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TRANSACTIONS
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AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME IX.

**Descriptions of new species of DIURNAL LEPIDOPTERA
found within the United States.**

BY W. H. EDWARDS.

Argynnis Artonis.

Male.—Expands from 1.5 to 1.8 inch. Upper side uniform yellow-fulvous, very little obscured at base; all marks delicate, and as in *Eurynome*; the mesial band on secondaries made up of separated crescents (in the examples under view.) Under side of primaries paler; the marks in cell and those of mesial row repeated; the P-shaped spot in cell fulvous within; the extra discal row but imperfectly repeated and all the marginal markings nearly obliterated. Secondaries light yellow-buff, sometimes with little or no fulvous, but in other cases mottled over disk with pale fulvous; the band between the outer rows of spots buff, immaculate; the marginal spots faint, as on primaries; the spots of disk shaped as in *Eurynome*, but pale-yellow, very slightly edged on basal side with black, often but a few scales; most of those of second row have little dusky spaces at their outer ends; no trace of silver on either wing. Body fulvous above, yellow below; legs reddish-yellow; palpi yellow, at tip red; antennæ brown above, ferruginous below; club black, at tip ferruginous.

Female.—Expands 1.9 inch. A shade redder than male, the costa and apex of primaries buff; the marginal lines heavier and more or less confluent on both wings; all the markings heavier; the mesial band on secondaries confluent. Under side of secondaries cinnamon-brown over basal area and disk, the apical area and hind margin, as also costa next apex and the upper half of cell, yellow-buff; spots as in the male, the marginal almost obsolete. Secondaries yellow-buff, all spots obsolescent.

This form has been supposed to be a variety of *Eurynome*, with which species it flies in Colorado, but is rare. Mr. Mead met with three or four examples in 1872, though he took great numbers of *Eurynome*. I have received a single male from Big Horn, Montana; and recently have seen two females from Wells, Elko Co., Nevada; a region where, so far as I know, *Eurynome* does not fly. These formed part of the collection of Mr. J. Elwyn Bates of South Abington, Massachusetts; and he informs me that he received twenty-six examples, and that the typical *Eurynome*

was not taken in the region from which these came. *Artonis* may be distinguished by the absence of silver and obliterated marginal spots on both wings.

Argynnis Liliana, H. Edw., Proc. Cat. Acad. Sci. Dec. 1876.

Mr. Edwards described this species with some hesitation, but it is undoubtedly a good species. During the last three years Mr. O. T. Baron has taken very many examples in northern California, and the characteristics are uniform. I have living larvæ at the present time, from eggs obtained by him from a female in confinement.

Mr. Edwards says of this species: "It is intermediate between *A. Calippe* Bdv., and *A. Coronis* Behr, partaking of the characters of both. . . . Upper side of a rich reddish-brown. Beneath, the primaries are largely suffused with reddish-brown, as in *Coronis*, but the remainder of the wing is occupied by bright buff, not dull ochreous, as in *Coronis*. The silver spots of the margin are very decidedly triangular, and not ovate as are the apical ones of *Coronis*. On the lower wings the differences are more apparent. The silver spots are larger proportionally than in any other species with which I am acquainted, while the sheen of the silver is exceedingly vivid and intense. The marginal spots are quite triangular, and the large one of the cell more decidedly oblong than in either *Coronis* or *Calippe*. The ground color of the wing is bright buff, inclining to orange," etc.

To this I add, that the species is of medium size, the ♂ expanding about 2 inches, the ♀ about 2.2 inch.; that the female is paler, somewhat mottled on upper side with yellow-fulvous on disk of primaries, and the submarginal spots, within the black crescents, are yellowish on both wings. So the spots on secondaries which represent the second row of silver spots are paler than the ground.

Mr. Neumoegen has received from Mr. Baron a singular variety of *Liliana* ♂, which I call var. BARONI. The two marginal lines are very heavy, and in place of the lunules is a third broad line crossing the whole wing; the series of rounded spots on each wing is represented by a demiline from costa, and by two round spots in the two median interspaces, the rest of the row wanting; and the mesial bands are changed from a row of confluent crescent spots to a continuous zigzag narrow band; the spots in cells are unchanged. On under side about half of primaries is yellow-buff; namely, all except the area next base below median and the base in cell, besides two spots in cell; secondaries same, yellow-buff; the margins ferruginous-brown and disk mottled with same; on primaries a continuous silver bar extends from costa to median instead of the

three usual silver lunulate spots, and on the subapical patch the silver spot is twice as large as in typical examples. Secondaries have a continuous submarginal silver bar instead of lunules, and the three silver spots of second row next costa are confluent, making one great spot. The other spots are not changed.

Eurygona Abreas.

Male.—Expands 1 inch. Upper side dark brown, red-fulvous over disk of primaries and to base, and over inner half of secondaries. Under side reddish-drab; a common red band (color red lead), crosses the middle of the wings, nearly straight from costa of primaries to lower branch of median on secondaries, then turning up to inner margin: between this and hind margin a common pale brown stripe, and the margins are narrowly edged with same color; but on secondaries the posterior half and inner margin for a little distance are edged red; along this on hind margin is a series of subrescent white spots, the upper one in upper median interspace being surmounted by a large rounded black spot; from the second branch of median to outer angle is a series of yellowish spots limited by the brown stripe.

From 1 ♂, from Arizona, in collection of Mr. Neumoegen.

Lycæna Cyna.

Female.—Expands .9 inch. Upper side purplish-blue; primaries have the apex and hind margin broadly bordered with fuscous: at the end of cell a short fine black streak; secondaries narrowly edged with fuscous except on costal margin. Under side light brown-buff thinly washed white; both wings have a marginal series of buff spots preceded by a crenated line of same hue, all on white ground: primaries have a transverse row of brown spots, eight in all, the first five, counting up from inner margin, forming a convex row almost parallel with hind margin: the line then bends on apical area and the last two spots are on costal margin at one-half and three-fifths the distance from apex to base; these two spots are smaller than the rest and in line with them: over the sixth spot of the row is another one, minute: at the end of cell a buff bar, and another near middle. Secondaries have a much curved discal row of small spots, seven in all, besides three across basal area and one quite at base; in cell a faint bar.

I received this example some years ago from the late Mr. Boll, who took it at San Antonio, Texas; and I kept it hoping that in another trip which he planned, he might find the male. The species stands near *Gyas*.

Pamphila Harpalus.

Male.—Expands .95 inch. Upper side red-fulvous over disk and costal margin of primaries; pale brown at base; hind margin edged broadly with same; stigma long, slender, widening a little toward base and bent down, black; in subcostal interspaces three minute fulvous spots and two others in the border opposite cell. Secondaries brown, the disk fulvous, obscured except in discoidal interspace which is clear fulvous nearly to hind margin. Under side of primaries pale fulvous, yellowish next inner margin, ochreous over apical area; at base black. Secondaries ochre-yellow; on disk a narrow band bent near outer angle and extending a little way toward base; in cell a patch; this and the band are paler than the ground but are not very distinct.

Female.—Same size. Colors paler, the brown restricted; the lower median and submedian interspaces a little obscured, and two brown streaks in discoidal and upper median interspaces; the brown border sends out long serrations, and a faint pale band crosses the wing next inside the border; secondaries have the disk clear fulvous, all the margins brown, the hind margin serrated as on primaries. Under side of both wings uniform yellow-buff; the irregular band of primaries is better defined than on upper side, paler than the ground; so on secondaries the band is whitish, of same shape as in male but rather more distinct.

From 1 ♂, 1 ♀, received in 1878, from Mr. Morrison, taken in Nevada. The species is nearest *Sassacus*.

Pamphila Deva, *Elw.*, *Trans. Am. Ent. Soc.* v, 289.

I described a female of this species received from Prescott, Arizona; Mr. Neumoegen brought from South Colorado a second female which differs somewhat from the type. The translucent spots on primaries are larger, and on the under side of secondaries are indistinct traces of two macular bands, one abbreviated on middle of disk, the other nearly half way between the first and hind margin, almost perpendicular to inner margin and bending to costa at a right angle; these bands are brown, while over the wing is a gray bloom. The same bloom covers apex of primaries. In the type, which is more worn than the Colorado example, this gray surface is absent and the brown spots do not appear. But I think there can be no doubt that both females belong to one species. The ♂ is yet unknown.

Pamphila Cabelus.

Male.—Expands 1.2 to 1.3 inch. Upper side yellow-fulvous; the hind margins of primaries broadly edged with pale fuscous, of secondaries very narrowly; the sexual mark long, slender and curved; on costa near apex are two or three obsolescent little spots, and two minute ones opposite cell in marginal border. Under side reddish-fulvous over both wings, except the apical area of primaries which is yellowish, and inner margin pale yellow; a little black at base and a dusky patch at inner angle; secondaries golden-yellow-fulvous, with a few small spots of paler color; one in cell near outer end, one in lower subcostal interspace, and two minute spots in the median interspaces, these three making a line across the disk; also a minute spot in discoidal interspace near margin. One example has no trace of these spots on secondaries.

From 3 ♂'s taken in Nevada by Mr. Morrison in 1878. The species is allied to *P. Ottoe* Edw.

Pamphila Verus.

Male.—Expands 1 inch. Upper side yellow-fulvous, the margins pale fuscous, broad on primaries, narrow on secondaries; on primaries three indistinct subapical dots on costa, and a series of small spots oblique, crossing median interspaces; sexual mark black, slender, broken on lower branch of median but not separated, edged by black somewhat on either side; at its upper end a fuscous patch connects it with the marginal border. Under side of both wings bright yellow-fulvous;

secondaries immaculate; primaries have a little black at base and a streak representing the stigma; the indistinct spots of upper side repeated, but still more obscure, scarcely to be seen except in certain lights.

Female.—Same size; generally like the male but paler; the spots more definite and semi-translucent; a fuscous patch in place of the stigma. Under side paler than male.

From 1 ♂, 1 ♀, taken at Havilah, California; and in the collection of Mr. Henry Edwards. The species is allied to *Agricola* Bois.

Pamphila Regulus.

Male.—Expands 1 inch. Upper side black-brown; primaries have a straight black sexual mark; also three white dots in the subcostal interspaces, two more at end of cell one over the other, two near hind margin opposite cell; and two streaks or spots in line with the last mentioned spots and making with them an oblique line which if protracted would reach middle of inner margin. Secondaries immaculate. Under side paler, the spots on primaries repeated and enlarged; on secondaries a straight line of four small spots across middle of wing, two at right angles with the outer end of this line and extending up costal margin; one on costal margin nearer base, and one in middle of wing; in all eight spots. Body above and below concolored with the wings; palpi buff.

Female.—Expands 1.3 inch. Same color and marked in same way, but the spots larger.

From 2 ♂'s, 1 ♀, sent me for inspection by Mr. J. Elwyn Bates of South Abington, Massachusetts; and received by him from upper St. John's River, Orange Co., Florida. Near *Accius*, but very much spotted with white.

Pamphila Lagus.

Male.—Expands 1 inch. Upper side yellow-fulvous; primaries have a very narrow fuscous border to hind margin, and this is extended round apex and along costa for a little distance. Secondaries have a still narrower border, but both costal and inner margins are broadly fuscous; at the end of cell of primaries the arc is black and subcostal next the arc is bordered black; fringes long, pale fulvous. Under side of both wings light yellow, with a slight fulvous shade over middle of primaries; base of same wings and part of inner margin black; secondaries immaculate.

I formerly received a single male of this little species from Mr. Boll, taken in western Texas; and recently Mr. Neumoegen has brought another male from Southern Colorado, taken at Oak Creek Canon. The female is still unknown. The species is allied to *Delaware*.

Pamphila Taxiles.

Male.—Expands 1.1 inch. Upper side glossy yellow-fulvous, the hind margins bordered narrowly by fuscous; in some examples the dark portions are greatly restricted, forming but a slight edging; costa of secondaries fuscous; primaries have a fine black streak on arc, sometimes wanting; fringes of secondaries and along inner angle of primaries fulvous, the remainder fuscous. Under side of primaries paler; basal area black, with a spur along inner margin; hind margin indistinctly fuscous; in the subcostal interspaces three yellow spots. Secondaries

mottled bright yellow and pale red-brown, the yellow prevailing on disk, the other bordering hind margin and forming a band across basal area, besides a demiband on middle of wing from inner margin.

Female.—Expands 1.2 inch. Upper side fuscous mottled with pale yellow fulvous; the hind margins broadly fuscous; the basal areas pale fuscous; the fulvous occupying the disks, not clearly defined, and especially on primaries much obscured: primaries have three translucent spots in the subcostal interspaces; two fulvous spots anterior to these last and opposite cell; and two translucent spots of larger size in the two median interspaces; in some examples these median spots are yellow, not translucent. Under side of primaries blackish-brown at base, brown over apical area and hind margin; the costal spots and those against cell repeated, the median spots indistinct. Secondaries red-brown, indistinctly mottled with fulvous across middle of disk and along costal*margin and at base; inner angle brown-fulvous. In some examples this wing is scarcely mottled, but nearly uniform red-brown, and is flushed with grayish-purple; so also is the apex of primaries.

Taxiles is near *Zabulon*, a species which varies greatly. The most evident distinction consists in the extent of the fulvous area in the male, and in the translucent and other spots on fore wings of the female. I have examples of *Zabulon*, taken at Coalburgh, which have the under side of secondaries mottled in same way as in this western form, and examples of the female, especially in the melanic dimorphic form *Pocahontas* Scud., are very close in the resemblance of under side to the usual type of *Taxiles*. This replaces *Zabulon* on the Pacific slope. I have examples from Arizona, also from South Colorado and Nevada, taken by Mr. Morrison; and Mr. Neumoegen found several at Oak Creek Canon, South Colorado. Mr. H. Edwards has a female taken in California.

Amblyscirtes Simius.

Male.—Expands .85 inch.—Upper side grayish-brown with a silky gloss; primaries have a white spot, fulvous tinted, at end of cell, and a bent row of similarly colored small spots across disk from costa nearly to inner margin; of these three are perpendicular to costa and the others form a line oblique to them, a little sinuous, curving in submedian interspace towards inner margin: secondaries have on disk traces more or less decided of a narrow fulvous band above median; fringes long, cinereous. Under side of primaries fulvous in cell, and fulvous washed gray over disk and to inner margin; apical area gray; the basal area below cell pale fuscous; the spots repeated and a little enlarged. Secondaries light gray-brown; on the disk a whitish band nearly parallel with costal and hind margins; and an indistinct whitish patch near base below cell. Body dark fuscous above, yellow-gray beneath; palpi white at base, gray above; antennæ white beneath, annulates white and black above, club ferruginous.

Female.—Expands .95 inch. Upper side lighter, rather yellow-fulvous obscured by brown: the basal areas and hind margin of primaries being darkest: spots as in the male, not distinct. Under side as in the male, but paler.

From 1 ♂, 1 ♀, taken at Oak Creek Canon, Colorado, by Mr.

Neumoegen; and 1 ♂ sent me by Mr. Lintner, marked "Pueblo, Colorado."

Pholisora Pirus, Edw., ♂; Field and Forest 3, 144, 1878.

Female.—Expands .9 inch. Lighter brown on both sides than the male and marked in same manner.

The male was described nearly as follows:

Expands .9 to 1 inch. Upper side glossy dark brown; primaries have three small yellow spots near apex, a point in each of the two median interspaces; also one within and near end of cell just below subcostal; secondaries immaculate; fringes light brown. Under side of both wings castaneous, the disk of primaries blackened; the spots repeated, a little enlarged, yellow. Body fuscous; below the thorax gray-brown, abdomen same, reddish at sides and extremity; legs reddish; palpi white at base, yellow above with many black hairs; antennæ black with five rings of yellow, on under side yellow; club black, tip ferruginous.

Hab.—Southern Colorado.

Neonympha Henshawi = *Euptychia Henshawi*, Edw., Tr. Am. Ent. Soc. 5, 205.

This species was originally taken in Arizona and New Mexico. Mr. Neumoegen took several examples at Oak Creek Canon, Colorado. The species resembles *N. Gemma* Hubner; is twice as large and russet beneath. The female also is russet above.

Lemonias Nais = *Chrysophanus Nais*, Edw., Tr. Am. Ent. Soc. 5, 291.

Described from a single ♂ taken formerly by Dr. Smart in South California, and a ♀ received from Prescott, Arizona. Since taken at Denver, Colorado, (1 ♂) and found to be common in Southern Colorado, at Oak Creek Canon, by Mr. Neumoegen. The species belongs to the sub-family Erycinidæ, not to the Lycaenidæ. Its habits are very different from *Chrysophanus*, according to Mr. Neumoegen alighting on the sand, etc.

Mr. Neumoegen writes thus: "*Nais* appeared at first about the middle of July, in Oak Creek Canon, but was most abundant toward the end of the month and beginning of August, entirely disappearing by the middle of August. It was always found on open clearings (which in a Canon means the highway, as there is no other clearing), flying from 10 A. M. to 2 P. M., and invariably settling near moist places. Its flight is of a rapid, zigzag character, much resembling *Melitæa*."

I sent a pair of *Nais* to Mr. A. G. Butler, to ask in what genus of Erycinidæ it should stand, and received the following reply: "Zool. Dept. Brit. Mus., 22 Nov., 1880. I do not wonder at your describing the little butterfly as a *Chrysophanus*. It was a most natural mistake, considering that the coloring and pattern are quite like that genus,

and quite unlike the members of the genus to which it appears to belong. In structure it agrees best with *Apodemia*, (I might say, it agrees altogether), but the pattern of the under surface is not like any member of that genus known to me, being more like the arrangement found in *Echenais*. If color can be called a structural character therefore, the species belongs to no known genus; but as I do not consider this to be the case, I should certainly refer it to *Apodemia*. In some respects *Nais* reminds me of *Nemeobius*, but the much less developed club to the antennæ at once precludes the possibility of referring it to that genus."

To *Apodemia* Kirby refers *Mormo*, *Virgulti* and allies, which in my Catalogue stand under *Lemonias*. I therefore place *Nais* with them, in *Lemonias*, Westwood, which covers *Apodemia*.

Melitæa Arachne, Edw., ♀, Trans. Am. Ent. Soc. ii, p. 372, 1869.

I described *Arachne* from a single example taken in Colorado, and expressed a doubt whether it might not be same as *Minuta*, Edw.. Proc. Acad. Nat. Sci. Phila. 1861, 161.

Of late years many examples of both forms have been taken in Colorado, Arizona and West Texas. Mr. Neumoegen found *Arachne* common at Oak Creek Canon, South Colorado; and I have seen it in his collection. The two forms are equal in expanse of wing in the sexes, the 2 ♂'s measuring from 1.2 to 1.4 inch, the 2 ♀'s about 1.4 inch. Both sexes are alike in markings and color. The only permanent difference which I have been able to discover is in the markings about the hind margins of secondaries on under side. In *Minuta* this margin is white, without black on the edge; a little within is a fine black line and on this line rests a series of large white spots, the anterior sides rounded. The posterior side of each spot rests on the black line and therefore is no more curved than the line itself.

In *Arachne* the hind margin is edged with a fine black line; and instead of a submarginal fine line, the spots are placed on black ground and the posterior side of each is largely incurved, sometimes much angulated and this makes a black space quite unlike the mere line of *Minuta*. I have before me 6 *Minuta* ♂ ♀, and 6 *Arachne* ♂ ♀, and these differences are constant. All the examples which Mr. Neumoegen showed me were of the *Arachne* type. So were four (2 ♂, 2 ♀), formerly sent me by Mr. Boll from West Texas, and 1 ♂ which I have from Arizona. This is enough to distinguish one form from the other, and I shall Catalogue them as two species. *Arachne* seems to inhabit a more southern region than *Minuta*.

Notes on the species of CALLIDRYAS found within the United States.

BY W. H. EDWARDS.

Until Mr. A. G. Butler, in his "Lepidoptera Exotica," London, 1874, monographed this group, figuring nearly or quite all the known species, and that in both sexes, the confusion was extreme, and no apology was necessary on the part of other recent authors for any errors they might have fallen into. Now there is no excuse for error. Mr. Butler had all the resources of the British Museum collection and library at command, not to speak of the many other British collections, and his authority is sufficient to settle any doubtful questions in this direction.

Following the best light I could find, I had given in my Synopsis (Vol. i, Butterflies of North America, 1868-1872), four species as belonging to our fauna.

1. ARGANTE, Fabr., Syst. Ent. p. 470.

♂ *Hersilia*, Cramer, pl. 173.

♀ *Cipris*, Cramer, pl. 69.

♀ *Cnidia*, Godart, Enc. Meth. ix, p. 93.

Hab.—Texas; Florida.

2. CIPRIS, Fabr., Ent. Syst. iii, 1, 212.

Hab.—New Mexico.

3. EUBULE, Linn., Syst. Nat. ii, p. 764. Abbot, Ins. Ga. pl. 5
Bois. and Lec. pl. 24.

Var. *Sennae*, Linn., Syst. Nat. ii, p. 764.

Hab.—Southern States, etc.

4. MARCELLINA, Cramer, pl. 163.

♂ *Eubule*, Bois. and Lec. pl. 24.

Mr. Scudder in a paper entitled "Remarks on the old genus *Callidryas*," Vol. xvii, Proc. Bost. Soc. Nat. Hist. 1874-5, followed Mr. Butler, and gave the North American species thus:

1. AGARITHE,

2. EUBULE,

3. SENNAE,

4. CIPRIS, on authority of W. H. Edwards' Synopsis, etc.

In my Catalogue 1877, following Mr. Butler, I gave

1. EUBULE,
2. SENNAE,
3. AGARITHE,
4. PHILEA,

striking out *Cipris* as more than doubtful.

Mr. Strecker, Syn. Cat. etc., 1878, with no reference to Butler's, gives :

1. ARGANTE, Fabr., Syst. Ent. p. 470.
♂ *Hersilia*, Cramer, 2, pl. 173.
2. EUBULE, Linn., Syn. *Marcellina*.
? Var. *Sennæ*.
3. CIPRIS, Fabr., Ent. Syst. 3, p. 212.
Neocypris, Hübner, Saml.
Bracteolata, Butler, Scudder, Proc. Zool. Soc. 458.

Finally in the Synoptic Table of Lepidoptera, printed in Bulletin of the Brooklyn Entomological Society, Vol. i, No. 9, January, 1879, we have :

1. EUBULE, Linn.
♀ var. *Sennæ*, Linn.
2. ARGANTE, Fabr.
3. PHILEA, Linn., evidently without knowledge of Butler or Scudder.

Recent authors therefore differing so much, I think it well to present again Mr. Butler's view of these species, as his volume is not accessible to many Lepidopterists.

1. ARGANTE, Fabr., Syst. Ent. p. 470, *is not a North American species*, but the species found within the United States and taken for *Argante* is AGARITHE, Boisduval. The most northern locality given by Butler for *Argante* is Oaxaca; then Honduras, and Central and South America. *Argante* is characterized by a "zigzag discal series" on under side, etc., and Butler refers to Swainson's Illustrations for a Plate on which he says both sexes are correctly figured. This is in First Series. Swain. Illus. Vol. i, pl. 52. The "zigzag band" is shown to be composed of two oblique red-brown stripes nearly parallel to each other, one under the other, but unconnected. Mr. Butler's figures show the same peculiarity. I know of no North American orange species which has this sort of stripe.

2. AGARITHE, Bdv., Spec. Gen. i, 623; described by Butler, thus :

"*Male*.—Very similar to *Argante*, but paler, the front wings more produced at apex; below differs from *Argante* in the oblique band of front wings which is continuous and not angulated as in *Argante*.

Female.—Above generally golden-orange, sometimes pinky-white; front wings with diffused orange patch over end of cell; a brown spot at end of cell; apex an oblique series of spots between the nervures on disk, and a marginal series terminating nervures black-brown; hind wings with costal and internal ones rosy-whitish; three or four blackish spots terminating the nervures on outer margin; wings below golden-yellow, irrorated with ferruginous atoms; front wings with base and apex red; a bluish subapical nebula; a geminate pearly brown-zoned spot at end of cell; *an oblique discal brown band* and three spots between subcostal branches; hind wings with a red spot at base; a transverse streak crossing cell from costal nervure, a subcostal spot near base, and a semi-circular series of markings, brown; two silver-centred ring-spots at end of cell.

Localities: —“Brazil; Yucatan; Texas; (white var.). ♂ var. spotless below, Santa Martha.”

