

# DESCRIPTIONS OF NEW NORTH AMERICAN ICHNEUMON-FLIES.

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This paper consists of the descriptions of a new tribe, two new genera, and fourteen new species of ichneumon-flies, together with observations on other forms in the United States National Museum collection.

## Family BRACONIDAE.

### HABROBRACON POLITIVENTRIS, new species.

In my key to the North American species of *Habrobracon*<sup>1</sup> this species runs to couplet 3, but agrees with neither alternative. From all of the species falling under the characters there given it differs in having the abdomen highly polished. The furrows of the first tergite are crenulate, the triangular area is not punctate at apex, the lateral areas are polished and almost without sculpture. The second tergite is polished and without sculpture, except in the broad, reticulate impressions setting off the embossed area.

*Female*.—Length, 2.25 mm. Face, frons, and vertex shagreened; head behind eyes and ocelli polished, with large, scattered, shallow punctures; antennae 24 jointed, rather long and slender, the flagellar joints much longer than thick; thorax polished, with indistinct, sparse punctures; propodeum polished, faintly shagreened; second abscissa of radius slightly longer than first intercubitus; abdomen highly polished with lateral areas of first tergite slightly roughened; grooves of first tergite finely crenulate; embossed area of second tergite not especially developed but set off anteriorly by broad, oblique crenulate impressions; ovipositor very short.

Black; mouth, and inner orbits, the latter including the area about the base of the antennae, and lateral margins of abdomen, yellowish; femora and trochanters yellowish-testaceous; coxae, tibiae, and tarsi more or less blackish, those of hind legs darkest; wings dusky basally, hyaline apically.

*Host*.—*Polychrosis viteana* Clemons.

*Type-locality*.—North East, Pennsylvania.

*Type*.—Cat. No. 21639, U.S.N.M.

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<sup>1</sup>Proc. Ent. Soc. Wash., vol. 16, 1914, p. 100.

Described from three females reared by the writer as parasites of the larva of the grape-berry moth. The paratypes are like the type, except that *b* has the notauli very faintly marked anteriorly with reddish.

### Family ICHNEUMONIDAE.

#### Subfamily CRYPTINAE.

Many of the genera proposed by Foerster in his classification of the Ichneumonidae were described only by the characters given in the keys and were not fixed by the designation of genotype or the inclusion of any species. Since their original publication many of these genera have had species included, some probably with entire propriety and others by obvious error. In cases where species are the first included in previously atypic genera they become *ipso facto* the genotypes of those genera. But, according to Opinion 46 of the International Commission on Zoological Nomenclature, they can not be the genotypes unless they come under the generic descriptions as originally published. Apparently the only recourse in a case where the first included species does not agree with the original publication of the genus is to consider the genus, as defined by the first included species, as dating from the inclusion of the species and having as its author the author of the species and the generic name as being pre-occupied. It thus becomes a homonym and must be reduced to synonymy with the genus with which it does agree, if such is already named, or be given a new name.

To this class belong the genera *Otacustes* and *Lymeon* both of Ashmead, not of Foerster. These genera are below disposed of as outlined above.

#### Genus CHRYSOPOCTONUS, new name.

*Otacustes* ASHMEAD, Ins. Life, vol. 7, 1894, p. 244, not Foerster.

*Type*.—*Otacustes atriceps* Ashmead.

The genotype, which was also the first species included in *Otacustes*, does not agree with the original description of *Otacustes* Foerster in that the spiracle is round, not oval. In Foerster's key to his family Hemiteioidae (=Tribe Hemiteiini Ashmead) it runs to dichotomy 49. In the best of the characters used, namely, the relative length of the basal joints of the flagellum and the length of the radial cell as compared with that of the stigma, it agrees with *Microtorus* Foerster, but differs in having the dorsal carinae of the petiole weak and the ten flagellar joints before the last in the female longer than broad.

Couplet 49 should, therefore, be changed to read thus:

49. Flagellum filiform, thickened toward the apex, the first three joints much lengthened, thin, and of equal length; radial cell longer than the stigma; dorsal carinae of first tergite extending to the middle but weak.

*Orthizema* Foerster.

First flagellar joint somewhat longer than second, this distinctly longer than third; radial cell not longer than stigma.

Dorsal carinae of first tergite extending sharply and distinctly to beyond the middle; the ten joints of the flagellum before the last broader than long.....*Microtorus* Foerster.

Dorsal carinae of first tergite not especially sharp and distinct; ten flagellar joints before the last longer than broad.

*Chrysopoctonus*, new name, for *Otaucstes* Ashmead, not Foerster.

It is doubtful if either of the two characters separating the last two genera is of generic value, but all of the three species of *Chrysopoctonus* represented by females in the United States National Museum agree in both characters although there is some variation in the strength of the petiolar carinae.

The species of this genus may be congeneric with the species on which Foerster based his description of *Microtorus*, but neither of the species here included can be the genotype of *Microtorus* because they all differ by the two characters used in the above key.

Other characters of the genus in addition to those above and those in Foerster's key are as follows:

Head from above very broad, the temples flat or weakly convex and very strongly receding, occipital carina complete, not angulate medially, ocellar triangle very strongly transverse, the anterior ocellus but little in front of the lateral ocelli; head in front view much broader than long, face and frons very broad, eyes very large and nearly hemispherical, clypeus much broader than long, distinctly separated, broadly arcuate at apex, not or but very weakly medially impressed, without long hairs, flagellum somewhat thickened toward apex, first three joints successively shorter, subapical joints slightly longer than wide; fourth joint of maxillary palpi fully three-fourths as long as fifth. Thorax very short and thick, mesoscutum fully as broad as long, notauli very briefly impressed, sternauli complete or nearly; prepectal carina complete and strong throughout, scutellum laterally carinate well beyond base; propodeum nearly perpendicular behind, completely areolated, the areola broader than long, spiracle round, situated very close to lateral carina, legs long and stout, hind femur reaching nearly to apex of abdomen, inner spur of hind tibia nearly half as long as basitarsus; stigma broad with radius originating beyond middle, radial cell short, measured on metacarpus as long as stigma, second intercubitus not or barely indicated, venation otherwise complete, nervellus broken below the middle, second and third abscissae of discoidens together about equal in length to the first abscissa, second discoidal cell not especially narrowed at base. Abdomen relatively small, first tergite broad at apex, spiracles much beyond middle, dorsal carinae rather weak, rest of abdomen broadly oval, strongly depressed, segments beyond fifth in female not or

scarcely visible from above, ovipositor not or but little longer than first tergite.

All of the species known are parasitic in the cocoons of Chrysopidae and Hemerobiidae.

In North America the genus is represented in addition to the genotype by (*Otacustes*) *Chrysopoctonus chrysopae* (Ashmead), (*Hemiteles*) *Chrysopoctonus rileyi* (Ashmead), and the new species described below.

(HEMITELES) CHRYSOPOCTONUS RILEYI (Ashmead).

(*Hemiteles*) *Chrysopoctonus rileyi* ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 402, male.

*Hemiteles hemerobii* ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 404, male.

*Hemiteles euryptychiae* ASHMEAD, Trans. Amer. Ent. Soc., vol. 23, 1896, p. 210, female.

*Otacustes cressoniformis* VIERECK, Conn. State Geol. & Nat. Hist. Survey, Bull. 22, pt. 3, Hym. Conn., 1916, pp. 339, 340, female.

The types of *rileyi*, *hemerobii*, and *euryptychiae* and a metatype of *cressoniformis* are in the United States National Museum, and have been studied in connection with other material. A series of four specimens, three males and one female, reared by the writer from cocoons of *Chrysopa* at North East, Pennsylvania, shows the entirely black thorax of the male and the partially red thorax of the female and the differently colored coxae to be sexual differences.

The exerted portion of the ovipositor is only about half as long as the abdomen instead of as long as the abdomen, as stated by Viereck. The scutellum in the female varies from all red to all black; and the abdomen has the first three tergites from entirely red to more than half black, the basal tergite being sometimes entirely black. The darker specimens are from more northern localities. The type of *euryptychiae* purports to have been reared from (*Euryptychia saligneana* Clemons) = *Eucosma scudderiana* Clemons, but it probably came from the cocoon of a *Chrysopa* or a *Hemerobius* which crawled into the *Eucosma* gall for pupation.

