

**Synonymical Notes and Description of New Species of .
NORTH AMERICAN COLEOPTERA.**

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CICINDELIDÆ.

Amblychila Piccolomini Reiche is *cylindriformis* Say.—After an examination of the type of this species I am convinced that the views already expressed by Lacordaire and Leconte are correct. The species is doubtless a male and identical with those in the cabinet of Dr. Leconte.

CARABIDÆ.

Carabus fulgidus Gebler, in the cabinet of Baron Chandoir from Alaska.

Carabus hortensis Fab. Specimens in the cabinet of Mr. Andrew Murray of London, are said to have been collected in the Hudson's Bay Region. Before the species is introduced into our lists it would be better to await the occurrence of other specimens.

Calosoma subæneum Chaud. Rev. et Mag. Zool. Jan. 1869, and *C. latipenne* Horn, Trans. Am. Ent. Soc. June, 1870, are identical.

Omophron nitens Chaud., Rev. et Mag. Zool. 1868, is *labiatum* Fab.

Omophron nitidus Chaud., loc. cit. is *nitidum* Lec.

Evarthrus ovulum Chaud., Rev. et Mag. Zool. 1868, is certainly identical with *acutus*, Lec. There are positively no known characters for separating it as a variety much less as a distinct species.

Anisodactylus haplomis Chaud., Rev. et Mag. Zool. 1868. I cannot see any valid reason for separating this from our common *rusticus*.

A. (Gynandrotarsus) elongatus Chaud., loc. cit. is *opaculus* Lec. I have seen a tolerably large series of this species and find that it is impossible to distinguish the two above indicated.

Harpalus occidentalis Chaud., loc. cit. is *fraternus* Lec.

Harpalus liobasis Chaud., loc. cit., does not appear to be a species occurring within our faunal limits. It may be Mexican.

TRECHICUS, Lec.

Trechicus umbripennis Lec., is the *Bembidium nigriceps* Dej. The synonymy has been determined by a comparison of specimens.

The synonymy of *Trechicus* needs some correction. Chandoir calls the above species a *Perijona*. Lacordaire places the latter as synonymous with *Mastigus*. In the Catalogus (Gemm. et Harold)

T. pallipennis Lec. does not appear to differ specifically from the above.

A. reflexa Putz. Three specimens of this species sent by Putzeys and Chaudoir are identical with *lacustris* Lec., the latter being according to Dr. Leconte the *rufimana* Kirby.

The species included in the division *Amara* (Proc. Ac. 1855, p. 346) may be known by the following table:

A. convexa Lec. is a female of *polita*.

A. insularis, n. sp.—Form oval, robust, piceo-æneous, shining. Head smooth, frontal impressions feeble. Antennæ not carinate at base, pale rufo-testaceous. Thorax one-half broader than long, slightly narrowed in front, convex, sides moderately arcuate from the basal angles; apex very feebly emarginate, anterior angles broadly rounded, base not sinuous, hind angles nearly rectangular, not obtuse; surface smooth, shining, basal impressions nearly obsolete. Elytra rather broadly oval, finely striate, striæ entire, impunctured, intervals flat. Body beneath and legs, piceo-rufous, smooth and shining. Length .38 inch; 9.5 mm.

Male.—Hind tibiæ pubescent within, prosternum with deep puncture.

The form and general appearance of this species is almost exactly that of *californica* although somewhat larger. It must however be referred to the present group and by the presence of the prosternal puncture in the male its place is near *insignis* from which it differs by its more oval form, different color and smooth thorax.

Two specimens in the cabinet of Dr. Leconte, from the island of San Clemente on the coast of California.

The following species are the North American representatives of the sub-genus *Bradytus* Zimm.

Prosternum with side pieces smooth.

Prosternum ♂ with oval punctured space.

Meso- and metasternal side pieces punctured, scutellar stria very short or entirely wanting.....**exarata** Dej.

Meso- and metasternal side pieces smooth, scutellar stria very long.

latior Kby.

Prosternum ♂ not punctured but feebly longitudinally sulcate in both sexes.

Meso- and metasternal side pieces smooth, scutellar stria long.

septentrionalis Lec.

Prosternum with side pieces punctured, meso- and metasternal side pieces punctured, scutellar stria long.....**Putzeysii** n. sp.

A. glacialis Mén., formerly placed in this group, is said by Putzeys to be a *Curtonotus* (Lirus). I have seen only females.

A. exarata Dej., *furtiva* Lec.

I cannot detect any difference between these two species. The original specimens of the latter were immature and differed somewhat in the punctuation of the thorax from *exarata*. A larger series from intermediate portions of the country indicate the want of value of the characters which appeared to distinguish the two species at first.

A. latior Kby., *libera* Lec., *hyperborea* ‡ Lec., *lævistriata* Putz., *oregona* Lec.

Late collections from Colorado and New Mexico show the advisability of uniting *oregona* as a synonym. The type specimens of the latter are smaller, darker in color and possibly somewhat more slender, in all other respects the agreement is complete.

A. septentrionalis, Lec.

This is a somewhat more slender form than those which precede. It differs notably by the absence of the oval finely-punctured space on the prosternum and in lieu thereof a broad but feeble channel extending from the tip of the prosternum nearly to the apical margin. The same is seen in the female but to a much less marked extent.

A. Putzeysii, n. sp.—Oblong oval, piceous, surface feebly bronzed. Head smooth, frontal impressions moderate. Antennæ pale rufous. Thorax one-half broader than long, apex very feebly emarginate, anterior angles broadly rounded, sides moderately arcuate in front, slightly sinuous and feebly narrowed to the base, hind angles rectangular and slightly prominent, base truncate, basal impressions deep, the outer limited by an obtuse carina extending one-fourth the length of thorax, inner impression rounded, disc of thorax moderately convex, median line moderately impressed, surface smooth, basal third coarsely punctured, punctures sparser at middle. Elytra oval, slightly broader than the thorax, surface moderately deeply striate, (less deeply at apex) striæ crenato-punctate, punctures gradually finer and more distant toward apex. Scutellar stria long. Intervals flat. Body beneath and legs piceous, shining. Pro-, meso- and metasterna at sides, also the parapleurae of the sterna, coarsely punctured. Abdomen moderately coarsely punctured at the sides especially segments one and two. Length .32 inch; 8 mm.

One specimen, ♂, sent by Mr. Putzeys to Dr. Leconte, labelled St. Pierre Miquelon, (Newfoundland.)

The characters given in the synoptic table will enable this species to be readily recognized.

I take great pleasure in affixing to this species the name of an entomologist whose labors have always produced good results and whose kind reception and instruction will long be remembered by myself.

ANISODACTYLUS, Dej.

The large black *Anisodactyli* so abundant in California and Oregon have been deemed troublesome to distinguish and all cabinets appear to be in confusion on the subject. They appear to be separable by well defined and easily seen characters. The following table is the result of their study:

Intercoxal process and middle of second and third abdominal segments punctured; punctures with short setæ. Metasternum in front and behind punctured.

Thorax feebly narrowed posteriorly, basal impressions very feeble, surface entirely punctured.....**semipunctatus**.

Intercoxal process and metasternum smooth.

Thorax with broad but very shallow basal impression; elytra broad, sides very distinctly arcuate.....**consobrinus**.

Thorax with rather deep linear basal impression, surface of prothorax much less densely punctured than either of the preceding species.

californicus.

*Synonymy and Bibliography.***A. semipunctatus** Lec. Proc. Acad. 1859, p. 83.*A. similis* Lec. Ann. Lyc. V., p. 183.*A. puncticollis* Chaud. Rev. Mag. Zool. 1868, p. 11.**A. consobrinus** Lec. Ann. Lyc. V., p. 183.*A. brevicollis* Lec. loc. cit.**A. californicus** ♀ Dej. Spec. IV., p. 148; Lec. Ann. Lyc. V., p. 183.*A. confusus* ♂ Lec. loc. cit.

I have adopted the name *semipunctatus* for the first species, although the name *similis* has priority, for the reason that the latter applies not to the mass of specimens obtained but rather to a very rare variety, distinguished only by its slightly narrower form.

The males of the three species have the terminal dorsal segment coarsely punctured, while in the females the punctures are nearly obliterated and the surface comparatively smooth.

PATROBUS Dej.

The species of this genus appear to have been unnecessarily multiplied. Having lately had occasion to examine them closely the following table has been prepared. Typical specimens of all the species are before me with two exceptions *fulvus* and *angusticollis* Mann. which still remain unknown.

Disc of thorax convex, hind angles with a rather deep fossa; head behind the eyes constricted.

Last two joints of maxillary palpi equal.....**longicornis** Say.

Last two joints unequal, terminal longer.....**septentrionis** Dej.

Disc of thorax flat, sub-quadrate, hind angles depressed without fossa; head not or very feebly constricted behind the eyes; terminal joints of maxillary palpi equal.

