

NOTES AND DESCRIPTIONS OF NORTH AMERICAN
PARASITIC HYMENOPTERA.—IX.*

BY CHARLES T. BRUES.

FAMILY ICHNEUMONIDÆ.

SUBFAMILY CRYPTINÆ.

Pezomachus Gravenhorst.

The small wingless members of this genus of Cryptinæ are very abundant and have been described in great numbers by European entomologists. As early as 1851 Förster¹ enumerated over 200 species from Europe, and although many of these are of extremely doubtful specific value, a great many continental species exist. Very recently Morley² lists 58 from the British Isles, so evidently the thirty or forty known North American forms represent but a fraction of our fauna. In a previous paper I attempted to give a table for the separation of the then known forms³ and following is another to aid in the identification of the ones added in the present paper.

Key to the new species of *Pezomachus* here described.

1. Metathorax with a complete transverse carina separating its dorsal and posterior surfaces.....2.
- Metathorax without such transverse carina.....**P. cockerelli.**
2. Petiole of abdomen with more or less distinctly projecting angular tubercles or teeth at the spiracles.....3.
- Petiole of abdomen with no trace of spiracular tubercles.....7.
3. Postpetiole longitudinally aciculated; antennæ 20-21 jointed
.....**P. foersteri.**
- Postpetiole shagreened or punctulate.....4.
4. Males5.
- Females6.
5. Antennæ 24-jointed**P. urbanus.**
- Antennæ 29-jointed**P. fenestralis.**

1) Monographie der Gattung *Pezomachus*. Berlin, Verlag der Nicolaischen Buchhandlung.

2) The Ichneumons of Great Britain. Vol. 2. Plymouth, 1907.

3) Trans. Amer. Ent. Soc., Vol. 29, pp. 119-121 1903.

* Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University. No. 26.

6. Abdomen entirely black, scutellum indicated as short and broad **P.obesus.**
 Abdomen yellowish on the tips of the first and second segments; scutellum indicated as a small convex tubercle **P.habilis.**
7. Male, antennæ 21-jointed, abdominal hairs sparsely placed. **P.foveatus.**
 Females8.
8. Hairs of abdomen sparsely placed; scutellum not at all indicated **P.insolens.**
 Hairs of abdomen densely placed; scutellum indicated by a distinct grooved line basally **P.delumbis.**

Pezomachus cockerelli sp. nov.

Female. Length 4 mm. Piceous black; base of antennæ, anterior part of prothorax and tip of first abdominal segment brownish yellow. Legs very dark fuscous. Head above shining, very faintly shagreened; slightly less than half as thick as broad; the occiput feebly excavated. Ocelli in an equilateral triangle, closer to each other than to the eye margin. Front almost twice as wide as either eye, with a broad, shallow depression above the base of the antennæ. Seen from the side, the head is much produced into a ledge at the insertion of the antennæ. Malar line long, although but little more than half as long as the broad front. Upper edge of clypeus far below the lower corner of the eye which is equidistant from the vertex and lower corner of the cheek. Clypeus moderately convex with a fovea at each side. Thorax long, three and one-half times as long as broad. Meso- and metanotum shining and scarcely shagreened. Metathorax evenly convex, without any transverse carina although this is indicated on the sides by a slightly raised line. Petiole of abdomen rather long and broad at the tip which is nearly three times as broad as the base; its length equal to twice its greatest width; spiracular tubercles slightly projecting; spiracular carina obsolete before the spiracle, visible only behind it halfway to the apex of the petiole. Abdomen broad, fully twice as wide as the thorax; smooth and shining; its pale hairs densely placed. Second segment the longest; others gradually decreasing in length. Ovipositor only two thirds as long as the petiole. Pleuræ regularly shagreened and subshining. Legs stout, the longer spur of the hind tibia one-third as long as the metatarsus which is twice as long as the second tarsal joint.

Florissant, Colorado, July 8, 1906. Collected by Professor T. D. A. Cockerell.

Pezomachus foersteri sp. nov.

