NEW SPECIES OF ICHNEUMON-FLIES WITH TAXONOMIC NOTES.

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This paper consists of the description of one new tribe, two new genera, and 11 new species of Ichneumonidae, and 5 new species of Braconidae, together with notes on synonymy and generic transfers.

The types of all new species are in the United States National Museum.

Family ICHNEUMONIDAE.

Subfamily Joppinae.

Genus HYMENOCAMAROTA, new name.

Camarota Kriechbaumer (1898), preoccupied by *Camarota* Meigen (1830).

AMBLYTELES YAKUTATENSIS (Ashmead).

Plectocryptus yakutatensis Ashmead, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 183, pl. 9, fig. 6.

Plectocryptus popofensis Ashmead, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 183.

This is simply an (*Ichneumon*)=*Amblyteles* with long ovipositor. Ashmead separated his two types by the number of antennal joints and the color of the flagellum, both variable. In a series of seven specimens, including both types, the antennae vary from 24 to 27 jointed; the costulae also vary from entirely absent to distinct.

The ovipositor sheath is hairy only at tip, being otherwise polished.

It is closely related to *Cratichneumon popofenis* Ashmead and *confusus* Ashmead described in the same paper. The latter is very likely the male of the present species.

PLATYLABUS PULCHER, new species.

Runs in the keys of both Cresson[1] and Bradley[2] to *lineolatus* Provancher. From the description of that species it differs in having an interruption in the orbital mark about opposite the anterior

[1] Trans. Amer. Ent. Soc., vol. 6, 1877, p. 199.

[2] Can. Ent., vol. 35, 1903, pp. 277–280.

ocellus, another just behind the vertex, and a third at the malar space; the pronotum white margined below as well as above; lateral sutures of mesothorax not white; antennae red at base; abdomen not brownish nor especially truncate at apex, and without a white apical spot.

Female.—Length, 10 mm.; antennae, 10 mm.

Head finely punctate, densely so on face; frons polished impunctate on lower half, opaque in upper half; face divided into three nearly equal areas by two well-defined longitudinal grooves; clypeus weakly separated medially, broadly truncate at apex, sparsely punctate; labrum briefly exserted; malar space slightly longer than basal width of mandible; eyes divergent below; temples convex, strongly sloping; diameter of lateral ocellus equal to ocell-ocular line and slightly shorter than postocellar line; thorax densely, finely punctate; pronotum rugulose in middle at sides; notauli briefly impressed; propodeum punctato-rugulose behind, basal transverse carina entirely lacking, the combined areola and basal area nearly square, spiracle long oval, situated near base and very near to lateral carina, about its length from pleural carina; legs, especially anterior femora, stout, opaque coriaceous; areolet oblique trapezoidal; abdomen subpolished, postpetiole and second and third tergites weakly punctato-shagreened; petiole flat dorsally, the dorsal carinae obsolete on postpetiole; ovipositor barely exserted; hypopygium reaching apex of abdomen.

Bright uniform rufous, with the following ivory white markings: Annulus occupying flagellar joints 9–12 and part of 13, palpi, mandibles, sides of clypeus, malar space immediately at base of mandible, orbits (with interruptions noted above), upper and lower margins of pronotum, line below front wing, posterior half of scutellum, and apex of postscutellum; antennae black, reddish at base; wings pale brownish stained; legs nearly uniform dark reddish testaceous, front pair yellow in front.

Type locality.—Whitefish Point, Michigan.

Type.—Cat. No. 24616, U.S.N.M.

One specimen taken July 2, 1913, by A. W. Andrews.

Genus ISCHNOPSIDEA Viereck.

SYNONYM.—*Rhexidermus* ASHMEAD, not FOERSTER.

(RHEXIDERMUS) ISCHNOPSIDEA JAPONICUS (Ashmead).

Very close to, if not synonymous with (*Ischnus*) *Ischnopsidea nigrellus* (Wesmael). It was the first species included in the genus *Rhexidermus* Foerster, but will not run there in Foerster's key since the scutellum is elevated and the propodeum extends perceptibly over the hind coxae. The type is in the United States National Museum.

(PHÆOGENES) HERPESTOMUS HARIOLUS (Cresson).

SYNONYM.—*Dirophanes plesius* VIERECK.

Viereck's type agrees, except in minor color variations, with Cresson's description.

Subfamily CRYPTINAE.

Genus BATHYMETIS Foerster.

In his paper on the Hymenoptera of the Harriman Alaska Expedition[3]. Ashmead described many so-called species that should all be referred to this genus and resolve themselves into three species. The types of all of these are in the National Collection and have been examined.

BATHYMETIS NIGRUM (Ashmead).

Bachia nigra ASHMEAD, Fur Seal and Fur Seal Islands, pt. 4, 1899, p. 339, female.

Stiboscopus mandibularis ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 172, male.

Bathymetis nigricornis ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 177, male and female.

Bathymetis imitator ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 177, male and female.

Bathymetis simulans ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 178, female.

Bathymetis rubrocincta ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 178, male and female.

Bathymetis simillima ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 179, male and female.

Bathymetis confusa ASHMEAD, Proc. Wash. Acad. Sci., vol 4, 1902, p. 180, male and female.

Bathymetis ungae ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 180, male.

Bathymetis quadriceps ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 181, male.

Bathymetis simulator ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 181, male.

Plesiognathus (*sic!*) *rubrocinctus* ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 184, male.

BATHYMETIS SOLITARIUS (Ashmead).

Stiboscopus solitarius ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 172, male.

Algina alaskensis ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 188, male.

Philonygmus alaskensis ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 189, male.

Ilapinastes incertus ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 190, male.

[3] Proc. Wash. Acad. Sci., vol. 4, 1902.

BATHYMETIS UNICINCTA (Ashmead).

Habromma nigrum ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 188 (not *Bachia nigra* Ashmead, 1899), male.

Isochresta unicincta ASHMEAD, Proc. Wash. Acad. Sci., vol. 4, 1902, p. 190, male.

ALLOCOTA THYRIDOPTERIGIS Riley.

SYNONYM.—*Phobetus albinopennis* DAVIS.

The type of *albinopennis* is the male of *thyridopterigis*.

(HEMITELES) ZAMICROTORIDEA SYRPHICOLA (Ashmead).

SYNONYM.—*Zamicrotoridea orbiformis* VIERECK.

AMYDRAULAX, new genus.

Genotype.—*Amydraulax pulchra*, new species.

In Foerster's key to the Hemiteloidae this anomalous genus runs directly to *Rhadinocera*, one of that author's atypic genera, to which I would also run the supposed genotype of *Isadelphus*, *Hemiteles inimicus* Gravenhorst, except for its rather short flagellar joints. That *inimicus* belongs to the present genus I do not believe, but the two have much in common—the clypeus is of the same character, being laterally impressed on each side of the middle at apex with the median portion very slightly emarginate so that the clypeus appears to be obscurely bidentate; the eyes are rather short, leaving a long malar space, and with the antennae placed much below the middle of the eyes; the venation is nearly identical except that in the present genus the second intercubitus is broadly bullated, while in *inimicus* the second intercubitus is entirely lacking, and the bulla of the second recurrent is entire; the form of the abdomen is very similar, the first tergite broad with the spiracles just behind the middle, and the apex strongly compressed; the appendages in the present genus are long and, especially the antennae, very slender, but the relative length of the joints is about the same; the sculpture of the mesoscutum and abdomen is the same in both, very finely granulate.

Among the more striking characters by which *Amydraulax* differs from *inimicus* are the more strongly transverse, unswollen head; the obsolete sternauli; the incompletely areolated propodeum; the very slender antennae and tarsi; and longer and more slender ovipositor. In the last character it is exceeded by *Hemiteles nigriventris* Thomson and *Isadelphus extensor* Cushman. It is perhaps significant that the genotype runs to a genus the name of which refers to the slender antennae; and it may really be *Rhadinocera*, but since Viereck[4] has already included an apparently quite different insect in that genus it seems inadvisable to refer the present species to it.

[4] Hym. Connecticut, 1917, p. 340.