CHRYSOPOCTONUS PATRUELIS, new species.

Very closely allied to *rileyi* (Ashmead) and differing principally as follows:

*Female*.—Length, 4 mm.; antennae, 3 mm.; ovipositor, 0.8 mm. Temples nearly flat; postocellar line nearly twice as long as ocellular line; punctuation stronger and more dense, more conspicuously so on postpetiole, which in *rileyi* is impunctate to weakly, sparsely punctate.

Black with entire prothorax and mesopleura, except prepectus, rufous (in *rileyi* the ventral area between the sternauli is black); red color of abdomen confined largely to the base of the second ter-

gite, the tergites beyond the first being also very narrowly tipped with red; legs rufo-testaceous, the hind coxae and trochanters above, the femora at apex, and the tibiae and tarsi entirely infusate; clypeus and mandibles dark rufous; palpi yellowish testaceous; antennae beneath at base rufous (in *rileyi* the appendages are uniformly lighter in color).

*Male*.—Differs from the female in having the posterior ocelli even farther apart; thorax black, the front and middle coxae and trochanters white, hind legs darker, the coxae and trochanters black, otherwise piceous; antennae black, only the scape red beneath; second and third tergites basally reddish and the apical bands more conspicuous.

*Type-host*.—*Chrysopa*, species.

*Type-locality*.—Alhambra, California.

*Other localities*.—Pasadena and Monrovia, California.

*Type*.—Cat. No. 21645, U.S.N.M.

Described from five females and three males, all reared by Mr. R. S. Woglum, of the Bureau of Entomology, in connection with his work on *Pseudococcus citri*.

The female paratypes display a considerable degree of variation in color from the type, paratypes *c* and *d* having the mesoscutum, except a quadrate spot in front of the scutellum, the scutellum, and the metapleura red and the legs paler. Both of the male paratypes have the hind femora more reddish.

#### Genus CRYPTUOPSIS Ashmead.

*Lymeon* ASHMEAD, *Ins. Life*, vol. 7, 1894, p. 243, not Foerster.

Ashmead's *Lymeon* as characterized by the only included species, *Lymeon annulicornis* Ashmead, can not be the same as Foerster's, for it is not Hemiteline but Mesostenine, having the characteristic venation of the latter tribe. In Ashmead's key to the Mesostenini it runs directly to *Cryptuopsis* Ashmead, with the genotype of which it is congeneric. *Lymeon annulicornis* is very closely related to, if not synonymous with, (*Mesostenus*) *Cryptuopsis diligens* (Cresson) judging from the description of that species. The open areolet is apparently what led Ashmead to place this species in the Hemitelini. The extremely long legs ascribed to *Cryptuopsis* is largely a male sexual character, and applies almost equally as well to the males in some of the other genera tabulated by Ashmead.

#### Genus MYERSIA Viereck.

This genus, for which Viereck erected his family Myersiidae, is apparently nothing more than a distinct genus in the tribe Stilpnini. In general form it is extremely like the typical genus, *Stilpnus*. Its completely fused second and third tergites, which are separated only

by the merest trace of the suture distinguishes it from all of the genera placed in the Stilpnini by Foerster and by Schmiedeknecht. In the keys of both writers it runs best to *Xestophya* Foerster because of the lack of the second intercubitus. In *Myersia*, however, the aerolet may almost be said to be entirely lacking, the very short intercubitus and nearly straight apical abscissa of the cubitus barely defining it.

From Foerster's description of *Xestophya*<sup>1</sup> it differs principally as follows: Head transverse, rather strongly narrowed behind the eyes; clypeus more or less distinctly separated, especially laterally, where it is flanked by very deep, round fossae; malar space with a band of fine sculpture separating the face from the cheeks; postocellar and ocell-ocular lines subequal; antennae in female 18-jointed; notauli deep anteriorly, fading out posteriorly; prepectal carina ("die vorne aufsteigende Brustleiste" of Foerster) oblique and joining the promesothoracic suture somewhat below the middle; the middle lateral and middle pleural areas of the propodeum separated by a strong carina; first tergite longer than the combined hind coxa and trochanter, the postpetiole much wider at apex than the petiole; second and third tergites completely fused, the only trace of the suture being a short groove at each side, these two tergites occupying nearly the entire dorsal and lateral surfaces and overlapping below, the third, as seen from above, not much broader than long; ovipositor distinctly exerted; hind tibiae not swollen, the longer spur reaching nearly to the middle of the metatarsus, last tarsal joint as long as third; stigma very narrow, the radius originating in the middle, second abscissa forming with the first a right angle.

MYERSIA PALLIDA, new species.

Immediately distinguishable from the genotype and only described species *laminata* Viereck by its pale ferruginous color.

*Female*.—Length, 4 mm.; antennae, 3 mm.

Head in front view nearly as long as wide, subtriangular, face finely, irregularly, transversely striate, subpolished and lightly shagreened at sides, the latter sculpture extending to the frons and vertex, temples convexly sloping, polished; clypeus sharply separated except narrowly at middle, opaque, coarsely, sparsely punctate, as are also the mandibles; face, clypeus, and mandibles with long, coarse, erect hairs, longest on the clypeus; malar space fully a half longer than basal width of mandible; mesoscutum and scellum finely shagreened, with indistinct, sparse punctures; pronotum shagreened, striately so below; mesopleura longitudinally striate, the sternauli broadly impressed; metapleura finely opaque above, strongly, irregu-

<sup>1</sup> Synoptische Übersicht der Gattungen und Arten in der Familie der Stilpniden, 1876, Bonn.

larly rugose below; propodeum with carinae strong, subpolished, lightly coriaceous; apical abscissa of radius sinuate, nervulus slightly postfural, nervellus straight, unbroken; first tergite longitudinally striate, polished at apex, the dorsal carinae fading out beyond the spiracles; rest of abdomen highly polished; exerted portion of ovipositor about three-fifths as long as first tergite.

Pale ferruginous, with abdomen gradually darkening to fuscous toward apex, postpetiole narrowly outlined with brown; legs nearly uniform flavous, antennae flavous at base gradually darkening to pale brownish toward apex, wings hyaline with veins and stigma pale brownish.

*Type-locality*.—Fort George, Florida.

*Type*.—Cat. No. 21633, U.S.N.M.

Described from one female.

#### Genus THAUMATOTYPIDEA Viereck.

In spite of its strong superficial resemblance to *Pezomachus* this genus is, in head, abdominal, and antennal characters, closely allied to *Myersia* Viereck, and should be referred to the Stilpnini, from all the other genera of which it is, of course, at once distinguished by its entire lack of wings in the female and the much modified thorax. The male is not known. The head is longer both antero-posteriorly and dorso-ventrally than that of *Myersia*, the clypeus is more distinctly separated with larger lateral fossae, the malar space longer, the first flagellar joint less distinctly longer than the second, the legs more slender with the hind tibial spurs very short, the first tergite more slender with the spiracles nearer the middle and the postpetiole not much wider than the petiole. The thorax is strongly constricted in the middle without a scutellum, the pronotum relatively large and mesoscutum much reduced, without notauli, the wings represented by tubercles, the propodeum separated from the metapleura by strong carinae and with a complete apical carina elevated laterally into strong spine-like projections. The abdomen is otherwise very like that of *Myersia* even to the short lateral traces of the suture between the second and third tergites and the briefly exerted ovipositor. The prepectal carina is like that of *Myersia*.

#### Genus THAUMATOTYPUS (Foerster) Brischke.

Judging from descriptions of this genus and its included species it should also be referred to the Stilpnini, the only marked difference between it and *Thaumatotypidea* Viereck being apparently in its possession of a scutellum.

## Genus AENOPLEX (Føerster) Ashmead.

## AENOPLEX POLYCHROSIDIS, new species.

In my key to the North American members of the genus<sup>1</sup> this species runs closest to *plesiotypus* Cushman, but is markedly distinct from that species in color. In this respect as well as in general habitus and length of ovipositor, it is much more like *carpocapsae* Cushman.

*Female*.—Length, 4.5 mm.; antennae, 3 mm.; ovipositor, 0.75 mm. Differs from *carpocapsae* Cushman principally as follows: Sculpture throughout much finer, that of head and mesoscutum opaque, granular rather than punctate; clypeus polished, impunctate; notauli weak; areola nearly twice as long as wide, but little wider behind, petiolar area slightly longer than wide; abdomen subopaque granular basally, polished apically; first tergite with distinct dorsal carinae extending beyond the middle; ovipositor about a third as long as abdomen.

