

Article II.—STUDIES OF SOME SPECIES OF NORTH AMERICAN ÆGERIIDÆ.

By WILLIAM BEUTENMÜLLER.

In advance of a monographic revision of the family Ægeriidæ of America north of Mexico, I herewith offer the following notes upon material chiefly contained in the Hy. Edwards Collection in the American Museum of Natural History. I have also appended translations of the descriptions of the species described by Boisduval, with the hope that these may be re-discovered. I have been unable to conclusively recognize any of Boisduval's species amongst the material accessible to me. In the whole of the Ægeriidæ the specific differences are very slight, though constant in most of the species, but it requires considerable attention and the careful comparison of species to distinguish one from the other. At first sight a box of these creatures would appear to be a number of individuals differing only in size, with here and there a slight change in the coloration. To the naked eye they present no more differences than a collection of *Eleodes* or *Ichneumons*. Another difficulty surrounding this group is that the larvæ feed within the stems of plants, and thus are not easy of access, while the work of raising them through their various stages becomes a task of no mean importance; moreover, the perfect insects are rarely found, and several years must elapse before the species of his own district comes into the hands of a collector. They also soon lose their scales through flight, and when pinned become covered with grease, and thus important characters are often lost; consequently considerable attention must be paid to the condition of the specimen before describing it.

Vespa mima sequoiæ (*Hy. Edwards*).

Bembecia sequoiæ HY. EDWARDS, *Papilio*, I, 1881, p. 181.

Bembecia superba HY. EDWARDS, *Papilio*, I, 1881, p. 181.

Bembecia superba was described from a somewhat worn example, and it is identical with *Bembecia sequoiæ*. It is not a *Bembecia*

but the type of an apparently new genus. It differs from *Bembecia* by having longer antennæ thickened at the apex, while those of *Bembecia* are tapering. The antennæ of the male have minute pectinations, while in *Bembecia* they are plumose. It also differs in venation and cut of the wings. The wings of *Bembecia*, especially the hind wing, are elongate with the hind angle much produced, while in the other genus the hind wings are more rounded. I propose the name *Vespamima* for this new genus.

Types: *B. sequoia*. Two males and two females from Mendocino Co., California. Coll. Hy. Edwards, Am. Mus. Nat. Hist. *B. superba*. One female, from Washington State. Coll. E. L. Graef.

***Tirista admirandus* (Hy. Edwards).**

Sciapteron admirandus HY. EDWARDS, Papilio, II, 1882, p. 54.

This species it appears to me would be better placed in the genus *Tirista* of Walker (Cat. Br. Mus., pt. XXXI, 1864, p. 22). It differs from *Sciapteron* by the long plumose pectinations of the antennæ.

Type: One male, from Texas. Coll. Hy. Edwards, Am. Mus. Nat. Hist.

***Podosesia fraxini* (Lugger).**

Ægeria fraxini LUGGER (MS.) ORCUTT and ALDRICH, Bull. Agricul. Exp. Station, S. Dakota, March, 1891.

Trochilium fraxini LUGGER, Psyche, VI, 1891, p. 109, pl. iii, fig. 4.

This species does not belong to the genus *Trochilium*, but it appears to be more properly placed in the genus *Podosesia*. The venation is the same, and the cut of the wings and shape of the body are also similar. It only differs by having the antennæ minutely bipectinated. In coloration it differs from *P. syringæ* by the yellow bands on the first, second and third segments, and the other segments wholly yellow, as is also the underside of the body, while the body of *syringæ* is entirely brown above and below. The fore wings are light yellowish brown, dark brown in *syringæ*. The legs are yellow with only traces of a darker shade, while in *syringæ* they are distinctly black and yellow.

The hind wings are also paler in *fraxini*. One male from Miles City, Montana. Coll. Am. Mus. Nat. Hist. Presented by Mr. H. G. Dyar.

Parharmonia fraxini (*Hy. Edwards*).