In practically lacking the longitudinal carinae on the propodeum *Amydraulax* resembles the Cryptini, but its other characters ally it more closely to the Phygadeuonini-Hemitelini, while the almost absent sternauli are unusual in either tribe.

Female.—Head transverse; temples strongly narrowed; eyes short and broad, divergent below within; malar space long; face about twice as broad as long with a median rounded elevation flanked by longitudinal depressions; clypeus broad, separated by elevation from face, the apex impressed on each side, the median, unimpressed portion faintly emarginate; antennae extremely slender, filiform, nearly as long as body, first joint of flagellum in genotype about 10 times as long as thick, the others decreasing rapidly in length until near the apex they are but little longer than thick; maxillary palpi slender, reaching beyond apex of front coxae; thorax long, subcylindrical; notauli impressed anteriorly; sternauli very faint; scutellum slightly convex, propodeum with the transverse carinae strong but the longitudinal carinate mostly lacking, basal area and areola completely defined, the latter weakly so at sides and pentagonal, the former large and triangular, spiracles small, round; propodeum and metapleurum sharply separated; legs, especially tarsi, slender, basitarsus about as long as other joints combined and fully half as long as tibia, calcaria short; wings immaculate, radius slightly beyond middle of stigma, areolet complete but with second intercubitus largely bullated, discocubitus with a distinct ramulus, second discoidal cell broad at base, second recurrent with bulla broadly interrupted, nervulus postfurcal and inclivious, nervellus inclivious and broken below middle; abdomen hardly longer than head and thorax combined, compressed from base of third tergite, strongly so at apex; petiole and postpetiole not distinctly separated, the sides of the first tergite slightly arcuate, spiracles just behind middle; first tergite longer than second, second and third subequal, others becoming rapidly shorter; ovipositor long, very slender, slightly compressed, apex barely lanceolate, little deeper than middle.

Male.—Unknown.

AMYDRAULAX PULCHRA, new species.

Female.—Length, 8 mm.; antennae, 8 mm.; ovipositor, 6 mm.

Head slightly wider than thorax; with short, rather dense, white pubescence; temples and vertex behind shining, almost without sculpture; frons granulate above, minutely punctate at sides, polished below, with a shallow furrow above and between antennae; face twice as broad as long, densely, minutely punctate, and with an elongate tubercle between antennae; clypeus twice as broad as long, punctate basally, polished and with a few large punctures dically; mandible punctate; cheeks and malar space punctate, the latter subequal to

basal width of mandible; eye two-thirds as broad as long; basal flagellar joint about 10 times as long as thick; second, three-fourths as long as first; third, three-fourths as long as second; scape densely punctate. Thorax subopaque, mesoscutum granular, scutellum and pleura minutely punctate; propodeum subpolished with more or less coriaceous roughening; basal and apical carinae entire and strong, other carinate absent except basal and middle abscissae of median and apical abscissa of lateral, all of which are weaker than the transverse carinae; basal area large and nearly triangular; areola a nearly equilateral pentagon; spiracle small, round; legs slender, hind basitarsus ten or more times as long as thick, inner calcarium about a sixth as long as basitarsus. Abdomen finely granulate basally, polished apically; first tergite slightly more than twice as long as wide at apex, its sides weakly arcuate, lateral carinae strong to apex, dorsal carinae fading out before middle, the space between impressed; second tergite about as long as wide, its sides somewhat divergent, its spiracles at basal third; third tergite nearly as long as second; others rapidly shorter; sixth and seventh membraneous in middle dorsally.

General body color black, prothorax and mesothorax largely rufous, tergites beyond first with apical margins white, venter largely white; legs largely testaceous; mandibles piceous with white spot toward base; palpi white, apical three joints of maxillary fuscous, antennae black; pronotum black medially and in furrow above; notauli and borders of mesoscutum black; scutellum rufous, its lateral areas black; borders of mesopleurum and entire prescutum black, mesopleurum otherwise and sternum rufous; metapleurum black, more or less reddish in middle; propodeum black; wings hyaline, venation brown, costa, radix, tegula, and humeral angle of pronotum white; legs testaceous, front and middle ones almost stramineous, their coxae at apex, trochanters largely, and femora at base and at apex beneath white; apical joint of hind trochanter and its femur at base white, tibia and tarsus (only the basitarsus is present) fuscous; abdomen black, second tergite medially and laterally at apex narrowly white, other tergites with same markings more distinct, the median and lateral marks narrowly connected; epipleura white, the second with a small brown spot; sternites white with a larger or smaller brown spot at upper anterior angle.

Host.—Callidium sequoiae Fisher.

Type locality.—Giant Forest, California.

Type.—Cat. No. 24617, U.S.N.M.

Described from one female reared by F. C. Craighead under Hopkins U. S. No. 10651 P, on December 21, 1918.

The cocoon of the type is nearly cylindrical with rounded ends, 11 mm. long by 2.5 mm. thick. It is semitransparent brown. At a short distance from each end is a series of several opaque longitudinal marks each about 1 mm. long. At the mesal end of each of these is a small whitish patch from which the marking extends toward the end of the cocoon apparently as a welt on the inner surface of the cocoon.

(CRYPTUS) CRYPTOHELCOSTIZUS ALAMEDENSIS (Ashmead.)

SYNONYM.—*Cryptohelcostizus rufigaster* CUSHMAN.

Synomymy based on comparisons of types.

Genus CHROMOCRYPTUS Ashmead.

Chromocryptus ASHMEAD, Proc. U. S. Nat. Mus., vol. 23, 1900, p. 41. Type.—*Chromocryptus albopictus* Ashmead manuscript.

Mesostenimorpha VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 566. Type.—*Cryptus nebraskensis* Ashmead.

Chromocryptus CUSHMAN, Proc. U. S. Nat. Mus., vol. 58, 1920, p. 254.

CHROMOCRYPTUS NEBRASKENSIS Ashmead.

Cryptus nebraskensis ASHMEAD, Proc. U. S. Nat. Mus., vol. 12, April, 1890, p. 412.

Cryptus bellus CRESSON manuscript, Ins. Life, vol. 3, November, 1890, p. 154.

Chromocryptus albopictus ASHMEAD manuscript, Proc. U. S. Nat. Mus., vol. 23, 1900, p. 41.

Mesostenimorpha nebraskensis VIERECK, Proc. U. S. Nat. Mus., vol. 44, 1913, p. 566.

Chromocryptus albopictus CUSHMAN, Proc. U. S. Nat. Mus., vol. 58, 1920, p. 254.

The types of both Ashmead's and Viereck's names are in the National Collection. That of *nebraskensis* is from Nebraska; that of *albopictus* from Illinois, while specimens labeled *bellus* are from New York and Connecticut, the former being those on which the Insect Life record of the rearing from *Tolype velleda* was based. Specimens reared from the same host at Obelisk, Pennsylvania, have recently been received from A. B. Champlain of the Pennsylvania Department of Agriculture.

Subfamily ICHNEUMONIAE.

LABENA SCHAUSI, new species.

Has the wings colored as in *gloriosa* Cresson, but because of its lack of the lateral carinae on the face and the sparse punctuation of the mesoscutum it runs in Rohwer's key[5] close to *confusa* Rohwer, from which it differs markedly in color and in other characters.

[5] Proc. U. S. Nat. Mus., vol. 57, 1920, p. 407.

Female.—Length, 19 mm.; antennae, 15 mm.; ovipositor, 15 mm. Face at clypeus and frons about equal in width; face transversely strongly striate with a median carina, but without lateral carinae; frons polished, practically impunctate; vertex and temples polished, impunctate; postocellar line scarcely longer than ocell-ocular line; interocellar space divided by a deep groove; postocellar furrow distinct; clypeus flat basally, without a transverse ridge; thorax polished, with sparse, weak punctures on mesoscutum, scutellum, and dorsal portions of pronotum and pleura; prescutum strongly angulated on each side; mesopleurum with longitudinal impression very weak but with a deep, nearly vertical impression in its dorsal posterior angle; basal area nearly as long as wide at base, its sides convergent posteriorly; costulae far before middle of areola; petiolar area very short, deeply impressed and foveolate medially; subpetiolar area (that portion of propodeum lying below insertion of abdomen) polished, with a few striae; legs slender; subdiscoideus scarcely below middle of postnervulus[6]; nervellus broken distinctly above middle and strongly reclivous; abdomen polished; first tergite two and one-half times as long as wide at apex, apex of sternite much before spiracles; ovipositor distinctly longer than abdomen.

