yellow ; wings grayish hyaline, unmarked ; two pairs of dorso-central macrochætæ ; length 2.5 mm. New Bedford, Mass. A single specimen collected by Dr. Garry de N. Hough. Type No. 4292, U. S. Nat. Museum.

*Psilopa varipes*, n. sp. ♀.—Black, polished, the third antennal joint brown, its base yellow, knob of halteres white, middle and hind tibiæ and their tarsi yellow, apices of the tarsi brown ; head, thorax and scutellum tinged with green, the mesonotum and scutellum slightly scabrous, less polished than the head and pleura, only one pair of dorso-centrals ; wings hyaline, the hind crossvein distinctly clouded with brown ; length 2 mm. Vancouver Isd., Brit. Columbia. Three specimens collected by Mr. C. Livingston. Type No. 4293, U. S. Nat. Museum.

*Psilopa similis*, n. sp. ♂ ♀.—Black, the third antennal joint brownish, knob of halteres white ; all coxæ, femora, middle and hind

tibiae and their tarsi, yellow; head and pleura highly polished, the abdomen less so, mesonotum and scutellum subopaque, slightly scabrous, thinly gray, pruinose, one pair of dorso-centrals; wings hyaline, both cross veins clouded with brown, broad apex of wing also brown; length 2 mm. Biscayne Bay, Fla. (Mrs. A. T. Slosson), and Opelousas, La. (Mr. G. R. Pilate). Five specimens. Those from the last named locality are in the collection of Dr. Garry de N. Hough, to whom I am indebted for the privilege of examining these and other specimens belonging to this family. Type No. 4294, U. S. Nat. Museum.

*Hyadina albovenosa*, n. sp. ♀.—Black, the under portion of the third antennal joint, palpi, and tarsi except the last joint, yellow, the halteres whitish; face, cheeks and lower part of occiput opaque gray pruinose, remainder of occiput slightly polished, front highly polished, mesonotum and scutellum slightly less so, one pair of dorso-centrals, pleura thinly whitish pruinose, abdomen opaque brownish pruinose, the broad lateral margins and the fifth segment highly polished, genitalia light gray; wings grayish hyaline, the cross veins distinctly clouded with white. Length 1 mm. Tifton, Ga. (Oct., 1896), and Opelousas, La. (March, 1897). Three specimens collected by Mr. G. R. Pilate. Type No. 4295, U. S. Nat. Museum.

*Gastrops nebulosus*, n. sp. ♂ ♀.—Black, the antennae, except the upper edge and sometimes broad apex of the third joint, apex of proboscis, stem of halteres, and tarsi, except the last joint, yellow; tibiae reddish-brown; head, thorax and scutellum polished, sparsely covered with brownish pruinose spots, one pair of dorso-centrals; abdomen lustrous, tinged with bronze, coarsely punctured; wings hyaline, mottled with light and dark brown, a dark brown cloud on the cross veins, one below apex of the first vein, another midway between apices of first and second veins, one at apex of second vein covering a stump of a vein that projects into the submarginal cell from the second vein a short distance before its apex; apices of third and fourth veins bordered with brown, that on the third extending more than half way to apex of second vein, where it is considerably expanded; a faint brown cloud in the outer fourth of the first posterior cell, and one near centre of the second posterior cell; length 2 to 3 mm. N. C. and Tifton, Ga. (Oct.–Nov., 1896). Nine specimens; those from Ga. were collected by Mr. G. R. Pilate, and are in Dr. Hough's collection. Type No. 4296, U. S. Nat. Museum.

*Nostima*, n. gen. Hydrellinæ.—Second joint of antennæ destitute of bristles, arista with long pectinations on the upper side; two pairs of vertical bristles, a strong pair of ocellars, situated between the two upper ocelli, three pairs of extremely small fronto-orbitals forming a row along each eye: face strongly projecting forward below, in profile slightly concave to the lowest seventh, then strongly retreating to the oral margin, three bristles near each lower corner of the face; eyes densely pubescent. Thorax bearing two pairs of dorso-centrals, no bristly hairs between them, only a few on any portion of the thorax; two notopleural and a small sternopleural macrochaete, two pairs on the scutellum. Abdomen composed of five segments, of which the second is as long as the three following taken together, the latter subequal in length. Legs destitute of long bristles. Venation normal, the costa is continued to the tip of the fourth vein, apex of second vein slightly nearer tip of the third than to the first, last two sections of fourth vein subequal in length. Type, the following species:

*Nostima Slossona*, n. sp. ♀.—Black, opaque, the legs polished, the under side of the third antennal joint, the tarsi except the last joint, and a band near the middle of each hind tibia, yellow; face gray pruinose, a small brown spot near the centre, front blackish brown, an ocellar dot, the upper corners and narrow orbits, gray; mesonotum gray pruinose, marked with five dark brown vittæ, pleura black, a gray streak near the middle of the front part, and another on the upper edge of the sternopleura; scutellum black, the front corners gray, metanotum and abdomen black, a pair of gray spots on the third, fourth and fifth segments; wings dark brown, the costal cell and the marginal cell adjoining it almost wholly white, a white spot covering a stump of a vein nearly midway between apices of first and second veins, a similar spot before, and another at the apex of the second vein, one near the apex of the submarginal cell, another in the first posterior cell slightly more remote from its apex than the above, one on the fourth vein opposite the one in the first posterior cell, one near the apex of the discal cell, and one on the opposite side of the fifth vein; a white spot on the small cross vein, one at each end of the hind cross vein, a nearly triangular spot in extreme apex of the first posterior cell, and a large one at the first third of this cell, a narrow one on the opposite side of the third vein, a whitish streak near base of discal cell, and another near centre of the third posterior cell; length nearly 1 mm. Biscayne Bay, Florida. A single specimen collected by Mrs. Annie T. Slosson, to whom this handsome species is respectfully dedicated. Type No. 4297, U. S. Nat. Museum.



*Paratissa*, n. gen. Notiphilinae.—Second joint of antennæ covered with very short, stout bristles, and with a longer one, directed forward, at the upper angle of the inner side, arista with long pectinations on the upper side; two pairs of vertical bristles, an ocellar pair situated slightly lower than the two upper ocelli, a second pair placed a little lower than the lowest ocellus, also a third pair nearly midway between these and the lower edge of the front, the three pairs directed forward; four pairs of fronto orbitals, placed in a row along each eye, the upper pair the smallest, the two upper pairs directed outward, the others forward; face slightly projecting forward at the oral margin, in profile gently concave, bearing two macrochætæ near each lower corner, several stout bristles along the lateral oral margin, cheeks scarcely one-seventh as broad as height of eyes. Thorax bearing two pairs of dorso-centrals, one intra-alar, three supra-alar, one præsutural, one humeral, two notopleural, two mesopleural and one sternopleural macrochætæ; short, bristly hairs of mesonotum numerous and arranged in quite regular rows, two of which are between the dorso-centrals; scutellum covered with short, bristly hairs and bearing three pairs of macrochætæ, the intermediate pair less than half as long as the anterior pair. Abdomen composed of five segments in the male, six in the female. Tibiæ destitute of long bristles. Venation normal, costa reaching apex of fourth vein, apex of second vein slightly beyond middle between first and third veins, penultimate section of fourth vein two-thirds as long as the last section. Type *Drosophila pollinosa*, Williston, from St. Vincent, West Indies; three specimens were taken by Mrs. A. T. Slosson, at Biscayne Bay, Florida.