Female. Length 4 mm. Head twice as broad as thick, subopaque and densely shagreened or punctulate above, the lateral ocelli considerably closer to the eye-margin than to the median ocellus. Front fully twice as broad as either eye, scarcely narrowed above by the orbits. Malar space short, the malar line somewhat less than one-half as long as the width of the face. Clypeus short, deeply separated from the face, its lateral foveæ large. Cheeks smooth and polished. Antennæ 20-21 jointed; basal flagellar joint slightly longer than the second which is three times as long as broad; fifth twice as long as thick; those near the apical third of the antennæ quadrate; apical joint nearly twice as long as the penultimate. Thorax considerably less than three times as long as wide; pronotum (exclusive of the collar) visible from above only as a narrow band; mesonotum strongly convex; as long as broad, its surface coarsely shagreened and somewhat shining; scutellum not at all indicated although there is an elevated ridge behind the mesonotum which extends entirely across the thorax. Metathorax strongly gibbous anteriorly, but sharply declivous from before the middle; in front of the carina it shows a number of irregular longitudinal wrinkles, but is smooth on the posterior slope. Transverse carina complete, very sinuous medially and continuing to the posterior angles of the metathorax where it meets a short oblique carina, forming a triangular areola above each coxa. Petiole of abdomen long and evenly dilated toward the base: three times as long as broad at tip and one third as broad at base as at tip; spiracular tubercles moderately large, angular; postpetiole longitudinally aciculated. Body of abdomen broad, the second and third segments subequal in length, third more shining; abdominal hairs sparsely placed. Ovipositor half as long as the petiole. Legs rather slender; longer spur of hind tibia one third as long as the metatarsus which is twice as long as the second tarsal joint. Head, thorax, legs, first segment of abdomen, and antennæ except their darker tips, reddish ferruginous; abdomen black, the petiole and second segment, obscurely yellowish at their tips.

Austin, Texas; April and May.

Structurally this species is closely related to *P. obesus*, although it is much smaller and lighter colored. The sculpture of the head above and the mesonotum is finer; the scutellum is not distinctly separated by a transverse furrow as in the former species; and the petiole is less strongly dilated behind the spiracles.

Pezomachus urbanus sp. nov.

Male. Length 5 mm. Black, varied with paler markings. First five joints of antennæ brownish yellow, remainder fuscous or piceous; entire prothorax, sides of mesonotum and most of mesopleuræ honey yellow. Legs yellowish brown, the hind femora and the hind tibiæ near base and at apex infuscated. Abdomen with yellow bands at the apices of the first four segments. Head subopaque and shagreened above, twice as wide as thick. Ocelli in a nearly equilateral triangle, the lateral ones as far from the median one as from the eye margin. Occiput margined. Front above antennæ shagreened, one third wider than either eye. Upper edge of clypeus somewhat above a line drawn between the lower edges of the eyes; clypeus with a deep fovea at each side. Malar space with a carina, more distinct below, one-half as long as the first flagellar joint. Antennæ 24-jointed, as long as the body; first flagellar joint four times as long as thick and one fourth longer than the second; following very gradually growing shorter: those at the apical third of the antenna twice as long as broad. Thorax three times as long as wide, subopaque and shagreened throughout. Mesonotum one third longer than wide, behind the tegulæ with a sharply raised lateral margin and on each side opposite the tegulæ with a slight depression, anteriorly sharply narrowed. Scutellum strongly elevated, with a depressed line across its base. Metathorax with a complete sinuous carina limiting its posterior face which connects with a sharply defined quadrate areola on each side above the posterior coxa; also with an obsolete longitudinal carina outside the spiracles. Abdomen as long as the head and thorax, the petiole twice as wide at apex as at its narrowest basal portion, the spiracular tubercles only slightly projecting; on each side with a complete carina including the spiracles and another one along the lower edge of its lateral face. Petiole and base of second segment somewhat opaque; remainder of abdomen shining; its hairs sparsely placed. Legs rather stout, at least the femora; longer spur of hind tibia one-third as long as the metatarsus which is twice as long as the second tarsal joint. Pleuræ rather shining, shagreened, the mesopleuræ with a few wrinkles along their anterior and posterior margins.

New York City, collected by Mr. J. R. de la Torre Bueno.

This species is very similar to *P. foveatus*, but the greater number of joints in the antennæ and the more complete areolation of the metathorax serve to distinguish them easily in addition to several other characters included in the description.

***Pezomachus fenestralis* sp. nov.**

Male. Length 5 mm. Dark fuscous or nearly piceous, varied with dull brownish yellow as follows; first two joints of antennæ, head except on the vertex, prothorax, mesonotum, all of legs including coxæ, tip of abdominal petiole, and a lateral and apical broad stripe on the second abdominal segment. Head twice as broad as thick; lateral ocelli as far from the median one as from the eye-margin; occiput sharply margined behind. Narrowest part of front above antennæ as wide as either eye. Antennæ long and slender, 29-jointed; scape short, oval; first flagellar joint about six times as long as thick, one third longer than the second; following decreasing in length until those at the apical third of the antennæ are twice as long as thick. Head above shagreened, subshining; below more shining and almost smooth; malar space with an opaque slightly depressed line from the eye to the base of the mandible. Maxillary palpi slender, four-jointed. Thorax long and slender, less than one-third as broad as long and only half as broad as the head. Vestiges of anterior wings pearly white, as large as the tegulae. Mesonotum over twice as long as broad and much narrowed in front and with a faint median longitudinal depression. Scutellum very small, convex and with a deep fovea at its base. Entire thorax shagreened, the metathorax more strongly so. Metanotum with one distinct complete sinuous transverse carina. Petiole of abdomen only one-half wider at the apex than at its narrowest part near the base; spiracular tubercles distinct, but very small. Abdomen widest at the fourth segment, its hairs fine and very closely placed; its surface shining beyond the second segment, which like the petiole is roughly shagreened. Legs very slender; longer spur of hind tibiæ less than one-third as long as the metatarsus which is twice as long as the second tarsal joint.