I have had several males and females from South Florida during the past season. The oblique red-brown band is distinct on under side of fore wings of the male. The color of under side is bright yellow. One female remains in my collection of these Florida examples. The upper side is paler orange, the ground at end of cell deep orange. The oblique band is obsolescent on upper side but distinct below. And the other marks agree with Mr. Butler's description.

I have a ♀ from Kansas, of which the upper side is ochre-yellow rather than orange, and the oblique band is broad and complete on both sides. Another from Texas is yellow-white on upper side, or sordid-white, the band heavy on both sides. Another ♀, Texas, is still whiter, same bands on both sides.

3. SENNAE. Butler gives the synonymy thus:

♀ *Sennae*, Linn., Syst. Nat. ii, 764, = *Eubule*, Cramer, pl. 120, figs. E, F.

♂ *Marcellina*, Cramer, pl. 163, figs. A, C.

♀ var. *Pomona*, Donovan, Ins. Ino. Cat. *Orbis* ♀ Poey, Cent. Lep. Cuba, pl. 1.

♀ albino *Hyperice*, Sepp. Sur. Vbind. i, pl. 19.

“*Male*.—Generally smaller than *Eubule*; the coloring of the under surface deeper, and the markings much better defined.

Female.—Above deep golden-yellow, sometimes inclining to orange, or dirty white; front wings with internally dentated, well defined dark-brown margin beginning at second-third of costa and terminating at anal angle; a large black disco-cellular spot, and a subapical series of angulated lunules between the nervures; also a point of the same color between median branches; hind wings with rosy margin; a submarginal series of fine large geminate dark brown spots at termination of nervures; abdominal and basal areas pale rosy; under surface of wings paler; the margin with band and spots as above, but deep rosy; front wings with large geminate silver-centred ring-spot at end of cell, and a zigzag series of irregular characters on disk, all rosy-brown; costa rosy, hind wings with two

silver-centred ring-spots placed obliquely at end of cell on a brownish streak, and encircled by a series of bracket-shaped characters beginning at base and continuing in the form of a heart through disk, all rosy brown.

Localities:—"Brazil; Central America; Mexico; Texas; Jamaica; Hayti," etc.

"The *Phæbis Eubule* of Hübner, Samml. ex. Schmett. ii, pl. 31, 1805, represents the two common forms of *C. Sennae*; we have both examples from Honduras." Butler, pages 59, 60, plate 23, figs. 1-4.

Until recently I have been unacquainted with the ♂ of this species, though I have seen many ♀'s, and have for years had several in my collection, from Texas and elsewhere. But in collection of Mr. Henry Edwards, at New York, I saw two males alike, one of which he had taken at Mazatlan, in copulation with a ♀ like my Texas examples. The other ♂ Mr. Edwards gave me. It is so much like *Eubule*, common form, that it would be overlooked and no doubt has constantly been, as the female is reported from many localities in the United States. This ♂ is less green, more yellow than *Eubule* ♂. The upper side is immaculate, the marginal areas being nearly just as in *Eubule*. But the under side has a reddish hue upon the yellow; the zigzag streaks on fore wings and other markings described by Mr. Butler are distinct. So all those on hind wings, "the series of bracket-shaped characters beginning at base and continuing in the form of a heart through disk" being clearly defined.

A ♀ sent me by Mr. Seudder, labelled "*C. Orbis*, Poey, Florida Keys," measures 2.6 inches. Color white with a yellow tint, but not sordid. Hind margin of primaries edged by a narrow brown band made up of a confluent series of long spots crenate on inner side; costal margin same dark brown two-thirds towards base; a large brown discal spot with an orange streak on are; on the subcostal interspaces are three little brown spots or clusters of scales in line near costa, and this row bends round apex; secondaries edged with double-convex brown spots which fill the interspaces. Under side has the margins rosy-brown, the "zigzag bands" distinct and the "bracket-shaped" spots, etc.

Another ♀ from Texas, is same size as last named, but sordid white. Marks same.

I have also a small ♀ from Indian River, measuring but 2.1 inch. Color of the ♂ described from Mayatlan. Below same red tint as that and marked just like it. I had taken this for a dwarfed *Eubule*, but clearly it is *Sennae*.

4. EUBULE. Mr. Butler gives the species thus:

♂ *Pap. Eubule*, Linn., Syst. Nat. 2, p. 743.

“*Male*.—Wings above sulphur-yellow, unspotted, with narrow marginal mealy band; below sulphur-yellow; front wings with paler internal area; an irregular rosy-centred ring-spot at end of cell, and a deeply bisinuate series of eight brown spots beyond it; hind wings with two silver-centred spots at end of cell, encircled by an irregular discal series of ten or eleven red-brown scale-spots, sometimes obsolete.

Female.—Wings above sulphur-yellow, with orange margin, the nervures terminating in black spots; front wings with large black disco-cellular spots, and sometimes with an indistinct series of discal spots towards apex; below golden-yellow, the margins deeper colored; front wings with a large geminate silver-centred ring-spot; the discal spots as in ♂ but redder; hind wings with two silver-centred ring-spots placed obliquely upon a squamose rusty band at end of cell, and encircled by a discal series of irregular reddish markings, several reddish spots at base.”

This species is common over the South and West, and is sometimes taken on Long Island, or further up the coast. It is occasional at Coalburgh, West Virginia; and in season of 1880 there were an unusual number seen there.

5. *HERSILIA*. This species Mr. Strecker gives as synonymous with *Argante*, Fab.; Mr. Butler as follows:

Hersilia, Cramer, 2, pl. 173.

♂ *Larra*, Fabr., Ent. Syst. Suppl. p. 428.

♀ *Cipris*, Cramer, (nec Fab.), 2, pl. 99.

♀ *Cipris*, Hübner Samml., 2, pl. 131.

Localities:—“Brazil; Cayenne; Nicaragua;” etc., but no further North; and it is added: “This very beautiful species was for many years confounded with *Argante*, the two males being very similar,” etc. As it is not found in the United States, it is not necessary to add further.

6. *PHILEA*.

♂ *P. Philea*, Linn., Syst. Nat. 2, 764.

♀ *P. Aricye*, Cramer, 1, pl. 94.

♂ *Mancipium*, *fugax Argante*, Hübner Samml., 1, pl. 145.

“*Male*.—Wings above light sulphur-yellow; front wings with the margin very slenderly blackish, expanded into points at the termination of the nervures; an elongate oblique orange patch crossing discoidal cell; hind wings with external area including centre of disk light orange, the mealy marginal border slightly paler; below golden-yellow; front wings with internal area broadly sulphur-yellow; two irregular silver-centred brown disco-cellular spots and a biangulate series of discal brown spots, most distinct towards costa; hind wings with two brown encircled silver spots at end of cell, and a circular discal series of irregular brown markings completely surrounding them.

Female.—Wings above golden or ochraceous yellow; front wings becoming gradually deeper colored towards outer margin, where it is slightly reddish; a conspicuous spot at end of cell; a triangulate series of nine discal spots, the apex and six marginal spots dark brown, hind wings with external area reddish-orange

diffused internally and interrupted by yellow nervures; costal and abdominal areas whitish; five conspicuous brown marginal spots; below dull opaque rosy-orange, the marginal spots of upper surface replaced by squamose silvery ones; front wings with pale internal area; a collection of closely packed silver-centred brown spots at end of cell; discal brown spots less distinct than above; hind wings with two silver spots encircled with brown at end of cell, and a circular series of irregular brown markings completely surrounding them.

Localities:—"Brazil; Bogota; Honduras; Mexico."

In American Entomologist, 2, p. 340, 1870, we read: "A rare capture in Illinois; H. S. Bontell, Evanstown, Illinois. The large sulphur or citron-yellow butterfly with a large quadrate orange patch near the middle of the front wings, and with the posterior part of the hind wings also more or less orange is *Callidryas Philea*, Linn., the largest species of the genus. Its habitat is usually given as Brazil, St. Domingo and Cuba, and the fact of your capturing it in northern Illinois is interesting, and its occurrence there very exceptional," etc.

In my Catalogue I give Texas as occasional habitat, but on whose authority I do not remember. I was very careful at time of printing the Catalogue to admit no occasional species whose locality I had not investigated, and therefore I am satisfied that the species has been taken in Texas. As to Illinois the above extract speaks for itself.

These then are all the species of *Callidryas* thus far known to have been taken to the North of Mexico, *Eubule*, *Sennae*, *Agarithe* and *Philea*. As to *Cipris*, attributed in my "Synopsis" to New Mexico, that was a mistake on my part based on erroneous information, and I dismissed the species from the Catalogue, 1877.

Synopsis of the LAMPYRIDÆ of the United States.

BY JOHN L. LECONTE, M. D.

The term Lampyridæ in this memoir is used in the same extended sense as in my work on Classification of Coleoptera of North America. The species may be naturally divided into three sub-families of equal value, as follows:

- Middle coxæ contiguous; epipleuræ distinct.....2.
 Middle coxæ distant; epipleuræ wanting.....I. LYCIDÆ.
 2.—Episterna of metathorax sinuate on inner side; epipleuræ usually wide at the base.....II. LAMPYRIDÆ.
 Episterna of metathorax not sinuate on inner side; epipleuræ narrow at base.....III. TELEPHORIDÆ.

The relations of these and their respective tribes have already been sufficiently indicated by me in other places* in a condensed manner, and additional remarks will be found below under the appropriate headings.

Since publishing the popular essay on Lightning bugs above cited, my attention has been called by a friend, more familiar than myself with the literature of physical research to an interesting essay by Dr. T. L. Phipson, † in which some partially successful attempts were made to isolate the light giving substance, to which the name Noctilucine was applied. Other memoirs on this substance are cited by Dr. Phipson, but notice of them would unduly extend the present remarks. ‡

If Dr. Phipson is correct in stating that the cause of luminosity both in living animals of such varied grades as the lower marine forms of life, the myriapoda and the complex terrestrial insects, and in the decomposing masses of animal and vegetable material such as foxfire and putrid fish is identical, these phenomena become even more worthy of careful study than I supposed when I wrote my popular essay on Lightning bugs. For a substance which is developed not only by normal physiological processes, in the bodies of animals of very varied structure, but by the somewhat fortuitous processes of ordinary putrefaction should certainly be within easy reach of synthesis.

* Canadian Entomologist, 1880, 174-184. Conf. Class. Col. N. America, 182-190.

† British Association for the Advancement of Science, Bristol, 1875; reprinted in Journal of the Franklin Institute, Philadelphia, January, 1876, 68.

‡ Phipson, sur la Noctilucine, Comptes Rendus, August 26, 1872, p. 547; Robin et Laboulene, *ibid.* August 25, 1873.

Dr. Phipson also states that the spectroscopic examination of the light from these varied sources is contained within the space extending from C to a little beyond F, "but its brightest portion lies between E and F, and in most cases this portion only is visible, and the light appears nearly monochromatic. It has no lines nor bands of absorption."

There are several remarkable phenomena exhibited in various parts of the family which will receive more attention when the materials have been collected, and the student found to prepare a general monograph. They may be briefly stated as follows, for the purpose of guiding observations:

1. The pupæ of the Lycidæ are frequently found in large numbers, under loose pieces of bark, suspended closely together by the posterior extremity, each one enveloped in its own larva skin, which is cleft on the pleural lines as usual. Nothing of this kind has been observed in the other two sub-families.

2. The elytra of certain Lycidæ, though useless in flight, are expanded to a degree unknown in any other Coleopterous family.

3. The sexual differences in the light organs of various genera of Lampyridæ have not been properly recorded. They furnish as will be seen in the sequel, good generic and even specific characters.

4. The enormous vegetative development of the antennal branches in *Phengodes*, and the entire want of knowledge of the females of any member of the tribe.

5. The investigation of the relation between the Phengodini of this continent and the Drilini of other regions, with a view to the possible union of the two tribes.

6. While in the Phengodini we have an enormous development of antennal surface, we have in *Malthodes*, probably the lowest form in the family, an equally remarkable growth of the sexual appendages of the male.

Telephoridæ have occurred in tertiary strata;* the geological history of the other two sub-families is unknown.

Sub-family I.—LYCIDÆ.

The species of this sub-family are diurnal in habits and are found on the leaves of plants, where they seek their insect food.

They are known by the middle coxæ being rather widely separated by the mesosternum, and by the epipleuræ being reduced to a narrow thickened marginal line. Besides these essential characters of defini-

* Heer, Insecten fauna . . . Enningen & Radoboj, 143.

tion, other characters are seen in these insects not found in the other sub-families.

The elytra are frequently costate and coarsely reticulate with fine elevated lines forming a coarse net work, or more usually a regularly gofferred surface. The head is sometimes prolonged in front of the eyes into a long narrow beak, which in other species becomes broad and short and in many of the species entirely disappears. The mandibles are feeble, slender and acute, the palpi are unequal and the eyes larger in the ♂ than ♀, though never very large; they are widely separated above and beneath. The antennæ are eleven-jointed, but the second joint is sometimes very short and inconspicuous; they are frequently very broad and compressed, and the joints 3—10 occasionally emit broad branches, more slender and longer in the ♂ than in the ♀; frequently too, they are only slightly compressed and subserrate, in this case the second joint is very distinct and one-half as long as the third. The sexual characters are simple; the ventral segments are seven in the ♀, the seventh being large and slightly nicked at the tip; they are eight in the ♂, the seventh being broadly and strongly emarginate, and the eighth elongate-oval, moderate in size and prominent. There are slight differences in the form of the two last segments of ♂ in our species, but as they are readily recognized by other characters I have not deemed it prudent to encumber the tables with minutiae of such small import which would probably tend to confuse the student.

The genera represented in our fauna may be divided into three natural groups: the first is typical and peculiar, the second tends to the Lampyridæ (gen.), and the third to the Telephoridæ.

Prothoracic spiracle not prominent.....	2.
Prothoracic spiracle with tubular chitinous peritreme, very prominent in the usual position of the epimeron, behind and at the outer extremity of the front coxæ, (except in <i>Cœnia</i>).....	LYCI.
2.—Elytra costate, cancellate or reticulate.....	EROTES.
Elytra substriate, not costate or cancellate.....	LYGISTOPTERI.

Group 1.—*Lyci*.

Front prolonged, beak more or less distinct, mouth anterior.....	2.
Front gibbous between the antennæ, mouth deflexed, inferior, beak wanting.....	4.
2.—Beak long.....	3.
Beak short.....	RHYNCHEROS n. g.
3. - Antennæ with third joint as long as fourth and fifth.....	LYCUS.
Antennæ with third joint scarcely longer than fourth.....	LYCOSTOMUS.
4.—Antennæ much compressed.....	CALOPTERON.
Antennæ pectinate; spiracle prominent.....	CELETES.
Antennæ pectinate; spiracle not prominent.....	CÆNIA.

LYCUS Fabr.

Beak long, maxillary palpi with last joint longer than wide, rounded on inner side; antennæ compressed, serrate, second joint short, third as long as the two following. Prothorax carinate near the apex, then channeled, forming a narrow areolet, sides broadly reflexed, without ridges. Elytra with four fine costæ, interspaces transversely rugose, sides very broadly dilated, especially in ♂.

Scarlet-red, apical one-fourth of elytra, head, antennæ, tarsi and tibiæ, (except on inner edge), black; ♂ seventh ventral deeply and broadly emarginate, eighth spatheiform, flattened at base and faintly bisulcate; tibiæ feebly curved, trochanters triangular, not acute. Length 8.5-13 mm. L. Cal.; Ariz.....**cruentus** Lec.

The specimens from Arizona are much more broadly dilated on the sides of the elytra than those from Lower California, but are probably not specifically distinct.

LYCOSTOMUS Motsch.

Characters as in *Lycus*, except that the last joint of the maxillary palpi is truncate at tip; prothorax less carinate in front, and less channeled behind; elytra less dilated on the sides, rather finely reticulate between the costæ; third joint of antennæ scarcely longer than fourth. None of these differences seem to me of generic value.

Black, prothorax at apex and sides, and sides of elytra as far as the middle fulvous; prothorax with the sides flattened and broadly reflexed, apex oblique each side, obtusely angulated at the middle; finely carinate in front, feebly channeled behind. Elytra with suture, margin and four costæ elevated, the third abbreviated at each end, feeble and sometimes obsolete, interspaces finely reticulate with a slight tendency here and there to form double rows; sides slightly and suddenly dilated; trochanters with lower angle sharp; ♂ seventh ventral deeply semicircularly emarginate, eighth smooth, prolonged, narrow, rounded at tip; last dorsal moderately prolonged; middle and hind tibiæ strongly curved. Length 8-10 mm. Pa.; Ga.; Tex.....**lateralis** Mels.

a.—Elytra fulvous from base for two-thirds the length, suture black; Fla.

Black, sides of prothorax, and of fifth and sixth ventral segments, elytra and seventh and eighth ventral segments, pale red; prothorax less carinate in front, more broadly channeled behind; elytra similarly but more strongly sculptured with the reticulations in regular rows; scutellum black, truncate behind; middle and hind tibiæ less curved; ♀. Length 13 mm. Col.; Dr. Horn, one specimen.

fulvellus n. sp.

The third joint of the antennæ is comparatively longer, and the following joints shorter than in *L. lateralis*.

RHYNCHEROS n. g.

Lycus sanguinipennis Say, differs so much from all the other Eros-like forms in having a distinct beak and tubular prothoracic spiracles, that I have been compelled to separate it as a distinct genus. The head is prolonged into a broad beak, as long as wide and narrowed in front;

the last joint of the palpi is triangular, not longer than wide; the eyes are moderate and convex in both sexes. Antennæ one-half as long as the body, widely compressed, second joint short but distinct, third elongate triangular, longer than fourth; 4—10 subtriangular, outer side sinuate and rounded, distal side not oblique, angle acute. Prothorax with sides very widely reflexed, not thickened, apex slightly prominent at the middle and feebly nicked; disc feebly carinate near the apex, then with a deep channel extending to the base. Scutel truncate behind. Elytra suddenly but not widely dilated on the sides which are rounded; discoidal costæ four, which are very feeble, except the fourth is prominent and acute at the humeri; interspaces irregularly reticulate; suture and margin scarcely elevated.

It is a singular species leading from *Lyccus* to *Plateros*.

Black, sides of prothorax and the whole of the elytra bright scarlet; prothorax slightly carinate at tip, rather strongly channeled behind, sides broadly reflexed, front angles rounded, hind angles acute; scutel black; ♂ with sides of elytra more suddenly and more broadly dilated; seventh ventral deeply rather squarely emarginate, the side lobes of the emargination passing under the transverse anterior edge; tibiæ very slightly curved, angle of trochanters rounded. Length 10 mm. Col.....**sanguinipennis** Say.

CALOPTERON Newm.

This genus seems to be natural, if defined by the following characters, though if slight differences in the reticulation of the elytra are exaggerated in importance it can doubtless be divided into several genera, which would be widely separated by that character.

Beak wanting, front short, gibbous, mouth inflexed; maxillary palpi long, dilated, last joint transverse, distal side oblique. Antennæ long, strongly compressed, joints broad, the outer ones frequently broader than the others, second joint very short, third not as long as the fourth. Prothorax strongly carinate for the whole length, sides reflexed; scutel acute, small. Elytra wider behind, gradually, but sometimes very strongly dilated, costate, and coarsely reticulate.

Elytra with four discoidal costæ.....	2.
Elytra with three discoidal costæ.....	5.
2.—Costæ equally strong.....	3.
Second and fourth costæ very feeble.....	4.

3.—Prothorax small, not wider than long, sides yellow; elytra sinuate on the sides, six times wider behind than at base, reticulations quadrate, single at base, becoming double behind; yellow, with a transverse band at the anterior one-third, and the apical one-fourth blue-black; legs at base tinged with fulvous; ♂ seventh ventral deeply emarginate, eighth parallel, narrow, elongated, rounded at tip. Length 11.5—15 mm. Oregon.

megalopteron Lec.

Prothorax small, not longer than wide, black, sides usually yellow, elytra not sinuate on the sides, about four times wider behind than at the base, reticulations wider than long, irregularly divided in places; fulvous, apical one-third black; frequently with a more or less perfect broad black band in front of the middle; ♂ seventh ventral emarginate, eighth parallel, rounded at tip, side valves usually visible, rounded at tip. Length 11—16 mm. Atlantic region; Cal.....**reticulatum** Fabr.

a.—Transverse black band of elytra not extending to the sides. *D. dorsalis* Newm.; *duplicatum* Hald.

β.—Transverse black band wanting, *terminale* Say.

4.—Prothorax wider than long, sides usually rarely entirely black fulvous, more broadly reflexed; elytra not sinuate on the sides, about three times wider behind than at base, first and third costæ finer and less elevated than the second and fourth, reticulations wider than long, irregularly divided in a few places; fulvous, apical one-third black; also with a broad black band in front of the middle extending along the suture to the base; ♂ seventh ventral emarginate, eighth elongate, narrowed towards the tip. Length 11.5—19 mm. Atlantic region.....**typicum** Newm.

a.—Band of elytra not extending along the suture, sometimes not attaining the sides; *affine* Lec.

β.—Band of elytra wanting; *divisum* Newm.; *apicale* Lec.

Prothorax smaller and more triangular, otherwise similar to *typicum*, except that the first and third costæ of the elytra are very feeble, and the reticulations are not transverse but mostly quadrate. Length 8.5—11 mm. Ariz., one ♀; Mr. Bolter.....**retiferum** n. sp.

a.—Elytral band very narrow, scarcely attaining the sides; Col., one ♂; seventh ventral deeply emarginate, eighth elongate, narrowed towards the tip.

5.—Narrower than the other species, proportioned like *Celetes basalis*, black, prothorax and elytra fulvous; the former a little wider than long, sides sinuate, apex bisinuate and angulated at the middle, tip of the angle rounded; front angles prominent, rounded, hind angles acute, prolonged, carina of disc strong, dusky; sides concave, margin reflexed; scutel fulvous, impressed, nicked behind. Elytra gradually slightly wider, one-third wider behind than at base; suture, margin, and three discoidal costæ strongly elevated, reticulation somewhat transverse; antennæ strongly serrate, joints 3—10 nearly equal in length, broadly triangular, anterior side curved, distal side oblique, angle acute; last joint of maxillary palpi longer than wide, parallel on the sides, rounded at tip. Length 9 mm. Ariz., one ♀; Mr. Bolter.

tricariniatum n. sp.

This species by the form of the palpi, antennæ, and number of elytral costæ, seems to indicate a distinct genus, to which a name has probably been already attached, though I have failed to identify it in any of the works within my reach.

Calopteron retiferum.—Black, beneath mouth and joints of legs and base of antennæ tinged with testaceous. Antennæ two-thirds as long as the body, very broadly compressed, second joint very short, inconspicuous, third not as long as the fourth, outer ones gradually a little narrower. Palpi broadly dilated, last

joint trapezoidal, broader than long. Prothorax small, strongly carinate, sides strongly reflexed, obliquely converging in front, hind angles long, divergent, disc dusky. Elytra with the humeri and a narrow transverse band about the middle fulvous; sides gradually and moderately dilated, regularly rounded behind; surface hairy, suture, margin and two discoidal costæ strongly elevated; first and second interspaces with double series of large cells which are not very transverse, as in *reticulatum*, but quadrate. Length 6.7 mm.

Arizona, one ♀, kindly given me by Prof. C. V. Riley. The reticulation of the elytra is almost as in *Cænia dimidiata*, but the form of body, antennæ, palpi and arrangement of color are as in *Calopteron typicum*.

Calopteron tricarinatum.—Black, above fulvous; eyes rather large, convex, palpi with the last joint trapezoidal, not longer than wide. Antennæ very broad, two-thirds as long as the body, second joint very small, third triangular, longer than fourth, 4—10 triangular, not longer than wide, outer side curved, distal side oblique, angle rather acute, eleventh longer, oval, subsinuate near the tip. Prothorax broader than long, narrowed in front, apex subangulate, sides sinuate, broadly reflexed, hind angles divergent, acute, disc very strongly carinate. Scutel triangular, slightly nicked behind. Elytra elongate, subparallel, but slightly wider behind, suture, margin and three discoidal costæ strongly elevated, interspaces with large quadrate reticulations which are not more than twice as wide as long. Beneath tinged with testaceous. Length 7 mm.