*Ephydra austrina*, n. sp. ♂ ♀. — Front in the middle polished bronze green, very thinly brownish pruinose, sparsely covered with short bristly hairs and with a pair of stout macrochætæ a short distance above the antennæ; an oval depression below the lowest ocellus, sides of front opaque brown pruinose, the narrow orbits gray, two fronto-orbitals each side; face near the upper edge green, polished, thinly grayish pruinose, remainder of face opaque brownish gray pruinose, the macrochætæ fringing the anterior oral margin few and rather short; antennæ black, the third joint destitute of a long lateral hair; proboscis grayish black, the apex yellowish, palpi brown; body green, mesonotum polished, thinly brown pruinose, five pairs of dorso-centrals, pleura greenish gray pruinose, a brown spot near the centre; abdomen subopaque, thinly gray pruinose; second, third and fourth segments in the male subequal in length, each slightly shorter than the fifth; femora green, tibiæ greenish brown, all thinly gray pruinose, knees yellowish, tarsi brown, not enlarged in either sex; wings hyaline; halteres yellow; length 4 to 5.5 mm. Georgiana, Florida. Nine specimens, collected by Mr. William Wittfeld. Type No. 4299, U. S. Nat. Museum.

## NOTES ON SOME NORTH AMERICAN YPONOMEUTIDÆ.

BY HARRISON G. DYAR, WASHINGTON, D. C.

## Family YPONOMEUTIDÆ.

*Synopsis of North American Genera.*

Hind wings with veins 3 and 4 stalked or united.

Hind wings with vein 4 present.

Veins 6 and 7 separate.

Antennæ of male thickened with scales toward  
base..... *Walsinghamia*.

Antennæ of male not thickened with scales.

Second joint of palpi tufted..... *Choreutis*.

Second joint not tufted, but rough scaled.

Hind wings elongate ovate c narrow ob-  
long..... *Glyphipteryx*.Hind wings short ovate or trigonate... *Simæthis*.Veins 6 and 7 stalked..... *Setiostoma*.Hind wings with vein 4 absent..... *Ypononeuta*.

Hind wings with veins 3 and 4 separate, rarely connate.

Palpi not tufted, smooth, upturned.

Hind wings with the cross-vein of cell strongly angled.. *Mieza*.

Hind wings with the cross-vein straight.

Palpi reaching above the middle of the front..... *Atteva*.Palpi not reaching the middle of the front.. *Trichostibas*.

Palpi with the second joint tufted below or porrect and hairy.

Third joint smooth, sharp pointed, distinct.

Veins 6 and 7 of hind wings stalked.

Veins 7 and 8 of fore wings stalked.

Apex of fore wings pointed..... *Cerostoma*.Apex of fore wings falcate..... *Periclymenobius*.Veins 7 and 8 of fore wings separate..... *Trachoma*.

Veins 6 and 7 of hind wings separate.

Veins 7 and 8 of fore wings separate..... *Plutella*.Veins 7 and 8 of fore wings stalked..... *Eido*.

Third joint concealed in hair or porrect, not smooth.

Veins 6 and 7 of hind wings stalked..... *Euceratia*.

Veins 6 and 7 of hind wings separate.

Fore wings with 11 veins..... *Pterolonche*.

Fore wings with 12 veins.

Veins 9 and 10 stalked . . . . . *Calantica*.

Veins 9 and 10 separate.

Basal joint of palpi short . . . . . *Aræolepia*.

Basal joint of palpi long . . . . . ? *Thelethia*.

Subfamily YPONOMEUTINÆ.

Genus YPONOMEUTA, Latr.

Latr., Gen. Crust. Ins., IV., 222, 1796; *Hyponomeuta*, Sdt., et auct.

*Synopsis of Species.*

Hind wings above and all wings below shaded with dark gray . . . . . *multipunctella*.

Wings white on both sides . . . . . *orbimaculella*.

*Y. multipunctella*, Clem., Pr. Acad. Nat. Sci. Phil., 8, 1860; Chamb. Bull. U. S. Geog. Surv., IV., 151, 1878 (refs.); Riley, Smith's List. Lep. Bor. Am., No. 5156; *wakarusa*, Gaumer, Obs. Nat.; Chamb. Bull. IV., 151, 1878; ♂ *ordinatellus*, Walk., Cat. Brit. Mus., XXVIII., 530, 1863.

A specimen of this species in the Nat. Museum has pinned on it a printed slip, cut from a journal, which reads as follows: "On the 25th of May, I obtained from the Wakarusa bottom a large number of very small larvæ that were feeding upon the Waahoo, *Euonymus atropurpureus*. These caterpillars were so small when fully grown that they escaped through the wire-topped cage and made their cocoons in the corners of the room, and, ten days later, they hatched and were captured as they flew in the windows. This is the moth which I have named the Waahoo moth, *Hyponomeuta wakarusa*." Across the face of the slip is written "G. F. Gaumer."

I have nine males, no females, of *multipunctella*.

*Y. orbimaculella*, Chamb., CAN. ENT., V., 12, 1873; *orbimaculella*, Riley, Smith's List Lep. Bor. Am., No. 5157, 1891; *euonymella*, Chamb., CAN. ENT., IV., 42, 1872; *euonymella*, Chamb., Bull. U. S. Geog. Surv., IV., 150, 1878; ♀ *ordinatellus*, Walk.

This differs from the preceding only in lacking the gray shading. I have seven females, no males, of *orbimaculella*. Both forms, bred from *Euonymus americanus*, Dept. Agriculture, No. 3406, will doubtless prove to be sexes of one species as determined by Walker.

[NOTE.—*Y. apispunctella*, Chamb., and *Y. Zelleriella*, Chamb., are referable to *Psecadia* in the Cœphoridæ; *Y. quinquepunctella*, Chamb., to *Prodoxus* in the Tineidæ.]

## Genus MIEZA, Walk.

Walk., Cat. Brit. Mus., II., 527, 1854; *Enæmia*, Zell., Verh. Zool.-Bot. Ges. Wien., XXII., 562, 1872; XXV., 345, 1875.

*Synopsis of Species.*

Head white on the vertex.

Fore wings white on basal two-thirds of inner margin, with distinct, round, dark brown spots . . . . . *subferuens*.

Fore wings thickly and uniformly sprinkled with brown streaks, the round dots small and obscure . . . . . *psammitis*.

Head red on vertex . . . . . *igninix*.

*M. subferuens*, Walk., Cat. Brit. Mus., II., 528, 1854; Zell., Verh. Zool.-Bot. Ges. Wien., XXII., 563, 1872; Grote, Bull. Buff. Soc., II., 152, 1874.

*M. psammitis*, Zell., Verh. Zool.-Bot. Ges. Wien., XXII., 562, 1872.

*M. igninix*, Walk., Cat. Brit. Mus., II., 527, 1854; Grote, Bull. Buff. Soc., II., 152, 1874; *crassinervella*, Zell., Verh. Zool.-Bot. Ges. Wien., XXII., 563, 1872; Packard, Amer. Nat., IV., 229, 1870, pl. 2, fig. 1 (as *Eustixia pupula*); Slosson, Journ. N. Y. Ent. Soc., IV., 86, 1896; Dyar, Journ. N. Y. Ent. Soc., IV., 87, 1896.

## Genus ATTEVA, Walk.

Walk., Cat. Brit. Mus., II., 526, 1854; Wals., Proc. Zool. Soc. Lond., 1897, 112 (full refs. and synon.).

*A. aurea*, Fitch, 3rd. Rept. Ins. N. Y., 168, 1856; Pack., Proc. Ent. Soc. Phil., III., 106, 1864; Stretch, Zyg. Bomb. N. A., 159, 1872; *compta*, Clem., Proc. Acad. Nat. Sci. Phil., 251, 1862; Grote, Proc. Ent. Soc. Phil., IV., 319, 1865; V., 231, 1865; Riley, 1st Rept. Ins. Mo., 15., 1868; Zell., Stett. Ent. Zeit., XXXII., 178, 1871; Wals., Proc. Zool. Soc. Lond., 1897, 112.