Hind trochanter ♂ one-third the length of the thigh and not differing from that of the female.....**rugicollis** Rand.

Hind trochanter ♂ nearly half the length of the thigh and acute at tip, that of the ♀ normal.....**aterrimus** Esch.

Hind trochanter ♂ nearly as long as the thigh, at tip slender and very acute, that of the ♀ scarcely differing from the ♀ ♀ of the two preceding.....**californicus** Motsch.

P. longicornis Say, *americanus* Dej.

Pennsylvania to Missouri and northward.

P. septentrionis Dej., *hyperboreus* Dej., *fossifrons* Esch., *foveicollis* Esch., *longiventris* Mann., *tenuis* Lec., *rufipes* Lec.

Europe and Arctic America.

P. rugicollis Rand., (*angicollis* misprint).

Pennsylvania, North Eastern States and northward.

P. aterrimus Esch., *fulcratus* Lec.

Colorado and North West to Alaska.

P. californicus Motsch., *trochantericus* Lec.

In this species the ♂ hind tibiae are distinctly arcuate at basal third. Northern California.

The two unknown to us (*fulvus*, *angusticollis*) should also doubtless be referred to the same species with the other Arctic forms of Mannerheim and Eschscholtz.

The last three species in the above table have a tolerably close superficial resemblance. The thorax is rather narrower behind in *rugicollis* and nearly square in *californicus*. While noticing the remarkable differences existing between the males it is well to recall a similar difference existing between two species of *Pterostichus*, *rostratus* Newm., and *grandiceps* Chaud., (nec Leconte). As seen from above no differences whatever exist, while the latter has the hind trochanter long and slender almost precisely as in *Patrobis californicus*. Similar differences between otherwise closely allied species may exist in other places in the Carabideous series and these two instances are specially noticed here together that attention may be directed to further observation.

TRECHUS Clairv.

Three forms occur in this genus, the first with oblong elytra which are nearly twice as wide as long and with five or six striae moderately well impressed; the second with oblong oval elytra with distinct humeri and four or at most five striae, the inner three moderately well and the outer two very feebly impressed; the third has broadly oval elytra the striae nearly obsolete sometimes with the two nearest the suture feebly distinct.

The following are the species:

T. rubens Fab., elytra oblong.—Occurs in Northern Europe and Nova Scotia.

T. chalybæus Mann., elytra oblong oval.—Occurs in Alaska.

T. californicus Motsch., does not differ from the preceding.—Alaska, California, Oregon.

T. micans Lec., I can see no difference excepting a somewhat paler color; *fulvus* Lec., is immature.—New Hampshire and Lake Superior.

T. ovipennis Motsch., elytra broadly oval.—Alaska.

T. lævigatus Lec., does not differ from *ovipennis*.—California and Oregon.

BEMBIDIUM, Latr.

B. Wingatei Bland, Proc. Am. Ent. Soc. 1864, p. 319 is *oblongulum* Mann. This species originally described from Alaska occurs in Canada, Michigan and Pennsylvania. It has been referred to *Trechus* by Chaudoir, but the external maxillary lobe is formed exactly as in *Amerizus* and the species should therefore be placed in that genus. *Amerizus spectabilis* Mann., is well known to American students.

TACHYS, Zieg.

The following synonyms have been observed :

T. oopterus Chaud. is *ventricosus* Lec.—Type from Chaudoir.

T. rivularis Mann. is *nanus* Gyll.—Type from Mannerheim.

T. occultus Lec. is *granarius* Dej.—Type from Chaudoir.

Dysmathes Sahlbergi Mann. A specimen of *Amphizoa insolens* Lec., was sent by me to Mäklin for comparison with *Dysmathes*, and by letter from M. Sallé learn that they have been pronounced identical, as I had suspected and have already published.

Tanyrhinus singularis Mann. This insect has also caused trouble since the day of its publication. Mannerheim placed it near *Rhinosimus*, etc., notwithstanding its pentamerous tarsi. An admirable figure kindly sent by Mäklin seems to show that it is a Staphylinide! of the *Omalium* group and Dr. Leconte suspects may be allied to *Trigonodemus* Lec.

ENDOMYCHIDÆ.

In a small pamphlet entitled "Endomycici Recitati" published in London, (bearing date May, 1873, but not issued until September, 1873), by Rev. Mr. Gorham, the following North American species are described.

Rhymbus minutus Gorham, l. c., p. 56, is *Alexia minor* Crotch, Trans. Am. Ent. Soc., May, 1873. The species is certainly a *Rhymbus* and not an *Alexia*, and both *minor* and *Ulkei* Crotch, must be placed under the former generic name.

Aphorista humeralis Gorham, loc. cit. p. 45, is a perfect reproduction of the type of *Mycetina morosa* Lec. For this species as well as *læta* Lec., Mr. Gorham has erected a new genus as above indicated, the characters of which seem entirely too trivial to be considered valid.

SCAPHIDIIDÆ.**SCAPHIDIUM**, Ol.

The four species indicated in our lists appear to be merely varieties of one, and are separable as varieties in the following manner :

Elytra with two red spots on each.

Elytra with three short rows of large punctures.....**quadriguttatum.**

Elytra with two short rows of large punctures.....*quadripunctatum.*

Elytra without rows of punctures.....*obliteratum.*

Elytra black without spots.....*piceum.*

Varieties of the latter form also occur parallel with those of the spotted form and should these differences be considered valid two more species must be indicated I prefer to consider all as variations of one form.

NITIDULIDÆ.

IPS, Fab.

Our species formerly known under the name *Ips* have been placed under the more recent name *Pityophagus* in the "Check List." Without desiring at this time to discuss the vexed question of priority and the correctness of the use of the name *Ips* by Fabricius, it has seemed to me desirable to place before the American students a condensed review of our species.

I cannot agree with the author of the "Check List" and with Reitter (Verhand. des Naturf. Vereines in Brünn XII.), in uniting all the species under one generic name, believing that the general form, the structure of the head and the eyes distant from the thorax are characters of generic value.

IPS.—Body oblong oval, depressed; head broader than long, deeply inserted in thorax, eyes close to the angles of thorax. Elytra without sutural stria.

PITYOPHAGUS.—Body sub-cylindrical; head nearly as long as broad, prolonged behind the eyes which are distant from the thorax. Elytra with sutural stria.

Our species of *Ips* are as follows:

Hind tarsi nearly as broadly dilated as the anterior, thorax broader at base than apex.....Sub-Gen. **IPS**.

Hind tarsi slender not dilated, thorax narrower at base than apex.

Sub-Gen. **GLISCHROCHILUS**.

Sub-Genus *Ips*.

Middle and hind tibiæ ♂ with the lower half suddenly broader.

Body black, elytra each with two large red spots.....**obtusus**.

Middle and hind tibiæ not broader, similar in the sexes.

Body beneath black.....**fasciatus**.

Metasternum, abdomen and pygidium red.....**sanguinolentus**.

Sub-Genus *Glischrochilus*.

Sides of thorax distinctly sinuate in front of hind angles.

Elytra reddish yellow, apical fourth, margin and humeri black; at middle a round black spot joining the margin, base of suture and a small round spot on each side black.....**confluentus**.

Elytra black with pale linear spots, one basal, one ante-median and two side by side post-median.....**vittatus**.

Sides of thorax gradually narrowed to base not sinuate. Form elongate, legs rufo-piceous; elytra black with a moderately large sub-humeral red spot and a median interrupted fascia.....**cylindricus**.

I. obtusus Say. Bost. Journ. I., p. 168.

Very little variation occurs in ornamentation, which consists of two large red spots on each elytron, one slightly within the humeral angles the other post-median. Length .36.—48 inch; 9—12 mm.

Occurs in the Middle and Southern Atlantic States.

I. fasciatus Ol. Ent. II., 12, p. 7; pl. 2, fig. 13; Say., loc. cit., p. 169; *quadrisignatus*, Say., loc. cit., p. 169; *bipustulatus*, Mels. Proc. Acad. II., p. 108; *sexpustulatus*, Reitter, Verhand. Naturf. vereines in Brünn XII., p. 161.

These are all varieties of one species, the characteristic names given the varieties will enable them to be determined readily. Reitter says (loc. cit. note) that *sexpustulatus* and *quadrisignatus* have four quadrangularly placed impressions on the front while *fasciatus* has but two. In the majority of all the forms before me there are no impressions whatever. Length .16—.28 inch; 4—7 mm.

Occurs over the entire region east of the Rocky Mountains and also in Vancouver.

I. sanguinolentus Ol. Ent. II., 12, p. 8; pl. 2, fig. 14; Say., loc. cit.; *rubromaculatus*, Reitter, loc. cit., p. 161.

The elytra are red broadly tipped with black, humeri and a median round spot black. This is the normal coloration. In the form described by Reitter, the median black spot is extended so that the red is reduced to a short basal fascia with another post-median narrow fascia interrupted at middle. We have in our cabinets enough of the intermediate forms to show the identity of the two. Length .18—.24 inch; 4.5—6 mm.

