

NEW REARED PARASITIC HYMENOPTERA WITH SOME NOTES ON SYNONYMY.

BY A. B. GAHAN,

Of the Bureau of Entomology, United States Department of Agriculture.

In this paper will be found descriptions of two genera and 12 species of Ichneumonoidea and Chalcidoidea. Notes on synonymy of some species already described are also included. All of the new species are described from reared material and the descriptions are published at this time in order to make the names available for use in economic papers dealing with the host insects.

Superfamily ICHNEUMONOIDEA.

Family ICHNEUMONIDAE.

Subfamily JOPPINAE.

PHAEOGENES (CENTETERUS) INEPTIFRONS, new species.

This species runs in Foerster's synopsis of the Ichneumonidae, satisfactorily to the genus *Centeterus* except that the head is more transverse than quadrate, though with the posterior orbits full and nearly as broad as the transverse diameter of the eyes. The female is easily separated from any other Phaeogenines known to me by the transverse carina on the frons.

Female.—Length 6.5 mm. Slender; head thorax and abdomen some what shining, finely and nearly uniformly sculptured, the mesopleura and mesosternum with some distinct punctures, most numerous on the mesosternum. Occiput deeply concave; antennae short, 20-jointed, thickened slightly toward the apex, the basal joint of the flagellum a little shorter than the second joint, second and third flagellar joints subequal, and about two and one-half times as long as thick, following joints shorter, the apical one conical, about twice as long as thick, the penultimate joint quadrate; clypeus sculptured like the face, with a few irregularly placed punctures, its anterior margin nearly straight; a line from the antennal fossae to

the base of clypeus equal to about one-fourth the distance between the inner eye margins at antennae; face below antennae a little more strongly sculptured than the posterior orbits, with a nearly quadrate slightly elevated area in the middle; frons coarsely transversely striated with a distinct carina about midway between the anterior ocellus and the base of antennae, this carina angulated on each side of the median line so as to form a low upward projecting tooth on each side of the median line and about midway between it and the eye-margin, the lateral extension of the carina terminates at a small low spiracle-like tubercle near the eye margin; notauli impressed on the anterior one-third of the mesoscutum; sternauli distinctly impressed from the anterior margin to the middle of mesopleura; propodeum distinctly completely areolated, the carinae fine, areola one and one-half times as long as broad, rounded anteriorly. the carina between areola and petiolarea weak; petiolarea slightly depressed; venation normal, the areolet slightly narrowed anteriorly; femora very slightly swollen; abdomen about twice as long as the thorax, slender; postpetiole reticulately rugulose, evenly convex, without dorsal carinae; second tergite with the gastrocoeli obsolete; ovipositor sheaths extending beyond the apex of abdomen about the length of sixth tergite. Entirely ferruginous except the eyes, apex of mandibles, apical joint of all tarsi, and the apex of abdomen beyond the fourth tergite, which are black; wings hyaline, the veins and stigma black, the latter with a yellowish spot at inner angle; antennae ferruginous, the apex slightly darker.

Male.—Antennae 22-jointed in the allotype; anterior margin of the clypeus more distinctly convex than in the female; a line from antennal fossae to base of clypeus equal to approximately one-third the distance between the eyes at antennae; frons transversely striated but without the transverse carina and without toothlike projections; apex of fifth tergite and all tergites beyond black.

Type-locality.—Washington, District of Columbia.

Type.—Cat. No. 21614, U.S.N.M.

Host.—*Laspeyresia molesta* Busck.

Six females and two males reared by Mr. E. R. Selkregg from pupae of the above-named host and recorded in the Bureau of Entomology under Quaintance No. 7899.

Subfamily OPHIONINAE.

EXETASTES SUAVEOLENS Walsh.

Campoplex niger PROVANCHER, Nat. Cab., vol. 11, 1879, p. 148.

Exetastes provancheri DALLA TORRE, Cat. Hym., vol. 3, 1902, p. 73.

A specimen compared by the writer with Provancher's type and made a homotype is identical with a homotype of Walsh's species in the collection of the United States National Museum compared by Mr. H. L. Viereck.

Family ALYSIIDAE.

Subfamily DACNUSINAE.

DACNUSA IRIDICOLA, new species.

Female.—Length 3 mm. This species is close to *D. laeviceps* Cresson, but is readily distinguished because of the much shorter ovipositor, the narrower and differently shaped first tergite, as well as by the differently colored abdomen; distinguished from *confusa* Ashmead by the prominent ovipositor and the nonrenulate sternauli.