Arizona, one ♀, for which I am also indebted to Prof. C. V. Riley. The form of the last joint of the palpi seems to require the reference of this species to *Calopteron*, though the reticulation of the elytra and the form of antennæ are quite different. It seems to belong to the Section A, ii, of *Biologia Centro-Americana*, (*Lycidæ*, p 13), in which case the ♂ antennæ would be pectinate.

CÆNIA Newm.

Although in this genus the prothoracic spiracle is not tubular and prominent, yet in all other respects it resembles so closely the preceding genera, especially *Calopteron*, that it cannot be naturally separated from them. The front is strongly gibbous, prolonged into a very short triangular beak; maxillary palpi dilated, last joint elongate, cultriform, the outer margin sinuate, the inner one rounded into the tip, which is obtuse. Antennæ very broadly compressed, first joint broad, triangular, second very short, third one-half as long as fourth, 4—10 broad, in ♂ each with a long basal process, in ♀ with a shorter and broader medial process gradually occupying the whole length of the joint, eleventh joint elongate, rounded at tip. Prothorax strongly carinate, sides broadly reflexed, sinuate, front angles rounded, hind angles acute, prolonged, apex bisinuate, prominent and rounded at the middle. Scutel triangular, slightly nicked behind. Elytra with four discoidal costæ, first and third less elevated, interspaces with double rows of coarse quadrate reticulations.

Black, sides of prothorax and anterior half of elytra fulvous, with the exception of a sentellar black spot; sides broadly dilated and rounded, about three times as wide behind as at base; legs tinged with yellow at base, trochanters long, narrow; ♂ seventh ventral feebly emarginate, eighth elongate, rounded at tip. Length 10 mm. Atlantic region.....**dimidiata** Fabr.

a.—Prothorax black.

Black, sides and apex of prothorax, and sides of elytra to the middle fulvous; elytra only one-half wider behind than at base; reticulations longer than wide, trochanters shorter and more triangular; ♀ antennae with the joints broader, triangular with rounded side and acute angle. Length 10 mm. Colorado; Prof. F. H. Snow.....**amplicornis** n. sp.

Cenia amplicornis.—Black, prothorax in great part, and sides of elytra from base to middle dull fulvous. Head channeled, eyes moderate in size, convex, palpi broad with last joint elongated, oval, subacute at tip. Antennae one-half as long as the body, very broadly compressed, second joint very short, hardly visible, third shorter than fourth, triangular, 4—10 wider, not as long as wide, outer side convexly curved, distal side oblique, angle subacute, last joint longer, oval. Prothorax wider than long, not narrowed in front, apex sinuate, rounded at the middle, sides very oblique near the front angles, then abruptly rounded and parallel, hind angle small, acute, strongly divergent; disc concave, strongly carinate, fulvous, with a large posterior blackish spot. Scutel triangular, emarginate behind. Elytra elongate, gradually but slightly broader behind, suture, margin and four discoidal costae elevated, first, second and fourth extending nearly to the tip and uniting as usual, third elevated for only about one-fourth the length, then finer and less elevated, not different from the lines of reticulation: interspaces each with two rows of reticulations, nearly all of which are longer than wide; sides broadly fulvous from base to the middle. Length 10 mm.

Colorado; one ♀, Prof. F. H. Snow. Resembles in form and color *Celetes basalis* and *Eros humeralis*, but very different by the antennae which are like those of *Calopteron tricarinatum*, but are still wider.

CELETES Newm.

Front gibbous, beak none, mouth inflexed, maxillary palpi with the last joint acute, a little longer than wide, and longer than third joint. Antennae long, first joint triangular, second very short, third wider and shorter than fourth, 4—10 with a long basal process (♂); or shorter broadly triangular with acute angle (♀). Scutel truncate and nicked behind. Prothorax strongly carinate, sides reflexed. Elytra gradually becoming twice as wide behind as at base; suture, margin and four discoidal costae acutely elevated, interspaces with single rows of coarse reticulations, which are quadrate and not transverse. This genus osculates with the next group.

The prothorax is very variable in form in this species.

Black, sides of prothorax and humeral line of elytra fulvous, base of thighs yellowish; ♂ seventh ventral emarginate, eighth elongate, narrow, rounded at tip. Length 6—8.5 mm. Atlantic region.....**basalis** Lec.

a.—The prothorax varies greatly in size and form, being usually larger in ♀ than ♂; the elytra sometimes much less dilated behind. These differences account for the names by which in my inexperience I distinguished two nominal species.

Group 2.—*Erotes*.

In this group the front is short, gibbous, sometimes transversely margined, the beak is wanting and the mouth deflexed; the last joint of the maxillary palpi is longer than the preceding, acute at tip.

The antennæ are moderately compressed, with the second joint usually at least one-half as long as the third, which is not longer than the fourth. Prothorax carinate, divided into cells or feebly channeled; spiracle not tubular, depressed. Elytra reticulate, costate and cancellate, or with ribs scarcely elevated and interstices with single small quadrate depressions, never widely dilated behind. Front coxæ rather narrowly separated.

Prothorax strongly carinate, sides divided by an oblique ridge from the hind angles.....**LOPHEROS** n. g.

Prothorax many celled, sides divided by a strong transverse ridge.....**EROS**.

Prothorax not carinate, feebly channeled behind, sides not divided by transverse ridge.....**PLATEROS**.

LOPHEROS n. g.

Lyceus fraternus differs so remarkably from the other *Eros*-like forms in our fauna, that I have felt disposed to separate it as a distinct genus, not however, without perceiving that a more careful study of foreign forms may lead to the suppression of this with *Plateros*, and some other dismemberments suggested by Mr. Waterhouse into *Eros*.

The eyes are small and lateral, widely separated in both sexes, the head transversely impressed between the eyes, front channeled, convex. Antennæ moderately serrate, first joint triangular, equal to the third, second triangular, wider than long, one-third the length of the third, 4—10 very gradually longer and narrower, eleventh one-third longer than tenth. Prothorax wider than long, narrowed in front, strongly carinate nearly to the base, disc deeply concave, sides strongly reflexed, oblique, sinuate, hind angles prolonged outward, with an oblique carinate, reaching neither the angle nor the median ridge. Scutel elongate, nearly parallel, emarginate behind. Elytra gradually and slightly widened behind, with suture, margin and four discoidal strongly elevated costæ, interspaces goffred or waffled, with double rows of quadrate cells. Trochanters triangular, not elongate. Seventh ventral ♂ deeply emarginate, eighth elongate, narrower and pointed at tip.

Black, prothorax with a large transverse fulvous spot behind the middle. Length 9—11 mm. New England and Northern New York.....**fraternus** Randall.

EROS Newm.

- Prothorax with five well-defined cells, the medial one rhombic, not carinate.....2.
 Prothorax with six cells, sometimes ill-defined, the middle anterior one more or less carinate.....6.
 2.—Upper surface scarlet.....3.
 Upper surface in great part black, humeral spot and sometimes the sides of prothorax fulvous; antennæ with elongate, slender joints, second and third united, scarcely as long as the fourth, trochanters triangular. Length 5—8 mm. Maine; Lake Superior.....**thoracicus** Rand.
 3.—Antennæ slender, third joint shorter than fourth; legs red.....4.
 Antennæ stouter, third joint equal to fourth.....5.
 4.—Red, antennæ black, first joint red: ventral segments, sides of metathorax and tarsi dark; trochanters of hind legs very long, acute at the angle: middle trochanters also spinose but shorter; ♂ antennæ more than one-half as long as the body, second and third joints united, not longer than fourth; ♀ antennæ shorter, trochanters less acutely spinose. Length 13.5—16 mm. Alaska; Vancouver.....**hamatus** Mann.
 Black beneath, red above, first joint of antennæ and legs red, tarsi dusky; trochanters short, triangular, not acute; ♂ antennæ one-half as long as the body, second and third joints united equal to fourth; ♀ antennæ shorter, third joint nearly equal to fourth. Length 8.5—11 mm. Alaska; Oregon.
simplicipes Mann.
 5.—Very similar to *simplicipes* but the antennæ are stouter, and distinctly serrate upper surface, first joint of antennæ and legs red, tarsi dusky; trochanters triangular. Length 8.5—13 mm. Vanc.; Or.; Cal.....**lætus** Motsch.
 Black, upper surface scarlet; trochanters triangular, antennæ less than one-half as long as the body; legs black. Length 6—10.5 mm. L. Sup.; Ga.; Can.; Or.....**coccineus** Say.
 Colored and formed like *hamatus*, much smaller, trochanters long but not spinose; antennæ with first and second joints red; in ♂ more than one-half as long as the body, slightly serrate, second and third joints united equal to the fourth; in ♀ shorter and stouter, third joint comparatively larger. Length 6 mm. Georgia.....**mundus** Say.
 6.—Head not strongly margined before the antennæ.....7.
 Head strongly margined in front; *EROTIDES* Waterhouse.
 Black, prothorax red, sometimes with black disc, six-celled, anterior middle cell quadrate, carinate, posterior middle cell narrow; antennæ elongate, slender, third joint but little shorter than fourth, second less than one-half as long; trochanters long; ♂ antennæ longer, outer joints narrower, front more strongly margined, trochanters longer, tibiae less compressed than usual and slightly bent; ♀ trochanters shorter, more triangular, tibiae not bent. Length 5—7 mm. Southern States.....**sculptilis** Say.
 7.—Anterior middle cell of prothorax with the sides indistinct, strongly carinate at the middle, posterior middle cell narrow, like a channel; transverse carinae between the anterior and posterior rows of cells strong, sinuate;* antennæ as in *sculptilis* but second joint a little larger; trochanters triangular and tibiae straight in both sexes; ♀ antennæ shorter and stouter. Length 8—10 mm. Atlantic slope.....**humeralis** Fab.

* The posterior lateral cells are imperfectly divided by a short transverse ridge proceeding from the median posterior cell. This species (*humeralis*) is a central

a.—Prothorax fulvous, with a brownish spot, anterior one-half or two-thirds of elytra fulvous. Mo.; Ks.; Tex.

β.—Prothorax fulvous, sometimes with disc dark, elytra with more or less extensive humeral spot; (type form).

γ.—Elytra black, sometimes with a very small humeral spot; prothorax black, with margins narrowly fulvous, *incestus* Lec. L. Sup.; Pa.; Mass.

Black, sides of prothorax fulvous; walls of anterior series of prothoracic cells obliterated, only the medial carina remaining; posterior row of cells as in the preceding; viz., a narrow deep medial one, (which is very finely carinate at base), and two large lateral ones defined by the usual transverse ridge; the lateral cell is divided a transverse obtuse prominence into a deep impression, and a strongly marked subbasal groove. Scutel and elytra as usual, the latter 4-costate the interspaces with double rows of quadrate cells; trochanters large triangular, tibiae straight; antennæ of ♂ long, slender, scarcely serrate, third joint less than one-half as long as fourth; of ♀ shorter, stouter, subserrate, third joint one-half as long as fourth. Length 5—7.5 mm. N. J.; Ga.....**trilineatus** Mels.

a.—First discoidal costa of elytra indistinct; eyes of ♂ larger than in type. Ill.; Va.; Fla.

Black, prothorax fulvous, walls of anterior middle cell very indistinct, carina acute, strongly marked, extending from apex to base, the posterior middle cell having disappeared, transverse ridge strong, extending from margin to dorsal carina, posterior lateral cells with a short transverse convexity connected with the dorsal carina. Elytra 4-costate, interspaces with double rows of quadrate cells; trochanters triangular, tibiae straight; antennæ of ♂ slightly serrate, third joint broad, triangular, two-thirds as long as the fourth; of ♀ rather stouter, but not otherwise specially different. Length 5.5—7.5 mm. N. Y.; Me.; L. Sup**crenatus** Germ.

PLATEROS Bourgeois, († Waterh.).

In this genus the prothorax is without cells, sometimes slightly carinate at the apex, always channeled or impressed behind the middle; the sides are strongly reflexed, but without the transverse ridge seen in the genuine *Eros*. The scutel is flat, truncate behind. Elytra with rows of quadrate cells separated by nine narrow and usually equal slightly elevated lines; sometimes the alternate lines are a little stronger, so that they become feebly 4-costate. The species of this genus are found on both continents, and are still very indistinctly defined.

one, with which by modifications in different directions the other forms can be readily harmonized: thus by completing the side walls of the anterior median cell you have *sculptilis*, by obliterating the walls of the anterior median cell and retaining the carina you have *trilineatus*; by making the middle posterior cell vanish, but retaining a carina to represent its walls, you have *crenatus*; finally by obliterating the cell walls of the disc, retaining only the basal part of the middle posterior cell, with the imperfect transverse elevated line connected with it, you pass over to the genus *Plateros*. We have here evidently a complex in which not only supposed generic characters are untenable, but the species are also somewhat plastic and difficult to define.

Among the species cited by Mr. Bourgeois under this genus (Comptes-rendus Soc. Ent. Belg. 1879, xix), is *Lycus sanguinipennis* Say. What is signified by that name is not Say's species, which will be found above under *Rhyncheros*, but a beautiful scarlet species of the present genus found in Mexico. It was collected by Mr. Sallé, to whom I am indebted for a specimen, and has been described (Dec. 1880), in *Biologia Cent. Am. Lycidæ*, p. 21, tab. 2, f. 16, as *P. lateritius*; the reference to Bourgeois' mention of this insect is omitted.

The species in this genus are almost undistinguishable. I have found no characters for separating them except the form of the antennæ, especially in the ♂.

Antennæ broad, very strongly compressed, third joint as wide as long, not as large as the fourth; 4—10 gradually longer and narrower, the lower ones as wide as long, the ninth about twice as long as wide, anterior angle somewhat acute.....2.

Antennæ less broad, more distinctly serrate, the joints being narrower at base and triangular rather than trapezoidal, second joint more rounded, third triangular, as wide as the fourth but not as long, 4—10 gradually narrower, but scarcely increasing in length, fifth about twice as long as wide.....3.

2.—Black, prothorax fulvous, with a large discoidal blackish spot very feebly carinate at tip, dorsal cellule wide, posterior or basal outline well defined, lateral outlines almost obliterated; elytra with the alternate interstitial lines distinctly elevated, the others rather irregular and indistinct with coarser cells than in *modestus*; ♂ seventh dorsal more deeply and widely emarginate than in that species, eighth larger and wider than usual. Length 5—7.5 mm. Va.; Ga.; Fla.....**timidus** Lec.

a.—Prothorax black with the sides fulvous; Fla.

β.—Prothorax black with very narrow fulvous side margin: Fla.

3.—Black, prothorax with sides and narrow apical and basal margin fulvous, not carinate at apex, basal cellule short, basal and lateral margin elevated; elytra with alternate interstitial lines more elevated, intermediate ones very indistinct; antennæ of ♂ with joints triangular, third one-half as long as fourth, but not wider; fifth twice as long as wide, outer ones gradually narrower, the angle not acute, and the distal sides of the joints are therefore not oblique: of ♀ similar to those of ♂ but somewhat broader; seventh ventral ♂ broadly emarginate, eighth elongate, of usual form. Length 5.5—7.5 mm. L. Sup.; Pa.....**modestus** Say.

Black, prothorax with sides and frequently apical and basal margin, also the humeri fulvous; apex not carinate, basal cellule a narrow channel extending nearly to the middle; elytra with interstitial lines equal, or nearly so; antennæ rather strongly serrate as above described, except that the angle is distinctly acute and the distal edge oblique. Length 5—8 mm. L. Sup.; Pa.; Fla. Varies greatly both in size and form, as does also the preceding species, so that the synonyms are quite numerous...**canaliculatus** Say.

a.—As above, alternate interspaces more elevated.

β.—Humeri and anterior part of suture fulvous.

γ.—Entirely black.

Very similar to *canaliculatus* but narrower, prothorax fulvous with a large black spot, sides more strongly reflexed, apex not carinate, base emarginate at the middle, dorsal canal extending from base to the middle; elytra with well marked equal lines and strongly cancellate interspaces; antennæ of ♂ long, joints as in *canaliculatus*, fourth fully twice as long as third; fifth twice as long as wide, outer ones narrower, with angle acute and distal side oblique: front twice as wide as the diameter of the eyes; seventh ventral deeply emarginate, eighth elongated; antennæ of ♀ shorter, less serrate: seventh joint twice as long as wide, dorsal channel of prothorax deeper. Length 5—8 mm. Pa.; Ga.; Fla.....**sollicitus** Lec.

Also narrower than *canaliculatus*, prothorax black, sides fulvous, apex not carinate, base straight, cellule elongate, forming a dorsal channel extending to the middle in ♂, broader and shorter in ♀; elytra with well marked equal lines and more finely cancellate interspaces; antennæ of ♂ long, distinctly serrate, third joint triangular, as wide as long, fourth longer, not wider, fifth twice as long as wide, outer ones narrower, distal side oblique and angle acute, eyes large; antennæ of ♀ broader, less serrate, eighth joint twice as long as wide; eyes smaller; seventh ventral of ♂ emarginate, eighth elongate, narrowed and subacute at tip. Length 5—7 mm. N. J.; Ga.; Fla.....**lietor** Newm.

Very similar to the preceding, but differs by the antennæ in both sexes shorter and less strongly serrate. Length 4—5.5 mm. N. Y.; Pa.; Ga.

floralis Mels.

Group 3.—*Lygistopteri*.

The insects of this group, of which two genera are represented in our fauna are easily distinguished by the pubescent velvety surface, and the feebly striate, not reticulated elytra. The head is prolonged into a long or short broad beak, which latter form is rather a muzzle, like that of many *Podabri*; the eyes are moderate and the front broad; the antennæ are rather widely separated, subserrate, with the joints thicker and less compressed than in the other two groups; the second joint is one-half as long as third, which is shorter than fourth. Maxillary palpi with last joint subtriangular, apical side oblique. Prothorax channeled, margins usually thickened, reflexed, with an oblique ridge running forwards towards the median groove; the thickened side of the prothorax is usually foveate at the middle of its length, thus recalling *Polemius* of the Telephoridae, as the form of the muzzle does *Podabrus*.

Beak long, narrowed at tip. Prothoracic channel forming a rhombic cell, the sides of which connect with the oblique ridge, sides not thickened. Maxillary palpi with distal side of last joint curved..... **LYGISTOPTERUS**.

Beak short, broad. Prothorax with thickened sides, oblique ridges short. Maxillary palpi with distal side of last joint oblique..... **CALOCHROMUS**.

LYGISTOPTERUS Muls.

But one species is known to me in our fauna.

Black, velvety pubescent, with the elytra scarlet. Length 11—12.5 mm. Colorado.
rubripennis Lec.

CALOCHIROMUS Guér.

- Lateral margin of prothorax impressed at the middle.....2.
 Lateral margin of prothorax not impressed; black, prothorax and elytra scarlet,
 the former with a transverse posterior dusky spot, tibiæ straight. Length
 9 mm. Col., one ♂; Dr. Horn.....**fervens** n. sp.
 2.—Prothorax finely channeled.3.
 Prothorax strongly channeled, black, sides of prothorax fulvous; middle and
 hind tibiæ curved. Length 6—9.5 mm. Atl. region.....**perfacetus** Say.
 a.—Prothorax entirely fulvous; Texas, ♂ ♀.
 3.—Blue-black, prothorax scarlet; middle and hind tibiæ curved. Length 7—
 9.5 mm. Col.; Or.....**ruficollis** Lee.
 Black, prothorax and anterior half of elytra scarlet, scutell black; tibiæ straight.
 Length 8 mm. Cala.; Nev.....**dimidiatus** Lee.

C. fervens.—Black, velvety with extremely fine short pubescence. Head with a broad shallow slightly channeled impression between the eyes which are small and convex: muzzle extremely short, beak none; antennæ one-half as long as the body, second joint about one-half as long as the third, which is equal to the fourth: joints moderately compressed, about twice as long as wide, distal side slightly oblique. Palpi short with last joint triangular. Prothorax quadrate, one-half wider than long, front angles rounded: sides thickened and reflexed, with a strong ridge running from the middle of the sides obliquely and slightly forwards on to the disc which is only feebly channeled near the base; the posterior excavation between the strong basal margin and the ridges is dusky. Scutell black, truncate behind. Elytra scarlet, closely but indistinctly striate with rows of shallow punctures, not reticulated; elongate, parallel, narrowly margined, but little wider than the prothorax. Tibiæ not curved. Length 9 mm.

Colorado, one ♂; Dr. Horn. Related to *perfacetus* but differs by the color, by the thickened side margin of the prothorax not impressed at the side, by the disc being very slightly channeled, and finally by the head being quite without beak. Species apparently congeneric with the four here tabulated are cited in Biol. Centr. Amer. as belonging to *Lygistopterus*,

Sub-family II.—LAMPYRIDÆ.

The species of this sub-family are easily separated from the Lycidæ by the middle coxæ being contiguous, and the epipleuræ wide at the base of the elytra, even when the latter as in some ♀ ♀ are very short.

From the Telephoridae they are known by the metathoracic episterna being sinuate on the inner margin, a character first observed by Duval, and which seems to me to have much value in apportioning the more difficult forms to their respective groups.

The genera examined seem to indicate two tribes: the first is numerous on both continents, especially in the tropical regions; the second is perhaps exclusively American, unless it can be united with Drilini.

Head more or less covered, antennæ approximate or moderately distant; metathoracic epimera long.....LAMPYRINI.
 Head exposed, antennæ distant; metathoracic epimera wide.....PHENGDINI.

Tribe 1.—LAMPYRINI.

The most characteristic structure in these insects is the light-giving apparatus which is contained in the posterior abdominal segments of most of the species, though it is quite absent in some genera.

The position and form of the organs differ according to genus and in a less degree according to species.

In most of the genera the sexes are similar in appearance, but in the Lampyres group the ♀ are larger than ♂ and larviform, with short elytra and no wings. In these genera the eyes of the ♂ have their maximum, and those of the ♀ the minimum development. In the other groups the eyes of the ♂ though larger than those of ♀, are not remarkable or disproportionate in size. The head is deeply immersed in the prothorax which is foliate at the sides and apex, so as to protect the head.

The antennæ are approximate or moderately separated, and vary in form according to group and genus. Our genera seem to indicate the following groups:

- Antennæ with second joint small, usually transverse, head completely covered by prothorax.
- Antennæ pectinate, rather distant, last joint simple.....*Mathetei*.
- Antennæ not pectinate, (in our genera), approximate, last joint elongate, simple.....*Photini*.
- Antennæ with last joint appendiculate, having a small acicular appendage.
Lampyres.
- Antennæ with second joint not transverse; head exerted, narrowed behind the eyes.....*Luciola*.

Group 1.—*Mathetei*.

In this group the front is wide, the antennæ moderately separated at the base, eleven-jointed, pectinate or bipectinate, with the last joint elongate, sinuate and pointed at tip. The eyes are not very large, lateral, convex, widely separated above and beneath.

The prothorax is less prolonged over the head than in the next two groups; the elytra are similar in both sexes and the inflexed epipleuræ are wide near the base, the extreme margin being reflexed and elevated as far as the length of the metasternum; this fold is parallel with the side margin in *Matheteus*, but runs obliquely towards the latter in *Polyclasis*.

- Margins expanded, flattened; antennæ pectinate.....**MATHETEUS**.
- Margins not flattened; antennæ bipectinate.....**POLYCLASIS**.

MATHETEUS Lee.

Antennæ with second joint small, third triangular, oblique, anterior side short; joints 4—10 with a long flat process about the middle; eleventh elongate-oval, acute, with a cusp on the anterior side near the tip.

Black, upper surface rose-colored; prothorax with two black spots; sixth ventral segment with a small acute emargination, seventh rounded at tip. Length 11.5 mm.
 ♂, Mariposa, Cala. **Theveneti** Lec.

POLYCLASIS Newm. (emend.)

Antennæ bipectinate. (♂ strongly, ♀ less so), from third to tenth joint; second joint small, third not shorter than fourth; pectinations at the base of the joints in ♂; at the middle of the sides in ♀, and becoming shorter on the outer joints which are nearly simple; eleventh joint sinuate near the tip.

Mr. Gorham retains this genus as distinct from *Calyptocephalus*, but I do not know upon what characters the difference is established.

Elongate-oval, black, scabrous punctured, prothorax with sides and apex fulvous, dorsal channel distinct; ♂ seventh and eighth ventral segments testaceous, seventh with a small triangular incision, eighth narrow, parallel; ♀ sixth and seventh testaceous, the latter triangular, rounded behind. Length 10 mm. Ohio.

bifaria Say.

(Group 2.—*Photini*.)