New Brunswick, New Jersey, collected by Mr. John A. Grossbeck. The species was found upon a window in a house.

***Pezomachus obesus* sp. nov.**

Female. Length 5 mm. Piceous black, mesonotum and prothorax more or less tinged with fuscous. Antennæ fuscous, with a piceous band near the middle; legs fuscous, piceous on the coxæ and slightly so on the femora and tips of tibiæ. Head large, slightly over twice as wide as thick, thickly punctulate and with sparse white hairs above. Occiput sharply margined. Front below the median ocellus one-half wider than either eye; smooth and shining between and just above the

bases of the antennæ. Head below punctulate except on a very finely roughened malar line from the lower corner of the eye to the base of the mandible. Clypeus at each side with a small deep fovea, its surface with scattered coarser punctures. Palpi short and stout, strongly hairy. Eyes oval, one-half longer than the malar space. Thorax about two and one-half times longer than broad. Pronotum visible in front, rather broad on each side at the humeri, rugulose or punctulate like the head. Mesonotum narrowed, nearly wedge-shaped in front, one-fourth longer than wide; more roughly sculptured than the head. Scutellar suture indicated by a short transverse grooved line which does not attain the margin of the mesonotum, scutellar space convex. Mesonotum with a raised marginal line behind the tegulae and also behind on each side for one third of its width. Metanotum finely rugulose on its anterior half which bears a median depression that divides it into two quite distinct lobes. Behind this portion and in front of the transverse carina it is faintly and finely reticulate. Transverse carina very strongly sinuous; posterior slope smooth except for a number of irregular, mainly longitudinal wrinkles. Abdomen stout, twice as wide as the thorax, its surface behind the shagreened second segment shining and smooth; its hairs sparsely placed. Petiole scabrous, three times as broad at tip as at its narrowest part near the base; spiracular tubercles strongly projecting. Second and third segments subequal; fourth two thirds as long as the fifth; following growing rapidly shorter. Ovipositor as long as the second segment. Pleurae rugose-reticulate. Legs stout, longer spur of hind tibia one-third the length of the metatarsus.

Forest Hills, Boston, Mass., April 10, 1909, reared from the egg capsule of a spider.

Pezomachus habilis sp. nov.

Female. Length 3 mm. Body shining throughout, black; antennæ yellowish at the base, darker medially and fuscous toward the tips; mesonotum brownish at the sides; metathorax above rufo-piceous; band at tip of first and second abdominal segments yellowish; trochanters, four anterior femora below and all tibiæ and tarsi yellowish brown. Head above shagreened and subopaque, fully twice as broad as thick and deeply excavated on the occiput. Ocelli in a rather small triangle, the lateral ones closer to the median ocellus than to the eye margin. Front slightly narrowed above, one-half wider than the eye. Malar line half as long as the width of the face; clypeus unusually

transverse, with the usual fovea at each lateral angle. Cheeks shining, but faintly shagreened. Antennæ 20-jointed, slender, the joints all distinctly wider than long. First flagellar joint one-fourth longer than the second, following gradually decreasing to the tip, those at the apical third one-fourth longer than thick. Thorax above shagreened or punctulate; slightly shining, more distinctly so on the posterior half of the metanotum. Mesonotum scarcely longer than wide, the scutellum represented by a very small convex tubercle; marginal carina at posterior angles of mesonotum poorly developed. Metanotum strongly convex on its anterior half, the transverse carina not sinuate medially, curving evenly over the metanotum from near the base of the coxa; no lateral carina. Petiole of abdomen short and broad, only one half longer than broad, the tip twice as wide as the base and the spiracular tubercles large, angularly produced. Second segment only slightly longer than the third, fourth or fifth which are subequal. Ovipositor slightly longer than the petiole of the abdomen. Entire pleuræ evenly punctulate and subshining. Legs slender, the longer spur of the hind tibiæ one-third the length of the metatarsus which is two and one-half times as long as the second tarsal joint. Abdominal hairs sparsely placed.

Woods Hole, Mass.

This species is very similar to *P. maculicollis* Brues in the form of the antennæ and metanotal carina, but has strongly projecting spiracles on the petiole of the abdomen which are entirely absent in the other species.