Black, with three basal abdominal segments, legs entirely, and two basal segments of flagellum testaceous; mandibles, scape, pedicel, and third flagellar joint piceous; antennae otherwise black; palpi stramineous; tegulae whitish.

*Male*.—Length, 5 mm.; antennae, 3.5 mm. Differs from female in having the sculpture of thorax and abdomen stronger; notauli more distinct; flagellum entirely black, as is also the basal segment of the abdomen.

*Host*.—*Polychrosis viteana* Clemons.

*Type-locality*.—North East, Pennsylvania.

*Type*.—Cat. No. 21629, U.S.N.M.

Described from one pair reared April 11, 1917, in a greenhouse at Washington, District of Columbia, from cocoons of the host collected in October, 1916, at the type-locality.

## (PHYGADEUON) AENOPLEX PHRYGANIDEAE (Ashmead).

A female and three males of this species have recently been received. These were all reared by F. B. Herbert, of the Bureau of Entomology, from the same host as the type material, *Phryganidea californica*, on which they were secondary through *Itopectis behrensi* (Cresson). Examination of the host remains from which the type male was reared show it to have had the same relation to the *Phryganidea*. The new specimens were reared under Hopkins U. S. No. 14488 *g* and 14488 *d*<sup>va</sup>, at Palo Alto, California.

The following description is drawn from the types and the new specimens:

In my key to the species of *Aenoplex* runs on the subopaque, finely punctured mesoscutum to *nigrosoma* Cushman but differs in having

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 53, 1917, p. 458.

the abdomen largely or entirely red, the ovipositor relatively shorter, and in having the apical carina of the propodeum practically mutic.

*Female*.—Length, 4.75 mm.; antennae, 3 mm.; ovipositor, 1.5 mm. Differs from *nigrosoma* Cushman otherwise principally as follows: Head not distinctly swollen; malar space about as long as basal width of mandible; antennae two-thirds as long as body, 25-jointed; propodeum transversely striate only behind, irregularly roughened above, the areola smooth, broader than long, hexagonal, petiolar area striato-granulate; inner spur of hind tibia more than a third as long as basitarsus; abdomen but slightly longer than head and thorax, two basal segments and third (basally) granular, otherwise polished; first tergite with dorsal carinae gradually weaker beyond middle and not reaching nearly to apex; ovipositor two-thirds as long as abdomen.

Black, with abdomen largely or wholly red; antennae reddish fuscous, usually paler at base; legs entirely rufo-testaceous, the hind tibiae and tarsi very slightly darkened; wings hyaline; tegulae stramineous; abdomen red, the petiole at extreme apex, and compressed portion laterally usually black. The type female has the abdomen and antennae entirely red.

*Male*.—Length, 4.75 mm.; antennae, 3.75 mm. Very like female, but with sculpture of thorax, propodeum, and abdomen stronger, first and second tergites distinctly striate, areola relatively narrower; abdomen with a greater extent of black both basally and apically, hind tibiae at apex, and their tarsi distinctly infusate; antennae black, scape pale beneath.

(HEMITELES) AENOPLEX COMPACTUS (Ashmead).

Under the name *Hemiteles compactus* Cresson, Ashmead<sup>1</sup> included this species in a key to new species of the genus *Hemiteles*. This is the only published reference to the species except that in Dalla Torre's Catalogus Hymenopterorum, where it is accredited to Ashmead. The specimen on which Ashmead undoubtedly based his characterization of the species is in the United States National Museum. It is labeled in Cresson's hand "*compacta* Cr." and in Ashmead's hand "*Hemiteles compactus* Cr." This specimen, although not so labeled by Ashmead, must be considered the type of *compactus* Ashmead. The only description of the species consists in those characters in the key which apply to it. These are as follows: "Wings hyaline, body entirely black, antennae 24-jointed," the last undoubtedly variable.

The species should be referred to the genus *Aenoplex* rather than to *Hemiteles*.

The following description is based on the type and two other specimens:

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 12, 1890, p. 398.

*Female*.—Type.—Length, 7 mm.; antennae, 5 mm.; ovipositor, 2 mm.

In my key to the species of *Aenoplex*<sup>1</sup> it does not agree strictly with either alternate in the first couplet, the mesoscutum being opaque with dense minute punctures, especially in the posterior middle. It is, however, more closely allied to *Aenoplex nigrosoma* Cushman than to any of the other species, differing principally as follows: Stouter, head not distinctly swollen; temples more strongly rounded; malar space scarcely shorter than basal width of mandible; antennae relatively longer; propodeum hardly striate above, more irregularly roughened; areola much wider than long, about half as wide at base as at apex; inner spur of hind tibia less than one-third as long as basitarsus; abdomen but slightly longer than head and thorax; first tergite and second at anterior corners striate, abdomen otherwise sculptured as in *nigrosoma*; first tergite relatively broader, fully two-thirds as broad at apex as long; the spiracles prominent; ovipositor little more than half as long as abdomen.

Black, and colored like *nigrosoma*, except that the antennae and entire hind tibia and tarsus are fuscous, the tegulae reddish, and the legs generally more yellowish than reddish.

*Type*.—Cat. No. 21630, U.S.N.M.

No locality.

A paratype female that lacks abdomen, wings, tips of antennae, and most of the legs agrees perfectly in head and thoracic characters with the type. The third specimen, reared from *Callosamia promethea* under Bureau of Entomology, No. 423<sup>1</sup>, differs from the type principally in having the legs and antennae darker and in having the areola distinctly emarginate behind.

#### Genus ISADELPHUS (Foerster) Roman.

Roman<sup>2</sup> synonymizes this genus with *Cecidonomus* Bridgman, and includes *inimicus* (Gravenhorst) and *nigriventris* (Thomson). The former was designated by Viereck<sup>3</sup> as the genotype of *Isadelphus*. According to the priority rule *Isadelphus* Foerster should have been used as the generic name. Viereck<sup>3</sup> synonymizes the two in the latter manner.

Specimens of *nigriventris* (Thomson) and *inimicus* (Gravenhorst) determined by Roman are in the United States National Museum collection. These specimens disagree somewhat with Foerster's characterization of the genus in that the middle lateral areas of the propodeum are not especially carinately prominent at the apex. In every other way, however, they do agree. The swollen head, apically com-

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 53, 1917, p. 459.

<sup>2</sup> Naturn. Untersuch. des Sarekgebriges, vol. 4, 1909, p. 233.

<sup>3</sup> Bull. 83, U. S. Nat. Mus., 1914, p. 76.

pressed abdomen, and long ovipositor render the genus easily separable from the other genera of the Hemitelini. According to Roman the bidentate clypeus is not a character of generic importance, in which he is undoubtedly correct.

The following new species has the body and ovipositor even longer and more slender than usual, the antennae more slender with longer joints, the legs more slender, the clypeus without apical teeth, and the abdomen more strongly compressed than either of the species heretofore referred to the genus. In Ashmead's key it runs best to *Daictes* Foerster.

ISADELPHUS EXTENSOR, new species.

*Female*.—Length, 6.5 mm.: antennae, 5.5 mm.; ovipositor, 8 mm. Head and thorax clothed with very fine, short, appressed, cinereous pubescence, vertex and temples rather full, polished, obscurely, finely punctate; frons and face densely, finely punctate, pubescence of face longer and more dense; clypeus polished, narrowly subtruncate at apex with a narrow inflection at either side; antennae slender with the first two joints about five times as long as thick, the second slightly longer than first and the third shorter than the first; mesoscutum densely punctate medially, the prescutum and lateral lobes polished, weakly punctate, notauli sharply, though briefly impressed; scutellum sparsely punctate, polished; pronotum sparsely punctate, striate posteriorly; mesopleura obliquely striate, polished above; metapleura sparsely punctate, polished; propodeum cariate above, with a tendency to punctuation basally, polished, though slightly irregularly roughened behind, costulae present though very weak, other carinae laterad of the median carinae obsolete, areola hexagonal, about as broad as long, fully twice as wide at apex as at base; abdomen very slender, strongly compressed beyond second tergite; first three tergites granulate, others polished, first nearly twice as long as wide at apex, its sides slightly outwardly arcuate, without dorsal carinae, but with broad, weak ridges reaching to apex, spiracles only slightly beyond middle; hind tarsus distinctly longer than tibia, the basitarsus nearly as long as remaining joints combined, last joint but little longer than the fourth, the two combined barely longer than the third.