Carmenta fraxini HY. EDWARDS, Papilio, I, 1881, p. 185.

Harmonia morrisoni HY. EDWARDS, Papilio, II, 1882, p. 54.

The genus *Harmonia* erected by Hy. Edwards is preoccupied in Coleoptera, having been established in 1846 by Mulsant for a genus in the Coccinellidæ. It therefore must be changed, and I propose for it the name *Parharmonia*.

Harmonia morrisoni Hy. Edw. is the same as *Carmenta fraxini* Hy. Edw., but the latter belongs to the genus *Parharmonia* and not to *Carmenta*.

Types: Male and female, Coll. Hy. Edwards, Am. Mus. Nat. Hist.; one male, Coll. C. V. Riley, Washington, D. C.

Habitat: New York, New Jersey, Washington, D. C., Missouri, Montana.

Parharmonia graefi (*Hy. Edwards*).

Sciapteron graefi HY. EDWARDS, Papilio, I, 1881, p. 183.

This species does not belong to the genus *Sciapteron* but to *Parharmonia*.

Types: Coll. Hy. Edwards, Am. Mus. Nat. Hist. and Coll. E. L. Graef.

Habitat: Nevada.

Albuna pyramidalis (*Walker*).

Ægeria pyramidalis WALKER, Cat. Lepid. B. Mus. pt. VIII, 1856, p. 40; Hy. EDWARDS, Papilio, I, 1891, p. 206.

Albuna vancouverensis HY. EDWARDS, Papilio, I, 1881, p. 188; Grote's New Check List Moths, 1882, p. 12.

Albuna vancouverensis Hy. Edw. is the same as *Albuna pyramidalis* (Walker). The moth is black with a yellow band on the posterior edge of each abdominal segment. The fore wings have broad black borders with red along the inner margin; the outside of the transverse band is also narrowly edged with red as well

as the inner side of the outer margin. The legs are black with yellow bands. *Albuna tanaceti* (= *Albuna montana*) and *Albuna torva* (= *Albuna coloradensis*) can be considered as nothing more than varieties or climatic forms of *Albuna pyramidalis*. *Albuna rubescens* is also a variety.

Habitat: Adirondack Mts., New York (Coll. E. L. Graef); Ontario, Canada; Colorado; N. W. Territory, Canada; Summit Sierra Nevada, California; Banff, B. C.; Mt. Hood, Oregon; Nevada; Vancouver Island. Coll. Hy. Edwards, Am. Mus. Nat. Hist.

***Albuna pyramidalis* var. *montana* (Hy. Edwards).**

Albuna montana HY. EDWARDS, Papilio, I, 1881, p. 188; Grote's New Check List Moths, 1882, p. 12.

Albuna tanaceti HY. EDWARDS, Papilio, I, 1881, p. 188.

This form differs from *pyramidalis* by having the yellow on the legs predominating and banded with black. The red on the primaries is also somewhat more distinct; otherwise it is the same as *pyramidalis*.

Habitat: Nova Scotia; Colorado; Sierra Nevada, Cal.; Vancouver Island (Coll. Hy. Edwards, Am. Mus. Nat. Hist.); Montreal, Canada (Coll. H. H. Lyman); White Mts., New Hampshire; Nevada; Anticosti Island (Coll. F. Tepper, Agricul. Coll., Michigan).

***Albuna pyramidalis* var. *rubescens* (Hulst).**

Sesia rubescens HULST, Bull. Brooklyn Ent. Soc. III, 1881, p. 76.

May be distinguished from the preceding form by having the red on the primaries quite distinct and considerably heavier. The legs are wholly yellow and of a deeper shade than in *montana*, and the abdominal bands are also darker.

Three females from Colorado (including the type). Coll. Hy. Edwards, Am. Mus. Nat. Hist.

***Albuna pyramidalis* var. *coloradensis* (Hy. Edwards).**

Albuna coloradensis HY. EDWARDS, Papilio, I, 1881, p. 189; Grote's New Check List Moths, 1882, p. 12.