***Pezomachus foveatus* sp. nov.**

Male. Length 3.5 mm. Black. Antennæ pale brown, fuscous toward tips. Legs, including coxæ, pale brown; more or less infuscated on the four anterior femora medially, on the hind coxæ above and on the posterior legs except the trochanters, knees, middle of tibiæ along outer edge, and base of each tarsal joint. In some specimens with the four anterior legs quite or nearly as dark as the posterior pair. Head shagreened and subshining above, twice as wide as thick; seen from the front with the front above the antennæ fully one-half wider than either eye. Malar space with a slight carina from the corner of the eye to the base of the mandible. Cheeks more nearly smooth than the vertex; face and clypeus sculptured like the vertex. Antennæ moderately long, equalling the body in length; 21-jointed; first flagellar joint four times as long as thick and one-third longer than the second:

third to penultimate growing gradually shorter, the joints at the apical third of the antennæ twice as long as thick. Thorax three times as long as wide shagreened, but more nearly smooth and shining on the metathorax. Mesonotum one-half longer than wide, its lateral margins from the sides of the scutellum to before the tegulæ narrowly, but very distinctly reflexed; mesonotum laterally opposite the tegulæ with a small elongate foveate depression. Scutellum small, with a broad depressed line across its base. Wing vestiges pale, twice as large as the tegulæ. Metanotum evenly convex, with a very strongly sinuous, well marked transverse carina which connects with a complete, but nearly obsolete lateral carina. Petiole of abdomen with no distinctly projecting spiracular tubercles, gradually narrowed toward its base, one-half wider at the tip than at the base, along the sides with a distinct and complete longitudinal carina which includes the spiracles; also with a similar carina along the lower margin of its sides. Abdomen quite shining beyond the petiole; its hairs very sparsely placed; petiole and second segment with a pale brown band at the apex. Abdomen widest on the third segment. Legs rather stout; longer spur of hind tibia nearly half as long as the metatarsus which is twice as long as the second tarsal joint.

Three specimens, all males, collected by Mr. C. A. Frost at Framingham, Mass.

Pezomachus insolens sp. nov.

Female. Length $\frac{1}{4}$ mm. Entirely ferruginous, very slightly infuscated on the posterior half of the dorsum of the abdomen and on the tips of the antennæ. Sheaths of the ovipositor piceous. Head above subshining, shagreened. Occiput strongly excavated medially, margined. Ocelli in a nearly equilateral triangle, the lateral ones closer to the median one than to the eye margin. Front at its narrowest part one-half wider than the eye. Malar space as long as half the width of the face below the antennæ, with a distinct but scarcely impressed furrow from the corner of the eye to the base of the mandible. Clypeus convex, with sparse punctures, its upper margin far below the lower corners of the eye and its sides each with a deep circular fovea. Cheeks only slightly shagreened and quite shining. Antennæ stout 19-20 jointed; first and second flagellar joints of equal length; third and following decreasing in length; at the apical third of the antenna slightly longer than wide; last joint half longer than the penultimate.

Thorax nearly three times as long as wide. Collar prominent, but the pronotum very indistinctly separated from the mesonotum. Mesonotum one-half longer than broad; its lateral suture distinct only posteriorly. Tegulae indicated by minute tubercles. Scutellum not at all indicated. Surface of thorax above shagreened, more shining on the metathorax. Upper face of metathorax evenly convex, its posterior slope margined by a sinuous transverse carina which extends down the sides to the insertion of the posterior coxa; near each posterior angle is the vestige of another oblique carina, faintly indicating a small areola close to the coxa. No lateral carina. Abdomen nearly twice as long as the thorax, petiole broadly dilated, three times as broad at the tip as at the base, its sides straight, without the slightest indication of spiracular tubercles or teeth. Above on the sides with a complete longitudinal carina including the spiracle and below on the sides with a second carina. Petiole shagreened, but the remainder of the abdomen smooth and polished, its hairs sparsely placed; second segment slightly longer than the third; fourth and fifth growing shorter. Ovipositor as long as the abdominal petiole. Legs with the femora stout, especially the four anterior ones. Longer spur of posterior tibia slightly over one third as long as the metatarsus.

Mount Constitution, San Juan Co., Washington, July 1908.
A. L. Melander.

Pezomachus delumbis sp. nov.

Female. Length 5 mm. A slender species with elongate legs and antennae. Head slightly over twice as broad as thick, the occiput angularly excavated, but less strongly so than in *P. insolens*; ocelli in a triangle, the lateral ones farther from the eye-margin than from the median ocellus. Head above subopaque and shagreened. Front at narrowest part above the antennae one half wider than either eye. Malar space as long as half the width of the front, with an indistinctly marked furrow from the eye to the base of the mandible. Clypeus with a large fovea at each side, weakly convex, with scattered punctures; its upper margin far below the level of the lower margins of the eyes. Cheeks smooth and polished. Pronotum indistinctly separated from the mesonotum, mesonotum nearly twice as long as wide, the scutellum indicated by a distinct transverse depressed line. Tegulae visible as small tubercles, just inside of which the lateral margin of the mesonotum is indicated by a grooved line which extends along only the posterior third. Entire thorax above subopaque, shagreened, the