In this group the antennæ are more or less compressed, sometimes serrate; the last joint is elongate and rounded at tip, without appendages or simation; the second joint is short, sometimes very short and transverse (*Lucidota*). The sexes are similar in appearance except in one species of *Photinus*, where the elytra of the ♀ are short and the wings wanting. The eyes are larger in ♂ than ♀, but are separated by a wide space both above and beneath in all the species. In the ♂ the last ventral segment is small and narrow, covered by the scutate last dorsal, which varies in form according to genus and species. The light organs, when present, are more developed in ♂ than ♀, which is the reverse of what obtains in the group Lampyres. The head is always covered by the hood-like prothorax. The epipleurae of the elytra are wide at the base; the inferior (or distal) margin is reflexed, and converges more or less to the lateral margin of the elytra. The elytra vary in color; in the species without well-developed light organs they are black, with the single exception of *Pyropyga indicta*, where they are brown margined with testaceous, as in the brilliantly luminous species.

It will therefore be especially necessary for the inexperienced student to ascertain in this group, to what genus his specimen should be referred, before he attempts its specific determination.

There are in many families of Coleoptera strong resemblances between species of different genera, but I know of none (with the exception of certain Rhynchophora), so deceptive as those which our own limited fauna presents to us in this group of Lampyridæ.

- Eyes small; light organs feeble; ventral segments without stigma-like pores.....2.
 Eyes large, but larger in ♂ than ♀; light organs well developed; ♂ with strongly
 marked stigma-like ventral pores.....5.
 2.—Antennæ with second joint one-half as long as third or nearly so..... 3.
 Antennæ very much compressed, not serrate, second joint very short, trans-
 verse.....**LUCIDOTA.**
 3.—Antennæ not serrate, narrow, compressed.....4.
 Antennæ strongly serrate (♂ ♀), prothorax subcarinate, dorsal abdominal seg-
 ments strongly lobed, ♂ last dorsal broadly emarginate.....**TENASPIS** n. g.
 4.—Last dorsal segment ♂ rounded.....**ELLYCHNIA.**
 Last dorsal segment ♂ bisinuate and truncate.....**PYROPYGA.**
 5.—Prothorax subcarinate; ♀ with lateral light organs.....**PYRACTOMENA.**
 Prothorax not carinate, frequently channeled; ♀ with medial light organs.
PHOTINUS.

LUCIDOTA Lap. *Lychnuris* Motsch.

This genus is easily known by the very broadly compressed antennæ, which are not serrate, gradually narrowed externally, and with the second joint very short and transverse. The light organs are very feebly developed, and indicated by yellow spots on the last ventral (♀), or last two ventrals (♂). The dorsal segments are acutely lobed at the sides in both sexes, with the lobes directed backwards. In the ♂ the last dorsal is truncato-emarginate and the seventh ventral is biemarginate, the middle lobe being quite distinct.

To this genus belongs the Mexican *L. thoracica* (Oliv.), in which the prothorax is yellow, the scutel testaceous, and the ventral segments entirely black.

These insects are diurnal and are frequently seen flying in shady places; when seized they exude from the joints of the legs and the sides of the body a milky fluid with a disagreeable odor.

Large, black, sides and apical margin of prothorax fulvous; ♂ ♀. Length 7—11 mm. N. Y.; Ga.; Ill.....**atra** Fabr.
a.—Prothorax black, with very narrow yellow margin; *tarda* Lec.

Small, narrow, prothorax pale, dorsal spot and basal margin black, disc with two rosy spots; ♂ last four ventral segments gradually testaceous. Length 6 mm. Middle and Southern States.....**punctata** Lec.
a.—Hind angles of prothorax blackish.

ELLYCHNIA Lec.

The antennæ are narrow, usually not serrate, but always strongly compressed, with the second joint but little wider than long, and about one-half as long as the third, which is not longer than the fourth. The dorsal segments are not acutely lobed at the sides, and except the penultimate are not produced backwards. The last dorsal is truncato-emarginate in both sexes; and the light organs are wanting. In the ♂ the seventh ventral is broadly but angularly emarginate, and the eighth

is obtuse and impressed or channeled: in the ♀ the last ventral is nicked at the tip, and a little smaller than the last dorsal. The form of body is elongate-oval, or sometimes rather broadly oval.

Broader oval, prothorax black and pale; elytra costate; ventral segments entirely black.....2.

Elongate-oval; prothorax, last dorsal and last two ventral segments yellow.

Length 8.5 mm. N. Mex.; Colo.....**flavicollis** Lec.

2.—Antennal third joint but little longer than wide; elytra with obsolete costa;

prothorax with disc and margins black, remaining parts rosy and yellow.

Length 12—16 mm. Vanc.; Or.; Cal.....**californica** Motsch.

a.—Much smaller; 8.5 mm.; Or.

Antennal third joint longer than wide; elytra strongly costate; prothorax

with disc and margins black, remaining parts rosy and yellow; varies

greatly in size and form; Atlantic slope.....**corrusca** Fabr.

Type.—Moderately large and wide; size 13.5 by 6.4 and 9 by 4 mm. Mass.;

Colo.; Va.

a.—Small and broad; ♀; size 7 by 4.7 mm.; *autumnalis* Mels.

β.—Small and narrow; ♂ ♀; size 7.5 by 3 mm.; *lacustris* Lec.; (in one

specimen from Slave Lake the elytral costae are obsolete): L. Sup.;

H. B. Terr.

PYROPYGA Motsch.

Antennae rather wide, compressed, more or less serrate, second joint transverse, one-third as long as the third. Last dorsal ♂ ♀ broadly truncate with rounded angles; segments lobed at the sides, with the angles but feebly produced backwards. Form elongate-oval, narrow, light organs inconspicuous except in *luteicollis*.

The specific distinctions are sometimes very indefinite, and depend on slight antennal characters as in *Plateros*.

A.—Antennae broad, subserrate, third joint shorter than fourth; last dorsal and last two ventral segments yellow; last dorsal ♂ almost rounded at tip.

Black, prothorax and scutellum yellow, the former narrowed in front, apex acutely rounded. Length 8 mm. Fla.....**luteicollis** Lec.

B.—Antennae narrow, not serrate, third joint longer than fourth, last dorsal broadly truncate.

Prothorax with black disc and edges; elytra black.....2.

Prothorax with black disc and reddish-yellow sides.....3.

2.—Elytra costate; 6.5—8 mm.; Pa.? L. Sup.; Colo.; Cal.....**fenestralis** Mels.

Elytra not costate; 4.5—6 mm.; Can.; Mass.; Pa. Va.....**nigricans** Say.

3.—Elytra black; antennae less slender, joints one-half longer than wide; 5—

7 mm.; N. Y.; Tex.; Ariz.; Fla.....**decipiens** Harris.

Elytra black or piceous; antennae narrower, joints twice as long as wide;

4 mm.; N. J.; Fla.....**minuta** Lec.

Elytra piceous, with pale margin and narrow sutural line; 6—7 mm.; Detroit,

Mich.; Lake Tahoe, Cal.....**indieta** n. sp.

P. indieta.—Elongate, piceous, margins of ventral and pectoral segments paler; prothorax wider than long, nearly semicircular, apical and lateral margin pale, narrowly reflexed and punctured; hind angles acute; disc convex, feebly

earinate, tinged with rosy each side, dorsal vitta dark; wide, somewhat dilated along the base, which is rectilinear. Scutel large, obtuse behind, blackish. Elytra opaque, finely scabrous, with only obsolete costæ, side margin narrowly reflexed; sides, tip and suture pale. Head black, eyes small in both sexes, front wide; antennæ compressed, not serrate, second joint half as long as the third, which is equal to the fourth. Length 6—7 mm.

♂.—Lower joints of antennæ wider and diminishing more rapidly in width than in ♀; last dorsal segment truncate, obtusely triangular; seventh ventral emarginate, eighth narrower, obtuse at tip.

♀.—Antennæ narrower of more uniform width; last dorsal segment obtusely triangular, truncate as in the ♂; seventh ventral slightly emarginate at tip.

Not uncommon at Detroit, where it was collected by Messrs. Hubbard and Schwarz; a precisely similar specimen was taken by Mr. Bolter at Lake Tahoe, (alt. 6465'), California.

This insect has a deceptive resemblance to *Photinus consanguineus* and other species of that genus.

TENASPIS n. g.

Antennæ compressed, serrate, shorter in ♀ than ♂; second joint one-half as long as third, which in the ♂ is shorter than the fourth. Head very small, prothorax feebly carinate in front. Dorsal segments strongly lobed and produced backwards at the sides; last dorsal segment in ♂ broadly emarginate with prominent rounded angles, in ♀ rounded at tip; seventh ventral in ♂ acutely emarginate, eighth small, narrow; last ventral of ♀ slightly nicked at tip. Light organs wanting. Form broadly oval.

Seems to differ from *Hyas* by the antennæ not being pectinate, and by the light organs being entirely wanting.

Broadly oval, flat, black; prothorax pale, tinged with rosy, dorsal stripe and hind angles blackish; elytra acutely margined, each with two divergent elevated lines. Size 13 by 7; Texas and Northern Mexico.....**angularis** Gorham.

PYRACTOMENA Lec. (nec Motsch.)

Antennæ ♂ ♀ narrow, not serrate, shorter in ♀; prothorax subcarinate, sides broadly reflexed, pale, tinged with rosy; dorsal stripe and lateral cloud dusky; elytra with suture and side margin pale. Light organs well developed in both sexes, larger in ♂ than ♀, situated in the fifth and sixth ventral segments, marked each side about one-half way between the middle and the side in the ♂ with a large stigma-like pore;*

* This stigma-like pore, according to Dr. Hagen, is a muscular impression, caused by the insertion of a large band of fibres which run transversely outwards. The function of these muscles and their relation to the light organs are not yet understood, but next summer when living specimens can be obtained, renewed observations will be made. Dr. Hagen thinks that these impressions can be traced, though less distinctly, in other genera of this family and also in Elateridæ. I have not yet been able to satisfy myself that such is the case, though doubtless the same muscles

♂ with last dorsal segment emarginate, seventh ventral truncate, and eighth small. The light organs in the ♀ are at the sides of the segments, which are dusky or piceous at the middle, and with distinct stigmatiform pores; the last dorsal and ventral are of usual form, presenting no peculiarities. This genus corresponds with *Pyrectosoma* Motsch., (Et. Ent. 1853, 38), but the specific name *versicolor*, which he attributes to the type, belongs to a species of *Photuris*.

Elytra with narrower side margin.....2.

Elytra with wide side margin, surface opaque, alutaceo-granulate, not punctured, discoidal costæ well marked; antennæ as long as prothorax; ventral segments ♀ testaceous, spotted with dusky; 7.5—12 mm.; Can.; Mass.; Ill.; Ga.....1. **angulata** Say.

2.—Antennæ shorter than prothorax.....3.

Antennæ longer than prothorax.4.

3.—Elytra not punctured, discoidal costæ well marked, abdomen ♀ in great part dark; 8.5—15 mm.; Me.; Mass.; Can.; L. Sup.; Tex.; Montana.

2. **borealis** Rand.

Elytra densely punctured, discoidal costæ obsolete; abdomen ♀ yellow, spotted with piceous; 14 mm.; Fla.....3. **nitidiventris** Lec.

4.—Narrower, ventral segments 1—4 piceous, seventh with a piceous spot; ♀ fifth and sixth piceous, with sides and hind margin yellow; light organs smaller than in the other species; 8.5—15 mm.; Mass.; Mich.; Pa.; Ga.; Tex.

4. **lucifera** Mels.

PHOTINUS Lap. emend. Lec. (nec Lacordaire).

This genus as emended by me (Pr. Ac. Nat. Sc. Phila. 1852, 334), differs from the preceding by the prothorax not at all carinate, but usually slightly channeled, and more obtusely rounded in front. The surface is pale, tinged with rosy, and is usually marked with a dusky spot or stripe. The light organs are always larger in the ♂ than in the ♀, and in the latter sex vary considerably according to species; in the ♂ they occupy the whole of the ventral segments from the fourth or fifth inclusive; on the fifth and sixth segments the stigmatiform impressions are very distinct, except in the division *Gynaptera*, where they are nearly obsolete; in the ♀ the light organs occupy the middle part of the ventral segments, and exhibit themselves mostly as a flat elevation on the fifth segment. The stigma-like impressions are barely or not visible in the ♀, which may thus be easily distinguished from the ♀ of the species of the preceding genus. Some of the species are among the most abundant and beautiful of our lightning bugs, though less gregarious than *Photuris*.

exist, but with a purely normal respiratory function. It may be affirmed with great probability, that these impressions are homologous with the ventral setigerous pores or foveæ of Carabidæ and Staphylinidæ, which bear the so called ambulatorial setæ. In Lampyridæ these foveæ are conspicuous only in this and the following genus (*Photinus*), so far as the genera occur in our fauna.

- Fourth ventral segment dark; (*PYRECTOSOMA Motsch.*).....2.
- Fourth ventral segment pale, at least in part.....9.
- 2.—Prothorax with a black stripe and two roseate spots.....3.
 Prothorax with a large dusky cloud.....5.
 Prothorax with a black spot, sometimes wanting.....6.
- 3.—Elytra with narrow side margin.....4.
 Elytra with wide side margin; ♀ with sixth ventral dark piceous; 8—11 mm.;
 Mass.; Pa.; Va.....**consanguineus** Lec.
 a.—Larger and broader than the type; sixth ventral of ♀ dark in front,
 yellow behind; 13 mm.; Ga.; Fla.
- 4.—Small and narrow, antennæ wider; ♀ with the usual transverse luminous
 spot on the fifth ventral, and a much smaller round one on the sixth; rest
 of ventral surface piceous; 4—6.5 mm.; Ga.; Fla.....**lineellus** Lec.
- 5.—Narrower than *consanguineus*; elytra with narrow side margin; antennæ nar-
 row; fifth ventral of ♀ pale, with only a small lateral spot dark; sixth with-
 out luminous spot; 6—12.5 mm.; Mass.; L. Sup.; Kansas.....**ardens** Lec.
- 6.—Antennæ shorter and rather stouter than usual; prothorax channeled, very
 obtusely rounded in front.....7.
 Antennæ of usual length; prothorax normally rounded in front.....8.
- 7.—Smaller, prothoracic spot elongate, wider in front; apex and sides dusky,
 strongly punctured; scutel dusky; ♂ with light organs as usual, fifth
 ventral and following segments entirely luminous; ♀ light organs entirely
 wanting; 5—7 mm.; Texas.....**dimissus** n. sp.
 Prothoracic spot transverse, apical, strongly punctured, sides punctured, scutel
 yellow; ♂ with light organs as usual; ♀ unknown; 7 mm.; Fla.; Tex.
collustrans Lec.
- 8.—Prothorax densely punctulate, apical part more strongly punctured, dusky,
 sides dusky; ♀ unknown; 10—11.5 mm.; Ill.; Ks....**punctulatus** Lec.
 Disc of prothorax smooth, convex, roseate, apex and sides strongly punctured;
 elytra more strongly punctured: fifth ventral of ♀ with a transverse yel-
 low boss occupying the middle third of the segment; 7 mm.; Fla.
umbratus Lec.
- 9.—Large species, ventral impressions of ♂ very distinct, (*ELLIPOLAMPIS Motsch.*)10.
 Small species, ventral impressions of ♂ obsolete.....11.
- 10.—Prothorax not channeled, disc roseate without black spot; ♂ with hind
 margin of fourth and the whole of the following ventral segments yellow;
 ♀ segments similarly colored, but the pale apical margin of the fourth is
 very narrow; 14 mm.; Texas, (Boll.).....**benignus** n. sp.
 Prothorax with short dorsal channel, disc roseate with a large black spot;
 ♂ as in *benignus*; ♀ with dusky spots at the base of the fifth segment, sixth
 dusky, margined with testaceous; 9—14 mm.; Pa.; Ill.; Tex....**pyralis** Linn.
 a.—Prothorax with a black vitta.
 β.—Prothorax without black spot; Tex.
- 11.—Elytra widely margined; ♀ with long elytra and wings, similar to the ♂;
 6—8 mm.; Pa.; Va.; Tex.....**margiuellus** Lec.
 a.—Prothorax with a black vitta; Va.; Tex.
 β.—Paler, disc of prothorax roseate, without spot; Pa.; Ga.; *castus* Lec.
 Elytra less widely margined; ♀ without wings, elytra short, dehiscent,
 separately rounded at tip; 5.5—8 mm.; Mass.; Pa.; Ks.; (*GYNAPTERA* Lec.)
scintillans Say.

Group 3.—*Lampyres*.

A sufficient character for separating this group is found in the last joint of the antennæ which is usually appendiculate, rarely (*Pleotomus*) sinuate near the tip. The joints of the antennæ vary in number as well as form. The sexes are dissimilar; the ♀ is frequently larviform with very short scale-like elytra; the light organs seem to be always brilliant in the ♀, but variable in the ♂, sometimes well developed (*Phausis reticulata*) sometimes wanting (*P. inaccensa*). The eyes of the ♂ are very large, contiguous or nearly so, both above and beneath. In the ♀ they are moderately large (*Pleotomus*) or very small (*Microphotus*).

Antennæ bipectinate, 14-jointed, very short and compact in the ♀; eyes moderately large in ♀, very large and nearly contiguous in ♂; ♀ with very short distant elytra.....**PLEOTOMUS**.

Antennæ simple, with quadrate joints: eleventh joint with an articulated acicular appendage; ♀ with short elytra; prothorax with transparent spots.....**PHAUSIS**.

Antennæ short, simple, with quadrate joints; 9-jointed (♂), or 8-jointed (♀); eyes very large, contiguous (♂), very small, transverse, distant (♀); elytra of ♀ very short, rounded**MICROPHOTUS**.

PHAUSIS Lec.

This genus is not sufficiently distinct from the European *Lamprohiza* Motsch., and in fact the European species seems to have been naturalized in Maryland and Illinois. The last dorsal segment is deeply emarginate in the ♂, with acute angles; the transparent prothoracic spots are very distinct in ♂, but nearly wanting in ♀. The latter sex in *P. reticulata* has elytra about as long as in *Phot. scintillans*.

Fifth and sixth ventral segments yellow, luminiferous.....2.

Ventral segments piceous, without light organs; elytra less strongly reticulate (♂);

6 mm.; Marquette, Lake Superior.....3. **inaccensa**.

2.—Prothorax wider than long, elytra densely punctured; (♂) 8.5 mm.; Md.; Ill.

1. **splendidula**.

Prothorax not wider than long, very obtuse in front, elytra confusedly reticulate, long in ♂, short in ♀; ♀ elytra short, not longer than metathorax; dehiscence, rounded at tip; 5.5 mm.; Ga.; Tenn.; Tex.....2. **reticulata**.

MICROPHOTUS Lec.

The prothorax is very obtusely rounded in front, not carinate and without transparent spots; the elytra ♂ are somewhat dehiscence and rounded at tip; the discoidal costæ are distinct and the surface granulato-punctate. Antennæ very short in ♂, ten-jointed, not extending across the eyes which are prodigiously large; ♀ larviform, antennæ still shorter, nine-jointed, elytra small, distant, scale-like.

Body oval, elytra rounded on the sides: ♂ 6—10 mm.; ♀ unknown; Cape San Lucas, L. Cala.....**dilatatus** Lec.

Body elongate, elytra with parallel sides; ♂ 6—10 mm.; ♀ 8—10 mm.; Cala.; Or.; Col.....**angustus** Lec.

PLEOTOMUS Lec.

The development of this genus has been traced by Mrs. V. O. King, Austin, Texas; and the results of her observation are published in *Psyche* iii, 51—53. For a good series of specimens I am indebted to Mrs. King and Mr. Belfrage. I have separated the ♀ found by Mr. W. M. Davis in the mountains of Kentucky as a distinct species, on account of the much greater length of the prothorax; the ♂ is unfortunately unknown. The light organs are brilliant in the ♀, less so in the ♂. The prothorax is finely carinate and the elytral costæ distinct.

Prothorax not longer than wide, obtusely rounded in front; ♂ 11 mm.; ♀ 17 mm.; Texas.....**pallens** Lec.

Prothorax nearly one-half longer than wide, sides obliquely converging, rather acutely rounded in front; ♀ 18 mm.; Cumberland Gap, Ky...**Davisii** n. sp.

As there is no other character available at present for the distinction of the second species, a longer description is unnecessary.

Group 4.—*Luciolæ*.

The eyes are large, convex and widely separated above and beneath in both sexes, not conspicuously larger in ♂; the head is rounded, narrowed behind and not retractile; it is but partially covered by the prothorax, which is, however, of the usual hood-like form and rounded in front. The antennæ are longer than one-half the body, filiform, slender, not compressed, inserted near the anterior margin of the front, and moderately approximate; the second and third joints are about equal, and together are as long as each of the following joints.

The sexes are similar in form with long elytra and well developed wings; the light organs occupy the whole of the fifth and following segments; stigma-like pores are not obvious, being situated at the base of the fifth and sixth segments and less strongly marked than in *Pyraclomena* and *Photinus* ♂. The seventh ventral in ♀ is obtusely triangular; in ♂ the fifth and sixth are broadly emarginate, the seventh is smaller than in ♀, sinuate at the sides and prolonged at the middle, the eighth is a little wider and longer than the prolongation of the seventh. In our species the outer (or anterior) claw is cleft at tip. The prothorax and elytra are densely rugosely punctured, the former is yellow with a black stripe or spot, each side of which the disc is red; the latter have the whole margin and frequently a discoidal stripe pale. A single genus occurs in our fauna with limited representation.

PHOTURIS Lec.

Prothorax dull yellow, disc red, with a dark median stripe; head broadly not deeply concave; labrum tridentate; elytra with a pale discoidal stripe 10.5—15 mm.; N. Y.; Fla.; Ks.....**pennsylvanica**.
a.—Elytra dark, margined with pale, discoidal stripe absent.

- Smaller and narrower, elytra more strongly punctured, head strongly concave, labrum not toothed; 10 mm.; Ga.; Fla.; Tex..... **frontalis**.
- Of same size and form as *frontalis*; prothorax with two dusky spots and a pale dorsal stripe; head more broadly concave; labrum indistinctly tridentate; 10 mm.; Ks..... **divisa**.

Tribe 2.—PHENGODINI.

The prothorax though rounded in front does not cover the head, which is exposed. The eyes are convex, prominent, and widely separated; the antennæ are not approximate, inserted in front and inside of the eyes, and are plumose or flabellate in the ♂; (♀ unknown). The mandibles are long, slender and curved, the labrum connate with the front, small in *Pterotus*, large and emarginate in *Phengodes*; the middle coxæ are contiguous, the metasternum between them being narrowly carinate; the side pieces of metathorax are broad and diagonally divided. The gula is deeply impressed or excavated in all the genera.

Three subtribes are indicated:

- Prosternum well developed in front of coxæ; front convex, narrowed between the antennæ..... **PTEROTINI**.
- Prosternum very short as usual; front flat, labrum large..... **PHENGODINI**.
- Prosternum well developed; front convex, labrum small..... **MASTINOCERINI**.

PTEROTINI.

PTEROTUS Lec.

P. obscuripennis Lec. from California; rufo-testaceous with piceous elytra; length 10—12 mm. The antennæ are long, inserted under two large convexities, ramose, the first joint stout, second small, 3—10 with long processes, that of the third being medial and that of the tenth apical; eleventh as long as the process of the tenth, simple. Palpi short, joints oval, nearly equal. Tibiæ not compressed; fourth joint of tarsi moderately dilated, somewhat bilobed; ♂ seventh ventral broadly and deeply emarginate, eighth flat, narrower, obtuse; last dorsal of similar size and form.

PHENGODINI.

The labrum is large; metathoracic side pieces wide.

- Elytra subulate, tarsi with fourth joint lobed..... **PHENGODES**.
- Elytra entire, tarsi with third and fourth joints lobed..... **ZARHIPIS**.

PHENGODES Latr.

The head is deeply transversely excavated behind the eyes; the gular region is also deeply excavated and the sutures are confluent.

The seventh ventral of the ♂ (the only sex known), is strongly emarginate, and the eighth narrower, obtuse at tip. The last dorsal is not emarginate, with sometimes the head and tips of elytra fuscous.

The species are testaceous in color and resemble each other very closely, but the prothoracic differences seem to warrant their reception as distinct.