Occurs from Canada to Florida and Texas.

I. confluentus Say., Journ. Acad. III., p. 195.

The elytra are more coarsely punctured than in any other of our species. The coloration has been already noticed. Length .18—.20 inch; 4.5—5 mm.

Occurs from Canada to Georgia.

I. vittatus Say., Bost. Journ., I., p. 170; *dejeani*, Kby., Fauna Bor. Amer. IV., p. 107; pl. 2, fig. 4; *sepulchralis*, Rand., Bost. Journ., II., p. 19.

The sides of the elytra are nearly exactly parallel. The elytra are more coarsely punctured than any species except the preceding. Length .16—.20 inch; 4—5 mm.

Occurs in Canada, Utah and Oregon.

I. cylindricus Lec. New Species, 1863, p. 64.

Form more elongate than *vittatus* and more convex. The thorax is slightly broader than long, the sides absolutely straight and gradually converging to the basal angles which are sharply rectangular. The coloration has already been noted. Length .26—.30 inch; 6.5—7.5 mm.

Occurs in California, Oregon and Nevada.

I might here notice a curious paragraph in Reitter's paper (p. 166).

After describing a new genus *Ipsimorpha*, founded on a Mexican species (*striatopunctata*), he adds a paragraph which I here translate :

"I should have considered this species, *Rhizophagus (Ips) cylindricus*, Lec., did not the diagnosis read as follows; '*thorace paulo angustiore, latitudine fere sesqui longiore, lateribus rectis, angulis posticis rotundatis.*' The striate punctate elytra lead me to suppose that this species should also be referred to *Ipsimorpha*."

The *Rhizophagus cylindricus* Lec, and *Ips cylindricus* Lec., are two very distinct insects and differ especially in the form of the anterior coxæ and the number of antennal joints, and belong to two distinct families, It is very likely that Reitter has never seen the description of the latter species.

PITYOPHAGUS, Schuck.

Two species occur in our fauna.

P. cephalotes Lec. Proc. Acad., 1860, p. 377. Color rufous, elytra piceous. Length .20 inch; 5 mm.

Occurs in Pennsylvania.

P. rufipennis Horn, Trans. Am. Ent. Soc., 1872, p. 146. Body black, legs piceous, elytra brownish red. Length .28 inch; 7 mm.

Occurs in Oregon and Vancouver.

All the specimens before me have the tip of the pygidium furnished with a reflexed margin. This may be sexual.

Carpophilus rufus Murr. From my series I am convinced that this species is *melanopterus* Er.

DERMESTIDÆ.

PERIMEGATOMA, n. g.

This genus is suggested for several species occurring from Lake Superior to Texas, California and Sitka, which agree with *Megatoma* in all of its characters except in the antennal fossæ. In the present genus there are no antennal fossæ whatever. The ornamentation, by pubescence of the surface, resembles somewhat that of *Megatoma*, there being two transverse undulating cinereous bands, the one at basal third the other at apical fourth.

The following table will enable our species to be readily distinguished:

Antennal club three-jointed.

First joint of club, in both sexes, very little smaller than the second joint.

Pubescence uncolored, greyish-white, (.16 inch).....**cylindricum.**

Pubescence bi-colored, (.20 inch).....**variegatum.**

First joint of club extremely short.

Pubescence bi-colored, (.14 inch).....**falsum.**

Antennal club five-jointed.

Pubescence bi-colored..... **Belfragei.**

P. cylindricum Kby., Fauna Bor. Am. IV., p. 113; pl. 7, fig. 3: *angularis*, Mann., Bull. Mosc., 1853, III., p. 216.—Form oblong oval, piceous, shining, thorax densely punctured, elytra less densely punctured, surface sparsely clothed with greyish-white recumbent pubescence, very easily removed. Length .13—.16 inch; $3\frac{1}{4}$ —4 mm.

Male.—Club of antennæ longer than the funicle, terminal joint longer than the other two together and pointed at tip.

There is a duplicate of Kirby's type before me. The elytra are piceous, but near the posterior third may be seen the evidences of a paler transverse band.

To this species I refer certain female specimens brought by Mr. Crotch from the Sierra Nevada Mountains of California, which vary somewhat in appearance.

Specimen *a*, uniformly piceous, pubescence normal, slightly denser at the sides of the thorax (*angularis*, Mann.)

Specimen *b*, similar to *a*, but with the pubescence adhering more closely and forming a very indistinct sinuous band at basal and apical third.

Specimen *c*, elytra with a sinuous transverse rufo-piceous band at apical and basal third to which the pubescence is very closely adherent causing the elytra to be conspicuously marked.

The distribution of the species is very wide, from Sitkha (Mann.), Saskatchewan (Kirby), Lake Tahoe and Tejon, Cal. (Crotch), Oregon (Horn).

P. falsum, n. sp.

This species resembles exactly in their form and vestiture those described as variety *c*, above. The only differences are found in the structure of the antennal club.

Male.—Club of antennæ slightly longer than the funicle, first joint extremely short but nearly as wide as the second, terminal joint more than twice as long as the two following together and pointed at tip.

Female.—Club not longer than the funicle, first joint much shorter than the second, terminal joint slightly longer than the first two united and but little longer than wide, oval at tip.

The pubescence of the elytra is decidedly bi-colored, being composed of pale-brownish and greyish-white hairs intermixed, the former forming narrow transverse bands in front of the rufous bands of the elytra. Length .14 inch; $3\frac{1}{2}$ mm.

Occurs at Tejon and Santa Barbara, Cal., (Crotch).

P. variegatum, n. sp.—Oblong oval, piceous or piceo-rufous, elytra with two sinuous transverse bands of rufous with dense white pubescence. Head and thorax densely punctured, covered with intermixed pale-brown and white hairs. Elytra oblong oval, sides sub-parallel, surface less densely punctured than the thorax, color piceous with a sinuous rufous band at basal, and another at apical third, rather densely covered with white pubescence, the remainder

of the surface with intermixed pale-brown and whitish hairs. Body beneath densely punctured, sparsely covered with cinereous hairs. Antennæ rufous or pale-brown. Length .20—.22 inch; 5—5.5 mm.

The specimens before me are apparently all females. The antennal club not longer than the funicle, the first two joints nearly equal and the terminal shorter than the other two united, oval and slightly obliquely truncate on the inner side.

Three specimens, San Diego, (Crotch), Oregon, (Horn).

P. Belfragei, Lec., (*Trogoderma*), Trans. Am. Ent. Soc., 1874, p. 49.

This species is similar in ornamentation to the preceding, but of more elongate form. Length .22 inch; 5.5 mm.

Occurs in Texas.

LUCANIDÆ.

LUCANUS, Linn.

Lucanus placidus Say., is thought by Major Parry to have been described from the female of *elaphus*, and he would therefore place the name *lentus* Cast., to that form occurring in the Southern and Western States to which the name *placidus* has been attached by American Entomologists. A comparison of the descriptions of Say and Castelnau, leave no doubt in my mind that both are applicable to precisely the same species, and should the views of Major Parry be adopted, our so-called *placidus* must be nameless. I cannot, however, agree with this view, and have no doubt whatever that the descriptions by Say and Castelnau, apply to the same species which is that now known as *placidus* by us. This name should therefore remain.

Platycerus cœrulescens Lec., was previously described as *oregonensis* Westwood.

SCARABÆIDÆ.

Choeridium Lecontei Harold, appears in the Check List as a synonym of *histeroides*. This is incorrect. The former has the hind thoracic angles very much more broadly rounded and the margin at the angle very feeble and not at all reflexed as in the latter. It occurs in the Southern States.

ONTHOPHAGUS, Latr.

The species of *Onthophagus* are few in number in our fauna, and a careful examination convinces me that the number already given in our lists must be reduced, several having been described from variations in color and the degree of prothoracic development in the male. The species divide themselves into two sections.

Thorax of male protuberant in front, frequently with a long process more or less deeply emarginate at tip.....SECTION A.
Thorax of male not differing from the female, both simply convex....SECTION B.

In the *first section*, evidences of a tendency to a protuberance of the thorax in front, are distinctly visible in the female. When a slight protuberance does not exist in the female there are on the anterior margin of the thorax two slight depressions visible, one on each side midway between the median line and the anterior angle. The prothoracic protuberance of the male varies greatly in development. In its greatest size the process forms a plate of variable width, usually much longer than wide projecting three-fourths as far as the tip of the clypeus, more or less deeply emarginate at tip and with the angles thus formed divergent. In *Hecate* a slight process projects downwards from the bottom of the emargination and is itself deeply notched forming two small teeth, while in *Janus* a slight tooth is seen near the tip of the diverging angles. From the size above described, the prothoracic process may be reduced to a mere transverse tubercle. The males of all the species have much longer, more slender and more arcuate anterior tibiae than the females and the terminal spur is shorter, more robust and more arcuate.