Head, thorax, and abdomen black, the latter sometimes faintly piccus; antennae, mouth parts, and legs, including all coxae, reddish testaceous, the antennae apically brownish; wings hyaline, the stigma and nervures brownish. Head perfectly smooth and polished; antennae 33-jointed in the type, the first joint of the flagellum about four times as long, as thick, and distinctly longer than the second joint; mandibles 4-toothed, there being a somewhat smaller tooth between the large median tooth and the ventral one; distance between the eyes at antennae about equal to median line from antennae to apex of clypeus; mesoscutum shining, faintly sculptured and hairy anteriorly, polished with sparse hairs posteriorly, parapsidal grooves represented by a short shallow strongly curved groove at the anterior lateral angles; a shallow median longitudinal groove divides the praescutum and terminates in front of the scutellum in a deep fovea; sternauli deeply impressed, extending from the anterior to the posterior margin of the mesopleura and perfectly smooth; metanotum with a strong median carina; propodeum densely pilose, rugose with a distinct median longitudinal carina; stigma of forewing extending a little beyond the middle of the radial cell, not as broad at the insertion of the radius as the length of the first abscissa of radius, the latter about equal in length to the intercubitus; second abscissa of cubitus very short; first brachial cell closed at apex; hind coxae unusually hairy at base above; abdomen about equal to the head and thorax in length; the first tergite rugose, hairy, with a distinct median longitudinal carinae on its anterior half at least, the segment widest at the spiracles which are slightly before the middle, its apex broader than its base, and its length nearly twice its greatest width; other tergites all smooth and polished; ovipositor sheaths very slightly curved upward, rather broad, subequal in length to the first tergite and extending beyond the apex of abdomen approximately one-third the length of the first tergite; the ovipositor is straight and very slender; hypopygium rather large and prominent, extending to the apex of pygidium or nearly and in dried specimens forming with it a large mouth-shaped opening.

Type-locality.—Middleburg, Pennsylvania.

Type.—Cat. No. 21615, U.S.N.M.

Host.—*Agromyza laterella* Zetterstedt.

Fourteen females reared by P. R. Myers, May 16–18, 1916, from puparia of the above-named host infesting Iris.

The host of this species is European, and although I have been unable to connect the parasite with any description of a European *Daenusa*, it may nevertheless prove to be already known there.

Family BRACONIDAE.

Subfamily APHIDIINAE.

TRIOXYS CUPRESSICOLA, new species.

This species is very similar to *coruscanigrans* Gahan, but may be distinguished from it as well as all other American species by the fact that the antennae of the female are 12-jointed and those of the male 13-jointed.

Female.—Length, 1.65 mm. Black, smooth, polished; palpi, antennal pedicel, and first flagellar joint, narrow basal band on all tibiae, all tarsi basally, the first tergite and the two horns at apex of abdomen more or less pale yellowish. Wings hyaline, the stigma and veins pale. Head impunctate; viewed from in front strongly arched above the eyes; eyes converging below, the face rather narrow, polished; clypeus smooth convex, the clypeal foveae large and deep; malar space very short; thorax polished, impunctate; parapsidal grooves absent except at the lateral anterior angles; propodeum polished, distinctly areolated, the petiolar areola rather large, well defined and five-sided; first brachial cell of the forewing nearly effaced; abdomen longer than the head and thorax, smooth, polished, ovipositor sheaths bent downward and about as long as the anal prongs.

Male.—Except for the 13-jointed antennae the male differs from the female only in the usual sexual characters.

Type-locality.—Riverside, California.

Type.—Cat. No. 21616, U.S.N.M.

Host.—*Cerosipha*, new species on authority of Mr. A. F. Swain.

Described from seven females and four males received from Mr. A. F. Swain and reared according to Mr. Swain from an undescribed species of Aphid infesting cypress (*Cupressus*) and belonging to the genus *Cerosipha*.

Subfamily CHELONINAE.

CHELONUS (CHELONELLA) PROTEUS, new species.

Is apparently closest to *atripes* Ashmead, but differs by having the basal joint of flagellum slightly more than four times as long as thick instead of scarcely three times as long as thick; by having the

head as viewed from in front decidedly broader than its median length instead of practically as long as broad; by having the posterior lateral angle of the propodeum produced into a rather strong tooth instead of very weakly produced; by having the abdomen more strongly sculptured, the rugosities forming more distinct longitudinal ridges or irregular striations; by having a longer ovipositor and more prominent hypopygium, the hypopygium in all of the 19 female specimens at hand being thrust out from beneath and extending posteriorly beyond the apex of the carapace; the ovipositor from basal hinge to apex of sheaths equal to about two-thirds the length of the abdomen, its apex projecting from the hypopygium a short distance.

Female.—Length 2.8 mm. Black; mandibles at apex, two anterior pairs of tibiae and tarsi entirely, their femora and the hind tibiae and tarsi for the most part dark reddish testaceous. Wings hyaline, the costal vein and stigma dark brown, the other venation brownish testaceous. Antennae 16-jointed, the first flagellar joint only slightly longer than the second, which is equal to the third; clypeus somewhat shining with moderately close rather weak punctures, its anterior margin somewhat produced and slightly elevated; face rugose; frons with rather strong striatiform rugae laterally which are curved downward from the ocelli along the eye margin, the depressed area above the antennae shining with suberased rugae and divided by a weak median longitudinal raised line; vertex transversely rugose, the rugae curving downward behind the eyes; mesonotum with coarse pits or foveae on the posterior middle and the parapsidal furrows strongly foveate, the remainder of mesoscutum more finely sculptured, opaquely rugulose; scutellum shining with suberased punctures; mesopleura coarsely pitted like the posterior middle of mesoscutum; propodeum coarsely rugoso-punctate, with a rather well defined median dorsal areola, the tooth at the posterior lateral angles distinct but not long; nervulus postfurkal by nearly its own length, first and second radial abscissae nearly equal in length and forming a distinct angle at their junction; abdomen at its broadest point narrower than the thorax at tegulae, strongly convex above and more narrowed at apex than usual for the genus; the ventral concavity extends to the apex of the abdomen; ovipositor as described above.