Head and thorax yellow; vertex and upper temples more or less ferruginous; ocelli surrounded by narrow brownish areas; scape, pedicel, and first flagellar joint beneath ferruginous, flagellum black, without annulus; sutures of thorax, three longitudinal fascia on mesoscutum, prescutellar fovea, a band surrounding propodeum, narrow apex of propodeum, and small spot on mesopleurum brownish to blackish; legs testaceous, front and middle coxae and trochanters yellow in front; wings hyaline with black venation and a sharply defined, fuscous spot at apex; first tergite yellow with median piceous fascia reaching nearly to apex; second and third tergites yellow at apex and at anterior angles, piceous in middle, the pattern more obscure on third; other tergites ferruginous, more or less darker in basal middle and more or less yellow laterally at apex; ovipositor sheath blackish, not conspicuously paler at base nor darker at apex.

Type locality.—Cayuga, Guatemala.

Other locality.—Quirigua, Guatemala.

Type.—Cat. No. 24618, U.S.N.M.

Described from two females presented by Mr. William Schaus and collected by Messrs. Schaus and Barnes.

[6] I propose this term for the vein normally giving rise to subdiscoideus. In the horismology of Rohwer and Gahan it comprises the apical two abscissae of discoideus, and corresponds to the "zweite arealnerv" of Konow. I am proposing the new name instead of using areal vein in order to avoid the confusion that would result due to the fact that Konow and others have in addition applied the latter term to both nervulus and nervellus. The position of subdiscoideus in relation to it is frequently of much value in classification and the new term is proposed for the convenience of having a definite and comparatively short name.

The paratype is larger (23 mm.) but differs otherwise only in minor details.

NESOPIMPLA NARANYAE Ashmead.

Nesopimpla naranyae ASHMEAD, Proc. U. S. Nat. Mus., vol. 30, 1906, p. 189, pl. 13, fig. 3.
Itoplectis immigrans TIMBERLAKE, Proc. Hawaiian Ent. Soc., vol. 4, 1920, p. 271.

In searching for Timberlake's recently described species in the National Collection I have discovered that it had been previously described from Japan by Ashmead under the above name, Ashmead's type agreeing perfectly with Timberlake's description. In addition to the type female, there are in the National Collection a male from the same source as the type; another male from the type locality; a female and a male collected by Y. Nawa, the female at Gifu and the male without locality but said to have been reared from the pupa of *Nonagria innocens;* and two males from Hawaii both collected by Ashmead, one at 4,000 feet on Kilauea and the other at 2,500 feet on Olaa Plantation.

The sixth tergite varies from all red to all black, and there is, in the specimens examined, no such difference between the sexes in color of abdomen as described by Timberlake.

Nesopimpla is at least subgenerically distinct from *Itoplectis* in the strong median and lateral carinae of the propodeum, the lack of basal lobes on the front tarsal claws in the female, and the reflexed apex of the seventh tergite in the male.

EPHIALTES SANGUINEIPES (Cresson).

Pimpla sanguincipes CRESSON, Trans. Amer. Ent. Soc., vol. 4, 1872, p. 165.
Pimpla hawaiiensis CAMERON, Proc. Haw. Ent. Soc., vol. 3, 1915, p. 105.
Ephialtes hawaiiensis TIMBERLAKE, Proc. Haw. Ent. Soc., vol. 4, 1920, p. 267.
Ephialtes sanguineipes CUSHMAN, Proc. U. S. Nat. Mus., vol. 58, 1920, p. 335.

I have compared the large series of *Ephialtes hawaiiensis* (Cameron) in the National Collection with the equally large series of *sanguineipes* (Cresson) and am unable to distinguish between them. The larger males of *sanguineipes* have the hind tibiae entirely red like the female, but many smaller specimens, including a few very small females placed in *sanguineipes* by myself, have the tibiae more or less distinctly bicolored. I am not at all sure but that *sanguineipes* (Cresson), *punicipes* (Cresson), *feralis* (Cresson), and *exareolatus* (Ashmead) are variants of the same species. But the last three are all represented in the National Collection by uniques that can be distinguished from the general run of *sanguineipes.*

Genus XANTHOPIMPLA Saussure.

SYNONYM.—*Neopimploides* VIERECK.

XANTHOPIMPLA PUNCTATA (Fabricius).

SYNONYM.—*Neopimploides syleptae* VIERECK.

Viereck's type agrees in every way with what appears to be commonly accepted as the Fabrician species.

(EPIURUS) ZAGLYPTUS CARPOCAPSAE (Ashmead).

This Russian species is a true *Zaglyptus* and runs in Schmiedeknecht's Opuscula Ichneumonologica (p. 1161) to *varipes* (Gravenhorst). Differs in being large red and in having yellow markings on face and scutellums. The host record of the type is undoubtedly erroneous, the species of *Zaglyptus* being parasitic on spider eggs.

ASPHRAGIS? CHINENSIS, new species.

Runs in the keys of Foerster, Ashmead, and Schmiedeknecht to *Asphragis*, but differs from all of the North American and European species referable to that genus that are known to me in the form of the apex of the ovipositor. In the present species this has two notches dorsally a short distance back from the apex, while in the other species there is only one notch.

The species is also rather peculiar in its host relations, the seven specimens having been reared in two lots from some insect that makes a slight gall on twigs of pear by boring in the pith.

Female.—Length, 4 mm.; antennae, 2.75 mm.; ovipositor, 2.5 mm. Head rather full and rounded, distinctly wider than thorax; finely punctate, face and frons densely, temples sparsely so; occiput shallowly concave; frons convex; face with a median rounded elevation, flanked on either side by a shallow impression; malar space equal to basal width of mandible; cheeks convex; clypeus convex, rounded at apex, about twice as long as broad, distinctly discreted; ocelli in a low triangle, postocellar line much longer than ocell-ocular line and nearly three times as long as diameter of lateral ocellus; first joint of flagellum distinctly longer than second, apical joint large. Thorax cylindrical, slightly more than twice as long as high, shining, minutely punctate, densely so on mesoscutum; pronotum polished, largely impunctate; propodeum weakly coriaceous above, polished behind, pleural and apical carinae distinct; legs long, slender; wings large, areolet entirely wanting, nervulus postfurcal, inclivous, basal vein strongly curved, nervellus broken far below middle, inclivous. Abdomen as long as head and thorax together, subpolished-coriaceous, first tergite narrowly sessile, two-thirds as wide at apex as long, with a median subapical impression, dorsal carinae fading out at spiracles, which are distinctly before middle; other tergites transverse; second and third, especially the second, with transverse, subapical impressions, thyridia small but distinct, trans-

verse; ovipositor slender, longer than abdomen, apex subsagittate with two notches dorsally.

Black with abdomen beyond first tergite and legs largely reddish; clypeus, mouth parts, tegulae, humeral spot, subtegular spot, and anterior coxae in front white; a very small spot at top of eye and one on side of mesoscutum brown; antennae black with basal joints brown, especially beneath; hind tibiae at apex and their tarsi slightly infuscate; wings hyaline, venation brown; first tergite at apex reddish, second with a median blackish spot; ovipositor sheath black.

Male.—Differs from female in being more slender and in color as follows: Spot at top of eye together with small spot on lower inner orbit and paired spots on middle of face yellow; coxae black at base, hind pair largely so, otherwise, together with front trochanters, white; abdomen largely black, the red being confined to the lateral margins and sutures.

Host.—Pith-borer in pear twigs.

Type locality.—China.

Type.—Cat. No. 24619, U.S.N.M.

Described from seven specimens in two series. The series from which the type is selected consists of two females and one male reared at quarantine, Washington, District of Columbia, under Federal Horticultural Board No. 29265, from material received from China. Four other females were reared from galls on pear collected by F. N. Meyer in the Pangshan Mountains, North China. These are somewhat larger, more coarsely sculptured, and with the red of abdomen and legs paler than in the others. The hind tibiae and tarsi are entirely red. The brown spot on mesoscutum is larger than in the type. The male and the second female of the first series lack the mesoscutal spots entirely.