- Head testaceous, side margin of prothorax widely explanate behind, gradually narrowed in front.....2.
- Head fuscous.....3.
- 2.—Front sparsely punctured, not channeled; vertex more deeply excavated, occiput channeled; 14 mm.; Tex.: (six specimens).....**frontalis** n. sp.
 Front and vertex with a distinct channel; occiput channeled; 12 mm.; N. Y.; (one specimen).....**plumosa** Oliv.
- 3.—Prothorax with the lateral margin very wide and not narrower in front; front strongly punctured; 17 mm.; N. Car.; (Dr. Horn)**laticollis** n. sp.
 Prothorax with the lateral margin moderate, narrower in front; front sparsely punctured; 12 mm.; Tex.; (three specimens).....**fusciceps** Lec.
 Prothorax with the lateral margin narrow; 8.5 mm.; La.; (one specimen, Mr. Sallé).....**Sallei** n. sp.

I may add that the antennæ are shorter in the last two species, being less than half as long as the body, while in the others they are nearly two-thirds as long. As there are no other conspicuous differences than those mentioned in the table, longer descriptions are unnecessary, and would only mislead the student.

ZARHIPIS n. g.

This genus agrees with *Phengodes* in all respects except the following:

The head is less deeply concave between the eyes, and not transversely constricted or impressed behind; epistome elevated above the labrum; the elytra are nearly as long as the abdomen, slightly dehiscent and rounded at tip; the third as well as the fourth tarsal joints are furnished beneath with a distinct membranous sole; the seventh ventral is acutely emarginate; the sixth segment is also emarginate, but the seventh is cleft almost to the base, and the lobes sometimes overlap behind presenting the appearance of a narrow closed slit, in which the basal part of the eighth ventral is visible.

Three species from California are known to me:

- Prothorax with side margin strongly reflexed.....2.
- Prothorax with narrow side margin.....3.
- 2.—Blackish piceous, mandibles and prothorax bright rufo-testaceous; base of antennæ and scutel reddish, legs tinged with red; prothorax more strongly margined, and antennæ stouter than in *integripennis*; 13.5 mm.; Cala.; (Hardy, one specimen).....**ruficollis** n. sp.
 Shining rufo-testaceous, elytra piceous, densely rugosely punctulate, antennæ dark, with the base pale: 10—13 mm.: Cala.....**integripennis** Lec.
- 3.—Exactly like *integripennis* except that the prothorax is more convex, with narrow side margin, and the head behind the eyes under surface of the body are piceous, the legs and scutel are however yellow; 10 mm.; Berkeley, Cala.: Mr. J. J. Rivers, (one specimen).....**piciventris** n. sp.

MASTINOCERINI.

These are small, slender insects, having the antennæ biramose, or serrate but not flabellate as in *Phengodini*, the branches being less slender. The eyes are small, lateral and convex; the epistome is somewhat convex, and the labrum is small and indistinct; the mandibles are acute but not prominent. The maxillary palpi are long, the labial very short; the gula is less deeply excavated than in *Phengodes*. The side pieces of metathorax are long and narrow, diagonally divided, with the epimera exposed. The elytra are short, dehiscant, and rounded at tip.

Antennæ ramose.

Lateral margin of prothorax acute: palpi broad.....**MASTINOCERUS.**

Lateral margin of prothorax obliterated in front: palpi slender...**CENOPHENGUS.**

Antennæ serrate.....**TYTHTHONYX.**

MASTINOCERUS Solier.

In this genus the labrum is small and indistinct, and the epistome slightly convex, more advanced than in the two preceding genera; the head between the eyes is flattened, scarcely concave; the gula is much less excavated, and the maxillary palpi are long, flattened, not slender, with the last joint triangular or rather securiform. The antennæ are not longer than the head, biramose, with the branches shorter and stouter, though still flexible. The eyes are lateral, moderately large and convex. The flanks of the prothorax are acutely margined, flat, not concave, the edge of the disc is not margined nor flattened. The metasternum is longer than usual, with narrow side pieces, but the epimera are large. The elytra are less than one-half as long as the abdomen; dehiscant and rounded at tip, without distinct epipleuræ. Legs slightly compressed; joints 1—4 of tarsi gradually a little shorter and narrower, fourth small, not lobed beneath.

♂.—Seventh ventral deeply emarginate; eighth prominent, obtuse.

Elongate, uniformly punctured, pubescent, testaceous, abdomen darker, with the last two segments paler: (♀ unknown): ♂ 6 mm.: Texas.....**texanus.**

a.—Piceous, head prothorax, legs and last ventral segment dark red.

I am also indebted to Mrs. King for a larva of *Mastinocerus*, of slender, cylindrical form and pale color. It was feebly luminous, and lived upon small snails. The perfect insect is thus mentioned in a letter, the observations being made upon a specimen attracted by the lamp: "June 4th saw running rapidly over the table near a lighted lamp, a small Coleopter; it was twisting its abdomen up over its wings, and evidently trying to straighten them out, as they seemed moist and twisted at their ends. The general appearance suggested *Mastinocerus*, and acting on this thought, I captured it and sat up till a late hour to be assured of the truth. The

insect was in a small vial and moved quickly. It gave out light conspicuously from the head, feebly from the anal end, and still more so from about the base of the abdomen. The light seen in the head, though visible in the dark as a round spot, yet when taken into a room obscurely lighted was invisible from above; but when the insect was suddenly thrown upon its back a light no larger than a pin point was seen just about the junction of the head and prothorax."

CENOPHENGUS n. g.

I have established this new genus upon a small Californian species, which greatly resembles in appearance *Mastinocerus texanus*, but differs by the antennæ as long as the head and prothorax; the prothorax a little longer than wide, with the lateral edge distinct only behind the middle, and quite obliterated in front. The maxillary palpi are elongate and slender, with the last joint long and cylindrical. The seventh ventral segment is more broadly emarginate, and the eighth comparatively larger. In all other respects it closely resembles *M. texanus*, except that the sculpture is finer.

C. debilis.—Elongate, blackish piceous, punctulate and pubescent. Prothorax not as wide as the head, longer than wide, disc flattened towards the base, apex truncate, sides parallel, base and hind angles strongly rounded; testaceous, piceous near the base. Elytra flattened, half as long as the abdomen, finely scabrous-punctate, sides somewhat rounded with a submarginal elevated line from before the middle nearly to the tip. Legs and last segment tinged with testaceous. Length 4.5 mm.

California; two specimens; Dr. Horn. The second and third joints of the antennæ are short and without branches; the branches of the other joints are from one and a half to twice as long as the joints; in *Mastinocerus* they are about four times longer than the joints; ♀ unknown.

TYTHONYX Lec.

The well-known but not abundant species which is the type of this genus, is of somewhat difficult location. Its appearance would indicate a relationship with the Malthini group of Telephoridae, but after a careful study of its characters I am inclined to believe that its true position is near *Mastinocerus* and *Cenophengus*, with perhaps a closer tendency towards *Drilus* than is exhibited in those genera.

The characters have been sufficiently given by me in other places to permit of the easy recognition of this genus, but in order to substantiate the opinion above expressed it is now necessary to go into greater details.

Head broader than long, deflexed, eyes small, rounded, convex, prominent, finely granulated; epistome rounded in front, connate with the labrum and covering the mandibles which are curved, slender at tip,

broadly toothed about the middle; palpi with the last joint oval, obliquely truncate, so as to appear pointed and aciculate at tip; ligula and mentum small, supported on a broad gular peduncle which is concavely impressed behind; sutures widely separated. Antennæ long, broadly compressed, strongly serrate, joints triangular, second but one-half as long and one-half as wide as the third, outer joints (♂) longer, narrower and more prolonged at tip than the lower joints. Prothorax transverse, truncate in front, broadly rounded behind, sides short, inflexed flanks very narrow; under surface of prothorax membranous, with the exception of a very very narrow collar which supports the front legs; coxæ and trochantins large. Middle coxæ contiguous. Side pieces of metathorax broad, narrowed and pointed behind, not sinuate on the inner margin, epimera exposed. Elytra one-half as long as the abdomen, rounded at tip; epipleuræ narrow, but distinct for one-half the length. Scutel broad, slightly emarginate behind. Wings straight, extending along the dorsal surface of the abdomen. Legs feeble, claws small, simple.

♂.—Antennæ nearly as long as the body, strongly serrate, seventh ventral segment broadly emarginate, eighth narrow, channeled.

♀.—Antennæ two-thirds as long as the body, outer joints narrower, but not longer than the lower joints.

Black, opaque, sparsely and finely pubescent, front, occiput and under surface of head fulvous. Length 4 mm.; Middle States, on leaves.

erythrocephalus Fabr.

Sub-family III.—TELEPHORIDÆ.

The insects of this sub-family are closely related to the Lampyridæ genuini, but are easily known by the stronger development of the mouth organs, the smaller size of the eyes, which permits the antennæ to be widely separated at the base, and by the straight, or nearly straight outline of the inner side of the metathoracic episterna.

Light organs do not exist in any of the species, and the sexes are very similar in form, differing, at most, by the length of the antennæ and the outline of the sides of the prothorax. Sexual characters are also seen in the last segments of the abdomen, especially in *Chauliognathus* and *Malthodes*; in the latter genus the claspers assume large size and great complexity. In a few instances tibial and tarsal characters distinguish the sexes, and in many species of *Telephorus* the unguis are quite different.

I have excluded the singular genus *Ometes* from this sub-family. It is not a Lampyride, but where it may be suitably placed I do not know.

Two tribes may be recognized in our fauna:

Mentum very long, wider in front.....	CHAULIOGNATHINI.
Mentum small, quadrate.....	TELEPHORINI.

Tribe 1.—CHAULIOGNATHINI.

This tribe consists of but one genus represented in our fauna by a moderate number of species. They are much more numerous in Tropical America, but so far as I am aware do not occur in other countries.

CHAULIOGNATHUS Hentz.

This genus differs from all others in our fauna not only by the elongated head, and singular structure of the maxillary lobe which has a long extensile and contractile fleshy filament, but also by the peculiar arrangement of the under surface of the prothorax, and the sexual characters of the ♂.

The prosternum is but feebly developed, and separated by membrane from the surrounding parts. The trochantin is very large, triangular and flat, and the inflexed flanks wide and concave; the two gular plates at the anterior margin of the prosternum are large and prominent, dipping perpendicularly inwards. The mentum is very long and narrow, a little broader in front; the gular sutures run from the hind angles of the mentum obliquely inwards, and coalesce on the median line, almost to the hind margin of the lower floor of the cranium.

The last ventral segment of the ♂ is elongate-oval, convex, and of firmer corneous consistency than the other segments; the penultimate ventral is emarginated broadly and deeply by the convexity of the last segment; from the terminal opening between the last ventral and dorsal is frequently seen protruding a pair of claspers, of slender curved form, hooked at the end and fringed on the inner margin with spines, thus resembling the inner lobe of the maxillæ of Carabidæ.

These characters and those already given by me in the Classification (p. 186), abundantly indicate the propriety of recognizing this type as a separate tribe.

In several species the antennæ in the ♂ are longer than in the ♀, and the outer joints are somewhat broader; but there is not sufficient difference in this respect to be worth indicating among the specific characters in the table.

Antennæ slender in both sexes.

- | | |
|--|----------------------|
| Antennæ with third joint equal, or nearly so, to fourth..... | 2. |
| Antennæ with third joint conspicuously shorter than the fourth..... | 5. |
| 2.—Head yellow; prothorax opaque..... | 3. |
| Head black; prothorax shining..... | 4. |
| 3.—Prothorax wider than long, sides very broadly and strongly reflexed; red, finely pubescent; mouth organs, three prothoracic dots, abdominal spots and last segments, legs, except at base, and posterior one-fourth to one-fifth of elytra black; antennæ testaceous and dusky, scape black. Length 13—17 mm.; Arizona..... | 1. profundus. |

- Prothorax longer than wide, nearly elliptical, sides narrower and strongly reflexed: ochreous, finely pubescent; antennæ, mouth organs, two prothoracic spots and a medial oval fovea, legs and abdominal spots black; elytra punctured, each with a small black spot behind the middle, which is frequently wanting. Length 11—14 mm.; Texas.....2. **disens.**
- 4.—Black, prothorax and elytra yellow; the former wider than long, sides strongly and widely reflexed; disc with an angulated black transverse spot; scutell black; elytra punctured, with a black basal spot, and another behind the middle, extending from the side almost to the suture; sixth and seventh abdominal segments above and below spotted with black. Length 10—12 mm.; Utah.....3. **fasciatus** n. sp.
- 5.—Elytra with a large apical black spot, not margined with yellow.....6.
Elytra with the entire margin yellow.....7.
- 6.—Disc of prothorax opaque black, margined with yellow; elytra with part of suture and sometimes triangular common basal spot, abdomen (♀) yellow, last segments spotted with black. Length 11 mm.; Texas; N. Mex.; Col.
4. **limbicollis.**
- Disc of prothorax smooth, shining yellow, with a large black spot, sometimes reduced to three small dots; abdomen yellow, banded and spotted with black in ♀; last segment only dusky or black in ♂, and finely sparsely punctulate. Length 9—11 mm.; Col.; Utah.....5. **basalis.**
- 7.—Antennæ with third joint more than twice as long as second; head entirely black.....9.
Antennæ with third joint twice as long as second; head yellow with black spots.....12.
- 9.—Elytra with basal black spot.....10.
Elytra with base entirely yellow.....11.
- 10.—Basal spot of elytra triangular; posterior spot one-half the length of the elytra. Length 9—13 mm.; Texas.....6. **scutellaris.**
Basal spot of elytra transverse; posterior spot three-fourths the length of the elytra. Length 9 mm.; New Mexico.....7. **Lewisii.**
- 11.—Prothorax not wider than long, disc opaque black, narrowly margined with yellow, sides more narrowly reflexed. Length 10 mm.; Ariz...8. **opacus.**
Prothorax wider than long, margin more widely reflexed, opaque yellow, with a transverse discoidal spot; elytra with a black spot, which is sometimes small and posterior, and sometimes covers nearly the whole surface. Length 9—11 mm.; N. Y.; Mo.; Ga.; Tex... 9. **pennsylvanicus.**
- 12.—Prothorax longer than wide, opaque yellow, with a broad black dorsal stripe, sides very narrowly margined; elytra with discoidal spot sometimes extending nearly the whole length, sometimes wanting. Length 8—11 mm.; N. Y.; Fla.10. **marginatus.**

Tribe 2.—TELEPHORINI.

- Excluding *Omethes* as above indicated, I have no improvement to suggest to the table of groups I have already given. Classification p. 187:
- Elytra covering the wings; gular sutures confluent; prothorax truncate in front:
head entirely exposed.....*Podabri.*
- Elytra covering the wings; gular sutures separate; prothorax rounded in front:
head partly covered.....*Telephori.*
- Elytra abbreviated, wings exposed: gular sutures confluent.....*Malthini.*

Group 1.—*Podabri*.

Although as will be seen below, the species of this group differ in the form of palpi, as well as in the tarsal claws, they seem to me to indicate but one natural genus. They are more numerous in the northern part of the Continent, and gradually fade out towards the tropics.

PODABRUS Westwood.

In this genus the gular sutures are confluent at the median line, and the head is prolonged and narrowed behind the eyes, so as to form a distinct neck not covered by the prothorax, which is nearly truncate, or even somewhat emarginate in front. The seventh ventral segment of the ♂ is truncate, and the eighth is exposed, sometimes triangular, sometimes with parallel sides and obtusely rounded at tip. The seventh ventral of the ♀ is triangular, subsinuate each side near the tip, which is frequently slightly nicked, though I have not found use for this character as a specific distinction, since from the drying of the specimens it is difficult to observe. The three divisions are so different as almost to entitle them to rank as distinct genera, though some forms link them together rather closely.

- Claws armed with a long acute tooth, causing them to appear broadly cleft; maxillary palpi with last joint triangular; front tibiæ of ♂ more or less sinuate in form..... **A.**
- Claws armed with a broad nearly rectangular basal tooth; maxillary palpi with last joint elongate, slightly triangular, the inner and apical margin being rounded together..... **B.**
- Claws with a slender tooth nearly as long as the upper part and approximate to it, causing them to appear narrowly cleft. **C.**

A.—*BRACHYNOTUS* Kirby.

- Eighth ventral ♂ triangular, flat, rounded at tip.....2.
- Eighth ventral ♂ parallel, obtusely rounded at tip.....8.
- 2.—Last joint of maxillary palpi with apical side oblique, angle distinct, eyes prominent.....3.

Last joint of maxillary palpi nearly transversely truncate, eyes small; black, mouth part of first joint of antennæ and sides of prothorax yellow; the latter much wider than long, rounded on the sides and broadly margined; head densely punctured, prothorax punctulate, elytra finely rugose; ♂ with front tibiæ dilated inwards into a thin plate. Length 7—10 mm.; Cala.

1. latimanus Motsch.

- a.*—Upper surface dull yellow, occiput and disc of prothorax piceous.
- Last joint of maxillary palpi with the apical side very oblique, inner angle rounded, indistinct; eyes small; black, opaque, finely pruinose with pubescence; sides of prothorax pale; head coarsely punctured, prothorax sparsely punctulate, much wider than long, rounded and explanate at the sides, dorsal line long and deep; elytra less finely rugose, with the side margin sometimes pale; ♀ antennæ scarcely half as long as the body, joints 2—4 slightly increasing in length; ♂ antennæ three-fourths as long as the body,

- second joint one-half as long as the third; seventh ventral slightly channeled, eighth triangular, obtusely rounded at tip. Length 8—9 mm.; Mass.; L. Superior..... 2. **nothoides** n. sp.
- 3.—Antennæ stouter; elytra distinctly dilated on the sides, elevated lines strongly marked.....4.
Antennæ more slender. elytra not or scarcely dilated on the sides, elevated lines indistinct.....5.
- 4.—Elytra very broadly dilated, densely rugose, opaque; black, front and sides of prothorax pale; head and middle of prothorax densely punctured, the latter near three times wider than long, sides very broadly explanate and reflexed, dorsal line feeble; antennæ scarcely longer than half the body, joints 2—4 increasing in length; ♂ elytra less dilated on the sides, antennæ longer than in ♀. Length 11—13 mm.; Can.; Pa....3. **tricostatus** Say.
Elytra less broadly dilated, densely rugose, opaque; front and lateral margin of prothorax yellow; head coarsely, prothorax less coarsely punctured, not much wider than long, narrower in front, apex truncate-emarginate with the angles subacute, side margin deeply impressed before and behind, dorsal line well marked; joints of antennæ 2—4 increasing in length. Length 7—8 mm.; Mass.; N. Y.; L. Sup.; Ks.....4. **rugosulus** Lec.
Very similar to *rugosulus*; prothorax less narrowed in front, with the apex truncate and angles rounded, disc less punctured, elytra less densely rugose and less opaque, less dilated on the sides; ♂ wanting. Length 8—10 mm.; Va.; Ga.; Fla.....5. **frater** Lec.
- 5.—Elytra rather coarsely rugose.....6.
Elytra more finely rugose.....7.
- 6.—Color variable, front sometimes and margins of elytra pale; head coarsely punctured; prothorax twice wider than long, sides rounded, broadly explanate, yellow, with a large dark spot, disc sparsely punctured, dorsal line distinct; antennæ and legs more or less testaceous. Length 8—13 mm.; Atlantic region; Kansas.....6. **basillaris** Say.
a.—Prothorax pale yellow, without spot, *flavicollis* Lec.
β.—Prothorax with a spot, legs testaceous, *discoideus* Lec.
γ.—Smaller, prothorax less strongly punctured, Kansas: *punctulatus* Lec.
Similar to *basillaris*, but prothorax scarcely longer than wide, with nearly parallel sides, rounded only near the tip, and narrower more strongly reflexed side margin; piceous, base of antennæ and mandibles, prothorax and margins of elytra pale. Length 9—11 mm.....7. **quadratus** n. sp.
a.—Head entirely black, prothorax dusky; Texas; (Belgrave).
- Piceous, frontal fascia, sides of prothorax and margins of elytra pale; head coarsely punctured behind; prothorax not much wider than long, sides nearly parallel, widely explanate, disc red, coarsely and densely punctured, dorsal line short, not very plain; claws more slender and more nearly cleft than in the foregoing species. Length 9 mm.; Fla.; one specimen, (Bolter).....8. **fissus** n. sp.
- 7.—Prothorax wider than long, feebly punctured in front, sides yellow, widely explanate; head not deeply punctured behind, front more or less pale; rest of body black, base of antennæ sometimes tinged with testaceous, dorsal line usually feeble. Length 9—11 mm.; Atlantic region; L. Sup.
9. **diadema** Fabr.
a.—Prothorax with the disc but little darker than the sides.

- Very similar to *diadema*, but the antennæ and legs are yellow, or nearly so, and the margins of the elytra pale; the dorsal line of the prothorax is obsolete, and the discoidal convexities less prominent. Length 9—11 mm.; L. Sup.; Penn.; Ga.....10. **modestus** Say.
- Color mostly yellow above, piceous beneath; head punctured behind, prothorax smooth and shining, wider than long, sides widely explanate, parallel, rounded in front; discoidal convexities dark, dorsal line short; elytra tinged with piceous behind; antennæ and legs yellow; specimens will doubtless occur with the elytra dark colored, without pale margins. This species differs from the two preceding by the less transverse prothorax, with less rounded sides, and disc not at all punctured in front. Length 10 mm.; Cala.; San Mateo.....11. **binotatus** n. sp.
- 8.—Head suddenly narrowed behind the eyes, neck short; prothorax wider than long.....9.
- Head much prolonged behind the eyes, neck long; prothorax not wider than long.....10.
- 9.—Head, prothorax and margin of posterior ventral segments yellow; occiput sometimes dark, elytra black, with pruinose pubescence. Length 10—12 mm.; Cala.; Or.; Montana. 12. **comes** Lec.
- a.—Body above yellow, elytra blackish behind; *gradatus* Lec.
- Head, prothorax, abdominal margin, and legs yellow, antennæ dusky, yellow at the base; elytra black with pruinose pubescence. Length 9—12 mm.; Ill.; Cal. 13. **tomentosus** Say.
- a.—Elytral margins pale.
- 10.—Head sparsely punctured behind, prothorax feebly punctured, dorsal line deep; yellow, elytra black, coarsely rugose, abdomen more or less piceous. Length 11—14 mm.; Conn.; Ohio; Penn.....14. **protensus** Lec.
- a.—Elytra yellow, gradually blackish behind: *protensus* Lec.
- Head and prothorax coarsely punctured, dorsal line deep; front sides of prothorax, margins of elytra, legs, and base of antennæ yellow. Length 7—10 mm.; Penn.; Ga.; Ill.; Tex.....15. **poricollis** Lec.
- a.—Prothorax entirely yellow or brown; *brunnicollis* Lec.

B.—MALTHACUS Kirby.

- Muzzle broad in front of the eyes; head coarsely punctured; fourth tarsal joint slightly emarginate.....2.
- Muzzle short; fourth tarsal joint slightly emarginate.....7.
- Fourth tarsal joint deeply bilobed.....14.
- 2.—Prothorax densely punctured, opaque.....3.
- Prothorax sparsely finely punctured.....6.
- 3.—Dorsal line of prothorax feeble, convexities slight.....4.
- Dorsal line deep, convexities prominent.....5.
- 4.—Black, prothorax with lateral spot red, sides slightly sinuate. Length 11 mm.; Or.; Vanc.....16. **scaber** Lec.
- Piceous, anterior half of head, base of antennæ and margins of elytra pale; prothorax ferruginous, narrower behind, sides repand. Length 11 mm.; Penn.; Horn. 17. **cinctipennis** Lec.
- 5.—Piceous, anterior half of head, sides of prothorax and margins of elytra pale; prothorax not wider than long, narrower behind, sides sinuate. Length 9 mm.; N. H.; (Austin, Blanchard).....18. **limbellus** n. sp.