Male.—Agrees with female except that the antennae are 20-jointed in the allotype, the abdomen is more rounded at apex, not at all compressed from the sides, the ventral concavity does not extend to the apex, and at the apex of the abdomen is a deep, nearly circular incision from the middle of which projects a short horn; this aperture in related species is usually very strongly transverse.

Type-locality.—Williamsport, Maryland.

Type.—Cat. No. 21617, U.S.N.M.

Host.—*Stagmatophora gleditschiae* Chambers.

Three females and three males reared, according to Mr. W. R. McConnell, of the Bureau of Entomology, from larvae of the above-named host infesting the spines of honey locust (*Gleditsia triacanthos*). Also a number of specimens taken by Mr. P. R. Myers, of the Bureau of Entomology, in the type-locality.

Subfamily BRACONINAE.

BASSUS IMMACULATUS, new species.

Female.—Length 3.5 mm. Resembles (*Microdus*) *Bassus discolor* Cresson as represented by a Viereck homotype in the United States National Museum, but differs in lacking any black markings on the head, thorax, and abdomen, in having the propodeum more evenly and finely sculptured, the second and third tergites very weakly sculptured, the areolet slightly larger, and the sternauli short, weak, and not foveolate, instead of nearly complete and deeply foveolate.

Head perfectly smooth and polished; distance between the eye margins at antennae very slightly greater than from antennae to apex of clypeus; malar space somewhat less than half the long diameter of the eye; postocellar line approximately two-thirds as long as the ocellocular line; a broad rounded ridge between the antennae; occiput very slightly concave; antennae 34-jointed in type, the first flagellar joint the longest, nearly four times as long as thick, second and third joints of flagellum subequal and a little less than three times as long as thick, all flagellar joints longer than thick; thorax smooth, polished; parapsidal grooves deep, not crenulate; transverse furrow at base of scutellum distinctly finely crenulate; propodeum entirely without longitudinal or transverse carinae, finely granularly coriaceous; areolet triangular, subpetiolate; first brachial cell broadly open at apex behind; longer spur of the hind tibiae distinctly less than half the length of basal joint of tarsi; tarsal claw with a distinct basal tooth; abdomen about as long as the head and thorax, the first tergite granularly coriaceous like the propodeum, the second and third tergites with faint traces of similar sculpture, following tergites smooth; ovipositor extending beyond the apex of abdomen about three-fourths the length of the body. Antennae, eyes, ocelli, small blotch at apex of posterior femora above, narrow basal band and broad apex of posterior tibiae, posterior tarsi and the ovipositor sheaths black or blackish; scape beneath testaceous; hind tibiae, except as noted, whitish; remainder of insect immaculate reddish testaceous. Male unknown.

Type-locality.—Baton Rouge, Louisiana.

Type.—Cat. 21618, U.S.N.M.

Four females reared by Mr. C. E. Smith in connection with *Phthorimaea striatella* Murtfeldt and possibly parasitic on that moth. Recorded in the Bureau of Entomology under Chittenden No. 4252¹.

BASSUS USITATUS, new species.

Resembles (*Microdus*) *Bassus simillimus* Cresson, but may be readily distinguished by the nearly smooth, distinctly areolated propodeum, which in *simillimus* is opaquely rugose and not distinctly areolated.

Female.—Length 4.5 mm. The head, viewed from in front, is distinctly broader than long; eyes large, strongly convex; face only slightly convex, smooth and polished with sparse very fine punctures; distance between eyes at antennae slightly greater than from antennae to apex of clypeus; malar space rather short; antennae separated at base by a rounded ridge; viewed from above the head is strongly transverse, polished, with a few very fine punctures, the frontal depression smooth and not bounded laterally by a carina; postocellar line slightly shorter than the ocellocular line; occiput slightly concave; antennae broken, the first flagellar joint a little more than three times as long as thick and a little longer than the second, joints beyond the second decreasing gradually in length; thorax polished with sparse pale hairs; notauli deep and nonfoveolate or nearly so; transverse suture between mesoscutum and scutellum weakly crenulate; mesopleura without sternauli; propodeum nearly smooth, distinctly areolated, the median areola longer than broad and more or less rugulose within; metapleura mostly smooth, more or less rugose below the middle; longer spur of the hind tibiae a little less than half the length of the basal joint of tarsi; areolet of the front wings triangular with a petiole longer than the first radial abscissa; first brachial cell open at apex below the subdiscoides; abdomen as long as head and thorax combined, entirely smooth and polished, the first tergite dorsally strongly bicarinate on basal half; second tergite with a smooth, poorly defined, transverse furrow which curves forward laterally inclosing an embossed area at base of tergite; suture between the second and third tergites distinct but smooth and not deep; ovipositor extending beyond the apex of abdomen 3.2 millimeters in the type. Antennae, head, prothorax, mesothorax, four anterior legs entirely, and hind tibiae and tarsi, and the ovipositor sheaths black; metapleura, propodeum, abdomen, and the hind coxae and femora reddish testaceous; palpi and apical joint of all tarsi, excluding the claw, more or less pale; wings blackish with several small hyaline patches behind the stigma; veins and stigma blackish.