Subfamily TRYPHONINAE.

(SYCHNOLETER) ZAGRYPHUS AMERICANUS (Ashmead).

Ashmead's type (Cat. No. 22748, U.S.N.M.) is a male. Both hind tarsi, all but two joints of the left antenna, and all but six joints of the right antenna are missing. It is of about the same length as *nasutus* (Cresson), but more slender with the head smaller. It may be further distinguished from the male *nasutus* as follows:

Head black; clypeus nearly twice as long as face; propodeum strongly mucronate on each side behind; postpetiole as wide at apex as long from spiracles; second tergite as wide at apex as long, its sides divergent. **nasutus.**

Head brown; clypeus only slightly longer than face; propodeum weakly mucronate; postpetiole narrower at apex than long from spiracles; second tergite narrower than long and parallel-sided----------**americanus.**

This species was referred by Davis in the index to his review of the Tryphoninae[7] to the Cryptinae without indicating the genus to which he would refer it.

NELIOPISTHUS NIGER, new species.

Female.—Length, 5 mm.

In my key to females of North American species[8] runs to *nigridorsum* Cushman, agreeing with all of the characters except that the ovipositor is but little longer than the first tergite. It differs further from *nigridorsum* in having the thorax entirely without red laterally. Its much broader abdomen as well as its black thorax at once distinguish it from *densatus* (Say) (=*similis* Cushman). From *luggeri* (Ashmead), to which it is very closely allied structurally, it differs in addition to the color in having the nervellus broken higher (at about the lower third) and in having the postpetiole medially with a deep impression. The male of *luggeri*, which is black, can be distinguished from *niger* by the structural characters.

In structure much as in *luggeri*, with exceptions noted above and with areola distinctly transversely rugose.

Black with the usual pattern of white somewhat less extensive on the face; narrow apical margins of tergites and scutellum reddish; annulus of antenna incomplete and occupying only two joints; legs darker throughout with middle coxa at base, hind coxa entirely, and their trochanters partly piceous to black; hind femur at base, tibia dorsally, and tarsus infuscate.

Type locality.—Florissant, Colorado.

Type.—Cat. No. 24620, U.S.N.M.

One female taken June 21, 1908, by S. A. Rohwer.

BOETHUS NIGRIPENNIS, new species.

Very distinct from all other North American species in size and color.

Female.—Length, 8.0 mm.; antennae, 7.0 mm.

Entire body and legs smooth and polished, clothed with short silky pubescence especially dense on face propodeum and first tergite, which are almost velvety.

Head in front view wider than long; face broader than height of eye; malar space more than half as long as basal width of mandible; clypeus about half as long as interfoveal line; eyes parallel within; antennae rather stout, the flagellum with about 30 joints; mesopleurum entirely without trace of punctiform fovea near posterior margin; radial cell measured on metacarpus barely as

[7] Trans. Amer. Ent. Soc., vol. 24, 1897, p. 346.
[8] Proc. U. S. Nat. Mus., vol. 56, 1919, p. 379.

long as stigma, radius curving sharply forward at apex; intercubitus much shorter than second abscissa of cubitus; second recurrent nearly straight; nervulus postfurcal; nervellus broken at lower two-fifths, inclivous; first tergite about half as wide at apex as long, the spiracles subprominent; gastrocoeli transverse, removed from base of tergite by about their breadth; tergites not membranous in apical middle.

Head and thorax black above, yellowish piceous below; the latter color embracing the face, cheeks, lower part of propleura and pronotum, mesosternum, mesopleurum along posterior suture, and more or less of metapleurum and side of propodeum; clypeus and mandibles yellow; coxae piceous; paler toward apex; trochanters and bases of femora yellowish testaceous as are also the underside of front and middle tibiae, front tarsi and calcaria; legs otherwise black; wings deep black; abdomen rufous, the sternites and edges of apical tergites darker.

Male.—Differs in having head except clypeus and mouth parts, thorax and legs except apices of trochanters and calcaria entirely black.

Host.—Arge salicis.

Type locality.—Ammons, Breckinridge County, Kentucky.

Type.—Cat. No. 24626, U.S.N.M.

Described from three females and six males reared by Prof. H. Garman from cocoons of host collected in drift along Ohio River.

The smallest specimen, a female, is 6 mm. long with antennae practically as long as body. Paratype *a*, female, has the sternites and edges of the tergites almost black.

The type, allotype, and four paratypes are in the National Museum and three paratypes returned to Professor Garman.

The following key will separate the North American species of *Boethus:*

KEY TO NORTH AMERICAN SPECIES OF BOETHUS.

1. Gastrocoeli of second tergite longitudinal; mesopleurum with a punctiform fovea near posterior margin; intercubitus nearly or quite as long as second abscissa of cubitus; nervellus broken at lower fourth ..... 2.
   Gastrocoeli transverse; mesopleurum without fovea; intercubitus much shorter than second abscissa of cubitus; nervellus broken at or above lower third; first tergite not or barely half as wide at apex as long ..... 3.
2. Thorax below and abdomen largely black ..... **aenigmaticus** Viereck.
   Thorax and abdomen entirely red; first tergite fully two-thirds as wide at apex as long ..... **alaingens** Davis.
3. Thorax at least dorsally red, adbomen largely black; wings fuscous. **schizoceri** Howard.
   Head and thorax mostly black or piceous, abdomen red ..... 4.
4. Thorax red dorsally; 5 mm ..... **glabranotus** Davis.
   Thorax black dorsally, sometimes more or less reddish ventrally; 8 mm.; wings deep black ..... **nigripennis** Cushman.

Subfamily OPHIONINAE.

OPHIONELLINI, new tribe.

Subfamily PHARSALIINAE SZEPLIGETI, Gen. Insect., fasc. 34, 1905, p. 3.

As pointed out by Brues[9] *Ophionellus* Westwood and (*Pharsalia* Cresson)=*Hymenopharsalia* Morley are probably distinct genera. The former is unknown to me. Of the latter the National Collection contains four species, two of which are new.

These two genera form a group in which the venation is very anomalous but not, I believe, of subfamily significance. Morley[10] has shown, though his terminology of the veins is very confusing, that what veins are present in the front wing are entirely analogous with those of (*Nototrachys*)=*Anomalon*. One feature of the venation which Morley overlooked, but to which Roman[11] calls attention,

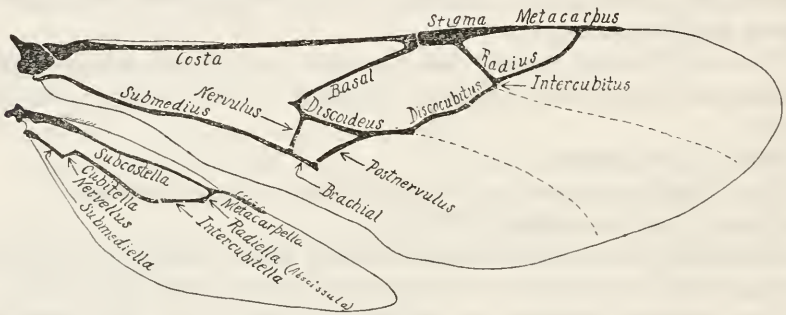

FIG. 1.—WINGS OF HYMENOPHARSALIA TEXANA (CRESSON).

is the movement of intercubitella far basad of its normal position for the Ichneumonidae, farther even than in the Cremastini. This together with the basal position of the nervellus gives the hind wing a strongly braconoid appearance. On the whole the venation (fig. 1) of this group is the extreme development of the form exhibited by *Anomalon* and the Cremastini. This consists in the retreating of the apical transverse veins toward the base of the wing with subsequent weakening of the apical abscissae of the longitudinal veins. Thus in various groups we have the second recurrent very close to, interstitial with, or even basad of the intercubitus; the very narrow base of the second discoidal cell, which in some cases at least seems to be due not so much to the upward movement of subdiscoideus as to the baseward movement of the postnervulus; and the great reduction of the basal abscissa of radiella (abcissula of Roman).

