



Revision of the Species of Several Genera of Meloidæ of the United States

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Source: *Proceedings of the American Philosophical Society*, Vol. 13, No. 90, (1873), pp. 88-117

Published by: American Philosophical Society

Stable URL: <http://www.jstor.org/stable/981606>

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REVISION OF THE SPECIES OF SEVERAL GENERA OF  
MELOIDÆ OF THE UNITED STATES.

BY GEORGE H. HORN, M. D.

(Read before the American Philosophical Society, February 21, 1873.)

The genera reviewed in the following pages are *Macrobasis*, *Epicauta*, *Cantharis* and *Pomphopoea*, which comprise the large majority of the species of Meloidæ in our fauna. The other genera have not been noticed on account of either of the fewness of the species contained in them, or from the lack of sufficient material to determine correctly the relationship of the species. In the latter case may be cited, *Meloe* and *Nemognatha*, especially the former, of which probably, the majority of the species have been described from unique specimens. The attention of all collectors is called especially to the species of *Meloe*, and at the same time an accurate determination of the sexes is more than all desirable. The species of *Pyrota* are also well worthy of attention, and it is probable that some of them, especially those in the banded group, will have to be suppressed when further material shall have been collected.

## MACROBASIS. Lec.

*Macrobasis*, Lec. Class. Col. N. A. p. 272; *Apterospasta*. *ibid.*

The genus *Macrobasis*, with which I am compelled to unite *Apterospasta*, differs from *Epicauta* by characters of comparatively trifling moment. The first joint of the antennæ of the male is elongate, in a part of the species very greatly, and in an equal number, moderately so. In the former case the first joint frequently equals twice the length of the two following together, and in the latter is about equal to them. The second joint of the antennæ of the male is always more than half the length of the third, and sometimes greatly longer than that joint. From the variability of the antennæ it may be seen, that there is very great difficulty in separating the genus from *Epicauta*, and it is very doubtful if the advancement of science would be at all retarded by their union. *Apterospasta* is certainly not distinct, the presence or absence of wings being rather specific than generic, and the type of the genus is moreover strongly winged. The species of *Macrobasis* may be separated by their sexual characters and the scheme thus produced contains at the head those species the most remote by their antennal characters from *Epicauta*, and thence gradually approaching that genus.

A. First joint of antennæ male very elongate, usually more or less dilated at tip and contorted, and always longer than the two following joints together.

Anterior tibiæ ♂ with two terminal spurs.....	<i>albida.</i>
Anterior tibiæ ♂ with a single terminal spur.	
Second joint of antennæ ♂ frequently shorter than the third alone.	
First joint anterior tarsi ♂ longer than second and normal ; legs black.	
Elytra uniformly cinereo-pubescent.....	<i>longicollis.</i>
Elytra cinereo-pubescent, with two broad black stripes on each.....	<i>atrivittata.</i>
First joint ant. tarsi ♂ shorter than second and oblique prolonged ; legs pale.	
Antennæ with joints 2-11 ♂ stout, conical ; elytra luteous, finely cinereo-pubescent.....	<i>ochrea.</i>
Antennæ with joints 2 and 3 ♂ stout, 4-11 slender ; elytra piceous, cinereo-pubescent, with a fine more densely pubescent line.....	
Second joint of antennæ ♂ longer than the third and fourth together.	<i>virgulata.</i>
Anterior tarsi male with one terminal spur.....	<i>torsa.</i>
B. First joint of antennæ ♂ moderately elongate, never longer than the second and third together and never contorted at tip.	
Second joint antennæ ♂ long, equal to third and fourth together.	
Anterior tibiæ ♂ with two terminal spurs.....	<i>unicolor.</i>
Anterior tibiæ ♂ with one terminal spur.....	<i>tenuis.</i>
Second joint antennæ ♂ not much longer than third alone.	
Body cinereo to fulvo-pubescent ; winged.....	<i>immaculata.</i>
Body entirely black above.	
Body sometimes with wings well developed, usually feebly developed.....	<i>segmentata.</i>
M. <i>albida</i> , Say. Journ. Acad. III, p. 305 ; <i>luteicornis</i> , ♂ Lec. Proc. Acad. VII, p. 84. Black, densely cinereo-pubescent, varying to pale ferruginous. Head black, epistoma and labrum pale luteous, a small smooth space near the insertion of the antennæ and a smooth median line not attaining the occiput, surface densely punctulate and pubescent. Antennæ and palpi pale luteous, glabrous. Thorax slightly longer than wide, sides nearly parallel behind, in front arcuate and narrower to apex, disc moderately convex, usually with an elongate narrow space on each side clothed with black pubescence, surface densely punctate and pubescent. Elytra broader than the thorax and gradually broader behind, surface densely punctulate and pubescent, humeri with linear black spot. Body beneath densely pubescent. Legs black, densely pubescent. Knees outer edge of tibiæ and all the tarsi with black pubescence. Length .88—1.00 inch ; 22-25 mm.	

*Male.* First joint of antennæ nearly as long as the head, flattened and gradually thicker to tip and sinuate on the anterior margin near the tip; second joint longer than the third and equal to the fourth. Sixth abdominal segment feebly emarginate at tip. Antennæ at base smooth very sparsely punctured.

*Female.* First joint of antennæ not flattened, slightly thicker at tip, punctured and pubescent, joints 2-11 sub-equal. Sixth abdominal segment sub-truncate.

The characters of the table and those above will readily enable this species to be separated from all those which it most closely resembles in general appearance. Abundant in Texas.

**M. longicollis**, Lec. Proc. Acad. 1853, p. 343.

Closely resembles the preceding species and differs superficially in having the antennæ and parts of mouth entirely black, the thorax without the discal narrow black spaces and the humeral spot longer. It differs especially in its sexual characters. Length .80-.90 inch ; 20-23 mm.

*Male.* Antennæ with first joint as long as the head, flattened, very feebly sinuate at anterior margin near the tip, sparsely punctured, joints 2 and 3 sub-equal. Abdomen as in *albida*. Anterior tibiæ with one spur. Inferior edge of femora glabrous.

*Female.* Antennæ with first joint less than half the length of head, slightly flattened, punctured and pubescent, second joint slightly shorter than third and nearly equal to fourth. Anterior tibiæ with two spurs. Inferior edge of femora pubescent. Occurs in Texas, Arizona and New Mexico.

**M. atrivittata**, Lec. Proc. Acad. 1854, p. 224.

More elongate than the preceding species and differing in the surface vestiture, as follows: Head pubescent with black, a small white antero-ocular space and median narrow line cinereous. Antennæ and parts of mouth black. Thorax cinereo-pubescent with a large black space at middle, divided by fine median cinereous line. Elytra pubescent with black, suture narrowly, apex and sides more broadly cinereo-pubescent, and a moderately broad cinereous vitta extending from the humerus and not attaining the apex. Body beneath cinereo-pubescent, at the sides black, abdomen black apices of segments cinereo-pubescent. Legs black, outer side of femora cinereo-pubescent. Length .70-1.28 inch ; 18-32 mm.

*Male.* First joint of antennæ flattened, broadly dilated at tip and obliquely truncate at tip, longer than the head, shining and sparsely punctured, second joint stout, broader than long and longer than either the third or fourth, third joint small, shorter than the fourth which is also stout and half the length of the fifth ; joints 5-11 robust but elongate. Terminal joint of labial palpi disciform. Anterior tibiæ with one terminal spur. Sixth abdominal segment broadly emarginate at tip. Inferior edge of femora glabrous.

*Female.* First joint of antennæ half the length of head, flattened and gradually broader to tip, more distinctly punctulate than the male, joints 2-11 sub-equal and gradually more slender to tip. Last joint of labial palpi broadly triangular. Anterior tibiæ bicalcarate. Femora pubescent beneath. Sixth abdominal segment sub-truncate. Occurs in Texas and Arizona.

*M. ochrea*, Lec. Proc. Acad. 1853, p. 342.

Pale testaceous, sparsely clothed with pale luteous pubescence. Form similar to *albida*. Head moderately punctulate and sparsely pubescent. Antennæ with basal joint luteous, outer joints piceous. Thorax feebly convex, densely punctulate with smooth fine median line. Elytra finely punctate, sparsely pubescent. Body beneath and legs similar to the upper surface. Length .65 inch; 16 mm.

*Male.* First joint of antennæ longer than half the head, arcuate, gradually broader to tip, flattened and obliquely truncate, joints 2-11 sub-equal, stout and obconical. Lower edge of femora glabrous. Anterior tibiæ with one spur. First joint of anterior tarsi broad, obliquely prolonged, concave above and shorter than the second. Sixth abdominal segment broadly emarginate at tip. Last dorsal segment moderately prolonged and notched at tip.

*Female.* Unknown.

Collected at New Braunfels, Texas.

*M. virgulata*, Lec. New Species, 1866, p. 156.

Piceous, sparsely cinereo-pubescent. Form similar to *albida* but more slender and very much smaller. Head moderately punctured, with fine median smooth line and sparsely pubescent. Thorax moderately punctured, sparsely pubescent and with fine smooth median line. Elytra punctate scabrous, sparsely pubescent, with a denser line of pubescence at the middle of each elytron. Body beneath piceous, sparsely punctulate and pubescent. Legs pale testaceous. Length .34-.40 inch; 9-10 mm.

*Male.* First joint of antennæ nearly as long as the head, moderately arcuate, flattened and sinuately emarginate near the tip; second joint smaller than the third and the two together equal to the fourth; joints 4-11 sub-equal gradually more slender to tip. Femora beneath glabrous at base. Anterior tibiæ with one terminal spur. Anterior tarsi with first joint shorter than second, slightly obliquely prolonged and somewhat concave above. Sixth abdominal segment broadly emarginate.