Male.—Length 5.5 mm. Antennae 34-jointed in the allotype; middle coxae concolorous with the propodeum; otherwise like the female.

Type-locality.—East Wareham, Massachusetts.

Type.—Cat. No. 21609, U.S.N.M.

One female and three male specimens reared by Dr. H. J. Franklin in cages containing breeding material of the cranberry fruit-worm, *Mincola vaccinii* Riley, and probably parasitic on that insect. Two male paratypes deposited in the collection of the Massachusetts Agricultural College, Amherst, Massachusetts.

Subfamily MICROGASTERINAE.

APANTELES STAGMATOPHORAE, new species.

This species is easily recognized by the unusually broad ovipositor sheaths, by the flattened aspect of the thorax, and the smooth polished propodeum which lies in nearly the same plane as the scutellum and mesoscutum.

Female.—Length 3.4 mm. Black; palpi and legs, except coxae, reddish testaceous, the posterior legs somewhat darker than the others; wings hyaline, the stigma and veins dark brown, the former nearly black. Antennae nearly as long as the body, the first flagellar joint about three times as long as thick, apical joints nearly twice as long as thick; occiput polished, remainder of the head subopaque with moderately close weak punctures; distance between the eyes at antennae fully one and one-half times the distance from antennae to base of clypeus; clypeus about twice as broad as long and distinctly separated from the face by a groove; malar space about equal to the median length of clypeus; thorax compressed dorso-ventrally, much broader between the tegulae than the dorso-ventral height, posterior two-thirds of the mesoscutum, scutellum and the propodeum lying in the same plane or nearly so; mesoscutum shining with weak moderately close punctures; scutellum more sparsely and weakly punctured, nearly smooth; triangular plate each side of the scutellum smooth and polished with the suture at base broad and divided by only three or four weak carinae; true metanotum smooth; mesopleurae weakly punctate anteriorly, for the most part polished impunctate; mesosternum flattened and nearly impunctate; propodeum without median longitudinal or transverse carinae and except for a few aciculations at the apical middle, practically smooth and polished or with only subobsolete punctures; hind coxae smooth; transverse part of discoideus and subdiscoideus effaced; abdomen about as long as the thorax and a little narrower, somewhat compressed dorso-ventrally; first tergite slightly broader at apex than base, its basal width about equal to half the width of propodeum at apex, subopaque with very fine obscure aciculations interspersing

sparse rather distinct punctures; second tergite fully four times as broad as long down the middle and sculptured like the first but more weakly; following tergites smooth; hypopygium not reaching to the apex of abdomen; ovipositor sheaths three-fourths as long as the abdomen, strongly compressed, blade-like, one-sixth as broad as long or nearly, and fully as broad as the greatest width of the hind femora; ovipositor slender, cylindrical, and slightly curved downward at the tip.

Male.—Antennae much longer than the body, all flagellar joints being at least nearly three times as long as thick; propodeum at the apical middle with distinct aciculations; second tergite a little more than twice as broad at apex as long down the middle; otherwise the male is like the female except smaller, being but 2.4 mm. in length.

Type-locality.—Williamsport, Maryland.

Type.—Cat. No. 21619, U.S.N.M.

Host.—*Stagmatophora gleditschiaeella* Chambers.

Type, allotype, and male paratype reared by W. R. McConnell under cage No. 664; also two female paratypes from the same locality, one of which was collected by P. R. Myers and bears No. 692, the other by W. R. McConnell and bearing No. 689.

Mr. McConnell's specimens were reared from cocoons found in burrows of the host larvae, and these burrows were fully made, with no signs of any pupal host, which is pretty good evidence that they emerged from the mature host larva.

APANTELES EMPRETIAE Viereck.

Apanteles (Protapanteles) empretiae VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 562.

Apanteles (Apanteles) sibiridis ROHWER, Proc. U. S. Nat. Mus., vol. 49, 1915, p. 227.

Types of *empretiae* Viereck and *sibiridis* Rohwer have been compared and are undoubtedly the same species. Both were originally recorded from the same host, (*Empretia*) *Sibine stimulea* Clemens, and both are from the neighborhood of Washington, District of Columbia.

APANTELES FUMIFERANAE Viereck.

Apanteles (Apanteles) polychrosidis VIERECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 615.

Types of these two species have been compared and the writer is of the opinion that they are synonymous.

Subfamily BLACINAE.

ORGILUS DIORYCTRIAE, new species.

Female.—Length, 4.6 mm. Deep shining black; basal joints of the flagellum, the mandibles, apex of the median and anterior femora