In the *second section* the form of the anterior tibiae furnishes the only guide for distinguishing the sexes.

In nearly all the species the head is transversely bicarinate in the two sexes, and where the thoracic protuberance is strongly marked in the male these carinae disappear and in very nearly all the females of all the species the carinae are more strongly marked than in the males. These two carinae are situated, the anterior on the clypeo-frontal suture, the posterior on the vertex between the eyes.

The first section contains three species.

- Body black, opaque, thorax finely granulate, elytra finely chagrined and with two rows of fine granules on each interspace. Vertical carina of male simple.....**Hecate.**
 Body bronzed or greenish, shining, thorax punctured, elytra usually shining not granulate. Vertical carina of male elevated at each extremity into a horn of variable size or an acute tubercle.....**Janus.**
 Body black, sub-opaque, thorax sparsely punctured; elytra very finely chagrined and irregularly biserially punctured. Vertical carina of male elevated at each extremity into a long slender horn.....**velutinus.**

O. Hecate Panz., *hastator* Fab., *latebrosus* Fab., *obtectus* Beauv., *Sayi* Cast.—Black, opaque, sparsely clothed with short greyish hair. Thorax moderately densely granulate, median line at base very finely impressed. Elytra finely striate, intervals finely chagrined and with two or three rows of fine granules. Pygidium coarsely punctured, at base opaque and granulate. Body beneath shining, coarsely but sparsely punctured. Length .34 inch; 9 mm.

Male.—Margin of head moderately reflexed, in front elevated in a slender triangular process, on each side slightly sinuate. Clypeus smooth at middle, punctured and wrinkled at the sides, front and vertex very sparsely punctate. Clypeal carina feeble or absent, vertical carina arcuate and feeble, frequently

entirely absent. Prothoracic process broader at tip and emarginate and with a feeble bidentate process from the middle of the emargination.

Female.—Anterior margin of clypeus without the slender process; surface of clypeus coarsely punctured and transversely wrinkled. Clypeal carina strong nearly attaining the side margin of the head, vertical carina more elevated curved backwards at its ends. Prothorax slightly protuberant at middle or with a slight depression on each side of the middle of the anterior margin.

This species occurs abundantly over the entire region east of the Rocky Mountains and varies in its development about equally in all parts of that territory. Its size varies from .34 to .20 inch, and at the same time no varieties occur requiring special remark beyond the generalities already given.

O. Janus Panz., *Orpheus* Panz., *canadensis* Fab., *striatulus* Beauv., *subæneus* Beauv., *scabricollis* Kby., *concinus* Cast., *castaneus* Mels., *cervicornis* Kby., *protensus* Mels., *niger* Mels.—Color variable, bronzed, greenish or cupreous, shining, surface sparsely pubescent. Thorax sparsely and coarsely punctured, anteriorly with a tendency to granulation. Elytra finely striate bi- or triseriately punctate. Pygidium sparsely punctured, more densely and coarsely near the apex. Body beneath greenish or bronzed, sparsely punctured. Length .30—.16 inch; 7.5—4 mm.

Var. Orpheus Panz., *canadensis* Fab., etc.—Surface metallic green or bright bronze, shining. Thorax sparsely and moderately coarsely punctured.

Male.—Clypeal margin moderately reflexed, at middle slightly elevated and subtruncate, surface of clypeus sparsely punctured. Clypeal carina nearly obliterated. Vertical carina feeble at middle, elevated at each end in an acute tubercle. Prothoracic process broader at tip deeply emarginate, angle divergent and with a small tooth like process near the tip.

Var. subæneus Beauv.—Thorax and elytra metallic green, the latter at base and apex yellowish, the former slightly granulated anteriorly.

Male.—Clypeal margin at middle slightly elevated and not truncate. Vertical carina at its ends elevated in a short horn. Thoracic process short broadly emarginate at middle.

Var. striatulus Beauv., *castaneus* Mels., *scabricollis* Kby.—Piceous or piceotestaceous, surface bronzed. Elytra paler at base and apex.

Male.—Clypeus as in *Orpheus*. Vertical carina at extremities elevated into a slender horn nearly as long as the height of the thorax. Thoracic protuberance very small.

The females of all the above varieties agree in having the clypeus deeply punctured and transversely wrinkled, the clypeal carina strong and attaining the side margin of the head, the vertical carina still stronger and slightly arcuate or sinuate. The head of this species in form agrees with the preceding and has a similar situation on each side at the end of the clypeo-frontal suture.

This species is widely diffused and varies so much in color and in the degree of the development of the various peculiarities of the male as to have caused it to have been described under so many different names. It will be seen however that, as in *Hecate*, as the thoracic

protuberance is developed the cephalic carinæ and horns become reduced to a minimum, while in the last variety in which the protuberance is scarcely larger than in the female, the vertical carina at its extremities becomes elevated into two long slender horns.

Occurs over the same extent of country with the preceding species.

O. velutinus, n. sp.—Black, subopaque, punctures bearing very short setæ. Thorax sparsely punctured, between the punctures extremely finely chagrined. Elytra with sides regularly arcuate not narrowing posteriorly, surface very finely striate, striæ very distantly punctured, intervals finely chagrined and irregularly biserially punctulate. Pygidium opaque very sparsely punctured. Body beneath very sparsely but rather coarsely punctured. Length .30 inch; 7.5 mm.

Male.—Clypeus nearly semicircular with a broad feeble emargination at middle, surface coarsely punctured. Clypeal carina very feeble. Vertex sparsely punctured, carina very feeble at middle, each end elevated into a moderately long slender horn. Thorax slightly protuberant in front. Anterior tibial spur strongly recurved.

Female.—Unknown.

This species recalls some of the varieties of the preceding but its entire aspect is different. Its form is somewhat longer and the elytra have regularly arcuate sides so that their form is nearly circular with the emargination at base. It is probable that further collections may produce forms in which the development more nearly approaches that of the preceding species.

Occurs in Lower California and Arizona.

The second section contains those species without any trace of prothoracic protuberance. The males are known by the form of the anterior tibiæ and by the smoother head. Two species only are known.

Margin of clypeus at middle acutely notched.....**tuberculifrons**.

Margin of clypeus very feebly truncate at middle.....**pennsylvanicus**.

O. tuberculifrons Harold, Coleopterologische Hefte VIII., p. 115; *tuberculatus* Zimm., mspt.—Black, subopaque, surface feebly bronzed and very sparsely pubescent. Clypeus acutely notched at middle. Thorax finely chagrined, sparsely punctato-granose. Elytra finely striate, surface finely chagrined, intervals biserially punctate, punctures alternately placed and each bearing a short hair; base and apex with small paler patches. Body beneath piceous sparsely punctate; legs paler. Pygidium sparsely punctate. Length .14—.20 inch; 3.5—5 mm.

The sexes of this species do not greatly differ. The margin of the head is moderately reflexed, acutely notched at the middle of the clypeus, the latter more coarsely punctured in the female. The clypeal carina is short in the female and very nearly obliterated in the male; the vertical carina is also short divided at middle and forming thus

two small tubercles. The species may be at once known by the notched clypeus.

Occurs from the Middle States to Florida, where it is very abundant.

O. pensylvanicus Harold, Coleopterologische Hefte VIII., p. 115; *ovatus* ‡ List Col. N. A.; *granarius* Zimm., mscpt.—Black, feebly shining, very sparsely pubescent. Clypeus entire or feebly truncate at middle. Thorax moderately, not densely punctate. Elytra finely striate, intervals biserially punctate, punctures alternating. Body beneath piceous, shining, sparsely punctate. Length .14—.20 inch; 3.5—5 mm.

Male.—Front nearly flat without carinae, with very few punctures, clypeus very sparsely punctate.

Female.—Front sparsely, clypeus rather densely and coarsely punctured. Clypeal carina moderate, feebly elevated. Vertical carina nearly obsolete.

This species has been distributed in many cabinets in our country as *ovatus* Linn., from which it differs greatly. The latter is of larger size, thorax much more coarsely and densely punctured, the clypeal carina ♀ very feeble and the vertical carina strong and considerably elevated.

Occurs rather abundantly from the Middle States to Kansas, Texas and Florida.

O. rhinoceros Mels., Proc. Acad. II., p. 134, is the European *O. nuchicornis* Linn., introduced by accident into Melsheimer's cabinet.

APHODIUS, Illig.

A. arcticus Harold is *congregatus* Mann. The color of this species is subject to great variation. *A. arcticus* has entirely black elytra and *congregatus* yellowish red or ferruginous, slightly or much clouded.

A. Steinheili Harold is *serval* Say.

DIALYTES, Harold.