*Female.* First joint of antennæ not half as long as the head, slightly arcuate and somewhat broader to tip, joints 2-3-4 gradually longer, 4-11 sub-equal. First joint anterior tarsi longer than the second and not deformed. Femora pubescent. Sixth abdominal segment sub-truncate.

Collected at Cape San Lucas.

*M. tarsa*, Lec. Proc. Acad. 1853, p. 343.

Black, sub-opaque, sparsely cinereo-pubescent. Head moderately densely punctulate. Antennæ black. Thorax slightly broader than long,

sides behind nearly parallel, at apex arcuately narrowed, median line moderately impressed, surface opaque, sparsely punctulate. Elytra elongate, sub-parallel, moderately punctured, sparsely and finely cinereo-pubescent with pruinose aspect. Body beneath and legs black, somewhat more densely pubescent than the upper surface. Length .44-.60 inch ; 11-15 mm.

*Male.* First joint of antennæ nearly as long as the head, flattened and nearly sigmoid in form, second joint as long as the two following together, third shorter than the fourth, joints 4-11 very gradually longer and slender. Anterior tibiæ with one spur. First front tarsal joint not longer than the second. Lower margin of femora glabrous.

*Female.* First joint of antennæ half the length of head, second slightly longer than third, joints 3-11 sub-equal. Middle and hind femora pubescent beneath, anterior tibiæ bicalcarate.

Resembles *tenuis* and *unicolor*, but the table shows the more remarkable points of difference.

Occurs in Texas.

*M. unicolor*, Kby. Fauna, Bor. Am. p. 241; *cinerea*, Fab. Ent. Syst. Suppl. p. 119; Harris, Bost. Journ. 1, p. 497; *Fabricii*, Lec. Proc. Acad. 1853, p. 343; *murina*, Lec., *debilis*, Lec. loc. cit. p. 344.

The name *Fabricii* is dropped for the following reasons, viz.; if *Macrobasis* be a valid genus the name *cinerea* is not preoccupied, and should *Macrobasis* be merged in *Epicauta* then *unicolor* Kby. has priority.

Very similar in form to the preceding, but has usually a more cinereous aspect from the denser pubescence. The sexual characters furnish the greater points of difference. Length .32-.64 inch ; 8-16 mm.

*Male.* First joint of antennæ shorter than the head, slightly broader toward the tip, slightly flattened and very feebly arcuate, second longer than the two following joints together, joints 3-11 gradually but very slightly longer. Anterior tibiæ bicalcarate. Lower edge of femora pubescent beneath.

*Female* as in the preceding species.

The species known as *murina* and *debilis* appear to be merely badly developed forms and not entitled to rank as species. *M. unicolor* differs from *torsa* and *tenuis* in the male, having two spurs to the anterior tibiæ.

A very widely distributed species, occurring from Canada to Kansas and to Georgia and Arizona.

*M. tenuis*, Lec. Proc. Acad. 1853, p. 343.

More elongate than *unicolor* and clothed with whiter and more lustrous pubescence. Epistoma, labrum and palpi testaceous at least in the male. Length .62 inch ; 16 mm.

*Male.* First joint of antennæ nearly as long as the head, formed as in *unicolor*, second joint nearly as long as the three following together,

joints 3-11 sub-equal. Anterior tibiæ with a single terminal spur. Femora pubescent beneath.

*Female.* Not known with certainty.

One male from Georgia.

*M. immaculata*, Say. Jour. Acad. III, p. 301; *articularis*, Say, ibid.; *fulvescens*, Lec. Proc. Acad. 1853, p. 447.

Black, densely clothed with pubescence varying in color from ferruginous to cinereous. Form and sculpture very closely resembling *albida*. Disc of thorax and elytral humeri concolorous. Body beneath clothed as on the upper surface. Legs as in *albida*. Length .50-.90 inch; 13-23 mm.

*Male.* First joint less than half the length of head, feebly flattened and not contorted at tip, second joint cylindrical, slightly longer than half the first, and somewhat shorter than third, joints 3-11 sub-equal and gradually more slender to tip. Anterior tibiæ bicalcarate. Femora entirely pubescent beneath. Sixth abdominal segment feebly emarginate at tip.

*Female.* Antennæ scarcely differing from the male, but with the basal joints more slender. Sixth abdominal segment sub-truncate.

The thorax of this species is rather shorter than *albida* or *longicollis* which it most resembles, but for their separation the sexual characters as given in the table must be relied on.

Not rare in Kansas, Colorado and Texas.

*M. segmentata*, Say. Journ. Acad. III, p. 308; Lec. Proc. Acad. 1853, p. 342; *valida*, Lec. Journ. Acad. IV, 1858, p. 39.

Body above entirely black, clothed with short black pubescence. Head feebly shining densely punctulate. Thorax nearly as broad as long, sides in front arcuate to apex, disc moderately convex, median line feebly impressed in front, more deeply and broadly impressed at base, surface densely punctulate, sparsely pubescent with black, and with the apical and basal margins fimbriate with short cinereous hairs. Elytra scarcely broader at base than thorax and gradually broader behind, surface subopaque, finely scabro-punctate and sparsely clothed with short black hairs. Body beneath black, more shining than above, punctulate and pubescent with short black hairs, the coxæ and apices of the abdominal segments margined with short white pubescence. Legs entirely black, densely punctulate and sparsely pubescent. Length .52-.92 inch; 13-23 mm.

*Male.* First joint of antennæ shorter than half the head, slightly thicker externally and feebly flattened, second half the length of first and slightly shorter than the third, fourth shorter than third and equal to second, joints 4-11 sub-equal and gradually more slender to tip. Sixth abdominal segment feebly emarginate.

*Female.* Antennæ not differing in form from the male and somewhat more slender. Sixth abdominal segment somewhat sub-truncate.

This species is usually very feebly winged, the wings being very small and rudimentary, specimens however occasionally occur with the wings

as well developed as in the other *Macrobases*, and in no other respect differing from the other individuals. The abdominal segments beneath are rarely entirely black. *M. valida* Lec. does not appear to differ in any other respect than in being larger than the forms found in Kansas and recognized as the typical forms of the species.

Occurs from Kansas to Texas and Arizona.

Of the following species we possess females only and their proper places cannot therefore be assigned them in accordance with the characters made use of in the table at the beginning of the genus. They are as follows :

*M. sublineata*, Lec. Proc. Acad. 1853, p. 447.

Form similar to *albida*. Head black, densely punctulate and densely cinereo-pubescent. Thorax slightly longer than wide and widest slightly in front of middle, sides in front obliquely narrowed, disc feebly convex, dorsal channel obliterated in front, shallow at base, surface punctulate and pubescent. Elytra black, finely punctato-scabrous, apex cinereo-pubescent, remainder of surface with cinereous and black pubescence intermixed, and with three very fine lines of totally black hairs. Body beneath black, densely cinereo-pubescent. Length 1.05 inch ; 26 mm.

*Male* unknown.

*Female*. Antennæ of same form as in *longicollis*. From the structure of the antennæ of the unique before me, it is probable that were the male known its position would be near *longicollis*.

One female from Texas.

*M. tenella*, Lec. Journ. Acad. IV, 1858, p. 23. Head pale yellowish testaceous, moderately shining, very sparsely punctured and sparsely cinereo-pubescent. Thorax colored as the head, longer than wide, narrower than the head, surface rather densely punctured and sparsely pubescent. Elytra black, punctured, sparsely pubescent with cinereous hairs. Body beneath piceous, mesosternum and tip of abdomen pale rufo-testaceous. Legs pale rufo-testaceous. Length .48 inch ; 12 mm.

Antennæ pale testaceous, first joint one-third the length of head, scarcely broader to apex and feebly flattened, second joint longer than half the first, third slightly longer than the second, fourth equal to second, joints 4-11 sub-equal and slender.

I cannot determine with certainty the sex of the specimens before me, as they are so injured at the tip of the abdomen as to be unfit for determination. The characters given serve to distinguish it from all the other species in the genus. In the list it appears as an *Epicauta*.

Collected by Captain Pope, on the Staked Plain of Texas.

*M. linearis*, Lec. Journ. Acad. IV, 1858, p. 23.

Form slender, elongate. Head piceo-testaceous, moderately shining, punctulate and sparsely cinereo-pubescent. Thorax narrower than the head, one-fourth longer than wide, sides behind parallel, anteriorly obliquely narrowed to the apex, color piceous, surface moderately shining, punctured, sparsely cinereo-pubescent and with fine smooth median line. Elytra luteous, finely punctate-scabrous and sparsely cinereo-pubescent.

Body beneath and legs piceous, moderately shining, sparsely punctured and cinereo-pubescent. Length .46 inch; 12 mm.

Resembles *virgulata* in form and in the structure of the antennæ of the female. The discovery of the male is necessary to determine its position with certainty.

One female, Staked Plain, Texas.

**EPICAUTA. Fab.**

This genus is closely allied to *Macrobasis* and differs in having the first joint of the antennæ usually shorter, rarely equal to, and never longer than the third; the second joint is never greater in length than half the third. These characters apply equally well for both sexes.

The species are moderately numerous in our fauna, and may be divided for convenience of study in the following manner:

- A. Antennæ similar in thickness throughout, joints cylindrical and closely articulated. Eyes prominent, coarsely granulated, feebly or not emarginate in front and nearly as wide as long.
- Pubescence sparse, black and erect.
  - Head and thorax very sparsely punctured and with shining surface..... *oblita.*
  - Head and thorax densely punctured and less shining. *puncticollis.*
- Pubescence usually dense, always recumbent, and generally cinereous, ferruginous or fulvous, sometimes nearly black.
  - Head less densely punctured than the thorax; thorax longer than wide..... *convolvuli.*
  - Head and thorax similarly punctured.
    - Thorax longer than wide..... *strigosa.*
    - Thorax as wide as long.
      - Surface of thorax equally punctured.
        - Pubescence dense concealing the surface color.
          - Thorax moderately shining, rather coarsely and densely punctured..... *ferruginea.*
          - Thorax opaque, more finely and densely punctured..... *sericans.*
        - Pubescence short, sparse; facies pruinose.... *pruinosa.*
        - Thorax with a smooth slightly elevated space on each side..... *callosa.*
  - B. Antennæ scarcely more slender to tip, joints cylindrical.
    - Eyes narrow, emarginate in front, very finely granulated, not prominent.
      - Vertex and occiput longitudinally broadly concave. *caviceps.*
    - C. Antennæ always more slender to the tip, joints loosely articulated and always more or less compressed.
      - Eyes always longer than wide (usually twice as long as wide), emarginate in front, less coarsely granulated than in A, and less prominent.