Black; antennae brownish towards apex; mandibles reddish; palpi fuscous; tegulae whitish; wing hyaline, veins and stigma brown; legs bright rufo-testaceous, hind tibiae at apex slightly and all tarsi infusate.

*Type-locality*.—Palo Alto, California.

*Type*.—Cat. No. 21632, U.S.N.M.

Described from three females collected May 11, 1917, on *Quercus agrifolia* by F. B. Herbert.

The two paratypes are in every way typical.

## Genus AMAUROMORPHA Ashmead.

*Amauromorpha* ASHMEAD, Proc. U. S. Nat. Mus., vol. 29, 1915, p. 410.

*Eripternimorpha* VIREECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 645.

Comparison of the types of the genotypes of these two genera fails to disclose any generic difference. It is Cryptine rather than Ophioline as placed by Viereck and allied by its minute areolet to *Mesostenus* Gravenhorst.

## Genus PANARGYROPS (Foerster) Schmiedeknecht.

In an earlier paper<sup>1</sup> I tabulated the North American species of *Bathythrix* (Foerster) Howard and described a new species under the name *B. tibialis*. Further study shows this to agree better with the present genus as represented by the genotype, *Panargyrops claviger* (Taschenberg). These two genera are placed in different tribes by practically all writers because of the fact that one has the areolet open and the other has it closed. It is my opinion that this character, far from being of tribal rank, is not even of generic value. Certainly the two genera under discussion are very closely related, surely as closely as subgenerically, the genotypes representing the extremes of variation within the genus. Thomson, who it seems to me, was one of the best interpreters of the value of characters, who has worked with Ichneumonidae, placed in his genus *Leptocryptus* (isogentopic with *Panargyrops*) species typical of both of Foerster's genera as represented by the genotypes, as well as some that run in Foerster's key to *Thysiotorus* and *Apsilops*, although not agreeing with the subsequently first included species of those genera.

The following new species is typical of the genus:

## PANARGYROPS THORACICUS, new species.

Compared with (*Bathythrix*) *Panargyrops tibialis* (Cushman) differs as follows:

*Female*.—Length, 6 mm.; antennae, 4 mm.; ovipositor, 2.8 mm.

Malar space barely a third as long as basal width of mandible (this character is wrongly stated in the description of *tibialis*; it should read "malar space slightly less than half as long as basal width of mandible"); first tergite not distinctly wider at apex than at spiracles (in *tibialis* the postpetiole is somewhat swollen).

Head black, mandibles and palpi whitish, antennae brown, the scape paler below; prothorax entirely and mesoscutum except for piceous spot occupying most of the prescutum, the scutellum, the postscutellum, and the alar region rufotestaceous; thorax otherwise and propodeum piceous black; tegulae and front and middle legs except middle tarsi, which are fuscous, whitish; hind leg testaceous with trochanter and base and apex of femur slightly infusate, the tibia

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 53, 1917, p. 458.

and tarsus fuscous; wings hyaline; abdomen piceous, the tergites narrowly margined with whitish; the second with conspicuous pale gastrocoeli distant from the base.

*Type-locality*.—Lawrence, Kansas.

*Type*.—Cat. No. 21640, U.S.N.M. One female taken July 10, 1896, by Hugo Kahl.

#### Genus SPILOCRYPTUS Thomson.

##### SPILOCRYPTUS EXANNULATUS, new species.

*Female*.—Length, 5.5 mm.; antennae, 4.5 mm.; ovipositor, 1.5 mm. Differs from *polychrosidis* Cushman<sup>1</sup> principally as follows:

Head granularly subopaque, more strongly so on face; vertex convex behind the ocelli, occipital carina not subangulate medially; antennae longer and more slender, first joint of flagellum at least five times as long as thick; propodeal spiracle small, broadly oval; areolet large, the intereubiti nearly parallel. Abdomen with second and third tergites basally shagreened, with sparse, weak punctures, otherwise polished; first tergite stouter, nearly three times as wide at apex as at base; ovipositor about half as long as abdomen.

Head with scape and pedicel, thorax, and abdomen beyond third tergite black, seventh tergite with a very small white spot; first three tergites bright rufo-tastaceous; flagellum and palpi fuscous, the former not annulated with white; mandibles and tegulae piceous; legs, except apices of hind femora and tibiae and apical joints of all tarsi, which are more or less blackish, bright rufo-testaceous; wing slightly brownish.

*Male*.—Length, 6 mm.; antennae, 6 mm. Aside from its usual more slender form and longer antennae differs from female principally in having the testaceous of abdomen and legs less brilliant, the antennae nearly black, the hind tarsi blackish nearly to the base, and in lacking the white abdominal spot.

*Host*.—*Polychrosis viteana* Clemons.

*Type-locality*.—North East, Pennsylvania.

*Type*.—Cat. No. 21628, U.S.N.M.

Nine females and 14 males reared by the writer from pupae of the grape-berry moth under Quaintance No. 14440. In size these vary from the size of the types down to 4 mm., the smallest specimen being a female (paratype *h*). This specimen is also colored more like the male. Paratypes *e-h* (females) lack the white abdominal spot.

Below are described a new genus and a number of new species discovered in the United States National Museum. In order to properly define these it seemed advisable to discuss rather fully the genera to which they are assigned, and, since there has been considerable

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 53, 1917, p. 461.

confusion in regard to the position which one of the genera should occupy, to attempt to determine the relation which the group bears to the other groups in the Ichneumonidae. It is hoped that this has been accomplished.

The genus *Helcostizus* (Föerster) Dalla Torre (= *Brachycentrus* Taschenberg) has been variously assigned to the Cryptinae and the Ichneumoninae (Pimplinae), to the former because of its pentagonal areolet, carinate propodeum, petiolate first tergite, and very faintly impressed sternauli, and to the latter because of its evident affinities with *Echthrus* Gravenhorst and its strongly Pimpline habitus. *Cryptoideus* Ashmead was referred by its author to the Cryptinae, where Viereck also placed his synonymous *Xylophruridea*. All of the authors who have placed these genera in the Cryptinae have, however, been content to leave *Echthrus* in the Pimplinae in spite of the fact that it has all of the Cryptine characters mentioned even more strongly developed than has either of the other genera. Rohwer<sup>1</sup> reverses the arrangement, placing *Helcostizus* in the Pimplinae and *Echthrus*, at least as represented by the American species, in the Cryptinae on the lack of the sternauli in the former and their presence in the latter, making this the final character for separating the two subfamilies. It seems evident, however, that the very peculiar inflated front femora, truncate apical joint of the antenna, and medially dentate clypeus should be taken as evidence of their relation to each other rather than that they should be separated by a character that shows such variation as does the strength of the sternauli even in the true Cryptinae.

To the present writer it seems that these three genera and probably *Xylophrurus* (Föerster) Schmiedeknecht<sup>2</sup> form a connecting link between the Ichneumoninae and the Cryptinae not exactly referable to any at present recognized tribe in either subfamily, but Cryptine rather than Ichneumonine. Through *Cryptoideus* the group is much more closely related to *Cryptus* than to any genus in the Ichneumoninae. In the typical *Cryptus* the general form and structure is very similar to that of *Cryptoideus*, the clypeus is of similar structure though lacking the median tooth, the venation is the same, the propodeal carination is similar, the first tergite is similar, and the front tibiae are swollen, though not distinctly inflated nor distinctly constricted at the base.

All of the species discussed will run more or less satisfactorily in Ashmead's key to the Cryptini to either *Xylophrurus* or *Cryptoideus*.

The recent discovery in the United States National Museum of an undescribed species representing an apparently new genus belonging

<sup>1</sup> Proc. Ent. Soc. Wash., vol. 15, 1913, p. 185.

<sup>2</sup> The writer is not familiar with *Xylophrurus*, but from description it seems to be rather closely allied to *Cryptoideus* Ashmead.

to the group accentuates the relation of *Helcostizus* to the rather dissimilar appearing *Cryptoideus*.