In the present group the baseward trend of the venation has gone so far that the apical abscissa of cubitus and the entire second recur-

[9] Ann. Ent. Soc. Amer., vol. 5, 1912, p. 202.
[10] Rev. Ichn. Brit. Mus., pt. 2, 1913, p. 97.
[11] Ent. voor Tidskr., 1910, p. 185.

rent and subdiscoideus have dropped out, although the longitudinal veins are represented by streaks. The position of the second recurrent is not even indicated (Morley to the contrary), for the bullation of discocubitus is distinct and there is apicad of this no angulation or thickening to indicate the possible position of recurrent. The postnervulus has moved back, the lower end even farther than the upper end, while the trace of subdiscoideus issues from the apex of discoideus instead of from its normal position at some point on postnervulus. The loss of practically the entire median vein in both front and hind wings is a secondary feature.

In the hind wing radiella is represented by a very short abscissula, nervellus is very close to the base, and mediella is missing, while all longitudinal veins apicad of intercubitella and the lower end of nervellus are lost.

Because of the deep mesopleural furrow and certain other characters Roman professes to see a tendency in *Pharsalia* toward *Gasteruption*, in which view I can not share. These features are, it seems to me, secondary developments rather than fundamental. The group is, in my opinion, entirely Ophionine in its relationship, but because of its very anomalous characters fully worthy of tribal rank, falling between the Therionini and (Nototrachini)=Anomalini and somewhat more closely related to the former through *Paranomalon* and *Labrorychus* than to the latter. About the only respect in which it resembles *Anomalon* more than *Paranomalon* is in the possession of only a single calcarium on the middle tibia. In the form of the head with its very broad occiput, which has a secondary carina encircling the cervical foramen; the flat or concave and strongly margined scutellum; the usually swollen hind tarsi; the very narrow stigma; the unswollen middle and front tibiae; the very long trochanters; and short ovipositor it is more like the Therionini.

Genus OPHIONELLUS Westwood.

Ophionellus Westwood, Thes. Ent. Oxon., 1874, p. 128, pl. 24, fig. 3.

In his description of *Ophionellus manni* Brues includes some characters that are apparently generic in significance, as follows: Frons with a deep impression which includes median ocellus; mesoscutum shining reticulate; scutellum flat; mesopleural groove coarsely reticulated.

Genus HYMENOPHARSALIA Morley.

Pharsalia Cresson, Trans. Amer. Ent. Soc., vol. 4, 1872, p. 177. (Preoccupied by *Pharsalia* Thomson.)

Hymenopharsalia Morley, Rev. Ichn. Brit. Mus., Part 2, 1913, p. 97.

Parophionellus Brues and Richardson, Bull. Amer. Mus. Nat. Hist., vol. 33, 1913, p. 495.

The following characters, in addition to those listed by Brues for distinguishing this genus from *Ophionellus* Westwood, alternate with those given above under *Ophionellus:* Frons convex; mesoscutum opaque, coarsely, reticulately punctured, rarely with lateral lobes polished; scutellum concave; mesopleural groove polished above and more or less rugose below.

The following key includes all of the described species, except *Pharsalia albofacialis* Cameron, as well as two new species. Cameron's species, which is based entirely on a figure, was synonymized by Morley with *virginiensis* (Cresson) without any explanation of his reasons for so doing.

KEY TO SPECIES OF HYMENOPHARSALIA MORLEY.

1. Antennae white annulate ..... **mexicana** Morley.
   Antennae not white annulate ..... 2.
2. Head and lateral lobes of mesoscutum largely smooth ..... 3.
   Head and lateral lobes of mesoscutum sculptured, the latter sometimes with a small polished area; hind basitarsus swollen ..... 4.
3. Scape below and tegulae yellow; face black and yellow—**annulipes** (Cameron).
   Scape and tegulae black; face entirely yellow; hind basitarsus not swollen. **schwarzi**, new species.
4. Clypeus strongly rounded at apex; face at clypeal foveae not more, usually less, than half as broad as frons and narrower than clypeus ..... 5.
   Clypeus narrowly truncate at apex; face yellow, at clypeal foveae more than half as broad as frons and scarcely narrower than clypeus. **texana** (Cresson).
5. Face entirely yellow, about half as broad as frons; eyes with long dense hair ..... **foutsi**, new species.
   Face more or less black; eyes with shorter sparser hair ..... 6.
6. Mandibles, clypeus, and face except in middle yellow; hind tibia with a subbasal white annulus ..... **virginiensis** (Cresson).
   Black without white or yellow markings except narrow inner orbits. **bridwelli**, new species.

HYMENOPHARSALIA MEXICANA Morley.

Hymenopharsalia mexicana Morley, Rev. Ichn., Part 2, 1913, p. 99.

The annulated antennae are very exceptional for the genus, while the entirely black face with yellow mouth and scape is very characteristic.

HYMENOPHARSALIA ANNULIPES (Cameron).

Pharsalia annulipes Cameron, Timehri: Journ. Roy. Agr. and Comm. Soc. Brit. Guiana, vol. 1 (ser. 3), 1911, p. 185.

The smooth head and lateral lobes of mesoscutum ally this species more closely to the next following species than to any of the others, while its yellow scape and tegulae readily distinguish it from any of the species except possibly *mexicana*. The latter and *texana* have the

scape yellow, but Morley does not give the color of the tegulae of *mexicana*, while in *texana* they are black.

HYMENOPHARSALIA SCHWARZI, new species.

At once distinguishable from any of the four following species by the unswollen hind basitarsus, the weakly sculptured vertex and lateral lobes of mesoscutum, and from all but *texanus* and *foutsi* by the entirely yellow face.

Female.—Length, 11 mm.; antennae, 4 mm.; front wing, 4 mm.

Head from above slightly wider than thorax; temples flat, about one-third as long as the shortest diameter of eye, densely clothed with long white pile; occipital carina nearly touching ocelli, obsolete in middle; secondary carina of occiput so strong that when head is viewed from above it appears bidentate on each side, the carina originating on each side very close to base of mandibles and apparently complete above cervical foramen; occiput polished and impunctate medially above; vertex smooth and subpolished with a few punctures between the ocelli; frons densely punctate in middle, smooth at sides; face polished but so densely covered with white pile that surface is obscured, scarcely half as wide below as at antennae; inner margins of eyes sinuately emarginate opposite antennae; malar space very short; clypeus as long as wide, its apex broadly subtruncate, mandible with a distinct tooth on lower margin at base of lower tooth, upper tooth hardly twice as long as lower; antennae longer than head and thorax, flagellum filiform, 23-jointed, first joint as long as second and third combined, middle joints more than twice as long as thick; furrow of pronotum sharply limited behind by a carina, foveolate in front and below, punctate behind, polished in middle; mesoscutum polished at sides, prescutum rugulose-punctate, notauli irregularly reticulate, lateral margins foveolate; mesopleural furrow transversely rugose below, polished above, with anterior and posterior margins more or less distinctly foveolate; mesosternum with a sharply defined longitudinal, glabrous, polished spot on each side; propodeum narrow, its sides not bulging, median furrow and lateral carinae distinct, reticulation almost obscured by pubescence, "neck" hardly reaching to middle of hind coxae; radial cell very small, shorter than apical abscissa of metacarpus; intercubitus distinct; hind basitarsus slender; hind coxae in their greatest thickness hardly a third as thick as long; abdomen opaque, very densely pubescent; ovipositor sheath as long as third tergite.

Black; face, clypeus, cheeks, mandibles, orbits opposite antennae, and a small spot near top of each eye behind yellow; antennae entirely black; tegulae black; wing venation brown; front and middle coxae, basal joint of their trochanters, and annuli at bases of their

tibiae and their tarsi largely, basal portion of basal joint of hind trochanter, annulus at base of hind tibia, and calcaria white; front legs otherwise pale testaceous; middle femur darker testaceous, its tibia and apex of tarsus piceous; hind leg largely piceous, extreme base of femur and apical joint of trochanter paler; abdomen black with sutures slightly reddish; sheath pale at base, blackish at apex.

Type locality.—Cacao, Trece Aguas, Alta Vera Paz, Guatemala.

Type.—Cat. No. 24621, U.S.N.M.

One specimen taken by Schwarz and Barber.