and the front tibiae reddish brown, tibial spurs and the ovipositor reddish testaceous, the ovipositor sheaths black; wings subhyaline, faintly tinged with fuscous, the stigma and costal vein black, other venation dark brown. Head a little narrower than the thorax at the tegulae, the occiput concave, vertex punctate near ocelli, nearly smooth laterally and behind and sloping strongly from the posterior ocelli to the occipital carina, which is slightly interrupted above; frons depressed, punctate laterally, smooth medially with a slight median ridge; posterior orbits prominent, almost as broad as the width of the eye, not at all receding, and nearly smooth, except for fine punctures along the occipital margin; ocellocular line slightly less than the postocellar line and equal to about one and one-half times the greatest diameter of a lateral ocellus; face convex below the antennae, moderately punctured, the width between the eyes at antennae a little greater than the distance from the anterior margin of the antennal fossae to the base of clypeus; malar space rather long; cheeks broad and finely closely punctate; antennae 32-jointed in the type, the first flagellar joint three times as long as broad, 10 or 12 apical joints quadrate; mesoscutum and scutellum shining, moderately hairy with weak punctures, the parapsidal grooves foveolate their entire length; propleura strongly rugulose-punctate, smoother along the dorsal margin; mesopleura smooth with the sternauli foveolate; propodeum without carinae, mostly rugulose-punctate, with the base before the spiracles more or less smooth and polished and with an apical depression each side of the middle, which is mostly smooth; sides of propodeum sparsely punctured, except along the apical margin, which is strongly punctured; hind coxae sparsely sculptured; longest hind tibial spur over half the length of first tarsal joint; intercubitus and second abscissa of radius forming a nearly straight line, stub of cubitus beyond the intercubitus slightly longer than the second abscissa of cubitus; abdomen slightly longer and a little narrower than the thorax, the first tergite entirely and the second for the most part finely rugulose-punctate, the base, apex, and lateral margins of the second narrowly smooth; tergites beyond the second polished; ovipositor about 4 mm.

Male.—Is like the female except that apical antennal joints are not quadrate but longer than broad, the base of the flagellum is black like the remainder, and the second tergite is almost sculptureless.

Type-locality.—Patrick's Creek, California.

Type.—Cat. No. 21620, U.S.N.M.

Host.—*Dioryctria xanthaenobares* Dyar on *Pinus attenuata*.

Ten females and one male reared by J. M. Miller September 15, 1916, and recorded in the Bureau of Entomology under Hopkins U. S. No. 14265*k*.

ORGILUS MELLIPES Say.

Microgaster mellipes SAY, Bost. Journ. Nat. Hist., vol. 1, pt. 3, 1836, p. 261.

Microgaster mellipes (Say) LeConte, Writings Thom. Say Entom., vol. 2, 1859, p. 712.

Say's description of this species, the type of which is lost, indicates the presence of complete parapsidal grooves, a closed radial cell, open second cubital cell, and a more or less fusiform abdomen. This combination of characters excludes the species from the *Microgasterinae*, while at the same time they agree with *Orgilus*, a genus which the writer would place in the subfamily *Blacinae*.

Several specimens of what appear to be this species have been reared at Baton Rouge, Louisiana, by Messrs. C. E. Smith and J. L. E. Lauderdale, of the Bureau of Entomology, from *Phthorimaea glochinella* Zeller under Chittenden No. 4150. The writer has chosen a male of this series as a neotype of the species.

Subfamily OPIINAE.

OPIUS MELLEUS Gahan.

Biosteres rhagoletis RICHMOND, Can. Ent., vol. 47, 1915, p. 294.

A series of specimens, including two paratypes, of *rhagoletis*, furnished the United States National Museum collection through the courtesy of Mr. William Colcord Woods, have been compared with the type of *melleus* and agree in every particular.

Subfamily VIPIINAE.

HABROBRACON AMERICANA Ashmead.

Trachyusa americana ASHMEAD, Bull. Colo. Biol. Assoc., vol. 1, 1890, p. 18.

The type of this species in the United States National Museum collection is similar to *H. johannseni* Viereck, but may be separated by the fact that the second radial abscissa is as long or a trifle longer than the first intercubitus and the median carina of the propodeum is more distinct. Also resembles *H. gelechiae* Ashmead, but has the second radial abscissa longer, a better developed median carina on the propodeum, and the abdomen is slightly narrower.

Superfamily CHALCIDOIDEA.

Family CALLIMOMIDAE.

Subfamily MONODONTOMERINAE.

Genus LIODONTOMERUS Gahan.

In the description of this genus the antennae are stated to have two ring-joints. As a matter of fact, there is probably only one true ring-

joint, the apparent second ring-joint being a much reduced funicle joint. Study of a series of specimens of *L. perplexus* shows the fourth antennal joint to be usually no longer (often slightly shorter), but usually very slightly broader than the third joint or true ring-joint. In some cases the fifth joint is greatly reduced and might be mistaken for a right-joint. (See fig. 1.)

PSUEDERIMERUS, new genus.

Except for the unicalcarate hind tibiae, the type of this genus appears to be more closely allied to the genus *Liodontomerus* in the subfamily Monodontomerinae than to the type-genus of the Erimerinae. I am unable to see more than the one spur, however, and therefore have placed the genus in the Erimerinae, where it would run in Mr. J. C. Crawford's key to the subfamilies of Callimomidae.¹

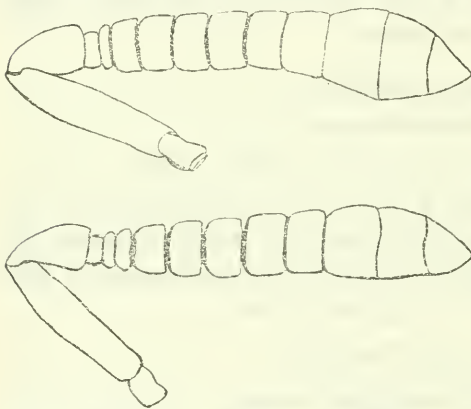


FIG. 1.—*LIODONTOMERUS PERPLEXUS*. ANTENNA FROM TWO PARATYPE FEMALES ILLUSTRATING VARIATION IN THE FUNICLE JOINTS.