The following key will serve to distinguish the three genera:

Areolet small or not defined, second intercubitus wanting or very weak; nervulus postfurcal; nervellus strongly antefurcal; sculpture of body largely finely granulate; propodeum and metapleurum separated by a sharp carina; first abdominal segment not or barely longer than second, broad, only subpetiolate, its ventral margin straight; clypeus sharply, angulately inflexed beyond middle; the entire habitus of the insect strongly Ichneumonine (Pimpline).....*Helcostizus* (Foerster) Dalla Torre.

Areolet large, complete, the intercubiti strongly convergent above; nervulus antefurcal; nervellus postfurcal or subperpendicular, never antefurcal; body sculpture strong, rough, that of abdomen less strongly so; first abdominal segment usually distinctly longer than second, slender, distinctly petiolate, its ventral margin decurved; clypeus not angulately inflexed; habitus Cryptine..... 1.

1. Head strongly transverse, cheeks not swollen, temples narrow, their cephalocandad diameter much less than that of the eye; propodeum with only the basal transverse carina developed, this but slightly curved in the middle, basal median area not at all indicated, spiracle far from base; first tergite with very weak dorsal carinae, the spiracle in or slightly before the middle; head and thorax white marked; wings not banded; front femur in female concave below.....*Cryptohelcostizus*, new genus.

Head strongly swollen, temples broad, their cephalocandad diameter nearly or quite as long as that of the eye; propodeum with the apical carina more or less developed, sometimes obsolete medially, the anterior subangulate or strongly curved medially, basal median area more or less defined, spiracle very close to the base; first tergite with strong dorsal carinae, the spiracle behind the middle; head and thorax without white markings; wings banded or at least infuscate in the region of the stigma; front femur not concave below.....*Cryptoideus* Ashmead.

Genus HELCOSTIZUS (Foerster) Dalla Torre.

*Brachycetrus* TASCHEBERG, Zeitschr. Gesammten. Natur., vol. 25, 1865, p. 106.

*Mesocryptus* THOMSON, Opusc. Ent., fasc. 5, 1873, p. 519.

*Asternaulax* VIREECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 632.

KEY TO NORTH AMERICAN SPECIES, FEMALES ONLY.

Propodeum with two distinct transverse carinae, petiolar area strongly, longitudinally rugose; second intercubitus entirely lacking, the areolet not defined.....*bicarinatus*, new species.

Propodeum with only one transverse carina; areolet defined by position... 1.

1. Hind tibiae and tarsi black with sharply defined white basal annuli..... 2.

Hind tibiae unicolorous..... 3.

2. Annulus of antenna embracing several joints; propodeum not polished at base; first tergite with broad, indistinct carinae.....*fishci* (Viereck).

Annulus of antenna very small; propodeum polished at base; first tergite without carinae.....*canadensis* (Provancher).

3. First tergite nearly as wide at apex as long; mesoscutum black; vertex opaque shagreened.....*yukonensis* (Ashmead).

First tergite much longer than wide at apex; mesoscutum red; vertex polished.....*rufiscutum*, new species.

**HELCOSTIZUS BICARINATUS**, new species.

Differs from all other species known to me in the possession of the apical carina of the propodeum with strongly rugose petiolar area and the entire loss of the second intercubitus, the areolet not being defined even by position. In other respects differs only in minor details from *fiskei* (Viereck).

*Female*.—Length, 10 mm.; antennae, 6 mm.; ovipositor, 1.5 mm. Head rather strongly transverse, cephalo-candad length of temple barely half that of eye; distance between occipital carina and posterior ocellus scarcely longer than postocellar line; face densely, finely punctate; clypeus without a distinct median tooth; malar space shorter than basal width of mandible; thorax above densely, finely punctate, laterally irregularly striato-punctate; propodeum with two transverse carinae, coarsely granulate above, rugose laterally and posteriorly, spiracle much nearer to base than to basal carina; areolet not indicated, the second intercubitus wanting; abdomen coarsely granular, first tergite about three-fourths as wide at apex as long, strongly, almost subangulately, elevated with dorsal carinae broadening out posteriorly into strong ridges.

Black; with antennal annulus embracing more or less of flagellar joints 6–9, palpi, tegulae, and extreme apices of middle abdominal segments white, legs largely red, front coxae black, the extreme apex white, the tibia and tarsus black with white basal annuli, the same pattern but less distinct on middle leg.

*Type-locality*.—Falls Church, Virginia.

*Type*.—Cat. No. 21634, U.S.N.M.

Described from a single female taken April 28, 1917, by Wm. Middleton.

**HELCOSTIZUS FISKEI** (Viereck).

*Asternaulax fiskei* VIERECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 632.

*Helcostizus fiskei* (Viereck) ROHWER, Proc. Ent. Soc. Wash., vol. 15, 1913, p. 185.

Except for the lack of the apical carina of the propodeum and the defined areolet this species differs from *bicarinatus* Cushman, described above, principally as follows: Cephalo-candad length of temples more than half as great as that of the eye; distance between occipital carina and posterior ocelli much longer than postocellar line; malar space subequal to basal width of mandible; clypeus with a distinct, median tooth; punctuation of entire body much finer and less dense, the propodeum being without rugulosity and very finely reticulate granulate as is also the abdomen; propodeal spiracle about midway between base and basal carina; first tergite nearly as wide at apex as long; color practically the same except that inflated portion of front tibia is whitish with an obscure dark stripe in front, and the antennal annulus is confined to joints 6–8.

Represented only by the unique type.

## HELCASTIZUS CANADENSIS (Provancher).

*Mesochorus canadensis* PROVANCHER, Nat. Can., vol. 6, 1874, p. 299.

*Echthrus canadensis* PROVANCHER, Faun. Ent. Can. Hym., 1883, p. 486.

I have not seen this species but Mr. Rohwer, who has examined the type, says that it is a *Helcastizus* and most likely the same as *fiskei* Viereck. The characters used in the key are the only ones in the description of *canadensis* with which the type of *fiskei* does not agree. Provancher says of *canadensis* "metathorax lissé a la base, ponctué au sommet." In *fiskei* the polished portion is at the apex and the sculptured portion at the base. This condition is certainly the more natural one and it seems likely that Provancher inadvertently reversed his statement. The difference between no dorsal carinae on the first tergite and the condition found in *fiskei* may very easily be an individual variation as is certainly the size of the antennal annulus. It is very likely that *fiskei* will have to fall as a synonym of *canadensis*.

## HELCASTIZUS YUKONENSIS (Ashmead).

*Pimpla yukonensis* ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 445.

Compared with *Helcastizus bicarinatus* Cushman, described above, the type differs as follows: Cephalo-caudad length of temple much more than half that of eye; distance of occipital carina from posterior ocellus much longer than postocellar line; malar space longer than basal width of mandible; clypeus with a median tooth; general sculpture of body finely granular with scattered, weak punctures, more dense on face and in middle of mesoscutum; propodeum with only one transverse carina, finely reticulato-granulate above, irregularly longitudinally striate posteriorly, spiracle but little nearer to base than to carina; aerolet defined; first tergite with dorsal carinae even less distinct beyond summit, nearly as wide at apex as long.

Black with piceous cast, especially on face, and sides of thorax and abdomen; antennal annulus confined to flagellar joints 6 and 7; palpi piceous; middle and hind tibiae and tarsi uniform fucous without basal annuli; front coxae uniform piceous.

More closely allied to the genotype *Helcastizus brachycentrus* (Gravenhorst), which disagrees with the above description principally in having the propodeum without striation behind, the spiracle almost exactly half way between the base and the carina, and in lacking the black color at the apices of the hind femora.

The single paratype is essentially like the type.

## HELCASTIZUS RUFISCUTUM, new species.

Distinct from all of the other North American species in the largely red mesothorax, white front and middle coxae and trochanters, and the narrow, weakly arched first tergite.

*Female*.—Length, 6.5 mm.; antennae, 4.5 mm.; ovipositor, 1 mm.

Very similar in structure and sculpture to *yukonensis*, except that the malar space and temples are slightly shorter, and the first tergite is only about two-thirds as wide at apex as long, only weakly arched, and without dorsal carinae.