Albuna torva HY. EDWARDS, Papilio, I, 1881, p. 189.

In this form the legs and body are wholly black without any traces of yellow markings whatever. The wings have the borders black without any traces of red as in the preceding forms, except a very slight indication of this color along the inner margin of the primaries.

Habitat: White Mts., N. H. (Coll. Mrs. A. T. Slosson); White Mts., N. H., and Anticosti Island (Coll. F. Tepper, Agricul. College, Michigan); Colorado, Vancouver Island and N. W. Territory, Canada (Coll. Hy. Edwards, Am. Mus. Nat. Hist.); Montreal, Canada (Coll. H. H. Lyman).

***Ægeria lupini* Hy. Edwards.**

Ægeria lupini HY. EDWARDS, Papilio, I, 1881, p. 192; WM. BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist. IV, 1893, p. 24.

Ægeria perplexa HY. EDWARDS, Papilio, I, 1881, p. 192.

Ægeria impropria HY. EDWARDS, Papilio, I, 1881, p. 193.

Ægeria washingtonia HY. EDWARDS, Papilio, I, 1881, p. 197.

Ægeria madariæ HY. EDWARDS, Papilio, I, 1882, p. 201; WM. BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist. IV, 1893, p. 24.

In the Museum Bulletin, Vol. V, page 24, I united *Ægeria madariæ* with *Æ. lupini*. Since then close studies have been made of *Æ. perplexa*, *Æ. impropria*, and *Æ. washingtonia*, and I find that these do not differ from *Æ. lupini*. The species were described from specimens with the scales more or less abraded through flight and age. *Æ. perplexa* is a small male.

Types: *Æ. lupini*, *Æ. madariæ*, *Æ. washingtonia* and *Æ. impropria*. Coll. Hy. Edwards, Am. Mus. Nat. Hist. *Æ. perplexa*. Coll. B. Neumoege; one authentic male. Coll. E. L. Graef.

Habitat: Washington, California, Nevada, Texas and Nova Scotia.

***Ægeria saxifragæ* Hy. Edwards.**

Ægeria saxifragæ HY. EDWARDS, Papilio, I, 1881, p. 190.

Ægeria henshawi HY. EDWARDS, Papilio, II, 1882, p. 56.

Ægeria henshawi was described from a worn specimen, and is the same as *Æ. saxifragæ*.

Types: *Æ. saxifragæ*, one female from Colorado; *Æ. henshawi*, one female from Mingan Island, Labrador. Coll. Hy. Edwards, Am. Mus. Nat. Hist.

Ægeria albicornis Hy. Edwards.

Ægeria albicornis HY. EDWARDS, Papilio, I, 1881, p. 201.

Ægeria proxima HY. EDWARDS, Papilio, I, 1881, p. 201.

This species has been reared from larvæ found under the bark of *Salix californica* (Proc. Ent. Soc. Wash., Vol. I, p. 85). I have also bred it from the trunks of young willows infested with larvæ of *Cryptorhynchus lapathi*. The male was described by Mr. Edwards as *Æ. proxima*. Judging from the description, I also consider *Albuna modesta* Kellicott the same as *Æ. albicornis*. It occurs from the Atlantic to the Pacific Coast. At present it is known from New York, New Jersey, White Mts., New Hampshire, Connecticut, Colorado, Nevada and California.

Types: *Æ. albicornis*, two females. Coll. Hy. Edwards, Am. Mus. Nat. Hist., and Coll. F. Tepper, Agricul. College, Michigan.

Ægeria lustrans (Grote).

Trochilium lustrans GROTE, Can. Ent. XII, 1880, p. 213.

Ægeria lustrans BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist. V, 1893, p. 25.

Ægeria bollii HY. EDWARDS, Papilio, I, 1881, p. 191.