HYMENOPHARSALIA VIRGINIENSIS (Cresson).

Pharsalia virginiensis CRESSON, Trans, Amer. Ent. Soc., vol. 4, 1872, p. 177.
Hymenopharsalia virginiensis MORLEY, Rev. Ichn. Brit. Mus., Part 2, 1913, p. 99.
Parophionellus virginiensis Brues and Richardson, Bull. Amer. Mus. Nat. Hist., vol. 33, 1913, p. 495. (By generic synonymy.)

This species is represented in the National Museum by two females from Falls Church (L. A. Stearns) and Glencarlyn (C. T. Greene), Virginia.

It is very similar in structure and color to *schwarzi* Cushman, but has the head strongly sculptured above; occipital carina strong medially, secondary carina weak; antennae not longer than head and thorax, thickened in the middle with the joints relatively much shorter; mesoscutum coarsely sculptured except small polished areas on the lateral lobes; pronotal and mesopleural furrows more extensively sculptured; propodeum more distinctly reticulated; apical abscissa of metacarpus barely half as long as radial cell; intercubitus obsolete; hind basitarsus distinctly swollen; ovipositor sheath shorter than third tergite; face and clypeus black medially; venation except on front margin of wing pale.

Pharsalia albofacialis Cameron, synonymized by Morley with this species, shows in the figure none of the characteristic leg markings of *virginiensis*, and since this figure is the only description of the species Morley's synonymy is unjustified. Moreover, Morley apparently did not know *virginiensis*, for he refers to this species specimens from Mexico and Brazil said to have the antennae half as long as the body, which they certainly are not in *virginiensis*. I am inclined to suspect that he had *Ophionellus fragilis* Westwood or *manni* Brues at least in his Brazilian specimen.

HYMENOPHARSALIA FOUTSI, new species.

More closely allied to *virginiensis* (Cresson) than to any of the other species, but distinguishable by its entirely yellow and broader face.

Female.—Length, 9.5 mm.; antennae, 3 mm.

Head about as long as broad; face at clypeal foveae nearly half as broad as frons; vertex closely punctate; secondary carina of occiput rather strong; antennae about a third longer than head and thorax, middle joints less than twice as long as thick. Mesoscutum without polished areas, reticulate-rugose medially and anteriorly, coarsely punctate laterally; pronotal furrow not carinate behind, transversely striate, as is also for the most part the mesopleural furrow; glabrous spots on mesosternum subopaque; propodeum rather short, its side seen from above strongly rounded, median furrow and lateral carinae distinct, reticulation obscure, "neck" reaching middle of hind coxae; apical abscissa of metacarpus about half as long as radial cell; intercubitus distinct; hind basitarsus swollen; hind coxae more than a third as thick as long. Abdomen opaque, pubescent; ovipositor sheath longer than third tergite.

Color as described for *schwarzi* except that scape is yellow beneath.

Type locality.—Glen Echo, Maryland.

Type.—Cat. No. 24622, U.S.N.M.

Two females, the type taken by R. M. Fouts July 31, 1917, and the paratype by J. C. Bridwell September 12, 1920, at the same locality.

HYMENOPHARSALIA BRIDWELLI, new species.

Female.—Length, 13 mm.; antennae, 5 mm.; front wing, 5 mm.

Distinct in its almost entire black color, the only pale markings being narrow brownish streaks on inner and upper orbits, while the front femora are piceo-testaceous. Structurally it is more closely allied to *virginiensis* and *schwarzi* than to *texana.*

Head from above not wider than the thorax, from in front longer than wide, the face below more than half as wide as at antennae, but much narrower than clypeus; face, clypeus, cheeks, and temples densely punctate; vertex and frons coarsely, reticulate-rugose; occiput polished throughout, the occipital carina not interrupted medially, the accessory carina obsolete; antennae longer than head and thorax; slightly thickened before middle and tapering thence toward apex; flagellum 25-jointed, middle joints less than twice as long as thick; mandible apparently not angulate on posterior margin; clypeus sharply rounded at apex with the margin slightly reflexed; lateral impression of pronotum roughened, not defined posteriorly by a carina; mesoscutum very coarsely reticulate-rugose, with a deep furrow posteriorly continuous with that of the scutellum; mesopleural furrow entirely transversely rugose; mesopleurum longitudinally reticulate-rugose under the dense pile, glabrous spot subopaque; scutellum deeply concave, punctate; propodeum with distinct longitudinal carinae and faintly reticulate, medially deeply reticulately furrowed, the "neck" reaching barely a third the length

of the hind coxae; hind tarsi distinctly thickened; apical abscissa of metacarpus nearly as long as radial cell; intercubitus obsolete; ovipositor sheath barely half as long as third tergite.

Entirely black except very narrow brownish inner and superior orbits, reddish front legs, bases of apical trochanter joints of middle and hind legs, and hind calcaria, and whitish front and middle calcaria; anterior margin of front wing, apical abscissa of discoideus, and metacarpella piceous, venation otherwise colorless.

Type locality.—Great Falls, Virginia.

Type.—Cat. No. 24623, U.S.N.M.

One female captured by J. C. Bridwell, July 5, 1920.

HYMENOPHARSALIA TEXANA (Cresson).

Pharsalia texana CRESSON, Trans. Amer. Ent. Soc., vol. 4, 1872, p. 177.
Hymenopharsalia texana MORLEY, Rev. Ichn. Brit. Mus., 1913, p. 98.
Parophionellus texanus BRUES and RICHARDSON, Bull. Amer. Mus. Nat. Hist., vol. 33, 1913, p. 495. (By generic synonymy.)

Distinct in many ways from any of the other three species known to me. The face is much broader with eyes less strongly convergent; clypeus broad with the sides of the margin running obliquely down to the truncate apex; antennae barely as long as head and thorax, and stout; face strongly punctured; vertex densely punctured, the punctuation extending far down on the occiput and obscuring the occipital carina medially; pronotal furrow opaque and not defined by a carina behind; glabrous spot of mesosternum not so well defined and more in the form of a shallow furrow; propodeal "neck" more than half as long as hind coxae; sides of propodeum swollen; apical abscissa of metacarpus less than half as long as radial cell; intercubitella much more than twice as long as abscissula; hind basitarsus not only enlarged but distinctly swollen, being thicker in middle than at base or apex.

Entire face and orbits except at top of eye, clypeus, mandibles, and scape yellow; abdomen in middle and legs largely red.

There are 15 females and 5 males in the National Museum, from Texas, New Mexico, and Kansas.

The male has the hind tarsi even more swollen than the female; the outer genital valves are very slender, white at base, and black at apex.

Tribe CAMPOPLEGINI.

Genus OLESICAMPE Foerster.

To this genus should be referred *Homalomma pteronideae* Rohwer and *Prionopoda beginii* Ashmead.

CALLIDORA PALLIDA, new species.

Runs in Foerster's key to *Callidora*, though not agreeing with that genus in the form of the areolet. With Thomson's description of the

genus it disagrees in having the vertex rather broad transversely; the antennal annulus entire; thorax rather short and robust; areolet small, with recurrent beyond the middle; recurrent more strongly oblique; petiole not long and slender; second tergite short and broad, with spiracles at about the middle; postpetiole broader than long; legs rather stout. It should be noted that the two species referred to the genus by Thomson can not be run there in the original description because of the position of the spiracles of the second tergite, and neither can therefore serve as the genotype. The annulated antennae are so unusual in the Campopleginae and the species agree so closely otherwise with Foerster's description that there can be little doubt that they are properly referred to the genus.

It will be noted that all the differences noted above between the present species and Thomson's description, with the exception of the one color character, are differences of habitus and venation, which are of little importance in the Campoplegini. In the more important characters annulated antennae, strong costulae, and long calcaria it agrees with, and even exceeds Thomson's species, *Callidora annellata.*

Female.—Length, 8 mm.; antennae, 6 mm.