Anterior tibiæ ♂ with a single terminal spur.	
Legs rufous, elytra uniformly pubescent.....	<i>pedalis.</i>
Legs black, elytra cinereo-pubescent with denuded spots.	
Maxillary palpi ♂ normal, elytral spots, large, smooth.....	<i>pardalis.</i>
Maxillary palpi ♂ with last joint broadly dilated, elytral spots not confluent, opaque and punctulate.....	<i>maculata.</i>
Anterior tibiæ ♂ with two terminal spurs.	
Elytra vittate, head broader than thorax, thorax longer than wide.	
Elytra pale luteous, with two black stripes.....	<i>vittata.</i>
Elytra pale luteous, with three black stripes....	<i>lemniscata.</i>
Elytra not vittate, surface (less the pubescence) uni-colored.	
Legs pale rufous, elytra pale brown, finely cinereo-pubescent.....	<i>nigritarsis.</i>
Legs black, elytra black (less the pubescence).	
Body beneath with moderately long yellowish red pubescence.	
Elytra black, entire margin and transverse band with reddish pubescence.....	<i>Stuarti.</i>
Body beneath with short pubescence, either cinereous or black.	
Thorax with reddish pubescence, elytra cinereo-pubescent.....	<i>Wheeleri.</i>
Thorax with cinereous or black pubescence.	
Body cinereo-pubescent beneath.....	<i>cinerea.</i>
Body totally black, above and beneath.	
Middle and hind femora ♂ normal.	
Spurs of hind tibiæ stout, similar	
Spurs of hind tibiæ slender and acute at tip.	<i>funebris.</i>
Surface opaque, pubescence rather coarse.....	<i>fissilabris.</i>
Surface velvety, pubescence very fine.....	<i>corvina.</i>
Spurs of hind tibiæ dissimilar, outer spur broader; surface opaque, pubescence coarse....	<i>pensylvanica.</i>
Middle and hind femora ♂ with lower face broad, smooth, slightly concave longitudinally, and fimbriate on the margins.	
Spurs of hind tibiæ slender.....	<i>maura.</i>

## A.

*E. puncticollis*, Mann. Bull. Mosc. 1843, p. 288; Lec. Ann. Lyc. V, p. 162; Proc. Acad. 1853, p. 338.

Black, moderately shining; sparsely clothed with erect black pubescence. Head coarsely and moderately densely punctured. Thorax slightly longer than wide, sides in front moderately arcuate, surface moderately shining, coarsely and rather densely punctured. Elytra coarsely punctato-scabrous. Body beneath more shining than above and more sparsely punctured. Length .30-.50 inch; 8-13 mm.

Occurs abundantly from Oregon to San Diego, Cal.

*E. obliterata*, Lec. Ann. Lyc. V, p. 162; Proc. Acad. 1853, p. 339.

Very closely allied to the preceding species and differs by its rather more slender form and much less densely punctured head and thorax, although the punctures are equally coarse in both species. The antennæ also show a tendency to become more slender toward the tip, but this character is more than compensated by the broad eyes, this being especially the character of the group. Length .30-.40 inch; 8-10 mm.

Occurs at San Francisco, Cal., and also in Owen's Valley.

*E. convolvuli*, Mels. Proc. Acad. III, p. 53; Lec. ibid, 1853, p. 339; Lec. New Species, p. 157.

Black, opaque, densely punctulate, clothed with short moderately dense recumbent pubescence. Head behind the eyes red, vertex finely canaliculate. Thorax narrower than the head, and more densely punctured, one-half longer than wide, a fine median line. Elytra moderately elongate, surface granulato-scabrous. Length .30-.50 inch; 8-13 mm.

*Male*. Head opaque, punctures less deep and less numerous. Terminal abdominal segment slightly emarginate.

*Female*. Head shining, punctures coarse and more densely placed. Terminal segment rounded at tip.

In the majority of specimens the head behind the eyes is red, but in many the head is intensely black and sometimes attains an unusually large size. The pubescence of the entire surface is usually cinereous varying from this to an almost entire blackness. In the latter case the species resembles *E. pensylvanica*, from which it may be distinguished by the form of the eyes and antennæ as well as by the punctuation of the head and thorax being dissimilar.

Occurs from Pennsylvania to Texas.

*E. strigosa*, Sch. Syn. Ins. III, App. p. 18; Lec. Proc. Acad. 1853, p. 341; *nigricornis*, Mels. Proc. Acad. III, p. 53.

Body black. Head densely punctured, at middle finely canaliculate, clothed with cinereous or ferruginous pubescence. Thorax longer than wide, feebly narrowed to the front, surface densely punctured, densely clothed with cinereous or ferruginous pubescence with a dark line on each side of middle. Elytra finely punctato-scabrous, clothed similarly to the thorax and with a moderately broad black vitta near the suture and

another near the side. Body beneath and legs black, densely punctulate, more shining than the upper surface and sparsely cinereo-pubescent. Length .26-.40; 7-10 mm.

The form above described in which the thorax has the two black spaces on the disc and the elytra each with two black lines, is that which is most commonly seen; from this the elytra may become almost entirely black or entirely ferruginous. The totally black forms resemble *E. pensylvanica* and the ferruginous *E. ferruginea*. The form of the eyes and antennæ distinguish it from the former, and the form of the thorax from the latter.

Occurs from Pennsylvania to Georgia.

*E. ferruginea*, Say. Journ. Acad. III, p. 298.

Black, densely clothed with cinereous, luteous or ferruginous pubescence. Head shining, moderately punctured. Thorax slightly wider than long, broadly sub-campanulate, sides in front arcuate, surface shining, coarsely but not densely punctured. Elytra finely scabro-punctate. Body beneath black, shining, moderately punctured, sparsely pubescent. Length .12-.36 inch; 3-9 mm.

The forms with paler vestiture resemble *E. sericans*, but the thorax is more coarsely and less densely punctured and more shining, and the pubescence coarser and less dense. The species here described is not that of Leconte (Proc. Acad. 1853, p. 341), which is merely the ferruginous variety of the preceding species. Say's type was collected on the Plains west of the Mississippi, and doubtless is the one here described. It is one of the most abundant species of the region indicated, extending from Dacota to New Mexico.

*E. sericans*, Lec. New Species, p. 158; ? *immerita*, Walker, Nat. Brit. Col. II, p. 330.

Black, rather densely clothed with cinereous pubescence tending in color to luteous. Head densely and finely punctured. Thorax as wide as long, sides in front broadly arcuate to apex, surface sub-opaque densely and finely punctured. Elytra densely punctato-scabrous. Body beneath more shining than above, less densely punctulate. Length .30-.50 inch; 8-18 mm.

The specimens with the ferruginous pubescence resemble the preceding species, but may be at once distinguished by the much more dense punctuation of the head and thorax.

Occurs abundantly from Kansas to New Mexico and Oregon.

*E. pruinosa*, Lec. New Species, p. 158.

Similar in form to the preceding, and differs in the pubescence being very short, sparse, white and not concealing the surface but merely giving it a pruinosa aspect. The punctuation of the surface is also much finer and less dense. Length .30-.50 inch; 8-12 mm.

Occurs with the preceding species, but not farther west than Utah.

**E. callosa**, Lec. New Species, p. 158.

In sculpture resembles *E. ferruginea*, and differs in this respect only in having on each side of the median line a small smooth callus. The pubescence is, however, coarser and fulvous. Length .40-.50 inch; 10-12 mm.

Occurs from Dakota to Texas.

The pubescence is very fine and very apt to be lost, in which case the surface color alone appears and the species becomes totally black.

## B.

**E. caviceps**, nov. sp.

Black, moderately shining, sparsely clothed with fine whitish pubescence. Head black, fine, punctulate, vertex and occiput broadly concave; eyes very narrow, scarcely one-third as wide as long; antennæ scarcely more slender to tip and nearly half as long as the body. Thorax broadly oval, sides arcuate and gradually narrowed to apex, surface moderately convex, feebly shining, and minutely punctulate. Elytra black, finely scabrous, sparsely clothed with cinereous pubescence, sutural margin in front of middle thickened for a short distance and somewhat elevated.

Body beneath black, sparsely pubescent with white, and rather densely punctulate. Length .30-.40 inch; 7.5-10 mm.

Two specimens are before me, both females, which differ from all the species in our fauna by the broadly excavated vertex and occiput. The elytra at basal third along the suture are elevated into a slight hump, apparently caused by the thickening and elevation of the sutural margin at that place. The pubescence as in *E. pruinosa* is fine and apt to be lost when the species appears black with a very slight lustre.

Two specimens from Arizona, kindly loaned by Mr. Ulke.

## C.

**E. pedalis**, Lec. New Species, p. 157.

Black, sparsely cinereo-pubescent. Head sparsely punctured, median line finely impressed. Thorax longer than wide, sides behind parallel, at apical third moderately arcuate, median line rather deeply impressed, surface moderately shining, coarsely but not densely punctured. Elytra finely punctato-scabrous and sparsely pubescent. Body beneath black, moderately shining, sparsely punctulate and pubescent. Legs rufous, anterior tibiæ, knees and all the tarsi somewhat darker. Length .36 inch; 9 mm.