Ægeria bollii was described from a single male example from Texas, and it is identical with *Ægeria lustrans*.

Type: *Æ. lustrans*. Coll. Hy. Edwards, Am. Mus. Nat. Hist. *Æ. bollii*, one example, Coll. E. L. Graef.

Ægeria edwardsii, sp. nov.

Head and antennæ black; palpi white, black outside; coxæ of fore legs white, middle and hind legs deep brown; tibiæ pale yellow with a black band. Thorax blackish brown with traces of a very narrow stripe along the patagiæ. Body deep brown with a very slight purplish reflection, second segment and posterior edge of last segment with a narrow yellow band; fourth segment yellow. Underside with four pale yellow bands, one on the first and one on each of the last three segments. Anal tuft black with two small bunches of yellow scales above. Fore wings deep brown, with a slight purplish reflection with

only a few short streaks of yellow before and after the indistinct discal spot. Hind wings with brown veins, outer border and scales brown; space between the veins pale orange; discal spot black. Underside of fore wings pale orange at base and the yellow streaks beyond the discal mark forming a spot. Hind wings same as above. Expanse, 20 mm.

One female, Denver, Colorado. Collected by Mr. D. Bruce. Type: Coll. Am. Mus. Nat. Hist.

Allied to *Ægeria verecunda* Hy. Edwards, but differs from it in the color of the wings and in other particulars. Named in honor of the late Hy. Edwards, who has contributed much to the knowledge of the North American Ægeriidæ.

Ægeria deceptiva, sp. nov.

Head and antennæ black; collar dull yellow; palpi yellow inside, black outside, as is also the last joint. Thorax black with traces of a yellow stripe on the patagia and a yellow mark on the posterior end. Body black with four distinct yellow bands; one on the posterior edge of each of the second and fourth segments, and two which occupy almost the whole of the last two segments. There are also faint traces of a band on the first, third and fifth segments; body beneath wholly yellow. Anal tuft above black at the sides and yellow in the middle and beneath. Thorax beneath black with a yellow spot on each side. Legs yellow banded with black. Fore wings transparent with narrow black borders and a transverse mark at the end of the cell of the same color. Hind wing also with narrow black border. Beneath the wings have the borders dull orange and the outer borders black. The transverse band dull orange in middle. Expanse, 25 mm.

Type: One male, from Colorado, Coll. Am. Mus. Nat. Hist. Collected and presented by Mr. David Bruce. The species is allied to *Æ. senecioides* Hy. Edw.

Ægeria culiciformis (Linn.).

Wings transparent, with a metallic blue margin, and the fore wings with a bar of the same color across and beyond the middle. Body blue black with an orange red band across the middle, above and below, and which is connected with a narrow stripe of the same color at the sides, running to the base of the body; palpi orange red; legs blue black; tarsi light orange. Thorax blue black with an orange spot on each side of the anterior part beneath. Underside of fore wings orange red along the costa. Antennæ black. Expanse, 23 mm.

A single male of this European species is in the collection of Mr. Charles Palm, collected by Mr. C. Weidt in the Cascade Mountains, British Columbia. This is the first record of its occurrence in this country.

Ægeria rutilans (Hy. Edwards).

Albuna rutilans HY. EDWARDS, Papilio, I, 1881, p. 186.

Ægeria aureola HY. EDWARDS, Papilio, I, 1881, p. 194.

Ægeria hemizoniæ HY. EDWARDS, Papilio, I, 1881, p. 198.

There are no differences between *Albuna rutilans* and *Ægeria hemizoniæ* to warrant their separation as distinct species. The latter was described from three worn examples. *Ægeria aureola* I consider only a small female of *rutilans*. The insect is more properly referred to *Ægeria* than to *Albuna*.

Types: Six females from Nevada and California. Coll. Hy. Edwards, Am. Mus. Nat. Hist. *Æ. aureola*. Coll. E. L. Graef.

Ægeria scitula Harris.