- Black, anterior half of head, and prothorax red; prothorax not wider than long, narrowed behind, sides sinuate. Length 6—8 mm.; Can.; L. Sup.; Penn.....19. **punctatus** Lee.
- 6.—Black, prothorax square, front angles rounded; very slightly punctulate, shining, dorsal line deep, sides more or less yellow; sides of muzzle testaceous; ♀ antennæ shorter, abdomen when distended longer than elytra. Length 8—10 mm.; Utah; Mont.; Col.; B. Col.....20. **brevipennis** Lee.
- Piceous, base of antennæ, sides of mouth, sides of prothorax, and margins of elytra testaceous; head sparsely punctured behind, prothorax deeply concave at the middle, dorsal line fine, surface shining, sparsely punctulate. Length 8 mm.; L. Sup.; Mt. Wash., N. II., (Austin)....21. **puncticollis** Kirby.
- 7.—Head and prothorax finely punctured or punctulate; the latter with a wide medial concavity and two elongate convexities.....8.
- Head nearly smooth; prothorax quite smooth.....13.
- 8.—Prothorax shining, sparsely punctured, head finely punctured.....9.
- Prothorax opaque, punctulate, head punctulate.....10.
- 9.—Black, prothorax not longer than wide, yellow, sides rounded near the apex; second joint of antennæ shorter than the third. Length 8 mm.; Cal., Lake Tahoe.....22. **xanthoderus** n. sp.
- a.—Prothorax with a broad black dorsal stripe; (perhaps distinct); B. Col.
- Yellow, under surface and antennæ piceous, the latter yellow at base; prothorax much narrower than the head, longer than wide, sides parallel, slightly rounded in front, lateral basal impressions deeper and more defined; second joint of antennæ as long as the third. This species has a very deceptive resemblance to *cavicollis*, but is easily recognized by the different form of the tarsal claws. Length 6—9 mm.; Vanc.; Cal.; Nev.
23. **lutosus** n. sp.
- 10.—Prothorax longer than wide..... 11.
- Prothorax not longer than wide.....12.
- 11.—Prothorax with the sides fulvous, front angles very slightly obliquely truncate; head finely and densely punctured. Length 8 mm.; Cal.; San Mateo; one specimen.....24. **maeer** Lee.
- Prothorax entirely black, front angles strongly obliquely truncate, base of antennæ dull testaceous; head not densely punctulate. Length 6—8 mm.; Can.; Mont.; Or.; Alaska, Vanc.....25. **piniphilus** Mann.
- Head sparsely punctulate; Sitka, one specimen; (perhaps a distinct species).
- 12.—Anterior half of head and sides of prothorax yellow; head densely punctulate, tarsi moderately broad, especially the front pair. Length 7 mm.; Col.; N. Mex.....26. **lateralis** Lee.
- a.—Prothorax entirely yellow.
- Mouth piceous, three joints of antennæ and palpi testaceous, legs tinged with testaceous, head less distinctly punctured; Length 6 mm.; L. Sup.
27. **puberalus** Lee.
- a.—Prothorax bright red; Canada.
- Anterior half of head dull testaceous; base of antennæ and legs tinged with testaceous; prothorax with front angles strongly obliquely truncate, disc finely punctulate, less concave at the middle than in the preceding species; elytra more distinctly rugose-punctulate (as in *lateralis*), with indistinct elevated lines; side margin pale. Length 7 mm.; H. B. Terr.; one specimen.....28. **extremus** n. sp.

- Mouth, base of antennæ and prothorax yellow; the latter deeply concave at the middle, and finely punctulate, legs more or less testaceous. Length 5 mm.; Can.; Fla., (Bolter).....29. **simplex** Couper.
- 13.—Piceous, legs, front part of head and base of antennæ dull testaceous, prothorax not wider than long, somewhat narrower than the head. Length 6 mm.; N. H.; Can.; L. Sup.....30. **laevicollis** Kirby.
- 14.—Muzzle broad, head less narrowed behind, finely punctulate; fourth tarsal joint deeply bilobed. Yellow above, head behind the eyes and under surface piceous; antennæ piceous, base yellow; palpi yellow, dark at tip; hind margin of elytra and tarsi piceous; prothorax feebly punctulate, not longer than wide, posterior concavity broad and deep, convexities narrow, prominent. Length 7.5 mm.; Cal., Tejon: one specimen.....33. **tejonicus** Lec.
- Muzzle short, head less narrowed behind, smooth; fourth tarsal joint deeply bilobed. Black, mandibles and palpi pale, piceous at tip; prothorax very smooth and shining, somewhat wider than long, posterior concavity deep, convexities prominent, oval, bright yellow, apical and basal margin black. Length 6 mm.; Penn.; Can.....32. **Pattoni** Lec.
- Muzzle short; form very elongate, head not opaque, strongly narrowed behind, sparsely punctured, eyes prominent; fourth tarsal joint deeply bilobed. Black, mandibles and sides of prothorax reddish-yellow: the latter longer than wide, indistinctly punctulate, sides parallel, front angles obliquely truncate, posterior concavity deep and large, convexities narrow, prominent. Very closely resembles *macer*, but the head is not densely punctured, and the fourth tarsal joint is quite different, being deeply bilobed. Length 6.5 mm.; Cal., Lake Tahoe; one specimen, (Bolter)31. **Bolteri** n. sp.

C.

The three species in this division are similar in appearance, being very slender, yellow above, piceous beneath, with the legs and base of antennæ yellow; the head is blackish behind the eyes and very much narrowed; the eyes are prominent. The last joint of the maxillary palpi is rather large, triangular, moderately dilated, with the distal side rounded and the inner angle not well defined. The tarsi are long and slender, the front pair stouter in *corneus*; the claws cleft at the tip, with the lower point as acute and nearly or quite as long as the upper. Prothorax sparsely punctured, small, not wider than long, deeply excavated, with elongate convexities.

- Fourth tarsal joint deeply bilobed.....2.
- Fourth tarsal joint slightly emarginate; head strongly, not very densely punctured; prothorax sparsely punctured with the sides rounded in front; antennæ with the second and third joints equal, each scarcely shorter than the fourth; elytra finely rugose, piceous at tip; base of thighs and tarsi piceous; outer claw of hind tarsi toothed, all the others cleft; ♂ ♀. Length 9 mm.; Cal., Geysers, (Bolter): Nev., (Horn).....34. **mellitus** n. sp.
- 2.—Head strongly, more densely punctured; prothorax nearly smooth, sides more broadly rounded in front; antennæ piceous, with second, third and fourth joint gradually increasing in length; elytra blackish at tip; legs piceous, tinged with testaceous; ♂. Length 9 mm.; Cal.; two ♂35. **corneus** Lec.

Head very sparsely punctured; prothorax strongly punctured, much more deeply excavated at the middle, excavation blackish, convexities elongate, acute, region of hind angles also deeply excavated; antennæ with second, third and fourth joints nearly equal; ♂ ♀. Length 6 mm.; Cal., San Francisco; Nev., (Horn).....36. **cavicolis** Lee.

Group 2.—*Telephori*.

I find no reason for changing the table of genera previously given by me,* except to suppress *Rhagonycha*, which seems an unnecessary disintegration of *Telephorus*; our genera will then be as follows:

Last joint of maxillary palpi dilated, securiform.....	2.
Last joint of maxillary palpi suboval, obliquely truncate.....	4.
Hind angles of prothorax rounded.....	3.
Hind angles of prothorax (♂) incised; head short.....	SILIS .
3.—Head moderately long, sides of prothorax not incised.....	TELEPHORUS .
Head short and broad, sides of prothorax (♂) nicked at the middle.	POLEMIUS .
4.—Sides of prothorax (♂) incised at the middle and behind, antennæ (♂) strongly serrate.....	DITEMNUS .

One species of the last named genus has recently occurred in California; with the exception of *Polemius*, they are therefore represented on both sides of the continent.

TELEPHORUS DeGeer.

The numerous species of this genus present at times sexual differences in the form of the prothorax and the tarsal claws, which render the distinction of species somewhat uncertain. They are likewise of variable color and soft texture, so that in dried specimens the form cannot be accurately defined. The present table may therefore be considered, while an improvement upon the crude work of my first synopsis,† only as a guide to observations in which by a good series of specimens being collected from the same locality and tree, the limits of variation may be more accurately determined.

The species in our fauna may be divided into the following groups:

Claws similar, all being toothed or cleft.....	2.
Claws dissimilar, some being usually simple.....	3.
Claws simple or slightly broader at base.....	4.
2.—All the claws appendiculate or broadly toothed.....	A .
All the claws cleft or acutely toothed.....	B .
3.—Claws of front tarsi cleft, of middle and hind tarsi broadly toothed.....	C .
Anterior claw of all the tarsi toothed at base, entire at tip.....	D .
Anterior claw of all the tarsi toothed at base, cleft at tip, elytra sparsely tuberculate.....	E .
4.—Elytra tuberculate as in E.....	F .
Elytra finely scabrous.....	G .

* Classification, 189.

† Proc. Acad. Nat. Sci. 1851, 339.

A.

- Prothorax wider than long, but little rounded in front, and almost truncate; last joint of maxillary palpi dilated, triangular, inner angle well defined.....2.
- Prothorax quadrate, but little rounded in front, and almost truncate; last joint of maxillary palpi elongate triangular, inner angle indistinct.....3.
- 2.—Dusky black, pruinose with gray pubescence; mouth and side margins of ventral segments testaceous; head and elytra very densely punctured; prothorax twice as wide as long, coarsely punctured, testaceous with an angulated piceous transverse spot; impressed dorsal line distinct. Length 8—9 mm.; N. Y.; Tex.....1. **dentiger** Lec.
- a.—Side margin of elytra pale.
- 3.—Black, prothorax nearly smooth, narrowed in front, sides straight, margined, excavated about the middle, fulvous, with a dorsal black stripe; head densely finely punctured. ♀, prothorax wider and less excavated at the sides than in ♂. Length 5—5.5 mm.; N. Y.; Ill.; Fla.....2. **excavatus** Lec.
- a.—Side margin of elytra pale; tibiae and tarsi sometimes testaceous; *marginellus* Lec.
- β.—Prothorax yellow, without dorsal stripe.
- Prothorax slightly broader than long, yellow, with narrow dorsal black stripe, sides straight, more finely margined, only slightly explanate in front of the middle; head opaque, prothorax alutaceous; black, base of antennae, palpi and part of legs testaceous; ♀. Length 4 mm.; N. Y.....3. **vilis** Lec.
- Head opaque, finely punctured; black, anterior half of head, mouth organs, base of antennae and legs yellow; prothorax a little wider than long, sides nearly straight, narrowly margined, more strongly in front of middle, sparsely finely punctulate, yellow, with a narrow black dorsal stripe; ♀. Ill.: one specimen, (Bolter).....4. **pusio** n. sp.
- Head shining, sparsely punctulate; prothorax ♂ as in *excavatus*; side margin of elytra, front half of head, base of antennae and legs yellow; ♀. Prothorax a little wider than long, less excavated at the sides, and not impressed behind the middle. Length 5—5.5 mm.; Ill., (B. D. Walsh)....5. **Walshii** n. sp.
- Black, mandibles and base of antennae usually pale, tibiae and tarsi tinged with testaceous, head punctulate, prothorax smooth, a little wider than long. Length 5—5.5 mm.; L. Sup.; Col.; Cal.; Alaska.....6. **fraxini** Say.

B.

- Moderate sized or small species, prothorax not elongate.....2.
- Small species, prothorax longer than wide7.
- Larger, black, prothorax pale, broader than long, shining, with a large black discoidal spot; head sparsely punctulate, shining, anterior half and under side of first three antennal joints pale; palpi piceous, last joint dilated, strongly triangular; tarsi broad; ♂ tarsi broader than in ♀. Length 9—10 mm.; Can.; L. Sup.; Ill.; Penna.....7. **carolinus** Fabr.
- a.—The black parts are brown, *jaclatus* Say; Ks.
- 2.—Elytra more finely or sparsely rugose-punctured.....3.
- Elytra more coarsely and densely rugose-punctured; black, prothorax yellow with a wide dorsal stripe black, wider than long, side margin strongly reflexed, equally wide for the whole length; mouth sometimes piceo-testaceous. Length 3.5—6 mm.; Atlantic region; Can.; Tex.; Fla.; N. Y.
8. **lineola** Fabr.
- a.—Black stripe of prothorax wider, angulated at the sides; *angulatus* Say.

- 3.—Legs black, piceous or testaceous.....4.
 Legs bright yellow.....5.
- 4.—Entirely black, side margin of prothorax very narrow about the middle.
 Very similar to *fraxini*, but differs in the form of the claws and in the prothoracic margin; it is the analogue of the European *atra* Linn. Length 5 mm.; Il. B. Terr.; Anticosti.....9. **nigritulus** n. sp.
 Prothorax yellow, with a broad dorsal black stripe, side margin rather strongly reflexed; legs piceous or testaceous. Length 4.5—6 mm.; Can.; Ill.; Fla. Penn.; L. Sup.....10. **rectus** Mels.
a.—Prothorax yellow, without dorsal stripe.
β.—Elytra with entire margin pale.
 Black, only the sides of the prothorax yellow; prothorax wider than long, disc not excavated each side near the margin, sides nearly uniformly rather strongly margined; elytra more coarsely and sparsely rugose; claws with a strong acute tooth; antennæ half as long as the body; ♀. Length 3 mm.; Detroit..... 11. **nanulus** n. sp.
- 5.—Piceous, mouth, prothorax, margins of elytra and legs yellow; antennæ long and slender.....6.
 Antennæ stouter; prothorax with a black cloud, wider than long, disc very feebly excavated each side in front of the middle; side margin nearly uniform in width; tibiæ and tarsi dusky. Length 6.5 mm.; Ga.; one specimen.....12. **cruralis** Lee.
 Black, mouth, base of antennæ, legs and prothorax orange-yellow, the latter with a black dorsal line, wider than long, disc broadly concave each side in front of the middle, side margin strongly reflexed, nearly uniform in width; antennæ rather stout, but little shorter than the body, second joint one-third as long as the third. ♀ antennæ two-thirds as long as the body, second joint nearly half as long as the third. Length 6 mm.; Ill.; Ks.
 13. **flavipes** Lee.
a.—Prothorax entirely orange-yellow; *dichrous* Lee.; perhaps a distinct species; Ks.; Tex.
- 6.—Prothorax wider than long, disc broadly concave each side in front of the middle, side margin of nearly uniform width, strongly reflexed; disc with or without a piceous cloud. Length 3.5—7 mm.; Atlantic region.
 14. **scitulus** Say.
a.—Pale yellow above, elytral stripe wanting, *nigriceps* Lee.
 Prothorax not wider than long, disc more strongly concave each side before the middle, sides subsinuate, margin strongly reflexed, narrower for a short distance behind the middle; elytra with pale margin narrower. The type specimens of this species are pale yellow, but the form of the prothorax sufficiently distinguishes it from *scitulus* and is quite characteristic. Length 4—6 mm.; Va.; Ga..... 15. **pusillus** Lee.
 More robust, prothorax entirely yellow, one-half wider than long, sides rounded, margin reflexed, of nearly uniform width; (approaches in form a ♀ *Silis*); antennæ piceous, base testaceous. Length 5 mm.; Ks.; Ill.; Mich.; Ga..... 16. **luteicollis** Germ.
- 7.—Black; prothorax reddish-yellow, longer than wide, scarcely narrowed from the base to the tip, sides subsinuate, margin reflexed, narrow; antennæ long, slender, but little shorter than the body, entirely black, second joint

one-half as long as the third; claws slender, more acutely cleft than usual. Length 6 mm.; Col., La Veta: (Schwarz); one ♂.....17. **ruficollis** n. sp. Yellow, antennæ (except base of first joint), elytral vitta, apical part of thighs, tibiæ and tarsi black; prothorax longer than wide, slightly narrowed in front, sides subsinuate, margin narrower behind the middle; antennæ two-thirds as long as the body, second joint one-half as long as the third. Length 7 mm.; Fla.; Ga.....18. **longulus** Lec. This species resembles in appearance some of the varieties of *pusillus*, but is easily recognized by the longer prothorax.
 a.—Pale yellow, antennæ (except at base), and tarsi dusky.

C.

This division is represented in our fauna by but a single species not unlike *flavipes* in appearance, but differing by the antennæ and legs being entirely black, and by the form of the claws. Those of the front pair are cleft or acutely toothed, while those of the middle and hind legs are squarely appendiculate. Otherwise there is nothing remarkable about the species.

Black, antennæ about one-half as long as the body, a little longer in ♂, second joint one-half as long as third, entirely black. Prothorax yellow, sometimes with a narrow black dorsal line, wider than long, sides straight, sides nearly uniformly-margined. Elytra rather densely granulato-rugose. Length 4.5 mm.; Texas; (Belgrave).....19. **impar** n. sp.

D.

These species occur on both sides of the continent, and among them are the largest in our fauna.

- Eyes large and prominent, prothorax not or but little wider than long, fourth tarsal joint deeply bilobed, broadly and deeply concave each side in front of the middle, margin very narrow near the base; elytra finely granulato-rugose, and sparsely punctured and subtuberculate.....2.
- Eyes smaller, not prominent, prothorax transverse, sides more broadly margined.....3.
- 2.—Prothorax slightly wider than long (♀) or longer than wide (♂); yellow-brown, head and prothorax more yellow, antennæ piceous, yellow at base; knees, tibiæ and tarsi piceous; ventral segments sometimes dusky; ♂ with the inner angle of hind tibiæ not produced. Length 12—19 mm.; Cal., S. Diego, Kern Co.....20. **consors** Lec. Similar to the preceding but smaller, prothorax ♀ not wider than long; yellow, elytra and ventral segments often piceous, epipleuræ yellow; ♂ with inner angle of hind tibiæ spiniform. Length 12—14 mm.; L. S.; N. H.; Va.; Ill.....21. **rotundicollis** Say. Very similar to *rotundicollis*, but the elytra are uniform grayish-piceous, epipleuræ not yellow; ventral segments piceous, last one yellow; legs tinged with dusky; ♂ with tip of hind tibiæ not produced. Length 10 mm.; H. B. Terr.; L. Sup.; B. Col.....22. **Curtisii** Kirby.
- 3.—Ventral segments ferruginous.....4.
 Ventral segments black, sides and apex yellow.....5.
 Ventral segments black.....6.

4. —Head and prothorax entirely yellow; antennæ with two basal joints yellow. Length 9 mm.; Cal.23. **transmarinus** Motsch.
 Head and prothorax yellow, the former black behind the eyes; antennæ with two basal joints yellow. Length 8 mm.; Cal.....24. **grandicollis** Lec.
 Head black, with the mouth and front yellow; antennæ entirely black; prothorax yellow with a large black anterior spot. Length 8 mm.; N. Mex.; Col25. **fidelis** Lec.
a.—Head black, sides of front testaceous.
- 5.—Mouth and prothorax yellow; the latter with a black dorsal stripe wider at the front margin, abbreviated behind, not attaining the base; antennæ entirely black. Length 6—9 mm.; Or.; B. Col.....26. **oregonus** Lec.
a.—Prothoracic black stripe reduced to a discoidal spot; *scopus* Lec.
β.—Prothorax entirely yellow, basal joints of antennæ yellow beneath; (♀).
 This form resembles *grandicollis*, and differs chiefly by the ventral segments not being entirely ferruginous or yellow.
- 6.—Mouth and prothorax yellow, the latter with a broad black dorsal stripe; ♀ with the prothorax wider than in the ♂, and antennæ half as long as the body; ♂ antennæ two-thirds as long as the body, stouter, subserrate. Length 5—7 mm.; Can.; Pa.; Ky.; L. Sup.; *armiger* Couper
 27. **impressus** Lec.
 The individuals with wide prothoracic vitta, especially the ♂ ♂ resemble *lineola*, but are at once recognized by the form of the claws; it varies as follows:
a.—Prothoracic stripe narrow, wider along the basal and apical margins; *tuberculatus* Lec.
β.—Prothorax entirely yellow; *collaris* Lec.
- 7.—Black, prothorax moderately margined, yellow, with two large black spots, mouth testaceous. Length 7 mm.; Col., Garland; Wy., Como.
 28. **alticola** n. sp.
 Ferruginous, transverse band of head, two large prothoracic spots, knees, tibiæ, tarsi and elytra black, the latter with side margin yellow, metathorax dusky, antennæ black, first joint pale beneath; prothorax very widely margined, sparsely punctured. Length 6—7 mm.; Atlantic region; Ks.
 29. **bilineatus** Say.
a.—Head and first joint of antennæ ferruginous.

E.

- Black, mouth testaceous; prothorax yellow, with two large discoidal black spots connected on the median line. Length 6—8 mm.; Cal...30. **divisus** Lec.
 Ferruginous, head behind the eyes, large prothoracic spot and elytra blackish; trunk and ventral segments dusky. Length 6—7 mm.; Cal.
 31. **notatus** Mann.
a.—Yellow, elytra and prothoracic spot dusky; *larvalis* Lec.
- Black, head in front of the eyes, prothorax, sides and apex of abdomen yellow. Length 7—10 mm.; Cal.....32. **lautus** Lec.
 Similar to *lautus*, but legs also ferruginous. Length 9 mm.; Cal., San Diego; (Bolter).....33. **ochropus** n. sp.

F.

The basal dilatation of the claws is more distinct in ♂ than ♀, and both of the front claws seem to be cleft in that sex.

Black; head in front of the eyes dull reddish; palpi and antennæ black. Prothorax longer than wide, polished, shining, rufo-testaceous, disc broadly concave before the middle at the sides, side margin behind the middle not reflexed, posterior callosities rather prominent. Elytra with feeble elevated lines, rugosely punctured and sparsely tuberculate; claws slender, simple, anterior one of the middle and hind tarsi feebly dilated at base; ♂ ♀: ♂ front tarsi with first joint longer and broadly dilated. Length 9 mm.; Nev.34. **ingenuus** n. sp.

G.

A single species represents this group in our fauna. It resembles in form *impressus*, but is easily recognized by the color, and by the claws.

Piceous black, front part of head testaceous, prothorax wider than long, side margin wide, disc pale, with a broad black dorsal stripe dilated before and behind the middle; there a large rounded elevation each side in the pale part in front of the middle, the posterior elevations are small, rather prominent, and situated in the black stripe; elytra finely scabrous, margin pale; antennæ longer in ♂ than ♀, piceous, testaceous at base; claws slender, not toothed nor cleft; ♂ ♀. Length 5 mm.; Ga.; Fla.; (Bolter).....35. **marginellus** Lec.

POLEMIVS Lec.

This genus is intermediate between *Telephorus* and *Silis*, and is sufficiently defined by the characters given in the table. The species are but few, and none have yet been observed in the Pacific region, nor have any been indicated from other districts.

- Prothorax with front angles obtuse, but obvious.....2.
- Prothorax with the apical margin rounded into the sides without angles; disc nearly flat, smooth, without impressions, side margin obliquely and feebly interrupted at the middle, inflexed flanks deeply transversely impressed; black, prothorax, and sometimes the humeri yellow; the former occasionally marked with a dusky dorsal line; antennæ feebly serrate, three-fourths as long as the body in ♂, somewhat shorter in ♀. Length 7—9 mm.; Tex.; N. Mex.....1. **planicollis** Lec.
- 2.—Prothorax nicked in front of the middle, side margin very narrow near the tip3.
- Prothorax transverse, widely margined, nicked about the middle.....4.
- 3.—Black, prothorax with a narrow fulvous margin, humeri often fulvous; disc of prothorax transversely impressed each side near the margin, which is narrowly reflexed and acutely interrupted in front of the middle; elytra densely scabrous with distinct elevated lines; ♂ antennæ long, strongly serrate: ♀ antennæ shorter, less serrate, prothorax wider and more strongly margined. Length 6—7 mm.; Pa.; Ill.; Fla.; Tex....2. **laticornis** Say.
- a.—Prothorax rather narrower, elytra less coarsely scabrous; *incisus* Lec.
- Very similar to *laticornis*, but the prothorax is pale tinged with rose, with a dorsal dark vitta wider behind; the sides are more broadly margined; elytra densely scabrous. Length 7 mm.; Pa.; Ga.; Tex.....3. **repaudus** n. sp.
- a.—Prothoracic vitta indistinct; elytra with margins pale ♀.
- Type*.—Prothorax wider with the sides subbisinate; antennæ shorter.

- 4.—Black or piceous; prothorax transverse, not narrowed in front, side margin of nearly uniform width, nicked about the middle; ferruginous or yellow, with a black dorsal line: elytra densely scabrous, with pale margins. ♀ prothorax bisinuate on the sides, antennæ shorter than in the ♂. Length 3.5—5 mm.; Pa.; Fla.; Tex.4. **limbatus** Lec.
a.—Prothorax without dorsal vitta.
β.—Elytral pale margin obsolete.

SILIS Charp.