Inner orbits, cheeks, clypeus, and scape and pedicel below reddish; flagellar annulus embracing the sixth and portions of the fifth and seventh joints; palpi, propleura, beneath, lower and upper hind margins of pronotum, wing-base, tegula, a line below, front and middle coxae and trochanters, and the extreme apices of all tergites and sternites white; mesothorax above and below largely rufous, notaulum black, running into a triangular brownish spot posteriorly, scutellum rufous, space around bases of wings blackish; metapleura bright reddish piceous, the sternum rufous; body otherwise black to piceous; legs, except as noted, pale testaceous, the front and middle pairs paler, their tibiae whitish above.

*Host*.—*Phloeosinus*, species.

*Type-locality*.—Cypress Point, Monterey, California.

*Type*.—Cat. No. 21635, U.S.N.M.

Described from one female bearing the label "Parasite from gallery of *Phloeosinus* sp. on *Cupressus macrocarpa*, 1903, Hopk. det. No. 18."

#### CRYPTOHELCASTIZUS, new genus.

Related to *Helcastizus* (Foerster) Dalla Torre and *Cryptoideus* Ashmead, from which it is readily distinguished by the characters used in the key.

Runs in Schmiedeknecht's key (Genera Insectorum) on the possession of a clypeal tooth to *Xylophrurus* Foerster, but differs in having the head strongly transverse with the temples short and narrow; in lacking the dark alar bands; in the rather small clypeal tooth; in the nongibbous mandibles; in the oval propodeal spiracles; in the weak petiolar carinae; in having the spiracles of the first tergite in or slightly before the middle.

*Type*.—*Cryptohelcastizus rufigaster*, new species, described below.

#### CRYPTOHELCASTIZUS RUFIGASTER, new species.

*Female*.—Length, 11 mm.; antennae, 8 mm.; ovipositor, 3 mm. Head in front densely rugoso-punctate, the sculpture fading out behind the eyes, temples and cheeks polished, impunctate; clypeus very short, subimpressed beyond middle, broadly, submarginately truncate, the edge granular with a slight median tooth; malar space slightly more than half as long as basal width of mandible; cheeks slightly convex, temples flat, sharply sloping, their cephalo-caudad length less than a third that of the eye; thorax generally rugoso-

punctate, lobes of the mesoscutum and the scutellum polished, with separated punctures, notauli deep and extending well back, where they end in a depressed area, which with the notauli is heavily sculptured; sternauli entirely absent: a small highly polished area in upper hind corner of mesopleurum; propodeum transversely ruguloso-punctate, less strongly so in front of the transverse carina, spiracle oval, midway between base and carina; abdomen elongate fusiform, subpolished, with fine scattered punctures; first tergite barely half as wide at apex as long, with a median longitudinal impression, spiracles at the middle; exerted portion of ovipositor about half as long as abdomen; legs slender.

Black; with abdomen and legs largely red; a nearly complete orbital ring, basal transverse mark on clypeus, a minute spot at base of each mandible, dorsal margin of pronotum, tegulae at base, post-scutellum, and minute mark on each side of posterior face of propodeum, pale yellowish; palpi piceous; antennae black with yellowish annulus embracing flagellar joints 8 to 9; coxae and basal joints of all trochanters black, legs otherwise reddish testaceous, the hind tibiae and tarsi somewhat darkened; wings hyaline, faintly brownish, veins and stigma blackish, their bases together with the apices of the tegulae brown; abdomen rufous with the lateral margins of tergites 2-5 and apices of 3-5 blackish; sheath of ovipositor black.

A female paratype is essentially like the type but lacks the blackish color of the abdomen and the pale markings of the head are less conspicuous.

*Male*.—Differs from female principally as follows; abdomen slender and subparallel-sided; first tergite narrower with longitudinal impression weak or absent; spots on mandible, postscutellum, and propodeum lacking; antennae not annulated; hind tibiae infuscate, tarsi black with third and fourth joints white; abdomen in allotype entirely red, in paratype male black at apex.

*Hosts*.—*Chrysobothris mali* and *Agrius angelicus*.

*Type-locality*.—Harold, California.

*Type*.—Cat. No. 21636, U.S.N.M.

Described from the above two females, reared under United States Department of Agriculture, Bureau of Entomology, No. 6184<sup>o</sup>, April 10 and 2, 1894, respectively, from the former host in apple, and two males from Los Gatos, California, reared by H. E. Burke under Hopkins U. S. Nos. 14505a2x and 14653a<sup>2</sup> parasitic on *Agrius angelicus* in *Quercus agrifolia*.

Strikingly Cryptine in general appearance this species has, nevertheless, a strong resemblance to the species of the genus *Helcostizus*, although agreeing with *Cryptoideus* in most of the characters that separate those two genera.

## Genus CRYPTOIDEUS Ashmead.

*Xylophruridea* VIERECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 646.

In Schmiedeknecht's key to the Cryptini (Genera Insectorum) the genotype runs, on most of the characters used, to *Xylophrurus* Foerster, but differs from his description of that genus in having the head strongly transverse though wide behind the eyes; the mandibles not gibbous at the base; propodeal spiracles very broad oval; abdomen stout. Within the genus, as defined by the species here included, there is marked variation in all of the above characters except that of the mandibles. The genotype of *Xylophruridea*, *Cryptoideus agrili* (Viereck), has the temples very long and broad, while one of the new species, *Cryptoideus bicolor*, has the abdomen rather slender and the spiracles long oval. This leaves the mandibular character as the only irreconcilable one to separate the two genera.

## KEY TO NORTH AMERICAN SPECIES, FEMALES.

- Black with abdomen red.....*bicolor*, new species.  
 Black ..... 1  
 Ferruginous ..... 2  
 1. Legs largely red.....*nubilipennis* (Cresson).  
 Legs black..... 3  
 2. Malar space longer than basal width of mandible; propodeal spiracle elongate.....*luctuosus* (Provancher).  
 Malar space shorter than basal width of mandible; propodeal spiracle round.....*agrili* Viereck  
 3. Head posteriorly wider than eyes; apical carina of propodeum obsolete medially.....*fasciatus* (Ashmead).  
 Head posteriorly not wider than eyes..... 4  
 4. Apical carina of propodeum broadly interrupted in the middle; wings very dark purplish brown.....*purpuripennis* (Cresson).  
 Apical carina of propodeum complete; wings subhyaline..... 5  
 5. Head behind the eyes as broad as the eyes, the temples not sloping, mostly ferruginous; antennae white annulate; areola not at all defined laterally, the basal carina subangulate medially.....*rufus*, new species.  
 Head behind the eyes narrower than the eyes, the temples sloping, mostly black; antennae not annulated; areola defined laterally, the basal carina broadly curved medially.....*sitkensis* Ashmead.

## CRYPTOIDEUS AGRILI (Viereck).

*Xylophruridea agrili* VIERECK, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 646.

Some additional characters of this species, drawn from type material, that help in distinguishing it from related species are as follows: Temples slightly wider than eyes, straight for most of their length, then abruptly rounding off to the occipital carina; posterior orbits only obscurely brownish; malar space shorter than basal width of mandible; first joint of flagellum longer than second; sternauli weakly indicated anteriorly; propodeal spiracle round; basal carina of propodeum not curved medially to base and with a rather

distinct basal area; apical carina broadly interrupted medially; wings hyaline with fuscous stigmal and apical bands, nervellus broken below the middle; exerted portion of ovipositor distinctly less than half as long as abdomen.

**CRYPTOIDEUS? LUCTUOSUS (Provancher).**

*Mesochorus luctuosus* PROVANCHER, Nat. Can., vol. 6, 1874, p. 299.

*Echthrus luctuosus* PROVANCHER, Faun. Ent. Can., Hym., 1883, p. 486.

Because of the elongate spiracle this species is somewhat doubtfully referred to the genus, but in all other ways it seems to agree very well. Notes by Mr. Rohwer, who has seen the type, furnish the following characters which distinguish it from *agrili* (Viereck): malar space longer than basal width of mandibles; eyes rimmed with red; first and second flagellar joints subequal; sternauli indicated posteriorly but not anteriorly, nervellus broken at the middle; basal carina of propodeum curving apparently to base of segment; wings dusky with brownish oblique band below stigma.