Three males are before me having a single spur to the front tibia, slightly arcuate and directed inwards.

Lower California.

**R. pardalis**, Lec. New Species, p. 157.

Head black, shining, with large smooth spaces, between which the surface is finely and sparsely punctulate and sparsely pubescent. Thorax as broad as long, sub-campanulate, punctured similarly with the head.

Elytra black and shining, with large smooth spaces between which the finely punctured portions are covered with cinereous pubescence forming anastomosing lines. Body beneath black, shining, sparsely pubescent and sparsely punctulate. Length .36-.54 inch; 9-14 mm.

*Male.* Anterior tibiae unicalcarate, last joint of maxillary palpi elongate oval, truncate at apex.

Closely allied to the next species, and differs in the smoother surface and the form of the last joint of the maxillary palpi. It is probable that the surface character may change in localities and that the pubescence may cover as much of the surface as in the next species. Should this occur the form of the last joint of the maxillary palpi of the male affords the only means of distinguishing the two species.

Occurs in Arizona.

*E. maculata*, Say. Journ. Acad. III, p. 298; Lec. Proc. Acad. 1853; p. 340; *conspersa*, Lec. ibid.

Black, opaque, cinereo-pubescent. Head densely and finely punctured. Thorax as broad as long, anterior angles broadly rounded, median line finely impressed, surface finely punctulate. Elytra opaque, cinereo-pubescent, with round denuded spots, distinct from each other, and which are opaque and finely scabrous. Body beneath black, moderately densely punctulate and sparsely pubescent. Length .30-.70 inch; 8-18 mm.

*Male.* Last joint of maxillary palpi as broad as long, rounded and flattened, penultimate joint broadly triangular. Anterior tibiae unicalcarate.

The females are always larger than the males, and with the denuded spots more numerous and of greater size. The males are sometimes very minutely maculate and superficially resemble *E. sericans*.

Abundant from New Mexico northward to Dakota and thence westward to California and Oregon.

*E. vittata*, Fab. Syst. Enb. p. 260; Oliv. Ent. III, 46, p. 13, pl. 1, fig. 3; Lec. Proc. Acad. 1853, p. 340; *Chapmani*, Woodh. Med. Repos. III, p. 214.

This species is too well known to need description here. Length .50-.80 inch; 13-20 mm.

Occurs abundantly in early summer on the vines of potato and tomato, in the Middle States.

*E. lemniscata*, Fab. Syst. El. p. 279; Lec. Proc. Acad. 1853, p. 341.

Closely resembles the preceding species; differs as follows: Elytra with three black vittæ, legs pale rufo-testaceous, body beneath never entirely black. More slender than *E. vittata*. Length .70-.80 inch; 15-20 mm.

Occurs in the Southern States where it replaces the preceding species.

*E. nigritarsis*, Lec. Pro. Acad. 1853, p. 340.

Head piceous, densely punctulate, sparsely cinereo-pubescent. Thorax as wide as long, rufo-piceous, median line finely impressed, disc densely punctulate, sides slightly divergent behind, in front broadly arcuate to apex. Elytra rufous inclining to pale brownish, finely scabrous, and

finely and sparsely cinereo-pubescent. Body beneath black, moderately shining, sparsely pubescent and rather densely punctulate. Legs rufous, tarsi piceous. Length .36-.60 inch ; 9-15 mm.

Collected on the Mexican Boundary Survey, probably Texas or New Mexico.

E. Stuart, Lec. Trans. Am. Ent. Soc. 1868, p. 54.

Head black, densely punctulate, behind the eyes densely clothed with fulvous pubescence, occiput with black pubescence, median line moderately impressed deeper at vertex. Thorax broader than the head, one-fourth broader than long, sides arcuate and gradually narrowing to apex, surface densely punctulate densely clothed with moderately coarse fulvous hairs, with a large spot on each side more sparsely nigro-pubescent. Elytra broader than the thorax, gradually dilated to apex, punctato-scabrous, with the pubescence arranged as follows: Lateral and apical margins broadly, sutural very narrowly fulvo-pubescent, a broad band in front of middle fulvo-pubescent, the four spaces thus enclosed are less densely pubescent with black. Body beneath black, shining, fulvo-pubescent, with spaces pubescent with black at the middle and sides of the abdominal segments. Legs black, sparsely fulvo-pubescent. Length .30-.56 inch ; 7.5-14 mm.

Occurs in eastern New Mexico. The aspect is that of *Tetraonyx*.

E. Wheeleri, Ulke. Report of an Exploration in Nevada and Arizona. (See note under *C. tenebrosa*.)

Head black, shining, very sparsely punctured and very sparsely cinereo-pubescent. Thorax black, not wider than the head, as wide as long, sides moderately arcuate, anterior angles broadly rounded, median line finely impressed, surface densely punctured and densely clothed with semi-erect fulvous pubescence, with a very narrow cinereous basal line. Elytra black finely punctato-scabrous, sparsely and very finely cinereo-pubescent. Body beneath black, feebly shining, sparsely punctulate and cinereo-pubescent. Legs black, more densely pubescent than the under surface. Length .30-.44 inch ; 7.5-11 mm.

Collected by the Expedition under Lieut. Wheeler in Arizona,

*E. cinerea*, Forst. Nov. Spec. Ins. Cent. 1771, p. 62; Pallas, Icon. p. 98, pl. E, fig. 30; Lec. Proc. Acad. 1853, p. 339; *clematidis*, Woodh. Med. Repos. III, p. 213; *fimbriata*, Thunb. Diss. Nov. Ins. Sp. VI, p. 109; *marginata*, Fab. Syst. Ent. 1775, p. 260; Oliv. Ent. III, 46, p. 15, pl. 1, fig. 2.

Black, densely punctulate, beneath densely clothed with cinereous pubescence, vesture of upper surface variable. Head densely punctulate, median line feebly impressed, sparsely cinereo-pubescent. Thorax longer than wide, sub-campanulate, densely punctulate, frequently entirely cinereo-pubescent, usually with a large triangular discal space black, divided by a cinereous line along the middle. Elytra very finely punctato-scabrous, either cinereo-pubescent over the entire surface or

merely very narrowly margined with cinereous at sides, suture and apex. Legs black, cinereo-pubescent, tarsi black. Length .40-.60 inch; 10-15 mm.

The form clothed over the entire surface with cinereous does not appear to be separable from that with the greater portion of the elytral surface clothed with black, excepting in this one character alone.

Occurs in the Middle States.

*E. funebris*, nov. sp.

Black, sub-opaque, moderately clothed with rather coarse black pubescence. Head finely and densely punctulate, median line finely impressed, surface sparsely pubescent. Thorax narrower than the head, slightly longer than wide, sides at basal two-thirds parallel, at apex arcuate; surface densely punctulate and sparsely pubescent. Elytra gradually divergent to apex, opaque, finely punctato-scabrous, and sparsely pubescent. Body beneath and legs black, moderately shining, punctulate and sparsely pubescent. Spurs of hind tibiae similar to each other, stout, cylindrical, obliquely truncate and concave at tip. Length .76 inch; 19 mm.

Resembles *E. fissilabris* but differs by the form of the hind tibial spurs.

Three specimens from Texas.

*E. fissilabris*, Lec. Agassiz, Lake Superior, p. 232; Proc. Acad. 1853, p. 339.

Closely resembling the preceding species in sculpture and color, and differs as follows: Thorax shorter, sides less parallel, spurs of hind tibiae slender acute and of equal length, labrum more deeply emarginate. Length .68 inch; 17 mm.

Occurs in the Lake Superior and Hudson's Bay Regions.

*E. corvina*, Lec. Journ. Acad. IV, 1858, p. 21.

Black, densely punctulate, feebly shining, sparsely pubescent with short black hairs, aspect velvety. Head densely punctulate. Thorax slightly wider than long, densely punctulate, sparsely pubescent, sides parallel behind, at apical fourth arcuate. Elytra robust, slightly broader to apex, surface minutely punctured, very sparsely and finely pubescent. Body beneath more shining than above, moderately punctulate and sparsely pubescent. Length .80-1.10 inch; 20-28 mm.

The largest species of the genus in our fauna. The spurs of the hind tibiae are acute at tip, slender, the outer somewhat stouter than the inner.

Occurs from Colorado to Arizona.

*E. pensylvanica*, De Geer, Mem. V, 1775, p. 15, pl. 13, fig. 1; Lec. Proc. Acad. 1853, p. 339; *atrata*, Fab. Syst. Ent. p. 260; Oliv. Ent. III, 46, p. 17, pl. 2, fig. 19; *coracina*, Illig. Mag. III, p. 171; *nigra*, Woodh. Med. Repos. III, p. 213; *morio*, Lec. Proc. Acad. 1853, p. 447.

This species is so common and so well known that any description is unnecessary. By its surface sculpture and pubescence it resembles *E. funebris* and *E. fissilabris*, but differs from all the black species in having

the outer spur of the hind tibiæ stouter and broader than the inner. *E. morio* is slightly more robust but does not otherwise differ. Length .28-.50 inch; 7-13 mm.

Occurs from the Middle States to Texas.

*E. maura*, Lec. Ann. Lyc. V, p. 162; Proc. Acad. 1853, p. 339.

Black, shining, very sparsely pubescent with black hairs. Head shining sparsely punctulate. Thorax longer than wide, very sparsely punctate, sides at apical third slightly broader. Elytra gradually divergent, subopaque, finely scabrous, very sparsely pubescent. Body beneath black, more shining than the upper surface, sparsely punctulate and pubescent. Spurs of hind tibiæ slender and acute. Length .32-.40 inch; 8-10 mm.

*Male*. Middle and hind femora with lower face broad, slightly concave, smooth, and with the margins fimbriate.