The table of species given by me,* requires modification to permit the introduction of several new species, which have since been collected. To avoid the inconvenience of referring to the previous volume, I have changed its form as follows: † the characters being taken from the ♂ ♂.

Base of prothorax broadly rounded, not lobed, sides excavated into a deep round cavity near the base; both angles of the excavation acute, ante-basal appendage acute, spiniform.....**A.**

Base of prothorax lobed, excavation of hind angles partly basal, angles therefore not very distinct though acute, anterior margin of excavation sinuate with two prominent but rounded angles; ante-basal appendage acute, spiniform, directed acutely backwards.....**B.**

Base of prothorax lobed, deeply foveate inside of the hind angles which are therefore more prominent and acute; incisure near the base moderately deep, with the anterior angle rounded: ante-basal process compressed, rounded at tip.....**C.**

Base of prothorax not lobed, broadly reflexed; excavation entirely lateral, anterior angle of incisure nearly rectangular, hind angle long, acute, produced into a slender filament which is bent forwards.**D.**

Base of prothorax not lobed, posterior process of incisure not ante-basal, as in the preceding groups of species, but proceeding from the base itself, by an extension of the hind angles; this process, as well as the anterior one is compressed and obtuse at tip.....**E.**

A.

Yellow testaceous, head, antennæ and legs more or less dusky; ♀ prothorax very transverse, rounded on the sides which are feebly sinuate near the base, much narrowed in front, ♂ ♀. Length 7 mm.; Or.....1. **spinigera** Lec.

Black, prothorax bright reddish yellow, formed as in *spinigera*, from which it differs chiefly by color and more slender body; (perhaps the fully developed form of that species). Length 7 mm.; Atlanta, Id., (Allgewahr); Garland, Col., (Schwarz).....2. **munifa** n. sp.

*Trans. Am. Ent. Soc. 1874, 60.

† It must be noticed that in this genus, as in several others in Coleoptera, the specific characters are exhibited chiefly in the ♂; in not a small number of instances in such genera the ♀ ♀ of different species are as yet undistinguishable. Some of the sexual characters in this genus seem to have escaped the attention of European observers. The anterior claw of the front tarsi, namely, of the ♀ is more or less toothed at base, and the inflexed flank of the prothorax at the first quarter of its length with a fine transverse line, which runs to the side margin, and represents the nick already mentioned as occurring in both sexes of *Polemius*. The penultimate ventral segment is cleft to the base in the ♂, exposing the whole length of the eighth segment.

B.

- Basal excavations of prothorax moderate; color black, prothorax yellow. ♂ ♀.
Length 5 mm.; L. Sup.; H. B. Terr.; N. Mex.....3. **difficilis** Lec.
- Basal excavations of prothorax larger; prothorax and elytra pale yellow. ♂ ♀.
Length 6 mm.; Cal.; Nev.....4. **flavida** Lec.

C.

- Basal impressions of prothorax very deep, hind angles strongly carinated; upper surface pale yellow.....2.
- Basal impressions of prothorax much smaller, hind angles feebly carinated; black, prothorax more or less yellow.....3.
- 2.—Incisure of hind angles of prothorax deep, appendage straight. Length 5 mm.; Or.....5. **cava** Lec.
Incisure of hind angles broad, appendage curved. Length 6 mm.
6. **pallida** Mann.
- 3.—Incisure of hind angles deep, appendage long. Length 5 mm.; Can.; Mich.
7. **percomis** Say.
Incisure of hind angles shallow, appendage short. Length 6 mm.; Or.
8. **vulnerata** Lec.

D.

- Elytra and prothorax pale, the latter sometimes with a black dorsal vitta. Length 5—6 mm.; Cal.....9. **lutea** Lec.
- Black, prothorax yellow, sometimes with a black dorsal vitta. Length 3.6 mm.; Cal.....10. **filigera** Lec.

E.

- Prothorax strongly margined, but not lobed at base; both processes narrow, parallel, directed outwards; black, prothorax reddish-yellow, basal margin blackish. Length 4.5 mm.; Ill.11. **spatulata** n. sp.
♂ antennæ nearly as long as the body, joints 3—10 about four times longer than wide, slightly broader at tip, therefore subserrate.
♀ antennæ one-half as long as the body, not serrate.
- Prothorax broadly truncate at the middle of the base, then sinuate near the angles, which are produced into a large triangular plate; the posterior margin of this plate is directed outwards, and the anterior margin outwards and backwards; the anterior process of the incisure is directed obliquely outwards and backwards; it is truncate at tip, and overlaps the basal process, so as to produce the appearance of a perforation; color ferruginous yellow, antennæ, palpi, legs and elytra black, the last with pruinose pubescence; head black, front reddish. Length 6 mm.; Texas, (Beltrage).
12. **perforata** n. sp.
♂ antennæ three-fourths as long as the body, scarcely subserrate.
♀ unknown.

DITEMNUS Lec.

This genus differs from *Silis* chiefly by the much wider antennæ, and the sides of prothorax lobed in such manner as to present two incisures; one near the tip formed by the thickened apical margin, the other near the base, between the two processes, which are obtuse, compressed and directed outwards. Besides this the base is (in the typical species *bidentatus*), acutely nicked at the inner end of the posterior or basal process;

the base is strongly margined and the disc deeply excavated. In the ♂ the antennæ are longer and serrate; the seventh ventral is cleft to the base, with the eighth narrow and visible for its whole length. The Brazilian *Pachymesia* Westw., seems to be allied to this genus.

Black, pruinose with gray pubescence, prothorax yellow, apical lobe of sides well defined, middle lobe narrow, prominent horizontally, hind lobe straight, equally prominent. Length 3.5 mm.: Pa.: Ga.....1. **bidentatus** Say.

Black, prothorax red, anterior margin much less reflexed, and apical side lobe therefore indistinct; middle lobe wide, with its posterior margin straight, and anterior margin convexly curved, hind lobe bent slightly forwards: disc deeply and widely excavated. Length 5 mm.: Cala.....2. † **btus** Lec.

Black, pubescent with gray hair, prothorax and side margin of elytra yellow, the former with a very deep discoidal fossa, the apical side lobe indistinct, middle one broad, prominent, with the anterior margin convexly curved, posterior margin straight; hind lobe long, compressed, well separated from the base, emarginate at tip and unguiculate: base truncate, very strongly margined; ♀. Length 4.5 mm.: Tex.; Ariz.: Dr. Horn.3. **fossiger** n. sp.

Group 3.—*Malthini*.

The species of this group are of small size and weak structure, remarkable chiefly for the short elytra, which leaves the wings partly exposed and folded along the dorsal surface of the abdomen. I have modified the group as exposed by me in Classification Col. N. Am., by removing *Tytthonyx* which seems to have no relation to the other genera and to resemble them superficially merely by the abbreviated elytra.

The wealth of variation in sexual characters is greater in this group than in almost any other in Coleoptera. In *Ichthyurus* it affects the middle legs of the ♂, and in *Malthodes* the last abdominal segments of both sexes, and the forms of the claspers are quite as complex as those represented by Baron R. Osten Sacken in the Tipulidæ, with short palpi, Proc. Acad. Nat. Sc. Phila. 1859, pl. 3 & 4. The species are probably numerous but have not yet received much attention from collectors. The European species, which run somewhat parallel with ours, have been excellently illustrated by the late Dr. H. von Kiesenwetter, Linn. Ent. vii, pl. 2.

Palpi with the last joint elongate, securiform: metathoracic episterna wide in front, strongly triangular.....2.

Palpi with the last joint oval pointed; metathoracic episterna narrow; claws simple.....3.

2.—Claws appendiculate; mandibles toothed.....**TRYPHERUS** Lec.
Claws simple.....**LOBETUS** Kw.

3.—Mandibles toothed, head wide, narrowed behind.....**MALTHINUS** Latr.
Mandibles simple, head not narrowed behind.....**MALTHODES** Kw.

TRYPHERUS Lec.

By the kindness of Prof. Westwood, who presented me with a specimen of his very singular *Ichthyurus discoidalis*, I have been enabled to

make a satisfactory comparison between it and *Tryptherus* Lec. (*Lygerus* Kiesenw.), which is somewhat unfavorable to the retention of the latter as a distinct genus, though in the present condition of nomenclature it cannot be properly suppressed. The enormous inflation of the middle thighs of the ♂ in *I. discoidalis*, the extremely prolonged spiniform trochanters, and the very short tibiæ of the same pair of legs would lead one on superficial inspection to regard the two insects as distinct generic types. But I find that in the ♂ of *T. latipennis* the middle trochanters are larger than in the ♀, pointed at the end and angulated or even toothed near the base; the middle thighs are also decidedly thicker than in the ♀, though there is no difference in the tibiæ. The last abdominal segments are similarly modified in the two species, though much more strongly so in the Oriental than in the American species. In the former the last dorsal is emarginate or bilobed, and is moreover deeply excavated beneath; the seventh ventral is truncate behind, and the eighth narrower and much smaller. In *T. latipennis* the last dorsal is only broadly emarginate, and there is a small anal segment; the seventh ventral is deeply emarginate, the eighth is more complex in arrangement with some small processes, which are difficult to describe, and as there is but one species, quite unimportant for the recognition of the same. The eyes in both genera are large and prominent in the ♂.

Piceous, more or less varied with testaceous, elytra nearly twice as long as the prothorax, rugosely punctured, tips rounded, testaceous; antennæ one-half as long as the body, slender, dusky, testaceous at base, third joint equal to the second, a little shorter than the fourth; ♀ with last dorsal segment trilobed at tip; last ventral oblique and subsinuate each side, prolonged at the middle. Length 7 mm.; Pa.; Va.; Ga..... **latipennis** Germ.

LOBETUS Kiesenw.

The species referred by me to this genus differs from the South American *torticollis* in having the ♂ antennæ in no respect distorted or different from those of the ♀, but this is a character of merely specific value. The hind legs of the ♂ are longer than in the ♀, slender, the thighs and tibiæ somewhat curved. The penultimate ventral segment in the ♂ is broadly emarginate, and the last one is oval, large and convex, very much as in *Chaulioognathus*. The antennæ are inserted between and near to the eyes, which are moderate in both sexes.

Black, prothorax, tip of elytra and abdomen (except the last two dorsal and ventral segments), ferruginous; ♀ penultimate dorsal segment broadly emarginate, last one small, triangular, obtusely rounded; penultimate ventral nicked at tip, last one small, exposed. Length 2.5—4 mm.; Ga.; Fla.; Tex.

abdominalis Lec

MALTHINUS Latr.

The head is large in this genus, narrowed behind the eyes as in *Podabrus*, which it obviously represents in this group; the antennæ slender, with the second joint not shorter than the following ones, somewhat distant from the eyes, which are lateral and moderately prominent. Last joint of palpi oval, acutely pointed at tip. Elytra three-fourths as long as the abdomen, punctured in rows in our species. Last dorsal segment of ♂ not lobed but rounded; penultimate ventral emarginate, last ventral oval, large and convex, as in *Chauliognathus*; ♀ with last ventral emarginate at tip.

Piceous, prothorax smooth and scutell ferruginous, elytra entirely black, anterior half of head, base of antennæ and front legs yellow. Length 3 mm.; Tex.: (Belgrave).....1. **atripennis** n. sp.

Piceous or testaceous, prothorax punctured, sides of prothorax and tip of elytra yellow. Length 3 mm.; Va.: Ga.....2. **occipitalis** Lec.

The paler specimens are *difficilis* Lec.; this species is very closely allied to, and perhaps not different from the European *fasciatus*.

MALTHODES Kiesenw.

As above mentioned, the insects of this genus have not been very thoroughly collected, and from the meagre contents of the collections of Dr. Horn and myself, not exceeding ninety examples, I have constructed the following table of the species which seem to be indicated in our fauna. The characters are derived from the ♂ ♂.

Last abdominal segments normal in both sexes.....A.
 Last abdominal segments ♂ inflated and variously modifiedB.
 Last abdominal segments ♂ with long complex processes.....C.

A.

Piceous tinged with testaceous, prothorax nearly twice as wide as long, sides finely margined, more strongly so near and at the sides of the base; elytra two-thirds the length of the wings; ♂ head wider than prothorax, eyes small, prominent, antennæ extending behind the elytra, as long as the wings, second joint equal to third, penultimate ventral segment emarginate, last segment triangular, rounded at tip. Length 2—3 mm.; Pa.: Ga..... L. **spado** Lec.

B.

Piceous head blackish; prothorax twice as wide as long, sides parallel and strongly margined, subsinuate and wider at the front angles which are rounded; elytra three-fourths as long as the wings; ♂ head wider than the prothorax, eyes moderately large, prominent, antennæ extending to tip of elytra, second joint equal to third, penultimate ventral segment large and more convex, emarginate, last segment prominent, obtusely rounded at tip, accessory processes short, neither slender nor prominent. Length 3 mm.; Cal.....2. **laticollis** Lec.

Of the same color as the preceding, antennæ and abdomen sometimes partly testaceous; prothorax one-half wider than long, sides narrowly margined, concavely transversely impressed near the front angles which are rounded; elytra two-thirds as long as the wings; ♂ head wider than prothorax, eyes very large,

convex, prominent, antennæ rather stout, extending behind the elytra, as long as the wings, second joint equal to third: penultimate ventral segment convex, inflated, larger in fact than the head, embracing the penultimate dorsal on the sides, emarginate behind, and deeply and broadly excavated; lateral lobes broad, large, triangular; last ventral elongate, broad at base, then produced as a narrow obliquely ascending process slightly nicked at tip; penultimate dorsal large, last dorsal transverse, broadly emarginate, fringed behind, concave beneath: accessory processes not seen. Length 2—3 mm.; N. H.; Mass.; Pa.....3. **concavus** Lec.

C.

Last dorsal segments not prolonged..... 2.

Last dorsal segments prolonged.....5.

2.—Last ventral segment narrow, prolonged, cleft or nicked at tip3.

Last ventral segment wider, parallel.....4.

Last ventral slender forked, slender, piceous, base of antennæ, narrow bead of prothorax and base of antennæ testaceous; prothorax smooth, a little wider than long, very narrowly margined, anterior and posterior angles impressed; antennæ ♂ nearly as long, ♀ about one-half as long as the body, second joint two-thirds as long as third; ♂ last dorsal segment obtusely rounded without processes, seventh ventral prolonged into a very slender process, which is strongly curved, and deeply forked with diverging processes at the tip. Length 3 mm.; Va.; Deer Park.....11. **captiosus** n. sp.

3.—Last ventral ♂ straight, margined each side, narrower towards the tip, which is acutely nicked. Piceous, prothorax tinged with testaceous, transverse, finely margined, front angles obliquely truncate; antennæ ♂ two-thirds, ♀ one-half as long as the body, with fourth and following joints longer than the second or third. Length 2—3 mm.; Pa.; Va.; Ga.; Cal.

4. **fragilis** Lec.

Very similar to *fragilis* but the prothorax, front legs, and base of the antennæ are yellow, ♂ last ventral is narrower, prolonged, channeled, and acutely emarginate at tip. Length 2.5—3 mm.; Pa.; Md.....5. **exilis** Mels.

Last ventral ♂ bent in a sinuate manner obliquely upwards, and more deeply nicked at tip than in *fragilis*, prothorax transverse, finely margined, tinged with testaceous; head black, eyes large, prominent, antennæ long, slender, fourth and following joints longer than second or third, ♂ two-thirds, ♀ one-half as long as the body. Length 3 mm.; Cal.....6. **fuscus** Lec.

a.—Prothorax yellow testaceous. ♀.

Last ventral ♂ stouter, straight, scarcely nicked at tip; testaceous, head black, eyes moderately large, prothorax transverse, finely margined, elytra piceous at tip; antennæ stout, piceous, with first and second joints testaceous, third joint not shorter than fourth, in ♂ nearly as long, in ♀ about two-thirds as long as the body. Length 2—3 mm.; Va.; Ga.....7. **rectus** n. sp.

4.—Last ventral ♂ large, parallel, curved upwards, channeled for its whole length, deeply emarginate or rather forked at tip; last dorsal with two short acute processes; accessory processes slender but small; piceous, head black, prothorax rufo-piceous, legs testaceous, the former a little wider than long, side margin very narrow, front angles impressed; antennæ rather stout, as long as the elytra, third joint not shorter than fourth (♂). Length 3 mm.; Ill.; one ♂.....8. **curvatus** n. sp.

Similar to *curvatus*, but the last ventral is testaceous and narrower, with the fork more slender, penultimate ventral deeply emarginate; penultimate

dorsal with lateral deflexed processes; black, eyes large, antennæ as long as elytra, third joint scarcely shorter than fourth; prothorax strongly margined and transversely impressed. Length 2—3 mm.; Col., Veta Pass.

9. **furcifer** n. sp.

5.—Last dorsal prolonged, received in the fork of the greatly prolonged last ventral.....6.

Last dorsal with two long slender processes, receiving between them the elongate last ventral; the latter curved upwards in the arc of a circle, not cleft at the tip, but obliquely flattened (or beveled) on the under side, and pubescent; accessory processes slender, long, spiniform, directed obliquely downwards and backwards, nearer the median line are two other stout processes directed backwards and between them a small furcate object, which is perhaps the intramittent organ. Length 3 mm.; Md.; one pair, (Zimmermann).....10. **arcifer** n. sp.

6.—Last ventral ♂ large, broadly channeled, curved upwards in the arc of a circle, furcate at tip, receiving in the fork the last dorsal which is narrow and nicked at tip; accessory processes not developed; penultimate dorsal normal in form. Piccous, head blackish, eyes large, antennæ longer than elytra, first joint testaceous, third scarcely shorter than fourth; prothorax one-half wider than long, narrowly margined, tinged with testaceous. Length 2.5—3.5 mm.; L. Superior, and N. H.....12. **fuliginosus** Lec.

Last ventral testaceous, immensely long, narrow, bent sigmoidly upwards, dilated into a broad and large deflexed terminal fork, which receives the narrow deflexed last dorsal; penultimate ventral broadly emarginate; penultimate dorsal greatly elongated, concave beneath, with a large lateral deflexed marginal tooth near the hinder end. Black, eyes moderately large, antennæ stout, as long as the elytra, third joint a little longer than second, shorter than fourth; prothorax twice as wide as long, strongly margined. Length 3 mm.; L. Super.; N. H., Mt. Washington.....13. **niger** Lec.

*Unclassified females.**

Head black, convex, densely punctulate, eyes small; antennæ slender, extending to end of elytra piccous, joints 2—4 nearly equal, first joint yellow. Prothorax bright yellow, not wider than long, transversely convex, sides narrowly margined, front angles obliquely truncate. Scutel and elytra piccous, finely rugosely punctured as usual, half as long as the abdomen; abdomen yellow with last two dorsal and ventral segments black; metasternum dusky, legs yellow, partly dusky. Length 4 mm.; Middle States; one ♀.....14. **analis** n. sp.

Dusky, prothorax fusco-testaceous, one-half wider than long, sides parallel, strongly margined; head densely punctulate, darker piccous, occiput feebly channeled, eyes small, antennæ stout reaching to the middle of the elytra, joints 2—4 nearly equal. Elytra nearly as long as the abdomen, three-fourths as long as the wings, finely rugosely punctured. Differs from *fragilis* by sides of prothorax straighter and angles better defined. Length 2.5 mm.; Va.; one ♀.

15. **congruus** n. sp.

* The specimens mentioned under this head cannot be properly apportioned to the ♂♂ which are tabulated. Therefore when any ♂ forms are collected, which do not find their place as above stated, it will be prudent for the collector to ascertain if they may not with some probability be referred to the species indicated under this head.

Dusky, head blackish, larger, wider than prothorax, densely punctulate, eyes larger and more prominent; prothorax not wider than long, dull yellow, sides parallel, strongly margined, broadly impressed near the front angles, antennæ rather stout, extending beyond the middle of the elytra, first joint testaceous, 2—4 nearly equal. Elytra two-thirds as long as the wings, rugosely punctured. Differs from *fragilis* and *exilis* by prothorax not wider than long. Length 2.5 mm.; Lake Superior; one ♀16. **quadricollis** n. sp.

Much smaller, pale inclining to dusky; head piceous, not wider than prothorax, punctulate, eyes moderately large, antennæ stout, extending to middle of elytra, black or piceous, first joint pale, second joint a trifle longer than third, outer joints not much longer than wide. Prothorax wider than long, sides strongly margined, front angles obliquely truncate, more reflexed and prominent than usual. Elytra two-thirds as long as the wings, rugosely punctured. Length 1 mm.; L. Super. and Mass.....17. **parvulus** Lec.

Bibliography and Synonymy.

Sub-family I.—*Lycidæ*.

LYCUS Fabr.

1. **L. cruentus** Lec., Proc. Acad. Nat. Sc. Phila. 1861, 336.*

LYCOSTOMUS Motsch.

1. **L. lateralis** Mels., (*Lycus*), Proc. Acad. Nat. Sc. Phila. ii, 302; Lec. Journ. Acad. Nat. Sc. Phila. 2d. ser. i, 73.
2. **L. fulvellus** n. sp. ante, 18.

RHYNCHEROS Lec. n. g.

1. **R. sanguinipennis** Say, (*Lycus*), Journ. Acad. Nat. Sc. Phila. iii, 178; ed. Lec. ii, 116; Say, Am. Ent. ii, pl. 21; ed. Lec. i, 45.

CALOPTERON Guér.

1. **C. megalopteron** Lec., Proc. Acad. Nat. Sc. Phila. 1861, 349.
2. **C. terminale** Say, (*Lycus*), Journ. Acad. Nat. Sc. Phila. iii, 178; ed. Lec. ii, 116; Say, Am. Ent. ii, pl. 21; ed. Lec. i, 44; Lec. loc. cit. i, 75; [Var.] *Digr. divisa* Newm. Ent. Mag. v, 381; Waterh. Types, i, 22, pl. vi, f. 2; form typ. *reticulatum* † Lec. (nec Fabr.) loc. cit. i, 75; *Digr. dorsalis* Newm. Ent. Mag. v, 386; Waterh. loc. cit. i, 22, pl. vi, f. 3; *duplicatum* Hald. Proc. Acad. Nat. Sc. Phila. i, 203.
3. **C. reticulatum** Fabr., (*Lycus*), Syst. Ent. 203; Syst. El. ii, 111; Oliv. Ins. 29, 7, pl. 1, f. 7; Anon. Biol. Centr. Am. Lycidæ, pl. 1, 17; *Digr. typica* Newm. Ent. Mag. v, 380; Lec. loc. cit. i, 21, pl. vi, f. 1; *Digr. discrepans* Newm. Ent. Mag. v, 381; var. *Digr. affinis* Lec. loc. cit. i, 75; var. *Digr. apicalis* Lec. ibid. 75.†

* **L. cruentus** Fabr., Syst. El. 114, from Sumatra is an older homonym of this species, but as it seems to be dropped out of modern bibliography, I do not think it necessary to change at present the name of the species described by me.

† In the table on p. 20 (above) the name *reticulatum* should be changed to *terminale*, and *typicum* to *reticulatum* to correspond with synonymy here given,

4. *C. retiferum* n. sp. ante, 20.
5. *C. tricarinatum* n. sp. ante, 20, 21.

CÆNIA Newm.

1. *C. dimidiata* Fabr., (*Lycus*), Syst. El. ii, 111; Lec. loc. cit. 76; var. *scapularis* Newm. Ent. Mag. v, 381; Waterh. loc. cit. i, 23, pl. vi, f. 6.
2. *C. amplicornis* n. sp. ante, 22.

CELETES Newm.

1. *C. basalis* Lec., loc. cit. 76; Waterh. loc. cit. 23, pl. vi, f. 4; *marginella* † Newm. Ent. Mag. v, 381; var. *mystacina* Lec. loc. cit. 77; var. *tubida* Lec. ibid. 77.

LOPHEROS Lec. n. g.

1. *L. fraternus* Randall, (*Omalisus*), Bost. Journ. Nat. Hist. ii, 15.

EROS Newm.