The larva feeds on *Ailanthus*.

Lord Walsingham refers *punctella*, *aurea* and *gemmata* to one species, but they certainly seem distinct.

*A. gemmata*, Grote, Bull. Buff. Soc., I., 93, 1873; Wals., Proc. Zool. Soc. Lond., 1897, 113; *floridana*, Neum., CAN. ENT., XXIII., 123, 1891; Dyar, Journ. N. Y. Ent. Soc., V., 48, 1897.

The larva feeds on *Simaruba*.

## Genus TRICHOSTIBAS, Zell.

Zell., Stett. Ent. Zeit., 1863, 150; Hor. Ent. Soc. Ross., XIII., 227, 1877; Wals., Proc. Zool. Soc. Lond., 1897, 114.

*T. calligera*, Zell., Hor. Ent. Soc. Ross., XIII., 231, 1877; Wals., Proc. Zool. Soc. Lond., 1891, 533, 547; 1897, 115; *parvula*, Hy. Edw., Pap. I., 80, 1881; Smith's List, Lep. Bor. Am., No. 958, 1891; Kirby, Cat. Lep. Het., I., 86, 1892; Dyar, Journ. N. Y. Ent. Soc., VI., 41, 1898.

Not uncommon in southern Florida. The Nat. Museum has some 25 of the cocoons, which closely resemble Lord Walsingham's description of *T. fumosa*, Zell. (Proc. Zool. Soc., Lond., 1897, 114), except that it is not kidney-shaped, but regularly elliptical. The meshes are nearly square, and the stem by which it is suspended runs along the side of the cocoon and projects a little way beyond. The open neck at the posterior end, about the use of which Lord Walsingham seems to have been in doubt, obviously serves as a place to eject the larval cast skin, which has disappeared in all the specimens before me. I found the cocoons on the trunk of a large tree at Miami, Florida. Other specimens are labelled "on fence," Green Cove Springs, Fla. (R. S. Turner); "on *Persea*, sp.," Cocoanut Grove, Fla. (E. A. Schwarz); Jacksonville, Fla. (W. H. Ashmead).

#### Subfamily PLUTELLINÆ.

This includes *Calantica*, Zell.; *Eucератia*, Wals.; *Aræolepia*, Wals.; *Periclymenobius*, Wall.; *Trachoma*, Wall.; *Pterolonche*, Zell.; *Cerostoma*, Latr.; *Plutella*, Schr. *Eido*, Chamb., seems also to fall here, though I have no specimens.

These genera stand correctly listed in Smith's list, except that *dubiosella*, Beut. (No. 5198), should be transferred to *Plutella*, and is, indeed, scarcely to be distinguished from the less strongly marked specimens of *P. cruciferarum*, which are in the collection, bred from turnip. This latter species should be known as *P. maculipennis*, Curt. (see Wals. and Durr., Ent. Mo. Mag., XXXIII, 173, 1897, for full references).

The following species may be added :

*Cerostoma Koebelella*, n. sp.

Maxillary palpi filiform, labial long, second joint strongly tufted below, third smooth, sharp pointed. On fore wings veins 7 and 8 stalked; on hind wings 3 and 4 approximate, but separate, 6 and 7 long stalked. Head and thorax dark gray; fore wings purplish gray on the half towards inner margin, sprinkled with little irregular clusters of brown-black scales; costal half paler, likewise irrorate with darker scales, a luteous band from the middle of the cell to apex, ill-defined and diffuse, irrorate with brown

scales. It is of even width, covering veins 7 and 8; beyond the cell are also two faint luteous streaks over veins 5 and 6. Secondaries and abdomen shining gray. Expanse 18 mm., one male, Placer Co., Cal., Sept., "through C. V. Riley," U. S. Nat. Museum, type No. 4422.

*Synopsis of Species of Cerostoma.*

Fore wing luteous, this colour predominating.

Smooth, reddish luteous, not irrorate.....*sublucella*, Wals.

Wings irrorate with darker lines and spots.

A dark streak from apex to cell; two black blotches on inner margin, the wing otherwise scarcely strigose....*cervella*, Wals.

No apical streak; fore wing strigose-reticulate, some of the strigæ on internal margin often forming heavy

dots.....*subsylvella*, Wals.

Fore wing gray, the luteous not predominating.

A series of three black dashes below the cell and a spot at the end.....*alutianella*, Beut.

No longitudinal black dashes.

A luteous streak from cell to apex.....*Koebelella*, Dyar.

No such streak, at most a luteous ray from the base toward outer margin.....*radiatella*, Don.

Subfamily GLYPHIPTERYGINÆ

Genus SETIOSTOMA, Zell.

Zell., Verh. Zool.-Bot. Ges. Wien., XXV., 324, 1875.

*S. xanthobasis*, Zell., Verh. Zool.-Bot. Ges. Wien., XXV., 325, 1875.

*S. Fernaldella*, Riley, Proc. Ent. Soc., Wash., I., 155, 1889.

Genus WALSINGHAMIA, Riley.

Riley, Proc. Ent. Soc., Wash., I., 157, 1889.

*W. diva*, Riley, Proc. Ent. Soc., Wash., I., 158, 1889.

Genus SIMÆTHIS, Leach.

Leach, in Sam. Comp., 254, 1819; *Brenthia*, Clem., Proc. Acad. Nat. Sci., Phil., 1860, 172.

*S. vicarilis*, Zell., Verh., Zool.-Bot. Ges., Wien., XXV., 322, 1875.

*S. pavonacella*, Clem., Proc. Acad. Nat. Sci., XII., 172, 1860; Wals., Proc. Zool. Soc., Lond., 1897, 120 (references).

Lord Walsingham recognizes the genus *Brenthia* for this species, but it seems to me to fall in *Simæthis*. The other species of *Brenthia* fall in *Choreutis*.

(To be continued.)

NEW SPECIES AND VARIETIES OF NORTH AMERICAN  
LEPIDOPTERA.

BY WILLIAM BARNES, M. D., DECATUR, ILLINOIS.

<i>Melitæa Chalcedon</i> , ab. <i>fusimacula</i> .	<i>Scirarctia Cliv</i> , var. <i>Jessica</i> , n. var.
<i>Melitæa Chalcedon</i> , ab. <i>Mariana</i> .	<i>Orgyia Oslari</i> , n. sp.
<i>Melitæa Senrabii</i> , n. sp.	<i>Eulimacodes Telligii</i> , n. sp.
<i>Thecla Mirabelle</i> , n. sp.	<i>Coloradia Doris</i> , n. sp.
<i>Pyrgus Polingii</i> , n. sp.	<i>Tolype Glenwoodii</i> , n. sp.
<i>Pseudalyptia Geronimo</i> , n. sp.	<i>Gloveria Arizonensis</i> , Pack., male.

*Melitæa Chalcedon*, ab. *fusimacula*.—Variations of *Chalcedon* are very common, but the ones I now describe are so striking that they are certainly worthy of a varietal name, especially as they do not seem to be so very uncommon. In the first of these, to which I have given the name *Fusimacula*, there is a tendency to obliteration of the spots on discs of both wings, and to a fusion of the three outer rows of spots in a horizontal direction. The ground colour of the upper surface is of the same rich black as *Chalcedon*. There is a complete absence of the spots in the cells of both fore and hind wings in males, and there are but faint traces of them in the females. On the fore wings the fusion takes place as follows: The two outer rows unite to form a yellow band, which is joined at about its middle by a yellow demi-band from the costa, which is composed of the fusion of the two inner rows. The infra-cellular spot on the fore wings is either absent or fused with the large spot outside of it, thus forming a large quadrangular patch on the middle of the hind margin. On the hind wings there is more or less complete fusion of the outer three rows of spots, resulting in a broad yellow band across the wing composed of large quadrangular spots three-eighths of an inch long lying between the nervules. There are faint traces of a marginal row of red spots. On the under side the fusion is even more marked. There is almost complete obliteration of the mesial row of red spots on the hind wings. The red markings on the inner third of the hind wings are about the same as in *Chalcedon*, but the yellow spots have almost or quite disappeared, being replaced by black. Types: three males and two females from California.