Occurs at San Francisco and San Diego, California.

*Epicauta sanguinicollis*, Lec. Proc. Acad. 1853, p. 344, is unknown to me in nature, having been originally described from a drawing. I cannot assign it a place in the foregoing revision.

In the preceding descriptions but little mention has been made of the sexual characters of each species. In this genus, great uniformity prevails, and in fact the sexes vary but little in the structure of their terminal segments and are, as follows :

*Male*. Fifth ventral segment truncate, rarely feebly emarginate, sixth oval slightly emarginate at tip.

*Female*. Fifth ventral always truncate, sixth oval rounded at tip.

#### CANTHARIS, Linn.

##### *Lytta* auct.

The species of *Cantharis* known to exist within our faunal limits have become moderately numerous and since the publication of the synopsis of the family *MELOIDÆ* (Proc. Acad., 1853, pp. 328 et seq.) no attempt has been made to bring them before our students in the sense in which the term *Lytta* has since been restricted (Class. Col. N. Am., p. 273).

In order that the object of the present essay may be the better attained, the species may be divided into three primary groups.

GROUP I. Antennæ of male with intermediate joints (4-5-6-7) either deformed or much thicker than those which precede or follow. Antennæ more or less moniliform in both sexes, gradually stouter to tip in the female and rarely longer than the head and thorax, never equal to half the length of body. Type, *C. vulnerata*, Lec.

GROUP II. Antennæ not dissimilar in structure in the sexes, either moniliform or slender, always gradually stouter toward the tip, in several species longer than half the length of body. Types, *C. cardinalis*, Chev. (moniliform antennæ), *C. stygica*, Lec. (slender antennæ.).

GROUP III. Antennæ with compressed joints; joints 5-10 usually broader than long, thorax very convex, somewhat spherical in form. Both hind tibial spurs slender and acute. Type, *C. compressicornis*, Horn.

## GROUP I.

This group contains nearly all the large and imposing species of the genus, which may be arranged as follows :

Antennæ ♂ with joints 4-5-6 having a prolongation from their upper side.	
Middle tibiæ ♂ flattened and near the tip somewhat contorted.....	<i>eucera.</i>
Antennæ ♂ with joints 4 to 7 thicker than the others.	
Pygidium ♂ prolonged and dilated at tip.....	<i>quadrimaculata.</i>
Pygidium ♂ not dilated at tip.	
Pygidium ♂ elongate oval more or less acute at tip.	
Head and thorax black, thorax not pentagonal...	<i>melaena.</i>
Head and thorax red, thorax pentagonal strongly angulate at the sides.	
Legs entirely red, elytra strongly reticulate....	<i>magister.</i>
Legs entirely black.	
Elytra obsoletely reticulate.....	<i>vulnerata.</i>
Elytra strongly reticulate.....	<i>var. Cooperi.</i>
Pygidium ♂ broad, truncate.	
Hind trochanter ♂ with acute spine.	
Fifth abdominal segment ♂ broadly emarginate, lateral lobes prominent.....	<i>Nuttali.</i>
Fifth abdominal segment ♂ deeply and acutely notched lateral lobes broadly rounded.....	<i>cyanipennis.</i>
Hind trochanter ♂ mutic.	
Body above not pubescent; tibiæ nearly glabrous.	
Joints 4-7 ♂ antennæ with short hairs; surface metallic.....	<i>viridana.</i>
Antennæ not hairy; surface of body black.	
Thorax pentagonal, sides angulate.....	<i>lugubris.</i>
Thorax longer than wide, sides moderately rounded.....	<i>Childii.</i>
Thorax broader than long, sides strongly arcuate.....	<i>tenebrosa.</i>
Body above pubescent; tibiæ rather densely pubescent.	
Body above black; thorax coarsely punctured.	<i>puberula.</i>
Body above in great part yellow; thorax nearly smooth, base at middle emarginate..	<i>biguttata.</i>

C. *eucera*, Chev. Col. Mex. Centur. I, No. 56, 1834.

Head black, impunctured, occiput rufous with narrow median black line. Antennæ black, joints 4-5-6 with a prolongation from their upper distal angle ♂. Thorax black with very few fine punctures, pentagonal, lateral angles not prominent. Elytra black, elongate, parallel, feebly

shining, surface finely scabrous. Body beneath and legs black, moderately shining. Length 1-1.15 inch; 25-29 mm.

*Male.* Antennæ as above. Middle tibiæ flattened and slightly contorted. Fifth ventral segment truncate, sixth moderately prominent and feebly emarginate at tip. Last dorsal segment moderately prominent and broadly rounded at tip.

*Female.* Sixth ventral segment oval at tip. Antennæ not seen.

The inner spur of the hind tibiæ is moderately stout but acute at tip, the outer spur much stouter, very obliquely truncate and laminiform at tip.

Specimens of this species said to have been collected in Texas near the Mexican border are before me.

*C. quadrimaculata*, Chev. Col. Mex. Centur. I, No. 79, 1834:

Head black, coarsely punctured, moderately shining, vertex with rufous spot. Thorax sub-quadrata, sides in front broadly rounded, disc very feebly convex, surface sparsely punctured, shining, color yellow with four small black spots, the inner two larger. Elytra yellow with an irregular triangular spot at basal third and a larger spot at apical third on each elytron, black; surface scabrous. Body beneath black, with cinereous hairs. Length .60-.80 inch; 15-20 mm.

*Male.* Antennæ with joints 4-7 stouter. Fifth ventral segment slightly emarginate, sixth moderately prominent deeply emarginate with the lateral processes prominent. Last dorsal segment prolonged at apex and with the tips dilated.

*Female.* Antennæ not seen. Sixth ventral and last dorsal segments oval at tip.

The spurs of the hind tibiæ are as in the preceding, but the outer is less obliquely truncate and more dilated at apex. The base of thorax at middle is slightly emarginate as in *biguttata* but in a less marked degree.

Occurs with the preceding species.

*C. melaena*, Lec. Proc. Acad. 1858, p. 76.

Black, moderately shining. Head very sparsely punctate. Thorax sub-quadrata, sides in front broadly arcuate, surface very sparsely punctate. Elytra finely scabrous. Body beneath black, moderately shining, pectus sparsely pubescent. Length .60-.80 inch; 15-20 mm.

*Male.* Antennæ with joints 4-7 stouter. Fifth ventral segment truncate at middle, sixth deeply emarginate and longitudinally broadly impressed, lateral processes obtuse, moderately prominent. Last dorsal segment acutely oval at tip. Middle tibiæ flat and strongly compressed near the tip.

*Female.* Sixth ventral segment sub-truncate at apex. Last dorsal broadly oval. Antennæ moniliform gradually thicker to tip. The hinder tibial spurs are similar to those of *C. eucera*.

Occurs near the boundary of Arizona and Sonora.

*C. magister*, Horn. Trans. Am. Ent. Soc. 1870, p. 90.

Head and thorax orange yellow, shining, very sparsely punctulate. Antennæ brown, basal joint yellow. Thorax sub-pentagonal, sides moderately prominent, disc flattened. Elytra piceous, surface with very coarse reticulations. Body beneath piceous, middle of pectus frequently yellow. Legs and coxae, orange yellow, glabrous, tarsi brownish. Length .90-1.40 inch; 23-35 mm.

*Male*. Antennæ as in *melaena*. Fifth ventral truncate, sixth deeply emarginate, lateral processes moderately prominent. Last dorsal segment oval at tip. Middle tibiæ feebly arcuate not flattened.

*Female*. Antennæ as in *melaena*. Fifth ventral sub-truncate, sixth moderately prominent and sub-truncate at tip.

Hind tibial spurs similar to each other, slender. The largest species of the genus in our fauna. Occurs from Owen's Valley, California, to the Gila River, Arizona.

*C. vulnerata*, Lec. Ann. Lyc. V, p. 159; Proc. Acad. 1853, p. 331; *var. Cooperi*, Lec. Proc. Acad. 1854, p. 18; Pacif. R. R. Rep. 1857, p. 51, pl. 2, fig. 6.

Head orange yellow, between the eyes piceous, surface nearly impunctured. Thorax pentagonal, lateral angles prominent, disc flattened, smooth, color orange yellow, frequently with broad median piceous stripe. Elytra black sculpture variable. Body beneath and legs black, moderately shining. Length .40-1.10 inch; 10-28 mm.

*Var. vulnerata*, Lec. Elytra scabrous varying to finely reticulate.

*Var. Cooperi*, Lec. Elytra coarsely reticulate varying to finely reticulate.

*Male*, as in *melaena*. Fifth ventral sub-emarginate, sixth deeply emarginate with lateral processes moderately protuberant. Last dorsal segment acutely oval at tip.

*Female*. Fifth ventral sub-emarginate, sixth oval and sub-truncate at tip. Last dorsal oval at tip.

Outer spur of hind tibiæ stouter than the inner and slightly dilated at tip.

Occurs from Fort Tejon southward to San Diego, thence north to Owen's Valley, California, and thence by the desert regions of Nevada to Southern Oregon. Very abundant.

*C. Nuttali*, Say, Journ. Acad. III, p. 300; Am. Ent. pl. 3; Proc. Acad. 1853, p. 334; *fulgifer*, Lec. Jour. Ac. N. S. I, p. 90; Proc. Ac. loc. cit.

Head brilliantly æneous, sparsely punctate. Thorax sub-pentagonal surface of disc irregular, shining, sparsely punctate, and brilliantly æneous, sometimes with bluish or cupreous tinge. Elytra with brilliant cupreo-metallic lustre, surface finely reticulato-scabrous. Body beneath and legs metallic green. Length .64-1.10 inch; 16-28 mm.