posterior slope of the metanotum shining. Metathorax with a sinuous transverse carina which continues back to near the base of the coxa, but without any indications of areolæ at its lower hind angles. Abdomen nearly twice as long as the thorax, the petiole as long as the metathorax. Petiole gradually widened to the tip which is two and one-half times as broad as the base; laterally with a carina including the spiracles, which do not project as tubercles when seen from above. Petiole shagreened and subopaque; second segment less opaque; following segments growing smooth and shining; second and third segments subequal; fourth and fifth each half as long. Hairs on surface of abdomen very closely placed. Ovipositor one and one half times as long as the petiole of the abdomen. Pleuræ shagreened and subopaque like the thorax above. Legs long and slender, only the four anterior femora slightly thickened. Longer spur of hind tibia one third as long as the metatarsus which is slightly over twice as long as the second tarsal joint. Thorax, legs and first two segments of abdomen dull ferruginous, head and base of antennæ fuscous; remainder of antennæ and abdomen beyond the base of the third segment piceous.

Mount Constitution, San Juan Co., Washington (A. L. Melander); July 1908.

This resembles *P. insolens* quite closely, but differs by its longer and much more slender antennæ and the densely placed vestiture of the abdomen.

***Pezomachus texanus* Cress.**

Canadian Ent., Vol. 4, p. 64. (1872).

This species differs in both sexes from any other *Pezomachus* known to me by the small size of the mesonotum. In the female this is scarcely more than one third as long as the metathorax, and in the male only half as long being considerably shorter than the pronotum in this sex and broadly enclosed by it on the sides. Both sexes have the metanotum smooth, without carinæ, and the hairs on the abdomen very sparsely placed. The head of the male is only one and one-half times as broad as thick, and scarcely at all excavated along the occipital margin.

***Pezomachus wheeleri* Brues.**

Trans. Amer. Ent. Soc., Vol. 29, p. 123. (1903).

In this species the abdomen is clothed with very dense hairs, and the scutellum is faintly indicated as rather small and strongly transverse.

Pezomachus maculicollis Brues.

Trans. Amer. Ent. Soc., Vol. 29, p. 121 (1903).

In this species the antennæ are 20-jointed, the head quite distinctly less than twice as broad as long, and the malar line less than half as wide as the face. The metathorax is very strongly gibbous, its transverse carina slightly arcuately curved and not strongly sinuous as in most species. The abdominal petiole is scarcely twice as broad at the tip as at the base.

Pezomachus minutus Walsh.

Ins. inj. vegetation in Illinois, p. 36. (1861).

This little species as I have identified it has the transverse carina of the metanotum complete and no indication of a scutellum. The abdominal hairs are very sparsely placed.

Pezomachus angularis Brues.

Trans. Amer. Ent. Soc., Vol. 29, p. 122. (1903).

The abdominal hairs are densely placed, and the mesonotum has a very distinct, sharply projecting tubercle on each side behind. There is no indication of a scutellum.

Pezomachus birkmani Brues.

Trans. Amer. Ent. Soc., Vol. 29, p. 121. (1903).

This species has the hairs covering the surface of the abdomen very sparsely placed. The mesonotum is produced into an angular tubercle on each side above the tegulæ and the scutellum, indicated by a slight depressed line separating it from the mesonotum, is large and weakly convex.

Pezomachus crassulus Brues.

Trans. Amer. Ent. Soc., Vol. 29, p. 123. (1903).

The metanotum of this species is finely irregularly wrinkled, the transverse carina is very indistinct medially and there is a longitudinal furrow-like depression medially near the base. The scutellum is not distinctly separated, although suggested by a slight transverse groove. The abdominal hairs are moderately sparse.

Microcryptus (*Theroscopus*) **vernalis** sp. nov.

Length 5.5 mm. Head and thorax black; abdomen black, except for transverse bands at the base of the second and third segments;

legs reddish, paler basally and on the coxae, and darker toward the tips of the tibiae and femora; antennae with the first five joints ferruginous, the next four white and the remainder black. Head transverse, fully twice as broad as thick: above smooth and polished, with fine very scattered punctures. Ocelli placed on a raised triangular tubercle. Eyes elongate oval, twice as long as broad and conspicuously pubescent. Antennae only half the length of the body, stout and involute; 18-jointed; first and second flagellar joints of equal length, each four times as long as broad at tip; third three-fourths as long; fourth two-thirds as long as the third; fifth and following quadrate till the last which is twice as long as the penultimate. Thorax slightly over twice as long as broad. Mesonotum with a longitudinal slight convexity on each side of the median line: on the sides from near the posterior to near the anterior border with a deep grooved line close to the lateral margin, breaking into a foveate line anteriorly. Scutellum nearly quadrate, almost flat, with a deep transverse line across the base. Wing vestiges lanceolate, with the two basal cells well defined; reaching to the base of the metathorax. Postscutellum small, transverse, with a basal impressed line connecting two lateral foveae. Metanotum sharply declivous and medially concave behind; the transverse carina complete, strongly curved forward medially and sharply raised on the sides; lateral and pleural carina distinct, the former giving off inwards at its middle a short transverse carina which extends halfway to the median line. Petiole of abdomen gradually widened behind, without spiracular projections; width at tip a little less than half its length; base nearly half as wide as apex. Third segment a little longer than the second; following growing rapidly smaller. Ovipositor somewhat shorter than the first segment. Pleurae very faintly and sparsely punctulate; mesopleura with a small deep fovea behind near its upper edge. Legs strong and stout; longer spur of hind tibia as long as the second tarsal joint and nearly one half the length of the metatarsus.