*Melitæa Chalcedon*, ab. *Mariana*.—Upper surface black on both wings, the only markings being, on the fore wings the marginal row of red spots, and in one specimen two faint red spots in cell, and on the hind wings a series of minute yellow spots, representing the mesial row. All

the other spots have disappeared, though in one specimen a few can be discerned through the black. On the under surface the yellow markings have been entirely replaced by black, the red remaining intact. In one specimen the yellow spots can be traced through the black, but in the other there is no sign of them to be seen. The only traces of yellow are a few scales along the veins of the hind wings, a few more at the apex of the fore wings and the spots on the fringes. Types: two males. California.

*Melitæa Senrabii*, n. sp.—Male, upper surface black, with light brick-red markings as follows: Indications of a marginal row of spots as shown by two or three at inner angle of fore wings. In one specimen there are also faint traces of spots on the secondaries. A submarginal row following outer edge of both wings, seven on fore and eight on hind wings, large and distinct. A third row nearly obsolete. The three spots at costal end, yellowish white. Two narrow bars in cell and four or five small irregular spots below and to inner side of them, on the primaries. On inner half of hind wings, two short transverse bars from costal edge with a round spot below and between them. Traces of one or two other spots. Under surface of primaries has a marginal band of red divided by black veins. Within this is a row of white spots, fading out at inner angle, heavily margined by black internally, and lightly externally. The third row is composed of large red spots corresponding to the prominent row on the upper surface. A demi-band from costa joins this at its middle. The spots on the demi-band are four or five in number and of a yellowish tinge. The remainder of the wing is red, and has four black bands from costa; the inner extending across wing, the outer three only half way. Hind wings have a marginal, a basal and a double mesial row of white spots margined with black. There is also a white spot in disc, margined with black. The rest of the wing is red. Thorax and abdomen, black above, whitish beneath. Antennæ black with light rings at joints. Expanse, male, seven-eighths inch. Types: two males. Corpus Christi, Texas.

*Thecla Mirabelle*, n. sp.—Compared to *Autolytus*, Edw., to which it is closely allied, and of which it may prove a variety, the apex of fore wings is more acute and the inner angle more retracted, and the discal mark is broader. The fulvous patch is not so sharply defined and more rounded. The anal angle of the hind wings is much more acute and the outer margin not so rounded. There is almost no trace of the tooth



marking the position of the upper tail. The fulvous patch extends inward towards the base of the wing instead of following the outer margin, and merges gradually into the ground colour of the wing, which is not so dark as in *Autolycus*, being more of a yellowish brown. Under side more of a light yellowish brown than fawn colour. The marginal row of crescents is wanting, and the discal macular row of spots is very indistinct. The black spots at anal angle faint. Fulvous lunules obsolete, except one in third space from anal angle and a few scales in the fourth space. Blue patch in third space, though faint. Types: one male from Utah and one female with California label, for the accuracy of which, however, I cannot vouch, as I received it from a dealer. I am inclined to regard this as a desert form of *Autolycus*, but until its position can be settled by more material, it may be regarded as distinct.

*Pyrgus Polingii*, n. sp.—Expanse, one inch. Upper surface brownish black. Fringes fuscous. Marked with small white dots as follows: Three subapical, close together in a row from costa, the middle one minute, one in cell, three in a longitudinal row below cell, the middle one largest, separated about one-sixteenth of an inch from inner margin, one faint, one close to inner margin a little beyond middle. On secondaries is a mesial curved row of three or four parallel to margin. Under surface disc of primaries blackish brown, costa and outer fourth considerably lighter, more of a yellowish brown, inner margin grayish. Inner two-thirds of secondaries dark brown, outer third yellowish brown. Spots on under surface as above, only larger, and an additional spot in cell on secondaries. Head, thorax and abdomen blackish brown above, fuscous beneath. Antennæ blackish above, joints narrowly yellowish white, tip yellowish brown, beneath tip and base of club brownish, medium portion yellowish, shaft brown ringed with yellow. Types: four males, four females. Huachuca Mountains, Arizona. July.

*Pseudalyptia Geronimo*, n. sp.—Upper surface black with a slight brownish reflection which is more marked on secondaries. Fringes a shade lighter. Secondaries without markings. Two large quadrangular light yellow spots on primaries, forming a band across wing from costal edge at junction of middle and outer thirds to inner angle. To the inner side of the costal spot is a narrow band of bluish metallic scales. With a lens the brownish lustre to the wings is shown to be due to a sprinkling of bronze metallic scales over the black ground colour. In one specimen there are a few yellowish scales in the region of the discal dot, and a few

bluish scales along some of the veins. Probably in fresher specimens these would be more marked. Under surface lacks the bluish markings, otherwise as above. Head, thorax, and abdomen black above and below, showing, however, with lens some metallic effects. Legs black; but hairs on inner aspect, especially on posterior pair, orange. Palpi dark above, fuscous beneath. Tongue yellow. Antennæ black, tending to fuscous at tip and on under side. Eyes show bright metallic, brassy shades. There is a tuft of bright orange hairs at base of primaries on under side. Expanse, one and one-half inches. Types: four males and one female. Huachuca Mountains, Arizona. July and August.

*Seirarctia Clio*, var. *Jessica*, n. var.—Differs from type form in having hind wings almost or entirely black. In the males the suffusion of the hind wings with black is complete, while in the females it is only partially so, there remaining small patches of the white, especially along outer margin and costa. The veins of fore wings are also much more heavily lined with black. There is a well-marked black edging to the inner, outer and costal margins of fore wings of the males as well as the outer margin of secondaries of both sexes. In one female the outer margin of primaries also has the black edging. The under surface of primaries in the males is almost entirely suffused with black, while the secondaries as on the upper surface are entirely so. In the females this suffusion is much less marked. I have only seen this variety from Glenwood Springs, Colorado. The typical *Clio* I have from Salida and Durango, Colorado, and Nogales, Arizona.

*Orgyia Oslari*, n. sp.—Male expanse, one and one-sixteenth inches. Fore wings light yellowish brown. The ground colour is, however, largely covered over with a darker brown shade. Basal line black, distinct. T. a. line curved evenly outward from costa to middle of wing, then inward to inner margin where it approaches close to t. p. line, black, distinct; outer margin a little undulate, inner accompanied by a blackish shade, which quite fills the concavity of the curve at the costal end. T. p. line crenulate, black, distinct; beginning at costa, it extends downward and outward in a straight line to the third nervule, opposite reniform spot, where, forming an obtuse angle, it proceeds in a gentle curve around the cell and then inward to inner margin. It is accompanied by a blackish shade on the inner side of costal half. The limbal space is obscured in its outer or marginal half by a brownish shade, and has three small intervenular black dashes opposite cell. There is also a

black blotch on costa, just above the angle of the t. p. line, and a white spot above inner angle. The costa of the limbal region is darker than elsewhere. Reniform concolorous, surrounded by ring of blackish scales. Orbicular obscured by the shade accompanying t. a. line. Hind wings blackish brown, same as the darker shades of fore wings. Fringes concolorous. Under surface of both wings have a marginal band about one-eighth of an inch wide, of a light yellowish brown. The remainder of wings to the base of a dark blackish brown. Antennæ and thorax light brown. Abdomen a little darker. Types: one male. Poncha Springs, Colorado. July 5th.