*Male*. Antennæ as in *melaena*. Fifth ventral broadly emarginate, emargination at bottom bisinuate, lateral lobes obtuse, moderately prominent, sixth ventral produced, deeply cleft and pilose at apex. Last dorsal

segment tubuliform and truncate. Hind trochanter with acute spine at middle.

*Female.* Fifth ventral sub-truncate, sixth with rounded notch. Hind trochanter sub-angulate. Antennæ as in *melæna*.

Spurs of hind tibiæ dissimilar, inner slender acute, outer broader obliquely truncate and laminiform at tip.

Occurs abundantly in Western Kansas and in Colorado.

*C. cyanipennis*, Lec. Ann. Lyc. V, p. 160; Proc. Acad. 1853, p. 333; *salicis*, Lec. loc. cit.

Head metallic green, shining, sparsely punctured. Thorax sub-pentagonal, sides obtusely prominent, disc uneven, sparsely punctured, color metallic green. Elytra parallel, bluish or violet, finely scabrous. Body beneath with bluish or greenish metallic lustre. Length .50-.70 inch; 13-18 mm.

*Male.* Antennæ with intermediate joints moderately thickened. Fifth ventral segment not deeply emarginate at middle, on each side broadly rounded, sixth ventral elongate, deeply cleft. Last dorsal segment tubuliform truncate at apex. Hind trochanters with short spine at middle.

*Female.* Antennæ gradually thickened to tip. Fifth ventral truncate, with semi-circular emargination. Hind trochanter neither armed with a spine nor sub-angulate.

Spurs of hind tibiæ dissimilar, inner slender acute, outer somewhat stouter, very obliquely truncate and laminate at tip.

The variety *salicis* cannot be separated specifically, it differs by being entirely blue or violet. A variety occurs in Oregon entirely green.

Its distribution extends from Utah to Oregon.

*C. viridana*, Lec. New Species, p. 162.

Head metallic green, shining, sparsely punctured. Thorax scarcely sub-pentagonal, surface uneven, color greenish metallic, shining with few punctures. Elytra parallel, surface finely scabrous, varying in color from green to violet. Body beneath bluish or violet with greenish reflection. Length .60-.70 inch; 15-18 mm.

*Male.* Joints 4-8 thicker, anterior face pilose with short hairs. Fifth ventral segment broadly emarginate at middle, six prolonged and deeply cleft. Last dorsal truncate. Hind trochanters mutic.

*Female.* Antennæ as in *cyanipennis*. Fifth ventral segment truncate, sixth semi-circularly emarginate.

Spurs of hind tibiæ as in *cyanipennis*.

Resembles the preceding species but may be known by the male having the hind trochanters simple, and intermediate joints of antennæ pilose. Its distribution from the Platte Valley northward to Fort Edmonton.

*C. lugubris*,\* Ulke. Explorations in Nevada and Arizona Expedition of 1871, Lieut. G. M. Wheeler, commanding.

\* Through the kindness of Mr. H. Ulke, of Washington, I have been permitted to study this species and also *Epicauta Wheeleri*, which are described by him in the forthcoming report of Lieut. Wheeler. As no copy of the work has yet been received I am unable to quote the pages on which they are described.

Black, sub-opaque. Head between the eyes rugous, occiput with coarse punctures. Thorax as wide as the head, sub-pentagonal, sides moderately prominent, disc convex, surface transversely wrinkled and coarsely punctured. Elytra broader at base than head or thorax, parallel surface finely scabrous. Body beneath and legs black, feebly shining. Length .70 inch ; 18 mm.

*Male.* Antennæ with joints 5-6-7 decidedly thickened. Fifth abdominal segment truncate, sixth broadly emarginate lateral processes mammiform moderately prominent. Last dorsal segment rotundato-truncate.

*Female.* Antennæ as in *cyanipennis*. Fifth ventral truncate, sixth oval slightly emarginate at tip.

Spurs of hind tibiae as in *cyanipennis*.

In color resembles *Childii*, but allied by form of thorax to the preceding species. Its sexual characters resemble those of the *melæna* but the two species differ in the form of the last dorsal segment of the male as well as in the form of the thorax.

The species occurs in California.

*C. Childii*, Lec. Pacif. R. R. Rep. p. 52.

Black, feebly shining. Head sparsely punctured. Thorax sub-quadrata, somewhat longer than wide, slightly narrowed at base, sides in front arcuate, surface sparsely punctured. Elytra parallel, very finely scabrous. Body beneath and legs black, moderately shining. Length .60-.70 inch ; 15-18 mm.

*Male.* Antennæ as in *cyanipennis*. Fifth ventral segment broadly notched at middle, sixth prolonged and deeply cleft, last dorsal truncate.

*Female.* Antennæ as in *cyanipennis*. Fifth ventral truncate, sixth acutely notched.

Inner spurs of hind tibiae slender, acute, outer cylindrical obliquely truncate and concave at apex.

Occurs in the Sacramento Valley, California.

*C. tenebrosa*, Lec. Ann. Lyc. V, p. 160 ; Proc. Acad. 1853, p. 333.

Black, sub-opaque, form moderately robust. Head opaque, finely rugulose, coarsely but sparsely punctured. Thorax opaque sparsely punctured, more densely near the sides, broader than long, sides strongly arcuate in front, slightly narrowed to base. Elytra finely scabrous, less opaque than the thorax. Body beneath and legs black, moderately shining. Length .70-.80 inch ; 19-20 mm.

*Male.* Unknown.

*Female.* Fifth ventral segment broadly rounded, sixth oval very slightly emarginate at tip.

Spurs of hind tibiae both acute, the outer broader.

Not having seen the male either of this species or the next it is impossible to say with certainty that they should be referred to the present group. Their affinities, however, appear to be here rather than in the following group.

Occurs in the region of San Diego, California.

*O. puberula*, Lec. New Species, p. 162.

Black, very feebly shining, surface moderately clothed with short erect cinereous pubescence. Head coarsely punctured. Thorax as long as wide, sides anteriorly arcuate, behind nearly parallel, base feebly emarginate at middle, disc moderately convex, coarsely punctured. Elytra slightly broader behind, surface coarsely scabrous. Body beneath black, more shining than above. Legs, especially the tibiæ cinereo-pubescent. Length .50 inch ; 13 mm.

*Male.* Unknown.

*Female.* Antennæ gradually thicker to tip. Fifth ventral truncate, sixth scarcely prominent, broadly oval at tip.

Inner spur of hind tibiæ slender, acute, outer cylindrical compressed, obliquely truncate at tip.

One female from Arizona readily known by the above characters from any species in our fauna in either group.

*O. biguttata*, Lec. Proc. Acad. 1853, p. 332.

Body sparsely clothed with yellowish pubescence. Head black, shining, sparsely punctured. Thorax sub-quadrata, anterior angles broadly rounded, disc moderately convex, smooth, scarcely punctate; color pale yellow with four black spots in transverse arcuate line, the middle two larger, oval, the outer minute. Elytra parallel, scabro-punctate, color pale yellow with one oval spot on each at apical three-fourths. Body beneath black, moderately shining, abdomen at tip yellow. Femora yellow, tips piceous, tibiæ and tani piceous, the former pubescent. Length .30-.60 inch ; 7.5-15 mm.

*Male.* Antennæ with joints 4-5-6 stouter. Fifth abdominal segment broadly emarginate, sixth very deeply and narrowly emarginate, lateral processes acute and prominent. Last dorsal segment truncate.

*Female.* Antennæ very feebly dilated at tip. Fifth segment truncate, sixth broadly oval and very feebly emarginate at tip.

Spurs of hind tibiæ as in the preceding species.

From the form above described this species varies to one totally yellow above and beneath, on which only faint traces of the elytral spot and the two middle thoracic spots may be seen. In those specimens in which the head is black, the legs are more or less black, when the head is yellow the knees only are black.

This species occurs abundantly in Arizona and New Mexico.

## GROUP II.

In this group the antennæ scarcely differ in the sexes, being at most merely stouter in the male. The larger species have the antennæ moniliform as in the preceding group, while the smaller forms have the antennæ slender and the joints of greater length but always cylindrical. In these latter the antennæ frequently equal or slightly exceed in length half the entire length of the insect. The species may be divided in the following manner.

Anterior tibiae ♂ with a single spur.....	<i>moerens.</i>
Anterior tibiae ♂ with two spurs.	
Outer spur of hind tibiae, stout, cylindrical, broader at tip and concave.....	1
Outer spur more slender, very obliquely truncate and laminiform at tip.....	2
1. Elytra black.	
Thorax, head and legs black.	
Thorax coarsely punctured, sub-pentagonal ; Elytra coarsely reticulate.....	<i>reticulata.</i>
Thorax nearly smooth, sides rounded ; elytra finely reticulate.....	<i>cibrata.</i>
Thorax, head and femora red ; thorax scarcely punctured.....	<i>deserticola.</i>
Elytra luteous or fulvous.	
Head, thorax and elytra similar in color.....	<i>dichroa.</i>
Head and thorax black, the latter punctured.....	<i>cardinalis.</i>
2. Slender species, thorax always longer than wide and narrower than the head.	
Color above, rufo-testaceous.....	<i>nitidicollis.</i>
Color entirely black.....	<i>lugens.</i>
Color brilliant aeneous, elytra with cupreous tinge.	<i>Rathvoni.</i>
Stouter species, thorax as wide or wider than long, and as wide as the head.	
Body above unicolored.	
Color black, varying to brilliant aeneous.....	<i>stygica.</i>
Body above bicolored.	
Thorax and elytra similar in color ; hind angles of head red.....	<i>auriculata.</i>
Thorax and elytra dissimilar in color.	
Head and elytra brilliant aeneous, thorax yellowish red with median round metallic green spot.....	<i>refulgens.</i>
Head and thorax red ; elytra with faint greenish bronze surface.....	<i>aneipennis.</i>

C. *moerens*, Lec. Ann. Lyc. V, p. 216 ; Proc. Acad. 1853, p. 382.

Black, feebly shining, surface with faint bluish tinge. Head coarsely and sparsely punctured. Thorax as broad as long, sides in front arcuate, behind slightly convergent, disc feebly convex sparsely punctulate. Elytra parallel, finely scabrous. Body beneath and legs similar in color to the upper surface. Length .60-.90 inch ; 15-23 mm.