Framingham, Mass., May 10, 1910; C. A. Frost.

The present form comes very close to *Microcryptus* (*Theroscopus*) *cingulatus* Först. from the European fauna. It differs in having the head much more finely sculptured than the mesonotum and in the different color of the legs and abdomen. It is also quite considerably larger.

FAMILY BRACONIDÆ.

Cœloides liopodis sp. nov.

Length 2 mm. Piceous, the head black, and the abdomen varied with yellowish brown; legs, including the coxæ, and basal part of antennæ pale testaceous. Head nearly twice as broad as thick, moderately narrowed behind the eyes. Head behind, including the occiput, very distinctly margined. Ocelli in a small triangle, the lateral ones being much farther from the eye than from each other. Vertex shining, very distinctly margined. Ocelli in a small triangle, the lateral ones the ocelli smooth and polished. Face smooth, with a very slight median elevation along its median fifth, which is indistinctly striated. This does not extend on to the short crescentic clypeus which is reddish brown in color and separated at each lateral angle by a small foveate depression. Mandibles brownish yellow, with black tips. Antennæ filiform, with cylindrical joints, nearly one-fourth longer than the body; 22-jointed, inserted on a level with the middle of the eyes; scape simple, thickened; flagellar joints gradually becoming shorter from the first which is five times as long as thick; sixth and following each about three and one-half times as long as thick. Collar brownish yellow. Mesonotum as long the wide, shagreened; parapsidal furrows converging posteriorly, just before the scutellum with a series of five longitudinal striations between them. Scutellum more finely roughened, at the base with a large transverse depression bearing a few elevated cross lines. Metathorax rounded behind, with a large petiolar and one large lateral area on each side; these areas nearly smooth; the pleuræ rugulose; tip of metathorax honey-yellow. Mesopleura smooth, shining. Abdomen sessile; first segment as long as broad at the tip, its surface aciculated, medially on the basal half with a pair of carinæ convergent posteriorly, and on each side with a spiracular carina. Second segment aciculate like the first, three times as wide as long, its aciculations extending over the weak constriction to the basal third of the third segment; abdomen beyond smooth and highly polished. Abdomen above honey-yellow, piceous on the sides of the third and following segments. Ovipositor half as long as the abdomen. Legs pale testaceous, with sparse white hairs; tibial spurs short. Wings hyaline, with a weak venation; stigma narrowly ovate; first discoidal cell with a very long petiole above, submedian cell slightly longer than the median; discoidal vein very oblique, joining the subdiscoidal in a slight curve; first transverse cubitus very indistinct

below; radial cell attaining the wing tip; second section of the radius one-third longer than the first, and one-third as long as the third.

Bred by Mr. C. A. Frost from sumach twigs infested with *Liopus alpha* Say; Framingham, Mass., May 1906.

The present species belongs in *Cæloides* as defined by Schmiedeknecht in his "Hymenopteren Mitteleuropas" (p. 516) although it is evidently quite different from *Cæloides* as understood by Ashmead, who places the genus in the Braconinæ. *Cæloides initiator* Fabr. of Europe has been bred from several genera of Cerambycidae, but to judge from the description of that species as given by Nees it can no longer be included in *Cæloides* on account of the triangular space at the base of the second abdominal segment.

Cenocælius ashmeadii D. T.

C. ashmeadii, D. T. Cat. Hym. Col. IV, p. 72 (1898). *Promachus rubriceps*, Ashmead, Proc. U. S. Nat. Mus. Vol. XI, p. 653 (1888) male, (nec Provancher).

Through the kindness of Mr. C. W. Johnson of the Boston Society of Natural History I have received a female of this interesting species, bred by Mr. C. A. Frost from *Liopus alpha* Say contained in sumach twigs. Ashmead's types were obtained from the same plant infested by this same beetle, so there can be no doubt that it is the host of the *Cenocælius*.

FAMILY CLEONYMIDÆ.

Cheiopachys obscuripes sp. nov.