D. Ulkei, n. sp.—Obovate, black, subopaque. Head shining, coarsely but sparsely punctate, clypeus broadly emarginate at middle with an acute, prominent tooth on each side. Thorax sub-cylindrical very slightly narrower in front, sides in front nearly straight, posterior third suddenly narrowing with a feeble sinuation, apex truncate base feebly lobed, disc convex, a feeble median impression near the base, surface coarsely and densely punctured on the disc, at sides confluent, basal marginal line distinct. Elytra slightly broader behind the middle, humeral angles strongly dentiform, disc convex, intervals finely costiform between which are two finer elevated lines which enclose distant punctures, these finer lines near the sides are interrupted. Body beneath subopaque sparsely punctured, legs shining more coarsely punctured. Length .24 inch; 6 mm.

Very distinct from either of our species by the denticulate clypeus and the elytral sculpture.

One specimen collected in Maryland, at Deer Park, by Mr. H. Ulke.

ATÆNIUS, Harold.

In the Coleopterologische Hefte XII., Munich, 1874, Baron Harold describes as new several North American species of *Ataenius* of the group with toothed clypeus, without being aware that a paper including all the species of this genus had already been published in the Trans. Am. Ent. Soc., 1871, p. 284—289. Having lately had an opportunity of examining the types of Harold, the following is the result:

At. attenuator Harold, Hefte XII., p. 22, is *abditus* Hald.

At. texanus Harold, l. c., p. 23, although possibly a true species, differs from *abditus* in the manner that southern varieties of the latter differ from the northern. I would prefer calling it merely a variety.

At. Lecontei Harold, l. c., p. 20, is certainly identical with *ovatulus* Horn. The latter was, however, described from a slightly worn specimen and the clypeal teeth were entirely removed and a renewed examination shows that *cylindrus* Horn, is the perfect form, and the latter name should therefore be substituted.

At. Horni Harold, l. c., p. 19, is somewhat more cylindrical in the form of the elytra but does not otherwise differ. The specimen from which the species was described is unique in the cabinet of Baron Harold, and with the examination made of it did not appear to differ specifically from the preceding.

The following without toothed clypeus are described.

At. socialis Harold, Bert. Zertschr., 1873, p. 174, is *socialis* Horn, 1871.

At. figurator Harold, Hefte XII., p. 24.—A slender shining species near *gracilis* but with the punctures of the thorax coarse and widely distant. A very distinct species. Occurs in Texas.

PHYTALUS, Blanch.

Under this generic name a species (*glaberrimus* Bl.) appears in the Check List. On his return from Europe, Dr. Leconte brought a specimen said by the donor to be *Lachnosterna glaberrima* Blanch., which proved on examination to be a *Phytalus* and the species to which the name *L. glaberrima* was attached in our cabinets was therefore supposed to be erroneously determined, and Mr. Crotch substituted the name *glabra* for that which it bore. A comparison made by myself shows that the original determination was correct, and that the specimen given to Dr. Leconte although closely resembling *glaberrima* was not that species. *Phytalus glaberrimus* must be stricken from the list and the name *glaberrima* restored to its original position.

The genus *Phytalus* has however representatives within our fauna,

one of moderate size resembling *Lach. Burmeisteri* and one smaller resembling *L. inana*, the former from New Mexico and the latter from Texas.

These species I hope to make known with a general revision of the *Lachnosternæ*.

LACHNOSTERNA, Hope.

The following synonyms have been detected :

L. sororia Lec. is *rufiola* Lec. The antennæ are nine-jointed in both forms.

L. robusta Lec. is *crassissima* Bl. The synonymy of *obesa* with the latter has already been noticed. I find *robusta* to have the antennæ distinctly ten-jointed agreeing with *crassissima* in this and all other characters.

CYCLOCEPHALA, Latr.

C. elegans Horn, is identical with *dimidiata* Burm.

LIGYRUS, Burm.

Three species of this genus have been separated on the dentation of the galea of the mandible, *morio*, *gibbosus* and *juvencus*. I have seen very good series of these species and, although some variation does occur in the distinctness of the outer tooth, from age and wearing, it appears to me that the three should be united under one name (*gibbosus*) as specifically identical.

Our species separate easily in the following manner :

Thorax impressed in front and with a small tubercle. Anterior tibiæ tridentate.	
Clypeus bidentate.....	gibbosus.
Clypeus unidentate.....	ruginasus.
Thorax not impressed nor tuberculate. Anterior tibiæ subquadridentate.	
Larger species, brownish or piceous; mesothorax hairy.	relictus.
Smaller species, black; body beneath not hairy.....	rugiceps.

STRATEGUS, Hope.

Within our faunal limits are five species and while well known and easily distinguished by those having all the species, it is not an easy matter for others to name with certainty any of them excepting well marked males of *Antæus* or *Julianus*. The following study is presented to remedy the difficulty.

Elytra with sutural stria visible, at most, for a short distance from the tip.

Antæus.

Elytra with entire sutural stria.

Sexes differing in form of thorax.....**Julianus.**

Sexes not differing in the form of thorax.

Galea of mandible with a long slender median tooth.....**Mormon.**

Galea without slender tooth.

Galea differing in the two sexes.....**splendens.**

Galea similar in the two sexes.....**cessus.**

The most striking sexual character is found in the different armature of the thorax of the male. This however occurs in the first two species only. The clypeus of the male is usually truncate and that of the female acute, or at least more so than the male. The only constant and invariable character is found in the pygidium. This organ in the male is always regularly convex, in the female broadly transversely impressed and much smoother in the impressed space than the corresponding portion in the other sex. The anterior spur of the middle and hind tibiae is sometimes stouter in the male than the female, although the difference is neither very obvious nor important.

S. Antæus Fab., *Maimon* Fab.

General characters.—Form broadly oval, piceous or dark castaneous, shining. Elytra with sutural stria visible only at apex. Outer angle of the tip of the middle and hind tibiae simply emarginate and with unequal spinules.

Male.—Thorax with three horns, one from the middle of the anterior margin of the thorax, directed forward and upward, and one from each side behind the middle directed inward and slightly backward, of more robust form than the anterior horn. A moderately deep fossa on each side between the bases of the anterior and middle horns. Clypeus oval, subtruncate at tip, front with two slight tubercles. Galea of mandibles tridentate, inner and outer teeth very feeble, middle tooth long slender and subacute.



Female.—Thorax with an obtuse tooth at middle of anterior margin, behind which is a moderately deep fossa of somewhat crescentic form, transversely wrinkled. Clypeus similar in form to that of the male. Galea of mandibles tridentate, inner two teeth similar and equal, outer broader and less prominent.

This species may be distinguished from all the others by the absence of the sutural stria. I have, however, seen one specimen in the cabinet of Mr Ulke with a very faint stria. The thoracic processes of the male become at times very short.

Occurs from New Jersey to Texas.

S. Julianus Burm.

General characters.—Form oblong oval, piceous or castaneous, thorax and head always darker than the elytra. Sutural stria entire and moderately deep. Outer angle of the tip of the posterior tibiae distinctly tridentate and with one or two spinules only on each side of the middle tooth.



Male.—Thorax with a moderate horn from the middle of the anterior margin, and one on each side broad and laminiform obliquely truncate or rounded at tip and crenulate; a deep fossa on each side as in *Antæus*. Clypeus broadly emarginate and slightly reflexed at tip, front bituberculate. Galea of mandibles laminiform, truncate in front with a slight notch and a slight sinuation externally.



Female.—Thorax with slight tubercle at middle of anterior margin with an antemedian, oval, moderately deep fossa. Clypeus oval and truncate at tip. Galea of mandibles resembling that of the male with the outer tooth in form of an obtuse lobe.

In both sexes the thoracic fossæ, as well as a narrow space along the basal margin, are transversely wrinkled. The thoracic processes of the male become greatly reduced in many specimens so that the form of the female is approached, but however much the posterior horns are reduced, the anterior is always moderately prominent and more so than in any female. The form of the thorax resembles the preceding species in having the sides very strongly arcuate at middle and rapidly narrowing at apical half.

This species occurs from Georgia to Mexico.

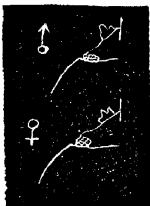
***S. splendens* Beauv.**

General characters.—Form oval, narrower in front, color uniform, castaneous. Elytra with distinct sutural stria. Outer angle of the tip of hind tibia deeply notched, with very slight trace of tooth in the notch and two spinules only.



Male.—Thorax with a short process from the middle of the anterior margin, very broad at base, behind which is a shallow oval impression. Clypeus truncate at tip and feebly reflexed, front with feeble tubercles.

Galea of mandibles with the middle tooth prominent but broad and obtuse at tip, inner tooth very short, outer scarcely evident. Anterior spur of middle tibia conspicuously stouter and broader than in the female.



Female.—Thorax with feeble trace of tubercle near the anterior margin and a very shallow impression. Clypeus less distinctly truncate at tip. Galea of mandibles with the inner two teeth similar and equal, outer in the form of a slight lobe.