*Male.* Fifth segment broadly emarginate, sixth deeply and acutely notched. Last dorsal segment truncate. Anterior tibiae with a single terminal spur.

*Female.* Fifth segment truncate, sixth emarginate, emargination semi-circular at bottom. Anterior tibiae bicalcarate.

Inner spur of hind tibiæ slender acute, outer cylindrical slightly compressed, and obliquely truncate at tip.

Occurs abundantly from Sacramento to Tejon and thence to Keyesville and Owen's Valley, California.

*C. reticulata*, Say, Journ. Acad. III, 1823, p. 305.

Black, sub-opaque. Head coarsely but not densely punctured. Thorax sub-pentagonal, broader than long, disc moderately convex, coarsely punctured toward the sides. Elytra ornamented with raised, coarsely anastomosing lines. Body beneath black moderately shining. Length .80-1.00 inch ; 20-25 mm.

*Male*. Fifth ventral broadly emarginate, sixth acutely notched.

*Female*. Fifth ventral truncate, sixth trapezoidal truncate at tip.

Hind tibial spurs as in the preceding species.

Occurs in eastern New Mexico.

*C. cibrata*, Lec. Proc. Acad. 1853, p. 447.

Black, moderately shining. Head very sparsely punctulate, with large yellow frontal spot. Thorax as broad as long, slightly narrower toward base, sides strongly arcuate in front, disc feebly convex, smooth, very sparsely punctulate; color black, sides bordered with red. Elytra sub-opaque with fine reticulations. Body beneath black, sub-opaque, rather densely punctulate. Length .70-.80 inch ; 17-20 mm.

*Male*. Fifth ventral broadly emarginate, sixth semi-circularly notched.

*Female*. Unknown.

Hind tibial spurs as in *moerens*.

Collected in Texas by the Mexican Boundary Commission.

*C. deserticola*, Horn. Trans. Am. Ent. Soc. 1870, p. 90.

Head red, smooth. Thorax red, as broad as long, sides regularly arcuate, disc feebly convex, with very few punctures and with four minute black spots in a transverse row arcuate to the front. Elytra black, finely reticulate. Body beneath black, punctulate. Femora red tipped with black, tibiæ and tarsi black. Length .76 inch ; 19 mm.

*Male*. Unknown.

*Female*. Fifth ventral broadly rounded, sixth oval at tip and with slight emargination.

Hind tibial spurs as in *moerens*.

Strongly resembles *dichroa* in form. One specimen from south of Fort Whipple, Arizona.

*C. dichroa*, Lec. Proc. Acad. 1853, p. 332.

Head luteous, between the eyes and in front black, moderately shining, sparsely punctured. Thorax broader than long, sides moderately arcuate, at base somewhat narrower, disc moderately convex sparsely punctured, color luteous with two median small black spots. Elytra luteous less shining than the head and thorax, finely scabro-punctate. Body beneath and legs black, moderately shining. Length .74-.80 inch ; 18-20 mm.

*Male*. Fifth ventral broadly emarginate, sixth acutely notched.

*Female.* Fifth ventral broadly truncate, sixth slightly emarginate at tip. Hind tibial spurs as in *moerens*.

This species occurs in Texas and Mexico and is not rare.

*C. cardinalis*, Chev. Col. Mex. Centur. I, 1833, No. 13; Lec. Proc. Acad. 1853, p. 447; *fulvipennis*, Lec. loc. cit. p. 331.

Head black, punctate, shining. Thorax broader than long, sides moderately arcuate and obliquely narrowing to the front, disc feebly convex, densely punctate, sparsely pubescent, color black, moderately shining. Elytra opaque, orange red, or fulvous, finely scabro-punctate.

Body beneath and legs black, moderately shining. Length .60-1.00 inch; 15-25 mm.

*Male.* Fifth ventral broadly emarginate, sixth elevated along its middle and acutely notched at tip.

*Female.* Fifth ventral truncate, sixth oval at tip.

Hind tibial spurs as in *mærens*.

Occurs in Colorado, Texas and Mexico.

*C. nitidicollis*, Lee. Ann. Lyc V, p. 160; Proc. Acad. 1853, p. 332.

Head reddish yellow, shining, with few distant punctures. Thorax longer than wide, sides moderately arcuate, gradually narrowed to apex and base, disc moderately convex, smooth shining, color similar to the head. Elytra fulvous, sub-opaque, scabrous. Body beneath and legs black, moderately shining. Length .50-.70 inch; 13-18 mm.

*Male.* Fifth ventral very slightly emarginate, sixth with slight crescentic notch, lateral lobes feebly prominent.

*Female.* Unknown.

Inner spur of hind tibiæ slender acute, outer cylindric compressed, longer than the inner and concave at apex.

By their elongate form this and the two following species resemble *Epicauta*.

Occurs at San Diego, California.

*C. lugens*, Lec. Ann. Lyc. V, p. 161; Proc. Acad. 1853, p. 335.

Black, moderately shining. Head sparsely coarsely punctate. Thorax black, longer than wide, sides in front moderately arcuate, behind nearly parallel, disc moderately convex with coarse punctures sparsely placed. Elytra elongate black, less shining than the head and thorax, surface coarsely scabrous. Body beneath and legs black, moderately shining.

Length .40-.54 inch; 10-14 mm.

*Male.* Fifth ventral broadly truncate, sixth slightly emarginate at tip.

*Female.* Fifth ventral truncate, sixth oval at tip. Spurs of hind tibiæ slender, outer scarcely thicker.

Occurs at San Diego, California.

*C. Rathvoni*, Lec. Proc. Acad. 1856, p. 335.

Head brilliant metallic green, sparsely punctured. Thorax longer than wide, sides in front arcuate, behind slightly converging to base, disc convex, very sparsely punctate, color as the head. Elytra elongate parallel,

surface scabrous, with purplish tinge with greenish reflection. Body beneath and legs metallic green, shining. Length .40 inch; 10 mm.

*Male.* Fifth ventral broadly emarginate, sixth longitudinally impressed acutely emarginate at tip.

*Female.* Unknown.

Hind tibial spurs as in the preceding species.

Occurs from Sacramento to Millerton, California.

*C. stygica*, Lec. Ann. Lyc. V, p. 161; Proc. Acad. 1853, p. 335; *smaragdula*, Lec. Ann. Lyc. V, p. 160; Proc. Acad. 1853, p. 334; loc. cit. 1859, p. 78; *dolosa*, Lec. Proc. Acad. 1861, p. 354.

Head with few coarse punctures on the side of the occiput. Thorax slightly broader than long, sides in front moderately arcuate, behind slightly narrowed to base, disc feebly convex sparsely punctate. Elytra nearly twice as wide as thorax, scabrous. Color of body above and beneath variable, from black with slight bronze tinge (*stygica*) bluish or dark violet (*dolosa*) to green, more or less brilliant (*smaragdula*). Length .36-.56 inch; 9-14 mm.

*Male.* Fifth segment broadly emarginate, with trapezoidal acutely notched.

*Female.* Fifth segment truncate, sixth crescentically emarginate.

Spurs of hind tibiae dissimilar, inner slender acute, outer somewhat stouter obliquely truncate.

This species is very variable in the coloration of the surface as will be seen by the above description. The Oregon specimens are totally black and somewhat more roughly sculptured, those from Mendocino, Cal., to Sacramento are bluish and smoother, those from the lower end of the Tulare Valley and thence to the borders of the Colorado Desert are the more brilliant.

Distributed from Oregon to the borders of the Colorado Desert.

*C. auriculata*, Horn. Trans. Am. Ent. Soc. 1870, p. 91.

Head black, moderately shining, sparsely punctate, vertical spot and hind angles broadly red, occiput truncate. Thorax slightly broader than long, sides in front broadly rounded behind parallel, disc feebly convex and with coarse punctures sparsely placed; color black feebly shining. Elytra with bluish green lustre coarsely scabrous. Body beneath and legs black, moderately shining. Length .36-.50; 9-13 mm.

*Male.* Fifth ventral segment broadly and feebly emarginate, sixth trapezoidal, longitudinally concave, emarginate at apex with the lateral processes moderately prominent.

*Female.* Fifth ventral truncate, sixth broadly oval at tip. Spurs of hind tibiae as in the preceding species.

Occurs in the high Sierras near Keyesville, California.

*C. æneipennis*, Lec. Ann. Lyc. V, p. 160; Proc. Acad. 1853, p. 338.

Head in front of eyes black, occiput red, coarsely but sparsely punctured. Thorax one-fourth broader than long, red, sides gradually

narrowed to base, in front broadly rounded and suddenly narrowing to apex, disc feebly convex with few scattered punctures. Elytra rather coarsely scabrous with greenish bronze tinge. Body beneath and legs with faint bronze lustre. Length .30-.40 inch; 8-10 mm.

*Male.* Fifth ventral truncate, sixth feebly emarginate at tip.

*Female.* Fifth ventral truncate, sixth oval at tip.

Spurs of hind tibiae as in the preceding species.

Occurs near the borders of the Colorado Desert at Santa Isabel and near Cariso Creek.

*C. fulgens*, Horn, Trans. Am. Ent. Soc. 1870, p. 91.

Head brilliant metallic green, sparsely but coarsely punctured. Thorax broader than long, sides moderately arcuate and evenly rounded at apical and basal angles, disc moderately convex, with median round aeneous spot, surface smooth shining with few punctures, color pale reddish yellow. Elytra brilliant metallic green, finely scabrous. Body beneath brilliant green, tibiae cupreous. Length .32-.40 inch; 8-10 mm.