Head transverse; temples strongly sloping; vertex behind ocelli precipitous and medially impressed; vertex distinctly broader than face; face and clypeus granularly opaque, with dense white pubescence, separated by a very shallow, scarcely perceptible impression; clypeus with apex narrowly reflexed and broadly submarginate; malar space half as long as basal width of mandible; ocelli rather large, the ocellus, ocell-ocular line, and post-ocellar line in the ratio of 1:1:1.5; flagellum rather stout, attenuate at apex, densely pilose. Thorax, including propodeum, granularly opaque, short and thick, the propodeum extending only slightly over base of coxae; lateral impressions of pronotum and mesopleura transversely striate; mesoscutum very densely granular and densely white pubescent; propodeum transversely striate near apex; median area slightly concave; costulae strong; spiracles large, broadly oval; hind femora and tibiae rather stout, tarsi slender, barely as long as tibiae, basal joint as long as other four together, calcaria very long, inner one two-thirds as long as basitarsus; areolet small, nearly triangular, petiole longer than rest of first intercubitus; disco-cubitus without ramellus; second recurrent and nervulus inclivous, latter strongly postfurcal. Abdomen rather short and broad; petiole stout, postpetiole broader than long from spiracles, granular; second tergite broader at apex than long, with distinct, transversely oval gastrocoeli more than their length from base, spiracles at about middle; suture between second and third tergites constricted; apex of abdomen slightly compressed.

Ferruginous; face, clypeus, lower cheeks, scape and pedicel beneath, pronotum, scutellum and postscutellum yellowish; mandibles, annulus occupying flagellar joints 10–17, tegulae, and subalar spot white; legs testaceous, trochanters, front and middle tibiae basally, and all tarsi except apical joints white; wings hyaline, venation brown.

Type locality.—Montgomery County, Pennsylvania.

Type.—Cat. No. 24624, U.S.N.M.

One female captured June 21.

Tribe CREMASTINI.

(OLIGOTMEMA) DEMOPHORUS PRIMA Cushman.

Since the description of this genus and species was written I have found in the miscellaneous material in the National Museum 3 additional females and 54 males. These are all from the Baker collection and all from Colorado.

The male differs from the female practically only in the form of the abdomen. In the male this is narrower and has the tergites beyond the third less strongly retracted, though together not much longer than the third.

I am indebted to Dr. A. Roman, to whom paratypes of this species were sent, for the correct placing of the species in *Demophorus* Thomson.

CREMASTUS (ZALEPTOPYGUS) CHAMPLAINI, new species.

Because of the entirely ferruginous coxae this species will not run in my key [12] to the neighborhood of its closest relative, *dorcaschemae* Cushman.

The most striking differences between this and *dorcaschemae* are found in the clypeus and the petiole of the abdomen. In the present species the clypeus is elevated medially just before the apex, sometimes almost conically, and impressed laterally (in *dorcaschemae* there is the merest trace of this structure). In *champlaini* the petiole is much more distinctly decurved than in *dorcaschemae*.

Female.—Length. 10 mm.; antennae, 6.5 mm.; ovipositor, 2.5 mm.

Head from above transversely oblong, the temples straight for a short distance, then rather suddenly changing to nearly perpendicular to the longitudinal axis of body; from in front transversely suboval, distinctly broader than long, with the eyes large and prominent, but separated by their own greatest length and slightly divergent below; head opaque, sparsely and finely punctate on frons, vertex, and temples, more densely and coarsely so on face; clypeus shining, very weakly and sparsely punctate; malar space two-thirds basal width of mandible; diameter of ocellus and postocellar and

[12] Proc. U. S. Nat. Mus., vol. 53, 1917, pp. 511–516.

ocell-ocular lines about equal. Thorax elongate, subcylindrical, the propodeum extending nearly to middle of hind coxae, subopaque and rather sparsely punctate, more densely so on mesoscutum and scutellum; pronotum polished in the scrobes, as is also the speculum; propodeum transversely rugose except basal lateral areas, which are subpolished and sparsely punctate, carinae very strong, in profile strongly angularly curved from base to apex, areola fully as long as petiolar area; stigma broad with radius beyond middle; metacarpus slightly longer than stigma; basal vein nearly straight and forming an acute angle with the median; second discoidal cell much longer than the first brachial; upper abscissa of postnervulus little more than half as long as lower; mediella obsolete basally nearly to nervellus; legs rather stout, hind tarsus but slightly longer than tibia, coxae opaque shagreened and sparsely punctate. Abdomen rather stout; first tergite much longer than second, distinctly decurved, petiole flattened above and below, laterally with a deep foveolate groove, merging gradually with postpetiole which is flattened with a distinct impression dorsally just before spiracles; postpetiole and second tergite longitudinally aciculate; other tergites opaque shagreened with very minute sparse punctures; ovipositor sheath one and a half times as long as first tergite.

Black; orbits, narrowly interrupted on vertex and at sides of face, clypeus laterally at apex, mandibles, tegulae, and wing radices yellow; legs ferruginous, hind tibia and tarsus fuscous, femur pale at apex; wings hyaline, smoky at apex, veins fuscous, stigma paler; antennae entirely black.

Male.—Length, 9 mm.; antennae, 7 mm.

Except that the antennae are relatively longer, the orbits more broadly yellow and uninterrupted except very narrowly on vertex, the clypeus more strongly elevated and more extensively yellow, the ocelli distinctly longer than the ocell-ocular line, and the abdomen more slender, very like the female.

Host—Elaphidon? in *Cercis canadensis.*

Type locality.—Rockville, Pennsylvania.

Type.—Cat. No. 24625, U.S.N.M

Described from three females and four males reared by A B. Champlain and J. N. Knull. One paratype of each sex is returned to the Pennsylvania Bureau of Plant Industry, Harrisburg.

The size varies from 10 to 8 mm., paratype *a*, female, being the smallest.

Family BRACONIDAE.

UROSIGALPHUS CRASSISCULPTUS, new species.

Distinct from all other species having the interocellar space elevated by its very gross sculpture, very high thornlike vertical elevation, and piceous legs.

Male.—Length, 6 mm. Head broad behind eyes, the temples weakly sloping; vertical prominence very high, in profile thin at apex and thornlike; vertex and temples coarsely punctate, the vertex very grossly so; frons reticulate punctate; face very coarsely and unevenly rugose with more or less distinct interspersed punctuation; clypeus transversely rugose with some punctures; labium densely coarsely punctate, truncate at apex; malar space as long as basal width of mandible; antennae 16-jointed. Thorax very grossly sculptured; pronotum with large round punctures becoming elongate and foveiform along dorsal and posterior margins; mesoscutum reticulate rugose except in middle of each of the three lobes, where it is polished with some fine punctures, prescutum divided medially by an irregular ridge; scutellum and dorsal and lateral faces of propodeum reticulate rugose; mesopleurum except centrally coarsely foveate rugose, centrally polished, the foveae of the oblique impression long and foveolate, mesosternum largely foveate, rugose but with a small triangular polished and punctate area on each side of middle; posterior face of propodeum perpendicular, coarsely punctate. Abdomen coarsely reticulate rugose, apically with two teeth about twice as high as their basal thickness; outer gonapophyses short, straight.

Black; legs piceous; wings subhyaline, slightly infumate in apical half.

Type locality.—Agricultural College, Michigan.

Type.—Cat. No. 24627, U.S.N.M.

Described from three males.

UROSIGALPHUS BARBERI Crawford.

About 35 additional specimens from such widely separated localities as Orange, New Jersey; Washington, District of Columbia; Arlington and Fort Monroe, Virginia; Boerne and Brownwood, Texas; and Pachico Pass, California, seem all to belong here. There is considerable variation in sculpture, size, apparent length of ovipositor, number of antennal joints, and position and size of the abdominal tubercles. Nearly all of the specimens were reared at the Bureau of Entomology from various species of *Balaninus* in acorns.

It agrees with *crassisculptus* Cushman and differs from *armatus* Ashmead in having the hind legs short, the femur not reaching the apex of the abdomen, and the tarsus shorter than the tibia with short, thick joints; face nearly twice as wide as greatest diameter of eye; abdomen in female tuberculate at apex; ovipositor not or barely longer than the body; and the outer gonapophyses in the male very slender and nearly straight, not strongly curved near apex as in *armatus*.

From *crassisculptus*, in addition to the characters mentioned under that species, it differs principally in having the outer gonapophyses in the male very long and conspicuous.