This species is a little less robust than *Antæus* and narrower anteriorly. The only difficulty which might arise with the present species is in the separation of its males from the females of the preceding.

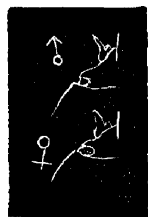
Here reliance must be placed primarily in the form of the galea of the mandible and secondarily in the form of thorax. The bead along the basal margin of the thorax is here very feebly and in *Julianus* very well developed.

This species occurs in Georgia and Florida, and is not common.

S. Mormon Burm.

General characters.—Body oval, slightly narrower in front, color castaneous. Sutural stria entire, deep. Hind tibiæ as in *Antæus*.

Male.—Thorax with a very small tubercle notched at summit, and a vague and very slight impression. Clypeus oval, tip reflexed and subacute, front not tuberculate. Galea of mandibles with the middle tooth prolonged into a slender and acute process, inner tooth obtuse and inconspicuous, outer entirely absent.



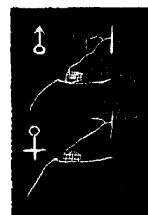
Female.—Thorax similar to the male. Clypeus very acute at tip. Galea of mandibles similarly formed but with the median tooth less prolonged.

In the prolongation of the middle tooth this species resembles the male of *Antæus*, its characters are so evident that it will not be mistaken for that or any other species.

Occurs in Kansas and Texas, very rare.

S. cessus Lec.

General characters.—Form oblong oval, slightly narrowed in front, color uniformly piceous. Sutural stria entire, elytra with more decided evidences of sculpture. Hind tibiæ as in *Antæus*.



Male.—Thorax with a feeble tubercle near the margin, behind which is a shallow oval impression. Clypeus oval, tip subtruncate and reflexed in an obtuse point. Front with feeble transverse ridge. Galea of mandibles not notched, truncate in front free angle rounded.

Female—Precisely similar to the male in every respect except in the form of the pygidium as already explained.

This species cannot be confounded with any other. The similarity of the males and females is what might be expected to occur. The sexes are barely distinguishable in *splendens*, less so in *Mormon*, and identical here.

Occurs in Arizona, rare.

One species of this genus remains as yet unsatisfactorily determined, *Scarabæus Bosci* Beauv., Ins. p. 89, pl. 2b, fig. 1. It is evidently of the size and form of *splendens* and has a similar horn at the anterior thoracic margin, but the clypeus is described as being very acute, in

this respect resembling *Mormon*. I do not know that the latter species has ever occurred in the Carolinas, and suspect that the form of the clypeus is erroneously described, and if so, the synonymy is with *splendens*.

BUPRESTIDÆ.

GYASCUTUS, Lec.

G. californicus, n. sp.—Oblong, subcylindrical, gradually narrowed posteriorly, color bronze with slight æneo-cupreous lustre. Front slightly convex, densely and coarsely punctured, epistoma broadly emarginate, antennal ridges short. Antennæ shorter than the head and thorax, serrate, terminal joint obtuse at tip. Thorax slightly broader than long, cylindrical, sides slightly arcuate in front, feebly sinuate at basal half which is sub-acutely margined, hind angles sub-acute posteriorly; apex truncate, base feebly bisinuate and at middle subtruncate; disc moderately convex, coarsely and deeply but not densely punctured. Scutellum semicircular, nearly smooth. Elytra subcylindrical, parallel, gradually narrowed at apical third, margin near apex finely serrate, apex obtuse, surface densely punctured and with traces of striæ at the sides and apex. Body beneath coarsely but not densely punctured and with a few short cinereous hairs. Posterior tarsi with the first joint feebly compressed and not greatly longer than the second. Length .36—.48 inch; 9—12 mm.

Occurs in the San Joaquin Valley, California. I have seen very many specimens in the museum of the Jardin des Plantes, Paris.

This species has the form of a small *Latipalpis*. The ridges above the antennæ are much shorter than in any of our other species, and the antennal cavities approach the form seen in *Psiloptera*. The tarsi have shown already considerable variation from the very long first joint of the hinder tarsi in three of the species to that in which the first joint is barely longer than the second (*cælatus*) by which another approach is made to the *Psilopterides*. Traces of a false joint at the end of the eleventh occur in the antennæ excepting in *californicus* and *sphenicus* in which the eleventh joint is simply obtuse as in *Psiloptera*. In *Latipalpis* the last joint is abruptly truncate and the antennæ appear to have lost a joint by fracture. No very decided sexual differences occur in the three genera above named.

CHALCOPHORA, Sol.

C. Fulleri, n. sp.—Form oblong, depressed, color dark bronze feebly shining and sparsely pubescent in patches. Head coarsely punctured, deeply longitudinally grooved. Thorax broader than long, sides obtusely angulate at middle, in front oblique, behind subparallel, feebly sinuate in front of hind angles which are moderately prominent, apex feebly emarginate, base bisinuate, disc with broad vague channel at middle and a moderately deep longitudinal impression on each side, surface coarsely rugulose at the sides, smoother at middle. Elytra oblong, depressed, parallel, apical third gradually narrowed and moderately serrate, apex obtuse, surface with four vague nervures with thickened spaces which surround large but very vague fovea; nervures feebly shining intervals opaque, rugulose sparsely punctured and with very short

pubescence. Body beneath similar in color to the upper surface, irregularly coarsely punctured, with spots of denser and finer punctuation. Length 1.10 inch; 28 mm.

Male.—Fifth ventral segment triangularly emarginate, sixth with large, oval, densely punctured and pubescent space surrounded by a slight elevated margin.

Female.—Fifth ventral with an oval densely punctured and pubescent cuprous space near the tip.

Two specimens are before me both of which are from Mr. A. S. Fuller, to whom I take great pleasure in dedicating the species as an evidence of my appreciation of his many acts of scientific liberality. This species belongs to the same section of the genus as *campestris* and *Langeri* but differs abundantly in the form of the thorax.

Occurs in Texas.

BUPRESTIS, Linn.

B. (Ancylochira) connexa, n. sp.—Form elongate oval, subdepressed. Head moderately densely punctured, color brilliant green changing to cupreous. Thorax broader than long narrower in front, sides very feebly arcuate, disc moderately convex with rather coarse punctures more densely placed at the sides, color brilliant cupreous. Elytra wider at base than the thorax, oblong oval, apex feebly attenuate, tip feebly emarginate, sutural angle acute, slightly prolonged, disc striate, intervals equal, moderately convex and sparsely punctured, color variable, brilliant blue along the suture shading to green with the margin cupreous. Body beneath coarsely punctured, very densely at the sides of metasternum and abdomen, color brilliant cupreous with green reflection. Prosternum and first ventral segment not sulcate. Length .60 inch; 15 mm.

This species belongs to that group in which the thorax is not sulcate with *Gibbsii*, *confluens*, etc. Its form is that of *Nuttali* while the elytral sculpture and color more nearly resemble *adjecta*.

Two specimens ♀ from Oregon and Owens' Valley, have the fifth ventral segment slightly truncate at tip, and vary in the color of the elytra. One is as above described, the other has the elytra brilliant green with the margin cupreous near the tip.

Actenodes calcarata Chev., has occurred in Texas.

ELATERIDÆ.

Meristhus texanus Horn, is *scobinula* Cand.

Corymbites præses Horn, is *Drasterius præses* Cand. This species appears to be merely a poorly developed form of *C. conjungens* Lec.

Monocrepidius vespertinus Fab., and *texanus* Cand., may be sexes of the same species.

Agriotes inversus Cand., is a *Sericosomus*, very probably *flavipennis* Motsch.

Limonius nitidicollis Lec., is *consimilis* Walker. This is probably

the only species remaining valid of all those described by Walker in "Naturalist in British Columbia."

Asaphes verna ♂ Cand., is *morio* ♀ Lec.

Asaphes coracinus Cand., is *carbonatus* Lec.

The characters given by Candeze for the separation of these species appear to be those of a sexual nature. An examination of large series of *Asaphes* has shown that the females have the striæ near the suture very feeble or almost entirely obliterated, while in the males the striæ are normal. This character with the narrower thorax of the ♂ and the wider thorax of the female show the identity of the species above cited. Other synonyms on the same basis remain to be determined among the species of *Asaphes* but these must remain for a general revision.

EUCNEMIDÆ.

Entomophthalmus pallens Bonv., is *rufiolus* (Lec.)

Trigonopleurus rugulosus Bonv., is from Victoria, N. S. W., and not United States.

Schizophilus trilobatus Bonv., and *Nematodes simplex* Lec., are *Schiz. subrufus* (Rand.)

CLERIDÆ.