*Eulimacodes Telligii*, n. sp.—Fore wings marked by a conspicuous triangular silver patch. The base of this is about one-sixteenth of an inch above the inner margin and extends with a very slight downward tendency from the middle of the base of wing to above the inner angle. The silver here gradually fades out, but the continuation of the line in a broad, easy curve to the apex is marked by some blackish scales. The upper edge of the patch ascends steeply from the middle of base of wing to near costal margin at its inner fourth, thence rounding off the apex of the triangle it descends in a rather steep curve and joins the base line above the inner angle. The wing above the silver mark, and its continuation, is of a rich golden brown, smooth and glistening, a little darker on disc and next to the silver patch. The rest of the wing below and to the outer side of the mark, together with the whole of the secondaries, is of a dull brown, a couple of shades lighter than the fore wings. Fringes, thorax and abdomen concolorous with hind wings. Under surface of both wings of a uniform light brown of same shade as secondaries above. Type: one female. Huachuca Mountains, Arizona. July 20th.

*Coloradia Doris*, n. sp.—Male expanse, two and one-fourth inches. Compared to Pandora, the wings are much less heavily scaled, the hind wings being quite translucent. The markings of primaries are much fainter and there is much less of the white shading. The t. a. line presents quite an even outward curve not approaching the discal spot. In Pandora this line is very prominently toothed and in some of the specimens one of the teeth extends to and is more or less completely fused with the spot. T. p. line evenly dentate, closer to margin of wing than in Pandora. S. t. line very faintly indicated. Hind wings translucent, almost no trace of the median and submarginal bands. Inner margin covered with long pinkish hairs as in Pandora. Fringes of both

wings black. The white spots at ends of veins faint. Discal spots oblong instead of round; not so prominent as in Pandora. Under side very thinly scaled. Markings as above, only very faint.

Female expanse, two and five-eighths inches. Dull, smoky brown, dusted with white between t. p. and t. a. lines on primaries, otherwise very uniform over both wings. Lines as in male, but still fainter. Under side same colour, somewhat pinkish at bases of wings. T. p. line very faintly indicated; otherwise, except the discal spots, there are no markings. Types: two males, one female, in my collection from Salida and Glenwood Springs, Colorado.

*Tolyte Glenwoodii*, n. sp.—That there are two species confused under the name of *Distincta*, French, I have been convinced for a long time. On showing them to Prof. French recently, when he was visiting me, he was very positive as regards their distinctness. Prof. Dyar, to whom I sent a pair of each for an opinion, regards them as mere varieties, on the grounds that he finds no constant marks of distinction between them. I have before me a series of eight pairs of *Distincta* and eight males and two females of *Glenwoodii*, and while constant differences in maculation of the two are rather hard to describe, yet there are points which seem to me to prove their distinctness beyond a doubt. *Glenwoodii* is a much broader-winged insect, by measurement the fore wings of the female being one-sixteenth of an inch broader than the females of *Distincta*. The thorax is apparently much larger. This is partially at least due to the greater development of the hairy vestiture. In the two females before me the abdomen does not protrude beyond the wings, while in all the female *Distinctas* it does to the extent of from one-eighth to one-fourth inch. The whole insect is heavier and more robust, shorter, broader winged, while *Distincta* is slighter and more trimly built, with rather long, narrow wings. In colour the *Distinctas* are all decidedly gray, in only two females does there seem to be a tendency to white on the thorax. The *Glenwoodiis* are all of a very light gray, almost pure white on the thorax. The hind wings are quite distinct in the two species. In the new one they present a well-marked, banded appearance, the bands being distinct and quite sharply defined. The marginal band is light and narrow. The submarginal quite dark and broad. The mesial band is of about the same width, and light. Within this the wing is dark, but lightens somewhat towards base. In *Distincta* these bands merge gradually into each other, there being much less

contrast in the two shades. The general effect is blurred and indistinct. On the fore wings, while there are no marked differences in the transverse lines, yet in *Distincta* they seem narrower, neater, and give a more trim, clear-cut appearance to the wings. The two teeth in the middle of the marginal white line are much more distinct in the old species, they being scarcely discernible in some of the specimens of the new. The t. a. line in *Distincta* proceeds directly to costa, while in the new species it turns inward just below costa and joins it at an acute angle. In other respects the maculation is practically the same. The examples on which the above comparative description is based were taken at Glenwood Springs, Colorado, in August, September, and October. Types in my collection, and also in National Museum.

*Gloveria Arizonensis*, Pack. Malc.—Females of this species are quite common, coming freely to light. The male, however, has never been described, and so far as I know the two before me are the only ones ever taken. They differ so much from the females that I have made the following description of them: Expanse, two and three-fourths inches, thus being considerably smaller than the females, which average three and one-half inches. Maculation brighter and more distinct than in female; the contrasting light and dark blackish gray shades bringing out the transverse lines in strong relief. Basal space light gray, central portion obscured by a dark shade. Median space mostly dark, only the costa and infra-cellular parts being somewhat lighter. T. p. line accompanied by an outer shade, slightly separated from it by a light gray band. The remainder of the subterminal space is the lightest portion of the wing and is thinly scaled and quite translucent. Terminal space even dark gray, sharply defined by the prominent s. t. line and strongly contrasting with the subterminal space. Discal dot white, distinct. Hind wings ochraceous, costal and outer margins obscured by dusky shade. Veins of both wings dark gray. Fringe of hind wings fuscous, of fore wings concolorous. Head and abdomen ochraceous. Thorax dark gray anteriorly, shading into ochraceous posteriorly. Antennæ dark brown. Beneath; hind wings as above. Fore wings, cellular region and along costa to apex, as well as terminal area, dark; the rest of the wing light semi-translucent. Types: two specimens from Glenwood Springs, Colorado; taken in July and August.

## FOUR NEW SPECIES OF PLATYMETOPIUS.

BY C. F. BAKER, ST. LOUIS, MO.

*Platymetopius ornatus*, n. sp.

Length, ♂, 5.25 mm., of which the head occupies 1 mm.; width across base of elytra a little more than 1 mm. Vertex rather strongly obtusely angulate; width between eyes three-fourths the length at middle, which is more than twice length at eyes; the disc is evenly slightly convex. Face, viewed from the side, straight. Pronotal width two and a half times the length; the length little more than three-eighths that of vertex. Pronotum about as broad as head, the anterior margin an even curve.

Colour pale yellowish; below brighter and unicolorous, except for a few dark arcs on summit of front. Vertex with a double dark spot at tip and three abbreviated dark transverse bands crossing the median line at equal intervals back of it. Pronotum with two abbreviated transverse lines anteriorly, and several irregular dark markings laterally. Scutel with the transverse impressed line black and having each end connected with the base by a black band. Elytra smoky, back of the transverse veins with many small white spots, and three larger ones on the costa in the vicinity of the recurved costal nervures; membrane clear smoky. Valve not exerted, plates small, broad at base, suddenly narrowed beyond middle into slender acute points.

Described from one male in the National Museum; taken at Horace, Kansas, July 28, 1891.

*Platymetopius Oregonensis*, n. sp.

Length, ♂, 5 mm. Head rather short and distinctly narrower than pronotum. Vertex rather acutely angulate; width between eyes two-thirds the length at middle, which is about twice the length at eyes; disc broadly subsulcate medially. Face, viewed from side, nearly straight, very slightly concave above. Width of pronotum two and one-third times the length, the latter five-sevenths that of vertex; the anterior margin of pronotum recurved behind eyes.