Length 2.3 mm. Metallic green, the head more coppery and the metathorax more bluish; abdomen with an obscure honey yellow band near the base; wings with two costal infuscated spots. Head two and one-fourth times as broad as thick; ocelli in a curved line, the lateral ones somewhat nearer to the median ocellus than to the eye margin. Eyes rounded ovate, bare. Antennæ inserted near the middle of the eyes. Malar space half as long as the eye, without furrow. Clypeus nearly truncate, with a slight median emargination. Mandibles stout, their apices broad. Antennæ with two ring-joints; 13-jointed, counting the short oval club as three jointed, although this really appears two-jointed, with a single suture. Scape honey yellow, somewhat flattened and curved, as long as the first three joints of the flagellum together; pedicel as long as the first flagellar joint, the latter nearly twice as

long as thick; following growing shorter until the last (sixth) is nearly quadrate; club ovate, as long as the two preceding joints. Surface of head rugose-punctate, more finely so on the malar space and vertex. Thorax elongate, the pronotum short, longer on the sides which converge little anteriorly. Mesonotum with slight traces of furrows on the sides in front, as long as its greatest length at the tegulae, its surface confluent punctate or rugulose; the scutellum and axillae more finely so. Axillae separated by one-half the width of the scutellum; the latter oval, broader behind, one-half longer than wide. Metathorax with a very distinct median carina which bifurcates behind; without spiracular sulci; not prolonged into a neck or globose at the apex. Pleurae very finely rugulose, the mesopleura smooth above and with a wedge-shaped piece extending downward near its middle. Under side of thorax and sides of metanotum with conspicuous sparse white hairs. Abdomen as long as the thorax, sessile; first segment the longest, slightly exceeding the combined length of the second and third segments together; second to fourth increasing in length; fifth much shorter; sixth triangular, beset with stiff black hairs which also extend to the underside of the fifth laterally. Ovipositor when fully exerted over half as long as the abdomen; its downwardly curved spatulate tip short and the only part visible when the ovipositor is retracted. Legs yellowish brown, the hind femora more or less infuscated and the tarsi luteous. In some specimens the legs are almost entirely fuscous. Anterior femora thickened and with a blunt projection inwardly near their apical third. Hind femora quite broad, but simple; hind tibiae with conspicuous stiff hairs. Wings hyaline, with two large fuscous spots on each anterior wing; basal spot nearly quadrate, extending about two thirds across the wing and ending anteriorly just before the tip of the submarginal vein; apical spot just encompassing the stigmal vein, reaching half way across the wing and nearly twice as long as wide along the axis of the wing. Marginal vein half as long as the submarginal and slightly exceeding the subequal postmarginal and stigmal veins. Stigmal vein slightly curved upwards at the tip where it bears a rather large oval knob.

Six female specimens reared by Mr. Walter Postiff of the Bureau of Entomology from a peach bark-beetle, probably *Phloeotribus liminaris* Harr. at Douglas, Michigan.

The specimens are quite close to the common and widespread European *C. colon* Linn. but are uniformly darker on the legs

and the body is more metallic, while the wings are different both in venation and form of maculation. The European form is also parasitic on Scolytid beetles, having been reared from several species.

It is possible that the present species is identical with another European one referred to by Förster (Hym. Stud., 11, p. 70) as *C. intermedius*, but never described.

FAMILY DIAPRIIDÆ.

Auxopædeutes lyriformis sp. nov.

Female. Length 1.6 mm. Black; legs, including the coxæ, scape of antennæ and tegulæ, yellowish brown; funicle and club of antennæ fuscous. Head seen from the side with a large projecting frontal horizontal lamina below the antennæ making the head as thick as high. Seen from above, the head is as thick as wide, narrowed anteriorly to the frontal lamina which is two third as wide as the greatest width of the head and almost squarely truncate on the anterior margin; above it is hollowed out into two contiguous pits for the reception of the antennæ. Ocelli in a triangle upon the vertex. Antennæ 12-jointed; scape large and stout, as long as the following five joints taken together; pedicel cylindrical, half longer than thick; first flagellar joint narrowed at the base, a little shorter than the pedicel; second to seventh about equal in size, moniliform; eight moniliform, twice as large as the preceding; last two joints forming a large club nearly as long and about as wide as the scape, the penultimate joint being broader than the apical one. Eyes small, oval, with about ten rows of ommatidia. Mandibles small, bidentate. Surface of head entirely smooth and polished except for a shagreened space just below the middle of the edge of the frontal lamina. Thorax nearly truncate in front, the prothorax visible only as a line medially, but well developed on the sides of the mesonotum which is rounded and narrowed in front. Mesonotum as long as broad between the tegulæ which are large and contiguous with the line indicating the posterior margin of the mesonotum. Scutellum broad at the base with a depression near the center which gives off lateral depressions that divide it into two basal lateral convexities and a larger posterior one. Metathorax seen from above with a projecting truncate horn on each side which extends over the first segment of the abdomen, each horn being as