In the Review and Magazine of Zoology published at Paris, appears a paper entitled "*Catalogue des Clerides de la Collection de M. A. Chevrolat*," and which evidently bears date subsequent to Sept., 1874, in which are described various North American species as new. With the assistance of Dr. Leconte, the descriptions have been compared with specimens as they stand in our cabinets with the following results:

Thanasimus melanocephalus Chev., is certainly a variety of *nubilus* Kirby.

Hydnocera funebris Chev., is *H. scabra* Lec.

Pelonium pensylvanicum Chev., is probably a variety of *Orthopleura damicornis* with oblique band behind the middle of the elytra.

Pelonium militare Chev., is *Enoplium humerale* Horn, Trans. Am. Ent. Soc., 1868, p. 135.

Pelonium lineatocolle and *filiolus* Chev., appear to be the same thing, the former is undoubtedly *Lebasiella maculicollis* Lec., Trans. Am. Ent. Soc., 1874, p. 63.

LYMEXYLIDÆ.

Hylecoetus americanus ♀ Harris, is identical with *lugubris* Say.

CERAMBYCIDÆ.

Parandra Sayi, *quadricollis*, *conformis*, *dentata* and *minuta*, Thomson, are all merely slight variations of *brunnea* Fab.

P. polita Say., occurs also in Mexico, whence it has been described by Chevrolat under the name *cylindrica*.

It may be well to mention here that two forms occur in *Parandra*, first, the long, slender, shining and depressed form, and secondly, the shorter, more robust, less shining and more convex. The former with distinct onychium and paronychial, and the latter with both so retracted as to be almost invisible. My attention was directed to the apparent absence of onychium in our common species by Mr. H. W. Bates, and subsequent examination has shown that the form of body is also an indication of the development of the onychium in any of the species.

Pilema Lec., is thought by Mr. H. W. Bates, to be identical with *Callimus* Muls. The form of the one certainly resembles very greatly the other, but having no specimen of *Callimus* with which to compare *Pilema*, the latter name must be allowed to stand, inasmuch as the best three European descriptions vary so greatly as to leave the matter in great uncertainty.

Callimus chalybæus Lec., is however not a *Callimus*.

Clytus nitidus Horn, is omitted from the Check List on suspicion that it might be *C. magicus*. This however is not the case, *nitidus* is a *Xylotrechus* and *magicus* a *Neoclytus*. I was moreover unable to find any species in Europe at all resembling it. The name must therefore be restored to the List.

Plagythmysus pulverulentus Motsch., is distinct from any species I have seen and appears to be a *Neoclytus*, and if so the generic name of Motschulsky has priority.

Amphidesmus xanthomelas Guerin. Specimens in the Jardin des Plantes from Lower California.

Monohammus minor Lec., is probably identical with *carolinensis* Oliv., and is doubtfully valid as a species.

Eutessus asper Lec., is *Mecotetartus antennatus* Bates. This species occurs from Lower California to Yucatan.

Pogonocherus sordidus Lec., is an *Estola* Fairm.

AMPHIONYCHA, Lec.

The first appearance of this name is in the catalogue of the collection of Dejean. Haldeman quotes the name from that author without however giving any description, (Trans. Am. Phil. Soc., 1847, p. 57), redescribing *A. marginata* Fab. The name next appears in "An attempt to classify the Longicorn Coleoptera of the part of America

north of Mexico," by J. L. Leconte, M. D., Journ. Acad., 1852, p. 154, where the genus is for the first time fully described, and *A. (Saperda) flammata* Newm., the only known species described. Subsequently Mr. James Thomson (Archiv. Entom. I., p. 311), describes anew the genus giving a totally different type, *A. luctuosa* Lesel. from Brazil. Lacordaire (Genera IX., p. 890), adopts Thomson's description and type entirely ignoring any reference to Leconte. It appears that the genus was first described by Leconte with *flammata* as the type and the genus as described by Thomson and Lacordaire is an entirely different matter, and should receive another name. I would suggest that the name *Oedudes*, subsequently given by Thomson, be adopted.

CHRYSOMELIDÆ.

Megistops quadrinotata Boh. Eugen. Resa, is quoted from California. The other species are from Chili and Venezuela, and it is probable that this one is also.

BRUCHIDÆ.

Bruchus impiger Horn, is identical with *ramicornis* Boh.

TENEBRIONIDÆ.

Scotobænus Lec. My attention was called by M. Aug. Sallé, to the probable synonymy of this genus with *Centronopus* Sol., of which the type is *suppressus* Say., from Mexico. While examining the admirable collection of Heteromera of Mr. Fred. Bates, I was enabled to satisfy myself of the fact of the identity of the two, and would suggest the name *Scotobates* for the species now known as *Centronopus* ‡.

Eutomus (Dej.) Lac. There appears to be no doubt that this genus is very closely allied to if not identical with *Rhipidandrus* Lec. Chapuis has already stated that *Eutomus* is a Tenebrionide. Future investigation will, I think, show that neither belongs to the Tenebrionidæ.

MONOMMIDÆ.

Hyporhagus Lecontei Thoms. Examined the type of this species and the type of *lævipunctatus* Thoms., in the cabinet of Count Mnizech, and find them identical, the former being the male. The species is from the United States of *Columbia* and not California.

OTHNIIDÆ.

In the Rev. et. Mag. Zool., 1874, M. Aug. Chevrolat describes *Othnius mexicanus* as new. This species was described by myself under the same name in the Trans. Am. Ent. Soc., 1868, p. 133.

MELOIDÆ.

Several of our not uncommon Western species have been redescribed by Duges, in the Transactions of the Natural History Society of Mexico. The synonymy has been determined and placed in the hands of M. Sallé of Paris, as belonging more properly to those dealing with the fauna of Mexico.

CORDYLOSPASTA, n. g. (*Meloidæ*.)

Body winged, metasternum moderately long, middle coxæ not covering the posterior. Elytra entire covering the abdomen but not concealing the metasternal parapleuræ. Antennæ eight-jointed, clavate not as long as the head and thorax, slightly arcuate; first joint moderately stout but short, second very short, third as long as the first, fourth to seventh gradually shorter and broader, eighth longer than the preceding three, cylindrical, obtusely pointed at tip. Tibiæ slender, each with a single, slender, moderately long spur. Tarsal claws cleft, the two portions connate, the lower portion half the length of the upper and its tip forming a slender acute tooth at the middle of the upper. Anterior femora without sericeous spot.

The form of the antennæ of this genus appears to be unique in the family. The terminal joint shows a slight tendency to segmentation at its base so that the antennæ might possibly be thought to be nine-jointed. This genus is certainly the nearest approach to the *Mylabrini* our country has yet produced and it appears to differ from that tribe only in the form of the tarsal claws and the unique tibial spurs. By these characters I would suggest its position in a group intermediate between the *Mylabrini* and *Lyttini*.

C. Fulleri, n. sp.—Black, subopaque. Head subquadrate, narrower in front, occiput truncate, hind angles rounded, surface opaque (minutely granulate) sparsely punctured. Thorax transverse, not wider than the head, nearly twice as wide as long, apex suddenly narrowed, sides feebly arcuate, base slightly emarginate at middle, margin slightly reflexed, surface sculptured as the head. Elytra nearly twice as wide as thorax and twice as long as head and thorax combined, parallel, each rounded at tip, surface opaque, scabro-reticulate. Scutellum oval at tip. Body beneath black, shining. Legs slender, moderately long, black, moderately shining.

Male.—Fifth ventral segment moderately long, nearly semicircularly emarginate, angles acute, prominent and moderately divergent. Length .22 inch; 5.5 mm.

I take great pleasure in dedicating the species to Mr. Andrew S. Fuller, as a slight evidence of my appreciation of his many kindnesses.

One specimen Nevada, from Mr. A. S. Fuller.

EPICAUTA, Fab.

E. Batesii, n. sp.—Moderately robust. Color of body and legs ferruginous, moderately densely covered above with concolorous pubescence which is on the under surface cinereous. Antennæ piceous, paler at base, filiform, joints closely approximated. Eyes moderately large and convex, rather coarsely granulated, scarcely emarginate. Head moderately densely punctured. Thorax subquadrate, as wide as long, median line distinct, surface moderately densely punctured. Elytra punctured similar to the thorax moderately densely covered with pubescence of a color similar to that of the surface, slightly paler along the suture. Body beneath darker ferruginous, the abdominal segments piceous along their hinder margins, surface somewhat more coarsely punctured than above and densely clothed with cinereous pubescence longer than that of the upper surface. Legs paler ferruginous. Length .36 inch; 9 mm.

This species by the form of the antennæ and eyes takes a place in group A in the revision of the genus published by me, Proc. Am. Philos. Soc., 1873, p. 95. It is rather more robust than any of the allied forms although resembling *ferruginea* and *strigosa*. It differs from all the species at present known in the group by its pale ferruginous legs. In the Florida specimens the body beneath is nearly piceous and the head darker than the thorax. No special sexual differences occur.