Other characters noted by Mr. Rohwer, which evidently ally it closely to *Cryptoideus* and especially to *agrili* are: clypeus rounded, well defined laterally but not basally; inner margins of eyes parallel; front femora swollen beneath from base to beyond middle; occipital carina strong; posterior orbits narrower than eye; head coarsely punctured; notauli present anteriorly; thorax with coarse punctures; nervulus antefurcal; discocubital vein with a stump; pleural carina of propodeum represented by a faint groove; apical carina present laterally; propodeum punctured basad of first carina, behind it longitudinally striato-punctate.

According to Provancher the ovipositor is nearly as long as the abdomen.

**CRYPTOIDEUS NUBILIPENNIS (Cresson).**

*Cryptus nubilipennis* CRESSON, Proc. Ent. Soc. Phila., vol. 3, 1864, p. 291.

*Echthrus nubilipennis* HARRINGTON, Can. Ent., vol. 25, 1893, p. 31.

Differs from *agrili* (Viereck) principally as follows: Head behind slightly narrower than eyes, temples strongly convex; posterior orbits distinctly brownish; flagellar joints 1 and 2 subequal; propodeal carinae strong, the apical very high on upper hind angles; wings yellowish with pale brownish bands; legs beyond trochanters, except apices of hind tibiae, the hind tarsi, and the bases of the front and middle femora, which are fuscous, red; ovipositor nearly as long as the abdomen.

**CRYPTOIDEUS BICOLOR, new species.**

Differs from all the species here included in coloration.

*Female*.—Length, 8.5 mm.; antennae, 6.5 mm.; ovipositor, 3.5 mm. Head and thorax densely, rather coarsely, punctate, striately so on temples and the pleura; head seen from above as broad behind the

eyes as are the eyes, temples strongly convex, occiput rather shallowly concave, cephalo-caudad length of temple subequal with that of the eye; head from in front nearly round, the cheeks strongly convex, face slightly narrower than frons, malar space slightly shorter than basal width of mandible; sternauli rather strong; antennae slender, first joint of flagellum slightly longer than second; propodeum with apical carina obsolete medially, basal areas punctate, others irregularly rugulose, basal carina strongly curved but not subangulate medially; propodeal spiracles rather long oval; nervellus broken only slightly below middle; abdomen opaquely granulate, the middle tergites weakly, rather densely, punctate; first tergite with strong dorsal carinae becoming obsolete beyond the spiracles, subpolished medially, densely punctate laterally, nearly twice as wide at apex as at base, weakly elevated in the middle; ovipositor three-fourths as long as abdomen.

Black, with posterior orbits brownish; antennae white annulate; clypeus and mandibles piceous; all coxae black, legs otherwise piceous except that the hind femur is bright testaceous and the hind tibia only slightly darkened; tegulae piceous; wings slightly brownish the bands somewhat darker brown; abdomen rufous with the apical segments black; sheath black, reddish at extreme apex.

*Type-locality*.—Colorado.

*Type*.—Cat. No. 21919, U.S.N.M.

One female from the C. F. Baker collection.

CRYPTOIDEUS RUFUS, new species.

*Female*.—Length, 7.5 mm.; antennae, 5 mm.; ovipositor, 2 mm. Head behind eyes as broad as eyes; face slightly narrower than frons; cephalo-caudad length of lower temples distinctly shorter than greatest width of eye; malar space about two-thirds as long as basal width of mandible; clypeus broadly truncate, with a median tooth flanked on either side by a transverse impression; face and frons densely punctate, vertex and temples less strongly so; first flagellar joint distinctly longer than second; thorax densely punctate, striately so laterally; notauli distinct, transversely striate, extending well on to disk of mesoscutum; sternauli distinct for about three-fifths their length; propodeum with two complete carinae, the posterior elevated laterally, basal median area weakly defined, basal areas rather sparsely punctate; other areas rugoso-punctate, spiracle round; nervellus broken distinctly below middle, discocubitus angulate with a stump at its middle; first tergite at apex narrower than distance from spiracles to apex, dorsal carinae broadening into ridges beyond spiracle, the space between impressed, the segment finely cariateous medially, punctate laterally; middle tergites densely, finely punc-

tate, apical ones subpolished; exerted portion of ovipositor half as long as abdomen.

Ferruginous; antennae fuscous, paler at base, nearly black at apex, flagellar joints 7-9 white; palpi fuscous, occiput centrally, notauli, thoracic sutures, alar region, front coxae at base, and ovipositor sheath blackish; wings hyaline with bands pale brownish.

*Type-locality*.—Montgomery County, Pennsylvania.

*Type*.—Cat. No. 21637, U.S.N.M.

Described from one female.

#### CRYPTOIDEUS PURPURIPENNIS (Cresson).

*Cryptus purpuripennis* CRESSON, Proc. Acad. Nat. Sci. Phila., 1878, p. 364, female.

*Cryptoideus purpuripennis* (Cresson) ASHMEAD, Proc. U. S. Nat. Mus., vol. 23, 1890, p. 42.

A specimen of this species in the United States National Museum from Santa Cruz Mountains, California, differs from *rufus* Cushman principally as follows: Much larger, 12 mm. long, head behind eyes narrower than the eyes, the temples slightly sloping; malar space nearly as long as basal width of mandible; propodeum with apical carina interrupted medially, spiracle large, slightly oval; first tergite at apex wider than distance from spiracle to apex; middle tergites minutely, granularly opaque with very fine sparse punctures; exerted portion of ovipositor two-thirds as long as abdomen.

Antennae without white annuli; frons from bases of antennae to and including ocellar triangle medially black; notauli and bases of front coxae not black; wings dark purplish brown, the bands only slightly darker and confined to immediately beneath the stigma. Color otherwise like *rufus*.

#### CRYPTOIDEUS SITKENSIS Ashmead.

*Cryptoideus sitkensis* ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 193.

This Alaskan species is similar in size and structure to *purpuripennis* Cresson, differing structurally principally in having the longitudinal carinae of the propodeum more or less distinct beyond the basal carina, the areolet being completely defined and wider than long, and the punctuation of the abdomen more dense and more distinct. The head is largely black, the ferruginous color being confined to the clypeus, a small spot between the antennae and the eye, and a large spot in the posterior orbit; the thorax black ventrally including the front coxae and bases of middle coxae, the sutures, notauli and alar region more extensively black, this color embracing the post-scutellum; the wings very pale brownish with the bands represented by somewhat darker stains in the region of the stigma; otherwise ferruginous.

## CRYPTOIDEUS FASCIATUS (Ashmead).

*Brachycentrus fasciatus* ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, 1890, p. 413.

*Helcostizus fasciatus* (Ashmead) DALLA TORRE, Cat. Hym., vol. 3, 1902, p. 395.

Closely allied to *rufus* Cushman, described above, from which its type differs principally as follows: Head behind eyes distinctly wider than eyes; eyes parallel within; lower temples as long as greatest eye width, striato-punctate; clypeus obtusely pointed; apical carina of propodeum obsolete medially, discocubitus angulate distinctly before the middle.

Colored like *rufus* except that there is a large black spot in the middle of the frons and the ocellar area, the occiput, propleura and front coxae are almost entirely black, and the abdomen is obscurely black at apex.

## Subfamily ICHNEUMONINAE (Pimplinae).

## Genus GLYPTA Gravenhorst.

## GLYPTA MUTICA, new species.

In Cresson's key<sup>1</sup> to the species of *Glypta* runs directly to *vulgaris* Cresson and is very similar to that species, differing from a typical example practically only as follows:

*Female*.—Length, 7 mm.; antennae, 5 mm.; ovipositor, 4.75 mm.

Head without a horn medially just above the insertion of the antennae; temples strongly rounded; occipital carina subangulate medially; cheeks slightly convex; malar space shorter than basal width of mandible; notauli very weakly impressed; propodeum shorter, the posterior face very abrupt, fully two-thirds as long as dorsal, apical carina very strong, others, especially the anterior transverse and lateral carinae, weaker<sup>2</sup>; metapleura scarcely longer than high; apical lateral impressions of tergites obsolete; ovipositor distinctly longer than abdomen.

Black with scutellum, mesosternum, mesopleura (except space below wings), and metapleura (entirely), red; mandibles, clypeus, tegulae, wing-bases, dorsal margin of pronotum at the side, and a spot immediately below the tegula white; antennae black, brownish at tip; front and middle legs basally stramineous, the trochanters, base of femur and tibia, except apical and subbasal fuscous annuli, nearly white, their tarsi slightly infusate with the joints whitish at base, femora otherwise pale rufo-testaceous; hind coxae and femora rufo-testaceous, the latter blackish at apex, trochanters whitish, the basal joint

<sup>1</sup> Trans. Amer. Ent. Soc., vol. 3, 1870, p. 151.