Differs from *Erimerus* in the emarginate first and second tergites, in antennal characters and different habitus.

Head transverse, about equal in width to the thorax at tegulae; occiput slightly concave, immargined; ocelli in an obtuse triangle; head, viewed from in front, approximately as long as broad, narrowed below, the malar space much longer than the width of a mandible at base; eyes very

slightly diverging below; antennae inserted just above the clypeus; frontal impression for receipt of the scape rather deep, narrow, and extending to the front ocellus; antennae 13-jointed; pedicel as long as the four following joints combined; joint 3 of the antennae is a true ring-joint, joints 4 and 5 also ring-like but broader than joint 3; joints 6, 7, and 8 all broader than long and increasing in breadth and thickness from 6 to 8; joints 9 and 10 very slightly broader than long, subquadrate; club broader than the funicle, about equal in length to the four preceding funicle joints, 3-jointed, the suture between the penultimate and last joint very indistinct; pronotum transverse, somewhat conically produced, the dorsum and sides rounded; mesoscutum broader than long, with distinct sharply curved parapsidal grooves; axillae broadly separated; scutellum nearly flat, without a cross furrow; propodeum short, without lateral folds or spiracular sulci and without distinct

¹ Proc. Ent. Soc. Wash., vol. 16, 1914, p. 123.

median carina; marginal vein equal to about twice the postmarginal which is short and subequal to the stigmal; fore and hind femora somewhat swollen, the latter pair not serrate beneath; hind tibiae straight; abdomen of the female about equal in length to the head and thorax combined, viewed from above ovate, slightly conic at apex, the dorsum slightly flattened, first and second tergites emarginate medially at apex, ovipositor exerted one-fourth the length of abdomen; abdomen of the male oval, flattened above, not longer than the thorax. (See fig. 2.)

Type of the genus—*Pseuderimerus mayetiolae*, new species.

PSEUDERIMERUS MAYETIOLAE, new species.

Female.—Length 1.8 mm. Head viewed from above approximately twice as broad as long, the posterior orbits narrow; postocellar line equal to twice the ocellocular, the latter line only a little greater than the greatest diameter of a lateral ocellus; head and thorax with fine, shallow, rugulose-punctate sculpture and covered with short whitish pile; pleura more weakly sculptured than the dorsum of thorax; propodeum laterally weakly sculptured, medially distinctly rugose; wings hyaline, the area immediately behind the marginal vein very faintly tinged with yellowish; abdomen above and below finely, shallowly, aciculate sculptured.

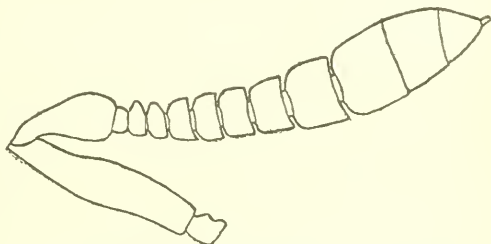


FIG. 2.—PSEUDERIMERUS MAYETIOLAE. ANTENNA OF A PARATYPE FEMALE.

Head and thorax aeneous, abdomen mostly black, tinged with brassy in some lights; antennae black, only the apex of club faintly brownish; coxae all aeneous, the legs otherwise entirely testaceous; ovipositor sheaths black.

Male.—Length 1.5 mm. Differs from the female as follows: The posterior orbits are much broader and not receding from the eye margins, but extending back a distance about equal to the transverse diameter of the eye before beginning to recede; the ocellocular and postocellar lines are nearly equal, the former being several times as long as the diameter of the rather small lateral ocellus; the abdomen is no longer than the thorax, sculptured as in the female, with a large testaceous or yellowish patch medially both above and below.

Type-locality.—Altamount, California.

Type.—Cat. No. 21621, U.S.N.M.

Host.—*Mayetiola destructor* Say on the authority of Mr. C. M. Packard.

Eight females and six males reared by Mr. Packard and recorded in the Bureau of Entomology under Webster No. 13346. The type

and allotype, according to the labeling, are the parents of one of the male paratypes, all three of these specimens bearing, in addition to the Webster number, Martinez No. 17211. Three other paratypes are from Altamount and bear Martinez No. 17215. Four paratypes are from Benicia, California, three of these bearing Martinez No. 17204, and one Martinez No. 17218. Four paratypes under Martinez Nos. 1724, 1717, and 1748 are from Concord, California.

Adults of this species emerge from the puparia of the host. The parasite oviposits in the host puparium and its larva feeds externally upon the host larva within the puparium.

Family PTEROMALIDAE.

HETEROSHEMA, new genus.