I take great pleasure in dedicating this species to my friend Fred. Bates, of Leicester, England, whose contributions to our knowledge of the Heteromera are so well and favorably known.

Savannah, Ga. and Florida. Two specimens given me by Mr. Bates, from the Dejean collection, bore the name *lurida*.

Meloe trichrus Pallas, Icones Ins. 100, tab. E, fig. 32. This is that variety of *Epicauta convolvuli* Mels. (Proc. Acad. 3, 53.) in which the pubescence is gray and the head red. The former specific name has many years priority and should be restored.

E. oregona, n. sp.—Black, subopaque, cinereo-pubescent. elytra with numerous denuded small spots. Head sparsely punctured, subopaque, with a smoother spot within and above the insertion of each antenna. Antennæ as long as half the body, moderately strongly flattened, gradually more slender to the tip. Thorax quadrate, narrower than the head, sides at anterior fourth arcuate and narrowing to tip, posterior three-fourths parallel, surface subopaque, sparsely and finely punctured. Elytra slightly wider behind, sparsely punctured, sparsely cinereo-pubescent with numerous small, denuded, rounded spots. Body beneath and legs more shining than above, sparsely punctured and pubescent. Length .36—.40 inch; 9—10 mm.

Male.—Antennæ more distinctly flattened; anterior tibiæ with two spurs; fifth abdominal segment feebly emarginate.

This species should be placed next to *cinerea* in the table given by me (Proc. Am. Phil. Soc., 1873, p. 96,) of the species of this genus. It differs from that in the maculate surface and the spurs of the hind

tibiæ slender and acute while in *cinerea* the spurs are both stout and very obliquely truncate at tip. Superficially *oregona* greatly resembles some of the forms of *maculata*, but the male sexual characters at once suffice to separate it.

Several specimens collected in Oregon, by Mr. Wm. M. Gabb.

E. Alphonsii Horn, Trans. Am. Ent. Soc., 1874, p. 38, should be placed near *maura* Lec., the middle femora being similarly dilated in the male, a specimen of which was kindly given me by the late Jules Thevenet. It differs from *maura* in having the suture and margin narrowly bordered with white pubescence.

GNATHOSPASTA, n. g.



Antennæ setaceous, eleven-jointed, first joint moderate with a slight sinuation in front near the tip, second joint short, half the length of the third, these two together but little longer than the first, joints 4—11 gradually longer. Eyes elongate oval, twice as wide as long, emarginate in front. Labrum very deeply emarginate, mandibles prominent, pincer like. Labial palpi rather slender.

Other characters as in *Epicauta*.

The mandibles are very much more prominent than in any vesicant in our fauna; they meet at tip and are directly opposed along a straight line and not emarginate, behind which they are slightly separated, the inner margins being feebly sinucus. The form of labrum and mandibles preeminently distinguishes the genus.

I have seen in the cabinet of the British Museum several species of very large size from China and the East Indies with this form of mandible which should probably be placed in this genus. I might here mention another curious form in the same Museum, allied to *Pyrota* but the labrum is long, rhomboidal, truncate in front, concealing the parts of the mouth beneath; mandibles stout, directly opposed, margin crenulate and with the outer face grooved. The antennæ are strongly flattened in the male and resemble those of certain Elateridæ.

The form of the first antennal joint of *Gnathospasta* points to an affinity with *Macrobasis*.

G. mimetica, n. sp.—Elongate, black, moderately densely clothed with rather coarse, recumbent, cinereous hairs. Antennæ black. Head rather large coarsely and moderately densely punctured. Thorax smaller than the head, sides at apical third rapidly converging, posteriorly gradually narrowing to base, median line feeble, disc moderately densely and coarsely punctured. Elytra at base scarcely wider than the head, gradually broader posteriorly,

surface moderately densely punctulate. Body beneath and legs, moderately densely punctured and cinereo-pubescent. Length .44 inch; 11 mm.

Male.—Sixth ventral segment slightly emarginate. Metasternum concave.

One specimen, Texas. (Belfrage, No. 609). Resembles so much certain of the unicolored forms of *cinerea* as to be with difficulty distinguished except by the generic characters.

CANTHARIS, Linn.

C. (*Lytta*) *mutilata*, n. sp.—Body black, head and thorax red. Head with very few punctures, epistoma and parts of mouth black. Thorax subpentagonal very little wider than the head, a very fine median line, surface very sparsely punctured. Elytra black, rather finely scabro-punctate, smoother near the base. Body beneath black, moderately shining, sparsely punctate. Legs black more densely punctate. Length .86 inch; 22 mm.

Male.—Antennæ with fifth joint deformed, excavate anteriorly and with the anterior angle slightly prolonged, sixth joint slightly flattened, 7—10 oval, 11 slightly longer and pointed. Anterior tibiæ with two spurs, hind tibiæ with inner spur slender acute, outer longer, cylindrical and obliquely truncate at tip. Last dorsal segment oval at tip, fifth ventral truncate, sixth very feebly emarginate. Hind trochanters simple.

Female.—Unknown.

This species should be placed next to *eucera* in my revision of the species of this genus.

For the privilege of studying a perfect male, I am indebted to Mr. Otto Lugger of St. Louis.

Occurs in Arizona.

ZONITIS, Fabr.

Our species are distinguished as follows:

Eyes lateral, not extending beneath the head; antennæ at most half the length of the body.

Legs bicolored.

Elytra black, head and thorax yellow.....***atripennis*** Say.

Body above pale yellow, elytra tipped with black.....***flavida*** Lec.

Body above pale yellow, elytra with piceous vitta.....***bilineata*** Say.

Legs piceous.

Body above and beneath pale sanguineous.....***rufa*** Lec.

Eyes large, extending beneath the head, and comparatively approximated; antennæ setaceous, nearly as long as the entire body.

Thorax and elytra very densely punctured.....***longicornis*** Horn.

Thorax and elytra very sparsely punctured.....***vittipennis*** n. sp.

Z. bilineata may become unicolored, pale yellow, but the elytra are always coarsely punctured.

***Z. vittipennis*, n. sp.**—Form elongate, pale yellowish testaceous, moderately shining. Antennæ nearly as long as the entire body, setaceous, piceous. Head oval deeply but sparsely punctured. Eyes large, coarsely granulated, extending beneath the head. Thorax subcampanulate, not wider than long, disc shining, sparsely and irregularly punctured. Elytra pale yellow, with two

piceous vittæ on each, one near the suture, the other broader near the side margin, neither attaining the tip or base, surface with coarse shallow punctures becoming more indistinct at base. Body beneath colored as above, shining, sparsely punctured; abdomen densely punctured. Femora yellow tipped with piceous, tibiæ piceous yellow at base, tarsi piceous. Length .40 inch; 10 mm.

The body above is sparsely clothed with short, yellowish inconspicuous hairs, those of the under surface are somewhat longer and denser.

One male, Arizona.

This species and *longicornis* may vary in the extent of the piceous elytral vittæ. The type of the latter was described as having brownish-testaceous elytra, with suture, margin and narrow median stripe paler, but specimens have occurred marked similarly to *vittipennis*, that is, with the paler color predominating.

CISTELIDÆ.

CISTELA, Fab.

C. Thevenetii, n. sp.—Piceous, subopaque, form elongate. Head piceous, rufous in front, minutely and densely punctulate. Antennæ subserrate, nearly as long as the entire body, piceous, three basal joints rufous, joints two and three short, together but little longer than half the fourth. Thorax piceous, minutely and densely punctulate, broader than long, sides regularly arcuate and gradually narrowing to apex. Elytra not wider than the thorax and nearly four times as long, black, striate striæ finely punctured, intervals slightly convex, sparsely and very minutely pubescent. Body beneath piceous, more shining than above, sparsely punctulate. Legs pale rufous, tibiæ and tarsi somewhat darker. Length .30 inch; 7.5 mm.

This species belongs to the same group of the genus with *opaca* and is easily known by its slender form and red legs.

One specimen Mariposa, Cal., from M. Jules Thevenet.

C. variabilis, n. sp.—Form oval, color variable. Head densely punctured. Antennæ half the length of body, slender, second joint half as long as third, the latter as long as the fourth. Thorax broader than long, gradually narrowing to apex, surface more densely punctulate than the head, very sparsely pubescent. Elytra oblong oval, minutely punctulate, more shining than the thorax, and with feeble traces of the two inner striæ only, surface sparsely cinereo-pubescent. Prosternum beneath rugulose, metasternum smooth at middle, sides sparsely punctured, abdomen shining, sparsely punctulate. Length .20 inch; 5 mm.

Somewhat broader than *sericea* which it otherwise resembles. Varieties in color occur as follows:

- a.—typical, black, thorax red, beneath and legs piceous, the latter sometimes red.
- b.—entirely piceous, varying with paler legs and elytra.
- c.—entirely testaceous, as in *sericea*.

Occurs rather abundantly all over California.