Colour ferruginous, paler below, where there are no dark markings except a few faint arcs on summit of front. Vertex with a small light dash at apex; its disc, together with the pronotum and elytra, minutely irrorate. Elytra with a few small round white or hyaline spots scattered over the surface; partially transparent along costa and around apex; one or more of the inner apical veins dark. Valve very large and bluntly

triangular. Plates twice the length of valve, tapering to narrow points, the sides incurved at middle.

Described from two males, one collected at Ashland, Ore., the other at Portland, Ore., both during September, 1897, by Prof. A. P. Morse. Near *acutus*, but the vertex is shorter, the pronotum without light vittae, the elytra with fewer white spots, and colour beneath much lighter.

*Platymetopius tenuifrons*, n. sp.

Length, ♂, 5.5 mm. Head long, unusually narrowed beyond the eyes, and distinctly narrower than pronotum. Vertex strongly produced, suddenly narrowed beyond eyes, point blunt; width between eyes about half length at middle; disc broadly medially sulcate. Face, viewed from side, strongly concave above. Pronotal width two and one-fourth times the length, the latter less than two-thirds that of the vertex. Anterior margin of pronotum recurved behind eyes.

Colour ferruginous, thickly and very finely irrorate throughout, including the face, which is darkened towards its summit. Point of vertex with a black dot on either side of tip. Scutel with a faint white longitudinal line on either side. Elytra with one or two small round white spots in each of the cells back of apical; the apical veins and about twelve recurved nervures darkened. Valve large, broadly rounded behind. Plates short, about as long as valve, and rapidly narrowed to acute points.

Described from one male in the Herbert H. Smith collection, taken at Chapada, Brazil, in May. Resembles *fuscifrons* in the deeply coloured face, but is much larger and with a far longer vertex, besides differing otherwise.

*Platymetopius latus*, n. sp.

Length, ♀, 5 mm. Vertex very long, as long as twice the width between eyes, the median sulcus becoming very broad towards tip.

Colour clear pale ferruginous, below with the entire face paler. Sulcus on vertex darkened by fine longitudinal vermiculations. Pronotum, scutel and most of elytra unicolorous, without markings of any sort, except a few fine brown dots in internal apical cells of elytra, and about eight small recurved brown dashes along costa. Legs entirely without markings. Last ventral segment twice length of preceding, the hind margin rather narrowly, but evenly, rounded.

Described from a single female collected by myself in the foothills near Fort Collins, Colorado. This species is nearest *acutus*, but has a much longer vertex, entirely lacks any markings on pronotum or disc of elytra, and has the elytra more widely flaring at the sides than in that species.

THE PURSLANE SAW-FLY--SCHIZOCERUS ZABRISKEI,  
ASHM., MS.\*

BY F. M. WEBSTER AND C. W. MALLY, WOOSTER, OHIO.

Just when this species first became abundant in Ohio we are unable to say, but it was not until June, 1898, that we began a study of its habits. The insect is quite generally distributed in Ohio, as we have observed it at Alliance, Wooster, Tiffin, Fremont, and Clyde, and perhaps over the eastern and western parts of the United States, as it is found at Washington, D. C., where Dr. Chittenden is making a careful study of it, and Mr. Mally observed it in abundance in the summer of 1899, at Des Moines, Iowa.

We have been informed that the species has been described by Mr. Ashmead in a paper to be published "shortly."

Here at Wooster, not a plant could be found that was not infested, including all plants in the greenhouse, by July 1, 1898. It is quite effective in checking the purslane, in many places the plants not developing seed, due to the destruction of the leaves.

The eggs are deposited in the edge of the leaves, deposition usually being completed in ten to fifteen seconds. In no case was a female observed to deposit on the flat surface of the leaf, or on the stem. As soon as hatched the larvæ begin to feed on the leaf, and ultimately mine out the greater part of the pulpy substance, but never eat through the surface until driven to do so from lack of food, when they emerge and make their way to a fresh leaf, immediately enter and continue their mining habit, apparently not feeding on the surface at all, except as they cut their way into the leaf. In numerous instances, where the obtainable leaves had all been exhausted, the larvæ bored downward in the stems of the plant. The larvæ do not drop readily from the surface of the plant, and, when handled with forceps or needle, they exude a clear viscid substance which holds them in place.

When fully developed, the larvæ enter the ground to the depth of one-half to one inch and form a silken cocoon, to which bits of soil adhere quite firmly, and there transform. The pupa stage lasts only about seven days, when the adults emerge, a few males in advance, soon after which the sexes pair and oviposit.

In nine cases out of ten distinct experiments in the insectary, in rearing the adults, the time of the larva entering the soil, and the

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\* Read before the Ohio Academy of Science, December 22, 1899.



emergence of the adult, was within a few hours of seven days, and in the other case the time was a few hours over eight days. An observation by Mr. Mally on the actual time passed in the pupa shows that a larva descending into the ground at 5:00 p. m. had formed the cocoon by 5:00 p. m. the next day, and was still in the larval state the second day. The exact length of time required in the different stages has not been determined, but the entire cycle is complete in about three weeks, thus making probably six generations in a year.

During the summer of 1899, commencing June 6, a series of breeding experiments was carried on, out of doors, with plants grown in breeding cages, upon which each generation was colonized. During May purslane plants were transplanted from the insectary to the garden, with a view of thus attracting the earliest appearing adults. On June 5 larvæ were noticed in abundance, not only in these trap plants, but also in larger plants growing promiscuously in favored spots, one very small individual being observed in an adjoining garden on a very young plant, these larvæ clearly representing the earliest generation of the season. The trap plants were covered immediately with a breeding cage, and on June 15 a number of adults, all females, were observed in the cage. Nine of these females were transferred to cage No. 2, upon plants that had been brought from the insectary, and in which no larvæ were working. Two males and two additional females were captured in the field, and also placed in this cage, which then contained in all eleven females and two males. One of these females was observed to oviposit in the leaves. On June 22 the very young larvæ were first observed beginning to feed in the leaves. July 5 the first adult, a female, was observed, evidently having just emerged. It is an interesting fact that though this female was just drying her wings, several males were observed hovering about the cage in vain effort to effect an entrance. July 7 three females and ten males from the cage were placed in cage No. 3, provided with plants obtained from the same source as the preceding. July 14 quite a number of larvæ were observed in this cage working in the leaves. July 28 adults were observed. On the 29th three females and six males were placed in cage No. 4. August 16 two males were observed in this cage. As these males marked the generation, three females and one male were taken from cage No. 3 and placed in cage No. 5. On September 5 one female was observed in this cage, and determines the fifth generation, but up to September 15 it had been im-

possible to secure males outside, as not an individual of either sex could be found. But on September 18 a number of larvæ, varying in size from very small ones to those fairly well developed, were observed in plants in the near vicinity. These plants were transferred to a breeding cage. The larvæ disappeared, and, as they could not escape from the cage, they must have either entered the ground or perished from lack of food,

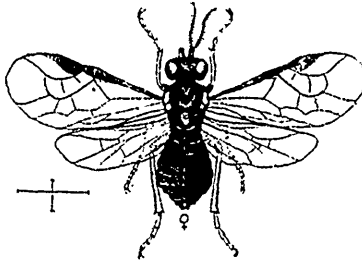


FIG. 1.

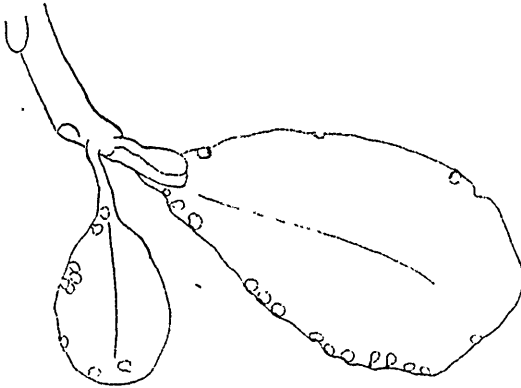


FIG. 2.