Female.—Antennae slightly above the middle of the face with three ring joints, a five-jointed funicle, and the club distinctly three jointed, antennal pedicel about equal to or a little shorter than the first funicle joint; head strongly transverse, the occiput immargined, scarcely at all concave; posterior orbits narrow and strongly receding; ocelli in a low triangle; left mandible three-dentate, the right four-dentate, anterior margin of the clypeus straight, face broad, slightly convex; thorax robust, the pronotum short, strongly transverse; mesoscutum nearly twice as broad as long, the parapsidal grooves deeply impressed anteriorly, effaced behind the middle; scutellum convex, with a distinct cross-furrow at the apical fourth; propodeum short, with a distinct neck, and a strong transverse carina which separates the neck from the rest of the propodeum, also with a strong median longitudinal carina; propodeal spiracles oval and very close to the base; postmarginal vein twice as long as the stigmal; abdomen conic ovate, with a very short smooth petiole which barely extends beyond the apex of the neck of propodeum; first tergite beyond the petiole comprising a little less than half the total length of the abdomen.

Type of the genus.—*Heteroschema prima*, new species.

HETEROSHEMA PRIMA, new species.

Female.—Length 1.9 mm. Head and thorax black; abdomen metallic blue-green; scape testaceous, pedicel and flagellum black; coxae and all femora black, the femora at apex and all tibiae and tarsi testaceous; trochanters also more or less testaceous, wings hyaline, the veins mostly testaceous; tegulae testaceous. Head and thorax with shallow irregular thimble-like punctures, those on the head not as strong as on the mesoscutum; first joint of funicle about one and one-half times as long as thick, following joints slightly shorter; club not thicker than the funicle; lower part of face with striae converging toward the mouth; frontal depression small and moderately

deep; ocellocular line a little longer than the lateral ocellar line, slightly more than half as long as the postocellar line; propodeum much more finely sculptured than the scutellum; forewing more sparsely ciliated than usual, the basal portion to the junction of the submarginal and the marginal veins entirely bare, the middle of the wing behind the marginal vein with distinct sparse cilia, the apical portion beyond the apex of the stigmal vein more closely ciliated. Abdomen smooth and polished except the fifth and sixth tergites which are weakly lineolated.

Male.—Agrees with the female except that it is slightly smaller, and the abdomen is shorter, more elliptical with the fifth and sixth tergites being obviously lineolate-reticulate.

Type-locality.—Tempe, Arizona.

Type.—Cat. No. 21622, U.S.N.M.

Host.—*Agromyza gibsoni* Malloch.

Eight females and seven males reared from larvae by F. H. Gates and recorded in the Bureau of Entomology under Webster No. 12239.

HABROCYTUS SIMILLIMUS, new species.

Female.—Length 2.4 mm. Very similar to small specimens of *H. languriae* Ashmead, but apparently differs as follows: The body appears somewhat more slender; the clypeus is not as distinctly defined, the striations not being terminated at a depressed line or very fine groove which in *languriae* separates the base at least of the clypeus from the face; the spiracular sulci of the propodeum are shallow, though complete; the apex of the scutellum does not show a punctation different from that of the remainder; the body color appears to be more of a blue green, lacking the bronzy tinge of *languriae*, and all of the femora are blackish, sometimes slightly metallic.

Male.—Length 2 mm. Anterior and median femora pale; the posterior femora fuscous except apically; abdomen with a testaceous patch embracing the apex of first and most of the second tergites; other characters, except the usual sexual ones, as in the female.

Type-locality.—Tempe, Arizona.

Type.—Cat. No. 21623, U.S.N.M.

Host.—*Agromyza gibsoni* Malloch.

Seven females and three males reared by Mr. F. H. Gates from the pupa of the above-named host and recorded in the Bureau of Entomology under Webster No. 12239. Antennae and mandibles of a paratype on a slide.

In view of the great similarity between this supposed new species and *languriae* and the further fact that I have received specimens of the latter species from Tempe, Arizona, reared by Mr. Gates from *Languria mozardi*, which, like *Agromyza gibsoni*, is a stem borer in

alfalfa and related plants it would not be surprising if the two species would ultimately prove to be the same.

EUTELUS MAYETIOLAE, new species.

Female.—Length, 2 mm. Is very similar to *Eutelus bruchophagi* Gahan, but easily distinguished by having all the femora pale testaceous like the tibiae and tarsi instead of blackish; by the fact that the clypeus is distinctly aciculate-striate instead of sculptured like the remainder of the face; the eyes are larger and the malar space somewhat less than half the length of the eye; the antennal ring-joints are longer, the second and third being subquadrate instead of very strongly transverse as in *bruchophagi*; the propodeum is rather distinctly wrinkled between the folds, the median carina weak, laterad of the folds very weakly sculptured and shining; the marginal vein is approximately one and one-third times as long as the postmarginal; the stigmal is equal to about two-thirds the postmarginal; the abdomen is slightly shorter than the combined head and thorax, pointed ovate, practically smooth and polished, the first tergite equal to approximately one-third the length of the entire abdomen. The color of the head and thorax is aeneous with rather strong brassy reflections, the legs except coxae pale testaceous, the wings hyaline or with only a very faint discal discoloration; abdomen blackish with greenish metallic reflections on the first tergite; antennal scape testaceous, the pedicel and flagellum dark brown. In other respects the female agrees with the description of *Eutelus bruchophagi* Gahan.

Male.—Length, 1.8 mm. Agrees with description of male *Eutelus bruchophagi* except that the area between the stigmal and postmarginal veins is hyaline. The second and third antennal ring-joints are subquadrate; the funicle joints a little longer than broad, except the two last, which are quadrate or practically so.

Type-locality.—Salinas, California.

Type.—Cat. No. 21624, U.S.N.M.