UROSIGALPHUS ARMATUS Ashmead.

In addition to the types, there are four females and one male of this species in the National Collection, mostly associated with chestnut or chinquapin (*Castanea dentata* and *Castanea pumila*), three of the females having been reared from *Balaninus*, probably *proboscideus*.

As in *barberi* there is considerable variation in size, sculpture, and length of ovipositor, the last, however, being always much longer than the body. In the female it is also at once distinguishable from its nearest relatives by the lack of apical abdominal tubercles, and in the male by the long curved outer gonapophyses.

Pierce [13] writes that he has seen specimens of this species in the National Museum from West Virginia reared from *Conotrachelus*, but no such specimens are to be found either under this or any other name.

Chittenden [14] writes that this species attacks all of the common species of *Balaninus*. Most of the specimens on which this statement is based, however, have been examined and with one exception prove to be *barberi* Crawford.

UROSIGALPHUS FEMORATUS Crawford.

Additional specimens are from Washington, District of Columbia; Cedar Point, Maryland; Southern Illinois (Robertson); Onaga, Kansas (Crevecoeur); and Victoria, Texas (J. D. Mitchell). The Washington specimen was reared under Hunter No. 1334 as a parasite of *Tyloderma foveolatum* in the stem of evening primrose.

UROSIGALPHUS NEOMEXICANUS Crawford.

There is an additional female from the type locality and also a male taken at Dallas, Texas, on *Salvia lanceolata*, by F. C. Bishopp.

UROSIGALPHUS OTIDOCEPHALI, new species.

Runs in Crawford's key [15] to *hubbardi* Crawford, agreeing in all the key characters except size.

Male.—Length, 3 mm. Head shining, sparsely punctate, most distinctly so on vertex; frons with a median groove which extends downward well beyond antennae and ends in a small pit; vertex be-

[13] Journ. Econ. Ent., vol. 1, 1908, p. 386.
[14] Bur. Ent. Bull. 44, 1904, p. 33.
[15] Ins. Ins. Mens., vol. 2, 1914, p. 22.

tween ocelli not elevated; clypeus coarsely punctate, with a reflexed margin; malar space longer than basal width of mandible; antennae barely as long as head anad thorax, 16-jointed. Thorax shining; pronotum coarsely punctate; mesoscutum obscurely and minutely punctate, medially foveatae-punctate; scutellum not elevated at apex, reticulate with two large more or less distinct foveae at apex, the furrow quadrifoveate; mesopleurum reticulate above and below, polished in middle, the posterior groove foveolate; metapleurum and propodeum reticulate, the latter divided into superior and posterior faces by a prominent carina, the posterior face more finely sculptured and with a median irregularly cordate area set off by a carina; legs stout, the hind femur not reaching apex of abdomen; radial cell acute at apex. Abdomen longitudinally striate for about two-thirds its length, the interspaces and the apex punctate, without tubercles at apex.

Black; front and middle legs, hind trochanters, and base of tibia testaceous to ferruginous, hind legs otherwise black; antennae basally and mandibles ferruginous.

Host.—*Otidocephalus* in Sycamore.

Type locality.—Harrisburg, Pennsylvania.

Type.—Cat. No. 24628, U.S.N.M.

Since the above description, based on five males reared by A. B. Champlain and J. N. Knull, of the Pennsylvania Bureau of Plant Industry, Harrisburg, was set in type, nine additional males and seven females have been received from Mr. Champlain. The female differs in no important particular from the male. The ovipositor extends beyond the apex of the abdomen a little more than a third the length of the abdomen.

Five paratypes are returned to the Pennsylvania Bureau of Plant Industry, Harrisburg.

UROSIGALPHUS PINI, new species.

Closely allied to *otidocephali* Cushman, from which it may be distinguished at once by the red hind femora.

Male.—Length, 3 mm.

Compared with *otidocephali* it differs further as follows: Temples nearly as wide as the eyes for a short distance; scutellum more finely sculptured, not bifoveate apically; punctuation of mesopleurum finer and more extensive, the speculum being reduced to a small subcircular area slightly cephaled of the middle; radial cell obtuse at apex; longitudinal rugae of abdomen less prominent and more confused; legs ferruginous, hind coxae, tibiae, and tarsi piceous.

Type locality.—Patrick's Creek, California.

Type.—Cat. No. 24629, U.S.N.M.

One specimen collected September 14, 1916, on *Pinus attenuata* by J. E. Patterson. (Hopkins U. S. No. 14289f.)

PHANEROTOMA ZETEKI, new species.

Female.—Length, 4.5 mm.; antennae, 4.0 mm.

Head from above transverse, the occiput very deeply and broadly concave, temples strongly convex; eyes very prominent, nearly hemispherical; ocellar triangle nearly as broad as ocell-ocular line; malar space two-thirds of basal width of mandible; clypeus deeply separated medially, with two indistinct teeth on apical margin; head generally densely, finely punctate, temples and cheeks more sparsely so, clypeus practically impunctate; lower tooth of mandible nearly as long as upper; antennae with more than 30 joints, scape barely twice and first joint of flagellum three times as long as thick, joints toward apex very short moniliform. Thorax dorsally densely punctate, scutellum more sparsely so and polished, mesoscutum medially rugose; notauli well defined, complete; pleura minutely rugosopunctate, with a poorly defined longitudinal furrow; propodeum irregularly rugose, the areolation poorly defined, angulate posteriorly; hind legs, especially the tibiae, stout, the tarsus shorter than the tibia; radiella obsolete to base. Carapace longitudinally striate, flattened and truncate at apex, first tergite longest, third slightly longer than second; hypopygium extending distinctly beyond apex of carapace; ovipositor exserted.

Flavous, head more ferruginous, with the following black or blackish markings: stemmaticum, middle of mesoscutum, spot above base of wing, apex of tegula, scutellum, postscutellum, most of propodeum, hind tibia at base and apex with a line down each side, and a large spot covering most of the third tergite and the apical middle of second; wings hyaline, stigma, radius, first intercubitus, and basal abscissa of cubitus and junction of discoideus and nervulus fuscous, the stigma paler at apex, venation otherwise ferruginous to stramineous; a broad yellow stain at junction of basal vein with parastigma; legs stramineous.

Male.—Differs only in sexual characters.

Type locality.—Corozal, Canal Zone, Panama.

Type.—Cat. No. 24630, U.S.N.M.

Four females and one male reared (host not indicated) by Mr. J. Zetek.

PHANEROTOMA UNIPUNCTATA, new species.

Female.—Length, 7.0 mm.; antennae (broken).

Head from above nearly subquadrate, the occiput deeply concave, temples very strongly convex; eyes very prominent hemispherical; ocellocular line nearly twice as broad as ocellar triangle; malar space two-thirds basal width of mandible; clypeus indistinctly separated medially, with three distinct teeth on apical margin; vertex and face rugose; clypeus and temples punctate, the former very finely so;

lower tooth of mandible very short; scape nearly three times and first joint of flagellum about six times as long as thick. Mesoscutum rugulose punctate, rugose in middle, notauli poorly defined; scutellum sparsely punctate; pleura reticulate above, sparsely punctate, the longitudinal furrow poorly defined; propodeum reticulate; the areolation rather well defined, angulate posteriorly; middle tibia with a distinct swelling above basad of middle; hind tibia stout, hardly longer than tarsus; radiella distinct, though weak. First and second tergites longitudinally striate, third finely reticulate punctate, strongly arched and roundly emarginate at apex; third tergite much the longest, first slightly longer than the second; hypopygium not reaching apex of carapace; ovipositor slightly exserted.

Flavous with following markings in brown to black: Middle of vertex and frons and spot behind top of each eye (brown), median spot on mesoscutum, scutellum, postscutellum, spot above base of each wing, apex of tegula, all tibiae, base of middle and hind tarsi, and a large spot in middle of second tergite. Wings hyaline with an obscure cloud from basal vein nearly to apex, venation stramineous except stigma, discoideus, brachius, and nervulus, which are fuscous; apical two-thirds of hind wing clouded.

Type locality.—Manaos, Brazil.

Type.—Cat. No. 24631, U.S.N.M.

One specimen taken by Miss H. B. Merrill.