FIG. 3.

as might have been the case with the younger, on account of severe frost and freeze September 26, which killed the plants.

On September 30, 1898, quite an extensive search was made for adult sawflies, but none could be found. Found numerous larvæ, varying from real young to full-grown individuals. Numerous adult parasites were found also. The frost killed the plants about this time, thus closing the breeding season.

In the light of these two records it may be said that the exact number of broods for any given year may depend on the date of occurrence of the earliest killing frosts.

The sudden and almost total disappearance of this species during the latter part of August and first of September was undoubtedly mainly due to the immense numbers of a parasitic species, which Mr. Ashmead has determined as belonging to the genus *Ichneutes*, and probably new to science.

An interesting observation was made in connection with a large breeding cage out of doors, for the purpose of breeding parasites. The adult sawflies began emerging in great numbers, and, to our surprise, were found almost swarming on the outside of the cage. Our first impression was that the cage was imperfect at some point, and that they were making their escape, but such was not the case. On examination we found that the specimens on the outside were all males, evidently attracted by the females in the cage. There were no purslane plants to amount to anything within two or three rods of the cage, but at a distance of five or six rods, in two directions, were garden patches well stocked with purslane and larvæ, furnishing an abundance of sawflies.

During the summer of 1898 a female, with a male antenna, was found in one of the breeding cages. A notice on this, written by Mr. Mally, appears in the seventh annual report of the Ohio State Academy of Science, pp. 34 and 35, illustrated by the accompanying figure (Fig. 1). The oviposition is shown in Fig. 2, place of eggs in leaf; and Fig. 3, egg in position.

#### A POPULAR NAME FOR *CLISIOCAMPA DISSTRIA*.

SIR,—I am much interested in Mr. Slingerland's note on the new popular name for *Clisiocampa disstria* in the CANADIAN ENTOMOLOGIST for January. I once wrote an editorial for "Insect Life" on popular names (Vol. VII., pp. 363, 364), in which I gave utterance to a certain distaste for "book names" and to a preference for the popular name which grows up among the people. Such names are rarely specifically distinctive, but they are usually catchy, frequently phonetic, and more or less descriptive.

I am not sure that we have any legitimate popular name for the forest tent caterpillar. The one just mentioned is obviously a book name

derived from the popular name of its nearest relative, the orchard tent caterpillar, but it is misleading, as Mr. Slingerland points out, since the larva of *Clisiocampa disstria* does not make a tent. It is interesting to know that the sympathetic and altogether united organization known as the "Jugatae" has not falsified its name in this instance, but has joined with Mr. Slingerland in concluding that the "forest tent/ess caterpillar" would be an appropriate name for this species.

Since Mr. Slingerland invites suggestions, it occurs to the writer that there are so many hundreds of other forest caterpillars which are tentless that the name lacks the specific quality which is desirable. In answer to his question, "Has anyone a better name to suggest?" I might propose "the tin-horn caterpillar," or "the brass-band caterpillar," referring to the startling discoveries which were made in south-western New York last summer, and which, the writer is informed, Mr. Slingerland intends to investigate next season. Alternatively, the name "the railroad-train obstructor," or "the slippery-when-smashed caterpillar," might be suggested, since this is the species which is at the bottom of all the newspaper stories of railway trains being stopped by caterpillars. Or, since the damage of the last few years is said to have seriously reduced the crop of maple sugar, the insect might be called "the maple-sugar adulteration-promoter."

Seriously, however, why would not "forest army worm," or "the army worm of the forest," be quite the most appropriate and distinctive name which could be suggested?

L. O. HOWARD, Washington, D. C.

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MR. C. W. MALLY, M. Sc., assistant to Professor F. M. Webster in the Entomological Department of the Ohio Agricultural Experiment Station, has been appointed Assistant Government Entomologist of Cape Colony, South Africa, and has left for his distant sphere of labour. Mr. Chas. P. Lounsbury, who also went from the United States a few years ago, is in charge of the Entomological Department at Cape Town.

## THE DESTRUCTIVE GREEN-PEA LOUSE.

BY WILLIS G. JOHNSON, COLLEGE PARK, MD.

Perhaps never in the history of economic entomology has an undescribed species of insect appeared so suddenly and over such a wide area, and in such destructive numbers, as the "destructive green-pea louse," the popular name I have given the insect herein described. It has occurred, during the past season, in Maryland, Delaware, Virginia, North Carolina, Pennsylvania, New Jersey, New York (Long Island), Connecticut, Vermont, Maine, Ohio, and Canada (Ottawa).

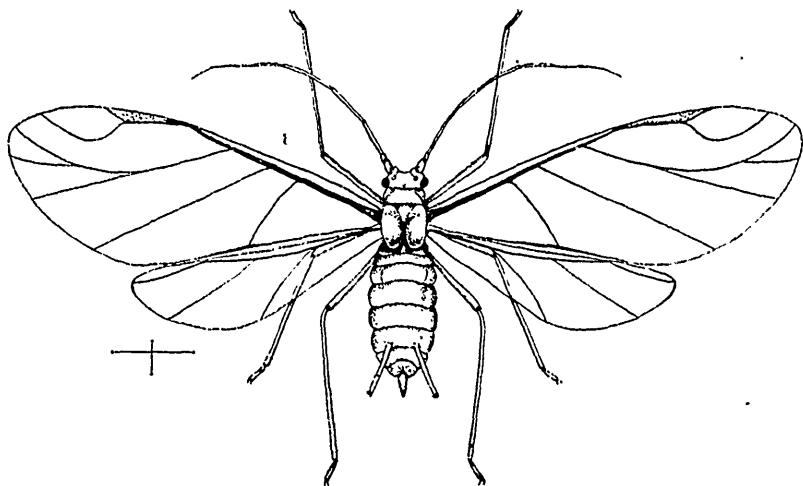


FIG. 4.--*Nectarophora destructor*, winged form. A typical representation. (Original.)

It belongs to the family Aphididæ, and the familiar and extensively-used genus *Siphonophora*. Unfortunately, however, Koch overlooked the fact that *Siphonophora*, as a generic term, was already appropriated for the Myriapoda before he made use of it in his Aphididæ; it is also used to denote an order of the oceanic Hydrozoa. In accordance with modern practice, therefore, it is fitting that we should drop the name *Siphonophora* and recognize some other. In his synopsis of the Aphididæ of Minnesota, O. W. Oestlund proposes the name *Nectarophora* to take the place of *Siphonophora*. I see no reason why it should not stand, and place the species described below under that generic name.

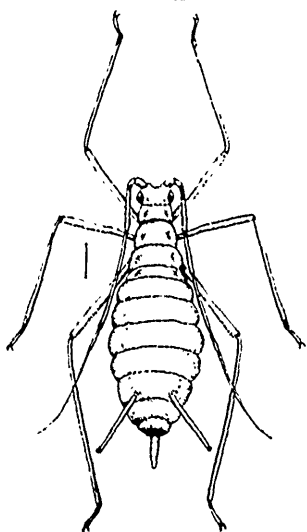


FIG. 5.—*Nectarophora destructor*, apterous form. (Original.)