<sup>2</sup> Occasionally in both this species and *vulgaris* Cresson all of the propodeal carinae except the apical and median longitudinal are obsolete. From Cresson's description of *vulgaris* this is evidently the case with the type.

more or less reddish, tibia black and white, the black arranged in an apical and a subbasal band connected below by a dark stripe, tarsi black with the joints white at base.

*Male*.—Length, 6 mm.; antennae, 6 mm. Differs from the female in the usual manner for members of the genus in the more slender form, relatively longer antennae, shorter malar space, ventrally pale antennae, paler legs especially the front and middle pairs, deeper notauli, stronger propodeal carinae with narrower areas and the less precipitous posterior face of the propodeum. Otherwise in color and structure much like the female.

*Host*.—*Polychrosis viteana* Clemons.

*Type-locality*.—North East, Pennsylvania.

*Type*.—Cat., No. 21,638, U.S.N.M.

Described from 11 specimens of each sex selected from a large series reared by the author as parasites of the larva of the grape-berry moth, under Quaintance Nos. 10,996, 11,015, 14,441, 14,442, and 14,470.

The paratypes are selected and arranged to show the great variation in color. Paratype *d* is like the type. Paratypes *c* to *a* show the increase in the amount of red, *a* having the three lobes of the mesoscutum red and the scutellum slightly whitish at apex: while *e* to *k* show the progressive encroachment of black until, in *k*, the red is practically eliminated, traces of this color being confined to the scutellum and the lower posterior angle of the mesopleurum. In *i* the white of the pronotum is confined to a small spot in front of the tegula. Paratype *m* is like the allotype except that the scutellum is somewhat paler while in *l* it is distinctly whitish laterally. Paratypes *n*—*s* show the increase in black, *s* being entirely black. Paratype *n*, although having more black on the pleura, has the scutellum paler than in the allotype, while the succeeding specimens have the decrease in red of the scutellum paralleling that of the pleura. Paratypes *t* and *u*, although having much more black on the pleura, have the red much paler, and in *u* the scutellum is black with the apex white.

The black color of the pleura encroaches on the red both from above and from below, the red disappearing last just at the base of the middle coxae.

Variations in size and structure are slight, the most notable being in the degree of convexity of the temples.

### Subfamily TRYPHONINAE.

#### Genus MESOLEIUS Holmgren.

#### MESOLEIUS BALTEATUS, new species.

In Davis's key to North American members of the genus<sup>1</sup> runs to *idahoensis*: Davis, differing from Davis's description as follows: First

<sup>1</sup>Trans. Amer. Ent. Soc., vol. 24, 1897, p. 295.

two tergites rufous at base and apex, black in the middle. third entirely rufous, fourth entirely black, sometimes with more or less reddish reflection; pale color of head and thorax testaceous rather than yellow; legs rufo-testaceous, front pair the palest, tarsi especially of hind legs infuscate, as are also the hind tibiae at apex; antennae paler beneath at base but not at apex; nervellus strongly broken, subdiscoideus distinct; abdomen not compressed at apex; face immaculate.

*Female*.—Length, 7.0 mm.; antennae 6.0 mm.

Head behind eyes nearly as broad as eyes, temples very strongly convex, polished; malar space very short, granulate; frons granulate and sparsely punctate; face densely punctate; clypeus sparsely punctate, transversely roughened; thorax subpolished, slightly coriaceously roughened; notauli distinct anteriorly; scutellum sparsely punctate; propodeum strongly coriaceous, the lateral carina very strong posteriorly but obsolete before the round spiracles, medially transversely rugose, the rugae forming a more or less distinct apical pseudocarina, the median longitudinal carinae more or less distinct; abdomen minutely, reticulately roughened basally, polished apically; first tergite about half as wide at apex as long, its sides nearly straight, dorsal carinae nearly parallel and extending about two-thirds of the way to apex, lateral carinae strong and complete to apex, spiracles at the middle, those of second tergite at basal third; nervulus slightly postfural; nervellus broken at to considerably below middle; discocubitus very strongly bent at middle, the second discoidal cell barely a third as wide at base as at apex; legs slender.

Black with legs largely and abdomen partly reddish; clypeus, mandibles, tegulae, and humeral angle of pronotum flavous; maxillary palpi pale at base, blackish at apex; antennae dark fuscous, scape and first few joints of flagellum paler below; legs reddish testaceous, the tarsal joint except at base and hind tibia at apex infuscate; wings hyaline, veins and stigma brown, veins flavous at base, stigma pale at base and apex; abdomen black with third tergite entirely and first and second at base and apex rufous.

*Host*.—*Ametastegia glabrata* Fallen.

*Type-locality*.—Wenatchee, Washington.

*Type*.—Cat. No. 21707, U.S.N.M.

Described from seven females reared under Quaintance No. 14066 by Mr. E. J. Newcomer, of the Bureau of Entomology.

In this series there is some variation in size, the smallest being 5 mm. long. The greatest variation in structure is in the arrangement of the rugosity of the propodeum. In some of the specimens the median carinae extend to the apex and the petiolar area is not defined, while in others the apical carina is dissipated into a number of irregular rugae. The color variation is slight, consisting principally

in the possession by some specimens of more or less fuscous on the third tergite and by others of reddish reflections on the fourth.

PROTEROCRYPTINI, new tribe.

Examination of the type of *Proterocryptus nawaii* Ashmead, type of the genus *Proterocryptus* Ashmead,<sup>1</sup> discloses the fact that it is not Hemiteline, as Ashmead considered it, nor even Cryptine, but rather Tryphonine. In the Tryphoninae it will not run to any of the tribes tabulated by Ashmead, but in Forester's key to his families of Ichneumonidae<sup>2</sup> it runs, on the origin of the radius near the base of the stigma and the petiolate abdomen, to the Sphinctoidea (tribe Sphinctini Ashmead), but differs from *Sphinctus* Gravenhorst, the only included genus, in many characters of apparent tribal value. In addition to the two characters mentioned above it resembles *Sphinctus* in the globular thorax, the confluent areola and petiolar area, the strongly petiolate abdomen, the distinct gastrocoeli distant from the base on the second tergite, and, except that the second intercubitus is lacking and the aerolet therefore open, in the venation of the front wing. It differs from *Sphinctus* principally in the following characters: Head very strongly transverse, almost lenticular, the temples nearly flat and very sharply sloping to the rather weak occipital carina; eyes parallel within and sharply emarginate opposite the antennae; clypeus small, flat, broadly rounded at apex; scutellum slightly convex, not margined, separated from the mesoscutum and postscutellum by rather broad crenulate furrows instead of by deep narrow slits, postscutellum also not strongly margined; propodeum completely though weakly areolated, except that areola and petiolar area are confluent, spiracle situated very near to the junction of the lateral carina and the costella; prepectal carina very high and flangelike ventrally; first abdominal segment clavate, the spiracles not prominent, the tergite and sternite completely fused and not separated by either carina or groove; ovipositor exerted (in the genotype as long as the first tergite); second intercubitus completely absent; longitudinal veins of hind wing, except metacarpella, vestigial beyond the transverse veins, the intercubitella placed so far basad of its normal position as to give the wing a strongly Braconid appearance; hind tibia with two apical spurs.

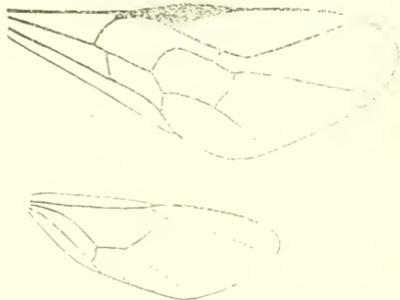


FIG. 1.—WINGS OF PROTEROCRYPTUS NAWAII ASHMEAD.

The venation of both front and hind wings is shown in figure 1.

The tribe includes only the genus *Proterocryptus* Ashmead.

<sup>1</sup> Proc. U. S. Nat. Mus., vol. 30, 1906, p. 174, pl. 12, fig. 3.

<sup>2</sup> Verb. naturh. Ver. preuss. Rheinl., vol. 25, 1868.