Ægeria scitula HARRIS, Am. Journ. Sc. and Arts, XXXVI, 1838, p. 313; WALKER, Cat. B. Mus. pt. VIII, 1856, p. 45; MORRIS, Synop. Lepid. N. Am. 1862, p. 141; BOISDUVAL, Suites à Buffon, Nat. Hist. Lépid. 1874, p. 439.

Trochilium hospes WALSH, Proc. Ent. Soc. Phil. VI, 1866, p. 270; PACKARD, Fifth Rep. U. S. Ent. Comm. 1890, pp. 217, 270 and 296.

Trochilium gallivora WESTWOOD, Gardener's Chronicle, 1854, p. 757; Proc. Ent. Soc. London (2) III, 1854, p. 21; KELLICOTT, Can. Ent. XXIV, 1892, p. 45.

The type of *Ægeria scitula* in the Boston Society of Natural History was examined by me. It agrees in all particulars with an example bred by me from a larva found under the bark of chestnut, and a specimen bred by Rev. J. L. Zabriskie from the gall of *Andricus cornigerus* on oak (*Quercus palustris*). The specimens before me also agree with Walsh's description of *Trochilium hospes*, which was bred from a gall on willow; I also consider *Trochilium gallivora* identical with *Ægeria scitula*.

Ægeria rubristigma Kellicott.

Ægeria rubristigma KELLICOTT, Can. Ent. XXIV, Sept. 1892, p. 211; Insect Life, V, Nov. 1892, p. 84.

Ægeria asiliformis HY. EDWARDS, Papilio, II, 1882, p. 56.

The examples recorded from Massachusetts by the late Hy. Edwards as being identical with the European *Ægeria asiliformis* Rott, are a distinct species, and they fairly agree with the description of *Ægeria rubristigma*. A comparison of specimens of the two, however, is necessary to definitely decide this question. *Æ. rubristigma* was bred by Mr. Kellicott from a gall found on oak (*Quercus palustris*), and the so-called examples of *Æ. asiliformis* were bred from willow.

Pyrrhotænia polygoni Hy. Edwards.

Pyrrhotænia polygoni HY. EDWARDS, Papilio, I, 1881, p. 202.

Pyrrhotænia meadii HY. EDWARDS, Papilio, I, 1881, p. 204.

The female of this species was erroneously described as a male. *P. meadii* is the male of *P. polygoni*.

Types: Two males, Lake Tahoe, California, and one female, San Miguel, California. Coll. Hy. Edwards, Am. Mus. Nat. Hist.

Pyrrhotænia fragariæ Hy. Edwards.

Pyrrhotænia fragariæ HY. EDWARDS, Papilio, I, 1881, p. 202; BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist. V, 1893, p. 26.

Pyrrhotænia helianthi HY. EDWARDS, Papilio, I, 1881, p. 203; BEUTENMÜLLER, Bull. Am. Mus. Nat. Hist. V, 1893, p. 26.

Pyrrhotænia orthocarpi HY. EDWARDS, Papilio, I, 1881, p. 204.

In the Museum Bulletin, Vol. V, p. 26, I united *P. helianthi* with *P. fragariæ*. Since then I have come to the conclusion that *P. orthocarpi* is also a synonym of this species. *P. helianthi* and *P. fragaria* are the female and *P. orthocarpi* the male.

Types: *P. orthocarpi*, three males and one female from Nevada; *P. fragariæ*, one female from Colorado. Coll. Hy. Edwards, Am. Mus. Nat. Hist.

Carmenta nigra, sp. nov.

Head and antennæ black; face and collar and underside of palpi sordid white; thorax and body black, the latter with three white bands on the posterior edge of the second, fourth and last segments; the middle band encircles the body

while the other two are only present on the upper side ; anal tuft black. Legs black with traces of whitish scales, especially on the anterior coxæ. Fore wings black, opaque, except a few short white streaks beyond the middle and a short white streak before the middle, thus giving rise to a black discal spot. Hind wings black, opaque. Expanse, 15 mm.