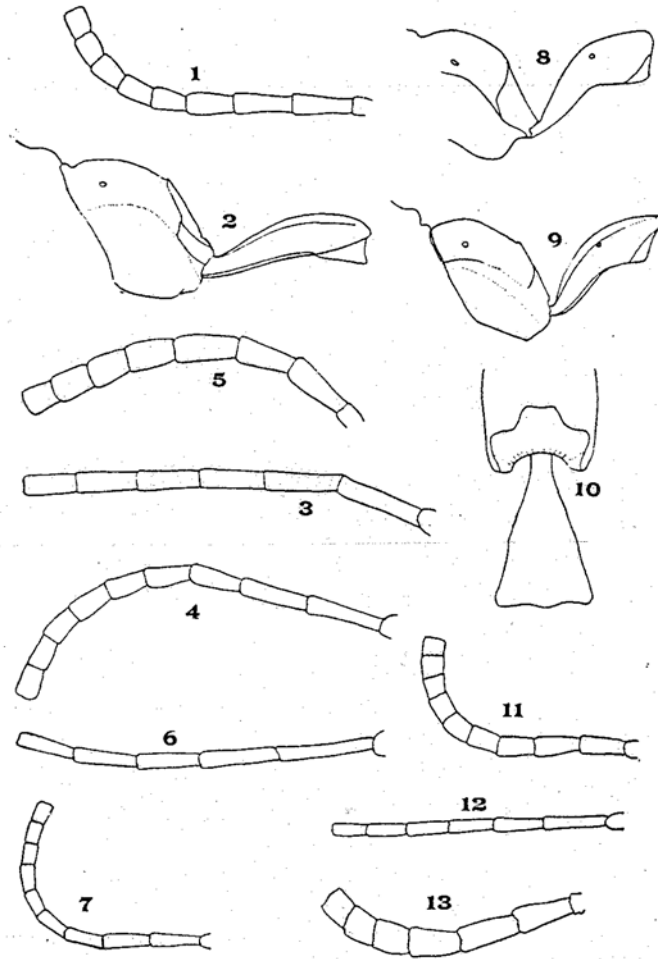
long as the scutellum. The horns are longitudinally striated and project upwards in lateral view, while from above their inner margins are parallel. Entire pro- and mesothorax, including their pleuræ and the scutellum, smooth and polished. Metapleuræ thickly pale yellowish hairy, their posterior margin evenly concave from the coxæ to the tip of the horn above. Abdomen as long as the head and thorax, entirely shining, fully one half wider than the thorax. First segment thickly covered with dense pale yellow pubescence, only about one third as broad as the following segment, and about twice as broad as long. Second segment occupying nearly two-thirds of the remainder of the abdomen, its sides parallel on the greater part of their length; third to fifth segments subequal, narrowing in width; sixth minute, triangular. Ovipositor short, blunt. Legs with the femora slightly thickened; the tibiæ clavate, long and slender except the anterior ones.

A female collected at Forest Hills, Boston, Mass., May 4, 1910 by Prof. W. M. Wheeler in a nest of *Solenopsis molesta* Say.

This is the second species of this most remarkable genus to be discovered, the first, *A. sodalis* Brues⁴ being also North American and occurring so far as known only in Texas. The present species may be distinguished by its longer metanotal teeth or horns, which have their inner margins parallel, and not divergent as in the Texan form. The configuration of the antennæ is also quite different, the antepenultimate joint being much larger in *A. lyriformis*.

The genus *Auxopodectes* is very closely related to the European *Solenopsis* Wasmann, which has the antennæ 11-jointed, not 12-jointed as in the American genus. After seeing the present species I am fully convinced that the genus belongs to the Diapriidæ and not to the Belytidæ as I had previously thought might possibly be the case.

4) Trans. Amer. Ent. Soc., Vol. XXIX, p. 126. (1903).



EXPLANATION OF PLATE.

- Fig. 1. *Pezomachus insolens* sp. nov. Female, antenna.
Fig. 2. *Pezomachus urbanus* sp. nov. Male, profile of metathorax and abdomen.
Fig. 3. *Pezomachus urbanus* sp. nov. Male, antenna.
Fig. 4. *Pezomachus delumbis* sp. nov. Female, antenna.
Fig. 5. *Pezomachus obesus* sp. nov. Female, antenna.
Fig. 6. *Pezomachus fenestralis* sp. nov. Male, antenna.
Fig. 7. *Pezomachus habilis* sp. nov. Female, antenna.
Fig. 8. *Pezomachus fenestralis* sp. nov. Male, profile of metathorax and first abdominal segment.
Fig. 9. *Pezomachus foveatus* sp. nov. Male, profile of metathorax and first segment of abdomen.
Fig. 10. *Pezomachus insolens* sp. nov. Female, metathorax and first segment of abdomen.
Fig. 11. *Pezomachus cockerelli* sp. nov. Female, antenna.
Fig. 12. *Pezomachus foveatus* sp. nov. Male, antenna.
Fig. 13. *Microcryptus (Theroscopus) vernalis* sp. nov. Female, antenna.

Bussey Institution, Harvard University,
June 15, 1910.