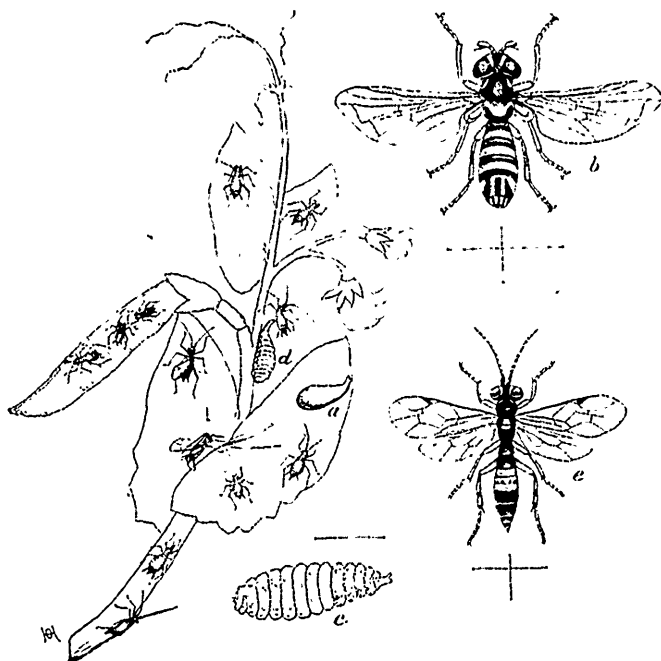


FIG. 6.—*Nectarophora destructor* and its principal enemy, *Allograpta obliqua*; a, pupa on leaf; b, adult; c, larva; d, larva feeding; e, *Bassus letorius* (female). Hair lines represent natural size. (Original.)

*Nectarophora destructor*, n. sp.—The general colour of both winged and wingless individuals is green; conforming so closely to that of the pea plant itself, we might, perhaps, better call it pea-green. The colour, however, varies slightly with the age of the insects; the young when first born are lighter, still bordering the greenish shade of the adult; old or spent females are lighter, some having a greenish-yellow tinge. In many instances individuals in a colony will be seen of a yellowish or creamy tinge. Such individuals are usually affected with a fungus disease. The variation in colour may, therefore, in many instances be attributed to some abnormal condition.

The general form of the body in both winged and wingless specimens is elongate and fusiform, the latter being slightly the larger. The average length of the body in both forms is about 4.50 mm. Eyes are red and prominent; colour showing conspicuously in specimens mounted in Canada balsam. Antennæ lighter than body; tubercle prominent; joints darker than rest of segment; seventh joint quite filiform and fuscous. Legs long and conspicuous; tarsi, distal ends of tibia and femora fuscous. Honey-tubes fuscous at tips, otherwise concolorous with body.

*Winged Female*.—Colour pea-green. Fore wing about 5 mm. from tip to base and about 2 mm. wide at broadest part; entire wing expanse about 11 mm. Length of body, including style, generally 4 to 5 mm.; some cases where the female is distended with young the length is 6 mm. Width of body varies from 1 to 1.50 mm., depending on condition of specimen. Antennæ long and slender, reaching to or slightly beyond the tip of the style; first and second joints short and closely joined to tubercle; other joints vary slightly; the following measurements represent the general average of a long series: III. 1.50 mm., IV. 1.00 mm., V. 0.75 mm., VI. 0.50 mm., VII. 1.50 mm. Wings transparent, veins slender, typically represented in Fig. 4. Honey-tubes long, slender and cylindrical, extending beyond the tip of the abdomen, in some cases to the tip of the style; they are usually about one-fifth the length of the body, varying from 1.00 mm. to 1.50 mm. Style conspicuous, about half the length of honey-tubes.

*Apterous Female*.—As a rule, slightly larger than the winged female. Colour pea-green. Body slightly more elongate and fusiform than winged specimens; length varying from 4 to 6 mm.; width varying from 1 to 2 mm. Antennæ reaching beyond the tip of the style; length of

joints varying considerably. Honey-tubes same general shape as in winged specimen, but longer, extending beyond the tip of the style; length varying from 1.25 mm. to 2 mm. Style longer and more nearly conical than in winged individuals. Typical form of apterous female is shown in Fig. 5.

Described from many living and dead viviparous females of both forms from Maryland, New Jersey, Connecticut, Ohio, and Ottawa, Canada. Found on green field pea, sweet peas, and kept for a time on clover. Types in formalin and alcohol deposited in the U. S. National Museum.

*General Notes.*—I have given this insect much study during the past season, and still have a colony under observation (Jan. 29, 1900) in my laboratory. There is no cessation of the reproduction of young. As yet we have not been able to obtain eggs of the species, although several hundred mature apterous females were collected just before our coldest weather late in December and placed in tubes. We also made field observations late in December, and while we had no difficulty in finding the insects close to the ground on the under side of the leaves of volunteer peas, we are still in doubt as to how it passes the winter. I am of the opinion that, under favorable conditions, the female will continue to reproduce young throughout the winter. That the species will survive severe freezing and reproduce later was conclusively tested in our laboratory. A colony upon a bunch of peas in water were frozen late in December so that there was ice half an inch thick in the cup. A week later, when heat was again turned on the building, the insects became active and commenced reproduction a few days later.

Thomas reports a similar case. He observed the wheat-plant louse (*Nectarophora avenæ*) breeding in mid-winter, and took specimens from wheat while the snow was on the ground.

There is also a probability that the late apterous females deposit eggs. Mr. W. H. Ashmead tells me he has frequently seen the eggs of an allied species, which is abundant on tulip trees about Washington. The eggs are usually deposited about the base of the leaf buds.

In my breeding experiments and field observations, I have been struck with the seeming absence of hymenopterous parasites upon this insect. Such a condition is quite uncommon where there is such an abundance of plant lice, for, as a rule, they abound. I have bred but a single hymenopterous parasite, *Bassus lætorius* (♀), Fab., shown in Fig.



6 at *c*, and this is supposed to be parasitic upon the *Syrphus* larvæ. In Canada, Dr. James Fletcher informs me he has bred *Praon cerasaphis* and *Aphidius Fletcheri*, a new species recently described by Ashmead; while in Delaware, Professor E. Dwight Sanderson has bred another species of the genus *Aphidius*, namely, *A. Washingtonensis*, from the destructive green-pea louse.

In my field observations I have found the predaceous insects very important factors in the destruction of this plant louse. I have observed four groups of insects at work upon them: First, and most important, the *Syrphus* flies; second, lady beetles; third, lace-winged flies; and fourth, soldier beetles.

Of the *Syrphus* flies, we bred *Allograpta obliqua*, Say; *Syrphus Americanus*, Weid., and *Sphærophoria cylindrica*, Say. The first named was by far the most abundant and important species. On a farm where 600 acres were planted in peas, and where the plant louse totally destroyed 480 acres, the larvæ of *A. obliqua* so completely destroyed the plant lice by the second week in June that hardly a specimen could be found. In the language of the proprietor, who owns a large cannery, he says: "The last few days I packed, the separator sieved out about 25 bushels of green worms, which no doubt proves they destroyed the plant lice." These "green worms" were the larvæ of *A. obliqua*, illustrated in Fig. 6. The other two species were not so abundant.

Of the lady beetles the most important were *Coccinella 9-notata*, *Hippodamia convergens*, *Megilla maculata* and *Coccinella sanguinea*.

The larvæ of *Chrysopa oculata*, Say, were also abundant upon the infested vines. I observed the soldier beetle, *Podabrus rugulosus*, Lec., feeding voraciously upon the plant lice.

From what I have seen of the ravages produced by the destructive green-pea louse, and our inability to combat it on a large scale, I consider it one of the most important pests on the already long list of noxious insects. Whether it will appear again next year over the same general territory on the field pea remains to be seen; but I am of the opinion it will not be as destructive as the season just past. The superabundance of *Syrphus* flies and lady beetles over certain areas will certainly have a balancing effect in nature.