Host.—*Mayetiola destructor* Say.

Described from 4 females and 15 male specimens reared from puparia of the Hessian fly by Mr. C. M. Packard, and all recorded in the Bureau of Entomology under Webster No. 13346. The type female, one paratype female, and a broken paratype male bear Pasadena No. 16175 and are said to be progeny of one mother. Another paratype female bears Pasadena No. 16176 and is said to be the parent of the allotype and eight paratype males, all of which bear the same number. Still another paratype female under Pasadena No. 16180 is the mother of five male paratypes.

Mr. Packard states that the parasite oviposits in the host puparium. The parasite larva feeds externally upon the host larva within the pupa case and after transforming emerges as an adult from the puparium.

THE BIRDS OF THE TAMBELAN ISLANDS, SOUTH CHINA SEA.

By HARRY C. OBERHOLSER,

Of the Biological Survey, United States Department of Agriculture.

The Tambelan Islands are in the southern part of the South China Sea, about 100 miles west of the westernmost point of Borneo and about 150 miles southeast of the Anamba Islands. They consist really of two groups, lying not far apart, and each extending some 13 or 14 miles southeastward and northwestward. With the Tambelan Islands proper we here include the Rocky Islets, or Pulo Mandariki, about 12 miles west-northwest of the northwestern end of the Tambelan group; and Pulo Kayu Ara, or Saddle Island, some 10 or 12 miles farther to the northwest. Both Saddle Island and Pulo Mandariki are faunally part of the Tambelan group.

The islands of the Tambelan group are numerous, but all relatively small. Many of them rise precipitously from the water, or have interior hills of considerable height. The larger islands are heavily forested, but some of the others are mere rocky heaps. Many have coral reefs about their bases.

Only one, Great Tambelan, is inhabited, and its population consists of 500 or 600 Malays. Wild mammals are not numerous on the islands, and consist chiefly of squirrels, rats, bats, and monkeys.

Great Tambelan Island, the largest and highest of all, is in the northeastern group, and is triangular, about $4\frac{1}{2}$ miles on each side. It has several high hills, the highest reaching an altitude of 1,300 feet. A creek, which enters in a northeasterly direction from the western side, nearly divides it into two parts, and forms an advantageous location for the Malay settlement. Many coconut trees grow on the island, and there are also plantations of sago and fruit trees.

Pulo Bunoa, the largest of the southwestern group, is about 4 miles in length from southeast to northwest, and about $2\frac{1}{2}$ miles wide. The highest of its several hills reaches a height of 915 feet. Like Great Tambelan Island, it is thickly forested and has only a few clearings, these along the shore. Pulo Wai is another of the larger islands and occupies the northwesternmost position in the Tambelan Islands proper. It is about 2 miles long and has several peaked hills, the highest of which rises 1,057 feet above the sea.

The Rocky Islets, or Pulo Mandariki, 12 miles west-northwest of Pulo Wai, comprise two small barren rocky islets, the larger of these rising to a height of 134 feet. Scarcely any vegetation finds a foothold on their inhospitable slopes, and few birds, excepting two species of terns, make their home there.

Saddle Island, well so-called from its sky line, formed by two hills connected by a lower ridge, is about half a mile long and a quarter of a mile in width. Its highest point is 387 feet above the sea. Like the larger Tambelan Islands, it is covered with forest, and is a much more inviting place for mammal and bird life than is Pulo Mandariki.

Dr. W. L. Abbott was apparently the first ornithologist to explore these islands. With Mr. C. Boden Kloss he spent some two weeks here, from August 3 to August 15, 1899. His itinerary is as follows:

Pulo Selindang.—August 3, 1899.

Pulo Gilla.—August 4, 1899.

Pulo Bunoa.—August 5-7, 1899.

Great Tambelan Island.—August 8-12, 1899.

Pulo Wai.—August 12-14, 1899.

Pulo Mandariki.—August 14, 1899.

Saddle Island.—August 15, 1899.

As one result he collected 53 birds, representing 12 species, which, as usual, he presented to the United States National Museum. These, together with Doctor Abbott's field notes on other birds not collected, and the data published by Mr. Kloss,¹ bring the number of avian species now known from these islands collectively up to 22. Following are separate lists of those found on the Tambelan Islands proper, Pulo Mandariki (the Rocky Islets), and Saddle Island.

TAMBELAN ISLANDS.

1. *Demigretta sacra sacra* (Gmelin).
2. *Pluvialis dominica fulva* (Gmelin).
3. *Totanus totanus eurhinus* Oberholser.
4. *Actitis hypoleuca* (Linnaeus).
5. *Orthorhamphus magnirostris scommophorus* Oberholser.²
6. *Caloenas nicobarica* (Linnaeus).
7. *Chalcophaps indica indica* (Linnaeus).
8. *Spilopelia tigrina* (Temminck).
9. *Myristicivora bicolor* (Scopoli).
10. *Muscadivores aeneus polius* Oberholser.
11. *Dendrophassa vernans adina* Oberholser.
12. *Anthracoceros convexus* (Temminck).
13. *Sauropatis chloris cyanescens* Oberholser.

¹ Journ. Straits Branch Roy. Asiatic Soc., No. 41, January, 1904, pp. 60-68.

² New subspecies; see p. 133.