*Male.* Fifth ventral truncate, sixth slightly concave and emarginate at tip.

*Female.* Fifth ventral truncate, sixth oval at tip.

Spurs as in the preceding species.

Occurs near Millerton, California.

### GROUP III.

This group contains at present three species of moderate size in which the antennae of both sexes are very strongly compressed, especially in the male, and the joints usually broader than long of nearly quadrate form and scarcely one-third thicker than the width. The antennae are also short, scarcely longer than the head and thorax. The thorax is more nearly of spherical form than in any other vesicants. Both hind tibial spurs are slender and acute. They may be thus distinguished:

Anterior tibiae ♂ with two spurs.

Antennae ♂ moderately compressed.

Scutellum deeply sulcate to apex; apex truncate... *sphaericollis*.

Antennae ♂ very strongly compressed.

Scutellum feebly sulcate; apex truncate..... *compressicornis*.

Anterior tibiae ♂ without terminal spurs.

Anterior femur ♂ with spine near the base..... *convexa*.

*C. sphaericollis*, Say, Journ. Acad. III, 1828, p. 299; Am. Ent. pl. 3: *chalybea*, Lec. Ann. Lyc. V, p. 160; Proc. Acad. 1853, p. 335.

Slender, shining, surface with strong aeneous or bronze lustre. Head sparsely punctate. Thorax nearly spherical, narrower than the head, and very sparsely punctate. Scutellum truncate at tip deeply channeled along its entire length. Elytra elongate, parallel, surface finely scabro-punctate. Body beneath and legs black with aeneous tinge. Length .32-.50 inch; 8-13 mm.

*Male.* Fifth ventral broadly emarginate, sixth concave deeply emarginate, the emargination at bottom rounded.

*Female.* Fifth ventral truncate, sixth broadly rounded at tip.

Hind tibial spurs slender acute, the inner longer.

Occurs abundantly on the plains east of the Rocky Mountains from Nebraska to New Mexico.

*C. compressicornis*, Horn, Trans. Am. Ent. 1870, p. 91.

Color blue, sometimes inclining to violet, surface moderately shining. Head shining, very sparsely punctate. Thorax nearly spherical, narrower than the head, sides moderately arcuate, sparsely punctate. Scutellum feebly channeled sub-truncate at tip. Elytra twice as wide at base as thorax, gradually wider toward apex, surface punctate scabrous, less shining than the head and thorax. Body beneath darker than above, legs nearly black. Length .30-.50 inch; 8-12 mm.

*Male.* Antennæ much flattened, joints 5-10 twice as wide as long. Fifth ventral feebly emarginate, sixth trapezoidal, concave, acutely emarginate.

*Female.* Antennæ with joints 5-10 broader than long. Fifth ventral truncate, sixth oval at tip.

Spurs of hind tibiæ as in the preceding species.

Occurs in Owen's Valley, California.

*C. convexa*, Lec. Proc. Acad. 1853, p. 336.

Head black, moderately shining, sparsely punctate. Thorax black, moderately shining, very sparsely punctate, narrower than the head, sides in front broadly rounded, behind slightly convergent, disc convex. Scutellum rounded at tip, middle not sulcate. Elytra at base twice as broad as thorax, gradually dilated toward apex, surface punctato-scabrous, with faint bluish lustre. Body beneath shining, black, with faint bluish tinge. Legs black. Length .48 inch; 12 mm.

*Male.* Antennæ moderately compressed, joints 5-10 not wider than long. Anterior tibiæ without terminal spurs. Anterior femur near base with a short spur. Fifth ventral truncate, sixth semi-circularly emarginate.

*Female.* Unknown.

Hind tibial spurs as in the preceding species.

Occurs in Texas. The curious male characters at once distinguish it.

In the preceding description much detail has been avoided as not pertinent to the object of the essay, and characters common to all the species have for the most part been entirely omitted except in the synoptic tables. The rufous spot of the vertex has scarcely been noticed, as its presence or absence has merely individual value. Only such points have been touched upon as will enable the student to recognize with ease any species in the collections and determine thereby those which are unknown.

#### POMPHOPOEÀ. Lec.

This genus differs but slightly from *Cantharis* (*Lytta*), the only point of difference being in its deeply emarginate labrum. The species have

a different aspect although in many points the two genera approach through *C. moerens*. The species have been already tabulated (Leconte, New Species, p. 161), but the curious sexual characters exhibited by the species do not appear to have been sufficiently noticed.

Anterior tibiæ ♂ with one spur only.

Tibiæ obliquely grooved on its interior face..... *polita*.  
Anterior tibiæ ♂ with two spurs, the anterior frequently short and slender.

Anterior tibiæ ♂ stouter than the middle tibiæ and at least moderately arcuate.

Hind tibiæ ♂ dilated toward apex and strongly compressed..... *unguicularis*.

Hind tibiæ normal, not flattened..... *Sayi*.

Anterior tibiæ ♂ not stouter than the middle and not arcuate.

Hind tibial spurs short and broad..... *texana*.

Hind tibial spurs unequal, inner slender, outer broad..... *aenea*.

*P. polita*, Say, Journ. Acad. 1823, p. 302; Lec. Proc. Acad. 1853, p. 336; *femoralis*, Lec. loc. cit.

Æneous moderately shining. Tibiæ, tarsi and tips of femora bluish, femur red. Elytra more darkly aeneous than the head and thorax, sparsely punctured and minutely alutaceous. Length .70 inch; 18 mm.

*Male*. Anterior tibiæ with one terminal spur, anterior face shining, broadly grooved especially at apex. First joint of anterior tarsus slightly obliquely dilated. Inner spur of hind tibiæ slender, acute, outer spur twice as broad as the inner, translucent at tip and obtuse. Last abdominal segment deeply triangularly notched and elevated along its middle.

*Female*. Anterior tibiae bicalcarate, not obliquely grooved. Last abdominal segment sub-truncate at tip.

In one female before me the tibiæ are entirely pale and this may result from immaturity.

The specimens before me are from Georgia and South Carolina.

*P. unguicularis*, Lec. New Species, p. 160.

Æneous, surface glaucous. Legs pale yellowish red, knees slightly tipped with brown. Length .70-.80 inch; 18-20 mm.

*Male*. Anterior tibiæ moderately broad, stouter than the middle tibiæ and more arcuate, inner face broadly grooved from base to apex, at tip bicalcarate. First joint of anterior tarsus compressed. Hind tibiæ moderately broad, rather strongly compressed and acute on the inner edge, inner spur slender, outer broad, but not obtuse at tip. Last abdominal segment very deeply incised and deeply concave, penultimate segment broadly emarginate and in front of margin slightly thickened.

*Female*. Terminal segment of abdomen feebly emarginate and slightly impressed at tip. Anterior tibiæ straight.

One pair, Illinois.

P. Sayi, Lec. Proc. Acad. 1853, p. 336.

Olivaceo-aeneous, sub-opaque. Legs pale reddish yellow, knees, tips of tibiae and tarsi bluish black. Length .60-.70 inch; 15-18 mm.

*Male.* Anterior tibiae moderately arcuate, broader than the middle tibiae, at tip bicalcarate. Hind tibiae normal, inner spur slender, outer rather suddenly dilated and broadly triangular at tip. Last abdominal segment broadly triangularly emarginate, lateral lobes prominent, penultimate segment broadly emarginate and slightly thickened in front of the margin.

*Female.* Anterior tibiae not broader than the middle. Terminal abdominal segment slightly notched and feebly longitudinally impressed.

Occurs in Illinois and Texas.

P. texana, Lec. New Species, p. 161.

Olivaceo-aeneous or slightly bronzed. Legs pale reddish yellow, tarsi gradually piceous to tip. Length .50-.60 inch; 13-15 mm.

*Male.* Anterior tibiae straight, scarcely broader than the middle, at tip bicalcarate, anterior spur very slender and shorter than the posterior. Middle tibiae slightly arcuate. Hind tibiae slightly flattened and with the inner edge acute, spurs short and broad, the inner less broad than the outer. Last abdominal segment broadly triangularly emarginate, at middle feebly carinulate. Penultimate segment broadly emarginate.

*Female.* Terminal segment with small semi-circular emargination. Hind femora stouter than in the male.

Occurs in Texas.

P. aenea, Say, Journ. Acad. 1823, p. 301; Lec. Proc. Acad. 1853, p. 337; *nigricornis*, Lec. Journ. Acad. 4to, I, p. 90; *filiformis*, Lec. loc. cit. p. 91; Lec. Proc. Acad. loc. cit.; *tarsalis*, Bland, Proc. Ent. Soc. Phil. 1864, p. 71.

Dark aeneous or bronzed, sub-opaque. Legs pale reddish yellow knees, tips of tibiae and tarsi piceous or black. Length .34-.68 inch; 9-17 mm.

*Male.* Anterior tibiae slender, straight, at apex bicalcarate, middle tibiae slightly arcuate. Hind tibiae slightly compressed, inner spur slender, acute, outer broader, but acute at tip. Last abdominal segment, triangularly emarginate, penultimate broadly emarginate.

*Female.* Last abdominal segment sub-truncate at tip.

Occurs in Pennsylvania, Illinois and Texas.

I cannot separate either *filiformis* or *tarsalis*, the former appears to be merely a poorly developed specimen and the latter has the pubescence much better preserved, and the tarsi somewhat darker.

In the preceding notes no mention is made of the pubescence. It is very probable that all the species when recently taken are sparsely clothed with a fine sub-erect greyish pubescence which is easily removed by immersion in alcohol. All the species present the curious character, unknown to me elsewhere among the Meloidæ, of having the inner spur of the middle tibiae arcuate and pointing backwards.