Type : One female from Utah. Coll. Chas. Palm.

Translations of Species Described by Boisduval.

***Sesia mellinipennis* Boisduval.**

Sesia mellinipennis BOISDUVAL, *Species Général*, 1874, pl. xiv, 10 B. fig. 12 ; Suites à Buffon, *Nat. Hist. Lépid.* p. 402.

Head and antennæ black ; palpi yellow ; breast marked on each side with a yellow spot ; posterior legs banded with black. Thorax black, with a ray on each and the collar yellow. Abdomen, blue black with five yellow rings of which two, on the first and second segments, are interrupted and the three others are situated at the extremity. Anal tuft yellow, middle black. Upper wings transparent with the borders and the transverse spot pale brownish black. Besides the transverse band is marked with a little red in its middle. Hind wings transparent with the veins and border pale brown.

It is a third larger than *cynipiformis*.

Habitat : North America. 2 ♂♂, which have been destroyed with several other American species by the powder explosion of the Luxemburg.

***Sesia chrysidipennis* Boisduval.**

Sesia chrysidipennis BOISDUVAL, *Lépid. California*, 1869, p. 64 ; Suites à Buffon, *Nat. Hist. Lépid.* 1874, p. 403.

Head and antennæ black ; palpi yellow white, brown above ; collar straw yellow ; corslet black ; abdomen deep black with six yellow rings. The anal tuft black with the middle yellow. Thorax on each side with a yellow spot. Feet yellow ; knees black. The wings are transparent with the internal border and apical nervures rusty buff ; the costa brown ; transverse band reddish buff on sides, brown in middle. Hind wings transparent ; anterior border a little rusty ; outer border, nervures and subcostal spot blackish brown.

It has the form of the European *S. uroceripennis*.

Habitat : Los Angeles, California.

***Sesia anthracipennis* Boisduval.**

Sesia anthracipennis BOISDUVAL, Suites à Buffon, Nat. Hist. Lépid. 1874, p. 392.

Head and antennæ black; palpi yellow below with the last joint black on top. Breast of a brownish black; legs brown black. Body of a burnt brown with four yellow rings; anal tuft black, barely mixed with a few yellow hairs on the sides. Wings brown, marked with a small orange point on the space where the second spot is found transparent in most of the species. Hind wings transparent with a large border; the veins and subcostal lunule deep black.

Has the size and build of a very small *asiliiformis*.

Georgia. Lives on a species of *Salix*.

***Sesia bibionipennis* Boisduval.**

Sesia bibionipennis BOISDUVAL, Lépid. California, 1869, p. 64; Suites à Buffon, Nat. Hist. Lépid. 1874, p. 421.

Head and antennæ black; palpi grayish white below, black above. Corslet black. Feet brownish, limbs reddish brown (russet). Abdomen black with two rings of yellowish white. Anal tuft black mixed with a few yellow hairs and preceded in the male by a little white ring. Upper wings with two transparent spots, of which the anterior arrow-shaped, and the posterior round and divided into fine rays by the nervures. Hind wings transparent, nervures border and subcostal lunule black.

General appearance and size of *tenthreniformis* and near *S. bibioniformis* of Europe.

Habitat: California.

***Sesia xiphiaformis* Boisduval.**

Sesia xiphiaformis BOISDUVAL, Suites à Buffon, Nat. Hist. Lépid. 1874, p. 409.

Head and antennæ bluish black; eyes reddish brown; palpi and feet black. Abdomen bluish black marked in the middle with a wide orange or rather two rings united, of a reddish buff. The anal tuft black, preceded in the male with a longitudinal buff dash, which does not reach the extremity of the brush. The upper wings entirely blackish brown with a fringe of light brown. Hind wings transparent with borders and nervures black. Also the anterior border is largely deep black. Expanse, 35 to 38 mm.

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