1. *E. thoracicus* Randall, (*Omalisus*), Bost. Journ. Nat. Hist. ii, 14; *præfectus* Newm. Ent. Mag. v, 382; Waterh. loc. cit. i, 37, pl. ix, f. 6.
2. *E. hamatus* Mann., (*Dictyopterus*), Bull. Mosc. 1843, ii, 245.
3. *E. simplicipes* Mann., (*Dictyopt.*), Bull. Mosc. 1843, ii, 245.
4. *E. lætus* Motsch., (*Dictyoptera*), Schrenck, Amur, 115.
5. *E. coccinatus* Say, (*Omalisus*), Bost. Journ. Nat. Hist. i, 155; ed. Lec. ii, 633.
6. *E. mundus* Say, (*Omalisus*), ibid. i, 155; ed. Lec. ii, 633.
7. *E. sculptilis* Say, (*Omalisus*), ibid. i, 156; ed. Lec. ii, 633; Lec. Journ. Acad. Nat. Sc. Phila. 2d. i, 78; *axillaris* Mels. Proc. ejusd. ii, 302; *oblitus* Newm. Ent. Mag. v, 382; *Erotides obl.* Waterh. loc. cit. i, 38, pl. ix, f. 9.
8. *E. humeralis* Fabr., (*Lycus*), Syst. El. ii, 111; Lec. loc. cit. i, 78, (syn. excl.); *Omal. obliquus* Say, Bost. Journ. Nat. Hist. i, 156; ed. Lec. ii, 634; *incestus* Lec. loc. cit. i, 78; *oblitus* † Lec. ibid. (nec Newm.)
9. *E. trilineatus* Mels., Proc. Acad. Nat. Sc. Phila. ii, 303; Lec. loc. cit. i, 79.
10. *E. crenatus* Germ., (*Omal.*), Ins. Nov. 61; Lap. Hist. Nat. Col. i, 263; Lec. loc. cit. i, 79; *Omal. cruciatus* Randall, Bost. Journ. Nat. Hist. ii, 15.

PLATEROS Bourgeois.

1. *P. timidus* Lec., (*Eros*), loc. cit. i, 80.
2. *P. modestus* Say, (*Lycus*), Bost. Journ. Nat. Hist. i, 153; ed. Lec. ii, 631.
3. *P. canaliculatus* Say, (*Lycus*), ibid. i, 154; ed. Lec. ii, 632; *alatus* Newm. Ent. Mag. v, 382; Waterh. loc. cit. i, 26, pl. viii, f. 4; *Eros socius* Lec. loc. cit. i, 81.
4. *P. sollicitus* Lec., (*Eros*), Journ. Acad. Nat. Sc. Phila. 2d. i, 83; *lascivus* Lec. ibid. i, 83.
5. *P. lictor* Newm., (*Eros*), Ent. Mag. v, 382; Waterh. loc. cit. i, 25, pl. viii, f. 5; *nanus* Mels. (*Dict.*), Proc. Ac. Nat. Sc. Phila. ii, 302; *mollis* Lec. loc. cit. 83; *vilis* Lec. ibid. 83.
6. *P. floralis* Mels., (*Dictyopterus*), Proc. Acad. Nat. Sc. Phila. ii, 302; *minutus* Lec. loc. cit. 82.

Lycus marginellus Fabr., Syst. El. ii, 118, evidently belongs to this genus, but is irre recognizable, and should be dropped from the lists.

which is the best I can give for the variable species in our fauna. Their true relations can only be ascertained by a more profound and careful study of the tropical species with which they are allied, and which seem to have been multiplied in the books without measure and without distinctive characters.

LYGISTOPTERUS Muls.

1. *L. rubripennis* Lec., (*Dictyoptera*), Trans. Amer. Ent. Soc. 1875, 172.

CALOCHROMUS Guér.

1. *C. fervens* n. sp. ante, 28.
2. *C. perfacetus* Say, (*Lycus*), Am. Ent. pl. 21; ed. Lec. i, 46; *Dictyopterus substriatus* Lec. Journ. Acad. Nat. Se. Phila. 2d, i, 74.
3. *C. ruficollis* Lec., (*Dictyoptera*), Trans. Amer. Ent. Soc. 1875, 172.
4. *C. dimidiatus* Lec., (*Dict.*), *ibid.* 172.

Sub-family II.—*Lampyridæ*.Tribe 1.—*Lampyrini*.

MATHETEUS Lec.

1. *M. Theveneti* Lec., Trans. Amer. Ent. Soc. Phila. 1874, 58.

POLYCLASIS Newm.

1. *P. bifaria* Say, (*Lampyris*), Bost. Journ. Nat. Hist. i, 137; ed. Lec. Proc. Acad. Nat. Se. Phila. ii, 332; *ovata* Newm. Ent. Mag. v, 383.

LUCIDOTA Lap.*

1. *L. atra* Fabr., Ent. Syst. i, 2, 101, (*Lamp.*); Oliv. Ent. 28, 27, pl. 3, f. 28; Enc. Méth. Lec. loc. cit. 332; *laticornis* Fabr. *ibid.* i, 2, 99; Syst. El. ii, 100; Lap. Hist. Nat. i, 268, (*Photinus*); Motseh. Et. Ent. 1853, 4, (*Lychnuris?*); *Lychnuris morio* Mels. Proc. Acad. Nat. Se. Phila. ii, 203; var. *tarda* Lec. loc. cit. 332.
2. *L. punctata* Lec. loc. cit. 333.

ELLYCHNIA Lec.

1. *E. flavicollis* Lec., (*Photinus*), Trans. Am. Ent. Soc. 1868, 53.
2. *E. californica* Motseh., Et. Ent. 1853, 3.

* This generic name should probably be rejected for the species here mentioned; it was proposed (Ann. Soc. Ent. Fr. 1st, ii, 136), for species with ramose antennæ; the universally known and common species, *atra* Fabr., is not mentioned among them, and is referred to by Laporte under *Lucernuta*, the second division of *Photinus*, as No. 25, *P. laticornis*, *ibid.* 144. It is quite evident that the superficially observed characters used by him, like those of Motschulsky, can have no significance in a system like that which I have here attempted to introduce, for the very next species of *Photinus* (*Lucernuta*), is described as having a "luminous spot at the middle of the fourth ventral segment." This position of the light-organ, barring the error in the numbering of the segments would place at least that species of *Lucernuta* in the neighborhood of *Pyraetomena*. In the confusion of nomenclature thus produced it would perhaps be easier to retain for our species, and for as many from tropical America as are found to be congeneric with them, the Dejeanian name *Lychnuris*, first defined by me in Proc. Acad. Nat. Se. Phila. ii, 332. Since, however, I am neither a "purist," nor "resurrectionist," but an humble conveyer of thought, endeavoring only to state distinctly the relations of the objects of which I have occasion to write, I leave this and many similar questions for those whose tastes lead them in another direction.

3. *E. corrusca* Linn., Syst. Nat. ed. xii, ii, 644;* (*Lamp.*), Oliv. Ent. 28, 19, pl. 2, f. 14; Fabr. Spec. Ent. i, 251; Syst. El. ii, 100; *latipennis* Motsch. Et. Ent. 1853, 3; var. *autumnalis* Mels. Proc. Acad. Nat. Sc. Phila. ii, 303; *corrusca* ‡ Motsch. Et. Ent. 1853, 2; var. *lacustris* Lec. loc. cit. 334.

PYROPYGA Motsch.

1. *P. luteicollis* Lec., (*Lucidota*), Proc. Am. Phil. Soc. 1878, 405. (In the remarks under this species *Ellychnia flavicollis* by an unfortunate clerical error is mentioned as *collaris*).
2. *P. fenestralis* Mels., (*Pyractomena*), Proc. Acad. Nat. Sc. Phila. ii, 304; Lec. ibid. 1854, 218, (synon. emend.); *californica* Motsch. Et. Ent. 1853, 5; *Lucidota cal.* Gorham, Trans. Ent. Soc. Lond. 1880, 17; *Ph. sobrinus* Gorh. Biol. Cent. Am. 49; *Ph. reversus* Gemm. Ent. Hefte vi, 1870, 120, (nomen superfl.).
3. *P. nigricans* Say, (*Lamp.*), Journ. Acad. Nat. Sc. Phila. iii, 179; ed. Lec. ii, 116; *Ellychnia nigr.* Lec. Proc. loc. cit. ii, 333; Motsch. Et. Ent. 1853, 4.
4. *P. decipiens* Harris, Trans. Hartford Soc. 1836, 74, pl. 1, f. 2; Lec. loc. cit. ii, 333; *neglecta* † Dej. Cat.
5. *P. minuta* Lec., loc. cit. ii, 333.
6. *P. indicta* n. sp. ante, 32.

TENASPIS Lec. n. g.

1. *T. angularis* Gorham, (*Hyas*), Trans. Ent. Soc. Lond. 1880, 7, pl. 1, f. 19.

PYRACTOMENA Lec.

1. *P. angulata* Say, (*Lamp.*), Journ. Acad. Nat. Sc. Phila. v, 162; ed. Lec. ii, 273; Lec. loc. cit. 336. (syn. excl.); (*Pyractomena*), Motsch. Et. Ent. 1853, 38.
2. *P. borealis* Randall, (*Lamp.*), Bost. Journ. Nat. Hist. ii, 16; Lec. loc. cit. 336.
3. *P. ecostata* Lec., (*Photinus*), Proc. Am. Phil. Soc. 1878, 406; *nitidiventris* Lec. ibid. 406.
4. *P. lucifera* Mels., (*Lamp.*), Proc. Acad. Nat. Sc. Phila. ii, 304; *linearis* Lec. loc. cit. v, 336; *angustata* Lec. ibid. v, 336; *punctiventris* Lec. Proc. Am. Phil. Soc. 1878, 407.

PHOTINUS Lap.

1. *P. consanguineus* Lec., loc. cit. 335; *vittiger* || Lec. ibid. 336; *zonatus* Gemm. Col. Hefte, vi, 1870, 120, (nomen superfluum).
2. *P. lineellus* Lec., loc. cit. 335.
3. *P. ardens* Lec., loc. cit. 334; *obscurellus* Lec. ibid. 335.
4. *P. punctulatus* Lec., ibid. 335.
5. *P. umbratus* Lec., Proc. Am. Philos. Soc. 1878, 407.
6. *P. dimissus* Lec., n. sp. ante, 35.
7. *P. collustrans* Lec., Proc. Am. Philos. Soc. 1878, 407.
8. *P. benignus* Lec., n. sp. ante, 35.
9. *P. pyralis* Linn., (*Lamp.*), Syst. Nat. ed. xii, 644; DeGeer, iv, 52, pl. 17, f. 7; Fabr. Syst. Ent. ii, 99; Syst. El. ii, 101; Oliv. 28, 17, pl. 2, f. 11; Lap. Hist. Nat. Col. i, 268; Lec. loc. cit. 334; *centrata* Say, (*Lamp.*), Journ.

* The locality given by Linnæus is Finland. As no species corresponding with the description occurs in northern Europe, the name has been traditionally assigned to our common North American species, and there seems to be no good in substituting a more recent name for that by which this species is so well known.

Acad. Nat. Sc. Phila. v, 162; ed. Lec. ii, 274; *rosata* Germ. (*Lamp.*), Ins. Nov. 62; *versicolor* † Motsch. Et. Ent. 1853, 39.

10. *P. marginellus* Lec., loc. cit. 335; var. *castus* Lec. ibid. 335.

11. *P. scintillans* Say, (*Lamp.*), Journ. Acad. Nat. Sc. Phila. v, 163; ed. Lec. ii, 275; Lec. loc. cit. 335; (*Gynaptera*), List Col. N. Am. 52; Motsch. (*Macrolampis*), Et. Ent. 1853, 37.

PHAUSIS Lec.

1. *P. splendidula* Linn., (*Lamp.*), Syst. Nat. ed. xii, 644;* Duval, (*Lamprorhiza*), Glan. Ent. i, 20; Kiesenw. Ins. Deutschl. iv, 454.

2. *P. reticulata* Say, (*Lamp.*), Journ. Acad. Nat. Sc. Phil. v, 163; ed. Lec. ii, 274; Lec. loc. cit. 337.

3. *P. inaccensa* Lec., Proc. Am. Philos. Soc. 1878, 611.

MICROPHOTUS Lec.

1. *M. dilatatus* Lec., New Sp. Col. (Smithsonian Svo.), 90.

2. *M. angustus* Lec., Trans. Am. Ent. Soc. 1874, 58.

PLEOTOMUS Lec.

1. *P. pallens* Lec., New Sp. Col. (Smithsonian Svo.), 69.

2. *P. Davisii* Lec., ante, 37.

PHOTURIS Lec.

1. *P. pensylvanica* DeGeer, (*Lamp.*), iv, 52, pl. 17, f. 8; Oliv. Ent. 28, 8, pl. 1, f. 8; Lap. (*Photinus*), Hist. Nat. i, 268; Lec. loc. cit. 337; *versicolor* Fabr. (*Lamp.*), Ent. Syst. Suppl. 123; Syst. El. ii, 105; *marginata* (*Lamp.*), Panzer, Naturforscher, xxiv, 31, pl. 1, f. 9; *lineaticollis* Motsch. (*Telephoroides*), Et. Ent. 1854, 59; *vittigera* (*Tel.*), Motsch. ibid. 60.†

2. *P. frontalis* Lec., loc. cit. 337.

3. *P. divisa* Lec., loc. cit. 337; *congener* Lec. ibid. 338.

Tribe 2.—Phengodini.

PTEROTUS Lec.

1. *P. obscuripennis* Lec., Pr. Ac. Nat. Sc. Phil. 1859, 86; Class. Col. N. Am. 185.

PHENGODES Illiger.

1. *P. plumosa* Oliv. (*Lamp.*), Ent. 28, 26, pl. 3, f. 27; Fabr. (*Lamp.*), Syst. ii, 105; Illiger, Mag. vi, 341; Lap. Ann. Ent. Soc. Fr. 1st. ii, 128; Hist. Nat. i, 264; Lec. loc. cit. 332; Say, Bost. Journ. Nat. Hist. i, 157; ed. Lec. ii, 634; Motsch. Et. Ent. 1854, 62.

2. *P. frontalis* Lec. ante, 39.

3. *P. laticollis* Lec. ante, 39.

4. *P. fusciceps* Lec., Class. Col. N. Am. 186.

5. *P. Sallei* Lec. ante, 39.

* I have given references only to the original description and to two others of recent date. The European synonymy of this introduced species need not be imported into our literature.

† The Mexican *Lamp. trilineata* Say, (Bost. Journ. Nat. Hist. i, 157; ed. Lec. ii, 634), with which Motschulsky compares this species, is evidently quite different to it in having two or three lines on each elytron yellowish.

ZARHIPIS Lec.

1. *Z. integripennis* Lec., (*Phengodes*), Trans. Amer. Ent. Soc. 1874, 59.
2. *Z. ruficollis* Lec. ante, 39.
3. *Z. piciventris* Lec. ante, 39.

MASTINOCERUS Sol.

1. *M. texanus* Lec., Trans. Am. Ent. Soc. 1874, 59.

GENOPHENGUS Lec. n. g.

1. *C. debilis* Lec. n. sp. ante, 41.

TYTTHONYX Lec.

1. *T. erythrocephala* Fabr., (*Lamp.*), Syst. El. ii, 105; Lec. loc. cit. 347; *Malthinus serraticornis* Mels. Proc. Acad. Nat. Sc. Phila. ii, 305.

Sub-family III.—*Telephoridae*.**CHAULIOGNATHUS** Hentz.

1. *C. profundus* Lec., Proc. Acad. Nat. Sc. Phila. 1858, 71.
2. *C. disous* Lec., Proc. Acad. Nat. Sc. Phila. 1853, 230.
3. *C. fasciatus* Lec. n. sp. ante, 44.
4. *C. limbicollis* Lec., Proc. Acad. Nat. Sc. Phila. 1858, 71.
5. *C. basalis* Lec., Col. Kansas, 13, (nec Lacordaire).
6. *C. scutellaris* Lec., Proc. Acad. Nat. Sc. Phila. 1858, 230.
7. *C. Lewisii* Crotch. Trans. Amer. Ent. Soc. 1874, 78.
8. *C. opacus* Lec., N. Sp. Col. 90.
9. *C. pensylvanicus* DeGeer, Ins. iv, 78, pl. 17, f. 15; *americanus* Forster, Cent. Ins. 50; *bimaculatus* Fabr. Spec. Ins. i, 259; Lap. Hist. Nat. Col. i, 275; Oliv. Ins. &c., 26, pl. 2, f. 11.
10. *C. marginatus* Fabr., Syst. Ent. 206; Syst. El. i, 298; Lap. Hist. Nat. Col. i, 275; Hentz, Trans. Amer. Philos. Soc. iii, 460; var. *Hentzii* Lec. Proc. Acad. Nat. Sc. Phila. v, 338.

PODABRUS Westwood.**A.**—*Brachynotus* Kirby.

1. *P. latimanus* Motsch., (*Malthacus*), Bull. Mosc. 1859, 402, pl. 4, f. 26; ♀ *melifluus* Lec. Proc. Acad. Nat. Sc. Phila. 1861, 360.
2. *P. nothoides* Lec. n. sp. ante, 46.
3. *P. tricostatus* Say, Bost. Journ. Nat. Hist. i, 158; ed. Lec. ii, 236; *Bennetti* Kirby, Faun. Bor. Am. 249; *atripes* Motsch. Bull. Mosc. 1859, 403.
4. *P. rugosulus* Lec., Agass. Lake Sup. 229; Proc. Acad. Nat. Sc. Phila. v, 344.
5. *P. frater* Lec., Proc. Acad. Nat. Sc. Phila. v, 344; *quadricollis* Motsch. Bull. Mosc. 1859, 403.
6. *P. basillaris* Say, Journ. Acad. Nat. Sc. Phila. iii, 181; ed. Lec. ii, 116; *flavicollis* Lec. Proc. Acad. Nat. Sc. Phila. v, 343; *discoideus* Lec. ibid. v, 344; *punctulatus* Lec. Col. Kans. 44.
7. *P. quadratus* Lec. n. sp. ante, 46.
8. *P. fissus* Lec. n. sp. ante, 46.
9. *P. diadema* Fabr., Syst. El. i, 298; Lap. Hist. Nat. Col. i, 273; Lec. Proc. Acad. Nat. Sc. Phila. v, 344; *Malth. parvicollis* Motsch. Bull. Mosc. 1859, 402.

10. *P. modestus* Say, Journ. Acad. Nat. Sc. Phila. iii, 179; ed. Lec. ii, 117.
11. *P. binotatus* Lec. n. sp. ante, 47.
12. *P. comes* Lec., Proc. Acad. Nat. Sc. Phila. v, 344; *torquatus* Lec. ibid. 1861, 350; *gradatus* Lec. ibid. 1860, 320.
13. *P. tomentosus* Say, Journ. Acad. Nat. Sc. Phila. v, 165; ed. Lec. 276; *rufiolus* Mels. Proc. Acad. ii, 304; *pruinusus* Lec. ibid. v, 344; *cinereipennis* Motsch. B. M. 1859, 403.
14. *P. protensus* Lec., N. Sp. Col. 91; *Fayi* Lec. ibid. 91.
15. *P. brunnicollis* Fabr., (*Canth.*), Sp. Ins. i, 258; Syst. El. i, 298; Lec. Proc. Acad. Nat. Sc. Phila. v, 345; *Canth. limbatus* Fabr. Sp. Ins. i, 258; var. *puncticollis* || Lec. Proc. Acad. Nat. Sc. Phila. v, 345; *poricollis* Lec. ibid. 1852, 49.

B.—*Malthacus* Kirby.

16. *P. scaber* Lec., Proc. Acad. Nat. Sc. Phila. 1861, 350.
17. *P. cinctipennis* Lec., N. Sp. Col. 91.
18. *P. limbellus* Lec. n. sp. ante, 47.
19. *P. punctatus* Lec., Agass. Lake Sup. 229.
20. *P. brevipennis* Lec., Bull. U. S. Geol. Surv. 1878, iv, 460.
21. *P. puncticollis* Kby., Faun. Bor. Am. 247; *marginellus* Lec. Agass. Lake Sup. 229.
22. *P. xanthoderus* Lec. n. sp. ante, 48.
23. *P. lutosus* Lec. n. sp. ante, 48.
24. *P. macer* Lec., Proc. Acad. Nat. Sc. Phila. 1861, 350.
25. *P. piniphilus* Esch., Bull. Mosc. 1830, 65; Mann. ibid. 1843, 246.
26. *P. lateralis* Lec., Annual Rept. Ch. Eng. U. S. Army, 1876, 297.
27. *P. puberulus* Lec., Agass. Lake Sup. 227; ? *sericatus* Mann. Bull. Mosc. 1846, 511.
28. *P. extremus* Lec. n. sp. ante, 48.
29. *P. simplex* Couper, Can. Nat. 1865, 62.
30. *P. lævicollis* Kirby, Faun. Bor. Am. 248.
31. *P. tejonicus* Lec., Proc. Acad. Nat. Sc. Phila. 1859, 74.
32. *P. Bolteri* Lec. n. sp. ante, 49.
33. *P. Pattoni* Lec., Proc. Acad. Nat. Sc. Phila. 1866, 394.

C.

34. *P. mellitus* Lec. n. sp. ante, 49.
35. *P. corneus* Lec., Proc. Acad. Nat. Sc. 1861, 350.
36. *P. cavicollis* Lec. ibid. 1851, 345.

TELEPHORUS DeGeer.

A.

1. *T. dentiger* Lec., Proc. Acad. Nat. Sc. Phila. v, 341.
2. *T. excavatus* Lec. ibid. v, 342.
3. *T. vilis* Lec. ibid. v, 343.
4. *T. tantillus* Lec. n. sp.; *pusio* || Lec. ante, 51.
5. *T. Walshii* Lec. n. sp. ante, 51.
6. *T. fraxini* Say, Journ. Acad. Nat. Sc. Phila. iii, 181; ed. Lec. ii, 118; Lec. Proc. Acad. v, 343; *ater* Kirby, Faun. Bor. Am. 245; *Rhag. binodula* Mann. Bull. Mosc. 1846, 512; *nigrita* Lec. Agass. Lake Sup. 229.

B.

7. *T. carolinus* Fabr., Syst. El. i, 296; var. *jactatus* Say, Journ. Acad. Nat. Sc. Phila. v, 167; ed. Lec. ii, 277.
8. *T. lineola* Fabr., Ent. Syst. i, 219; Syst. El. i, 301; Coq. Ill. Ins. iii, 127, pl. 29, f. 1; *C. parallela* Say, Journ. Acad. Nat. Sc. Phila. v, 168; ed. Lec. ii, 277; *Sayi* Lec. Proc. Acad. v, 342.
9. *T. nigritulus* Lec. n. sp. ante, 52.
10. *T. rectus* Mels., Proc. Acad. Nat. Sc. Phila. ii, 305; Lec. ibid. v, 342; *pusillus* Lec. ibid. v, 343; *oriflavus* Lec. Proc. Bost. Soc. Nat. Hist. 1874, 273.
11. *T. nanulus* Lec. n. sp. ante, 52.
12. *T. cruralis* Lec. Proc. Acad. Nat. Sc. Phila. v, 342.
13. *T. flavipes* Lec. ibid. v, 341; ? var. *dichrous* Lec. ibid. v, 341.
14. *T. scitulus* Say, Journ. Acad. Nat. Sc. Phila. v, 168; ed. Lec. ii, 278; *imbecillis* Lec. Proc. Acad. v, 342; *nigriceps* Lec. Agass. Lake Sup. 230.
15. *T. pusillus* Lec. Proc. Acad. Nat. Sc. Phila. v, 343.
16. *T. luteicollis* Germ., Ins. Nov. 70; *cinetellus* Lec. Proc. Acad. Nat. Sc. Phila. v, 341.
17. *T. ruficollis* Lec. n. sp. ante, 53.
18. *T. longulus* Lec. Proc. Acad. Nat. Sc. Phila. v, 343.

C.

19. *T. impar* Lec. n. sp. ante, 53.

D.

20. *T. consors* Lec., Proc. Acad. Nat. Sc. Phila. v, 340; ♀ *tibialis* || Lec. ibid. v, 340; *tibiellus* Gemm., Ent. Hefte vi, 1876, (nomen superfl.).
21. *T. rotundicollis* Say, Journ. Acad. Nat. Sc. Phila. v, 165.
22. *T. Curtisii* Kirby, Faun. Bor. Am. 247; *Samouelli* Kirby, ibid. 246.
23. *T. transmarinus* Motsch., Bull. Mosc. 1859, 400.
24. *T. grandicollis* Lec., Proc. Acad. Nat. Sc. Phila. v, 340; = *rubricollis* Motsch. Bull. Mosc. 1859, 400.
25. *T. fidelis* Lec. ibid. v, 340.
26. *T. oregonus* Lec., New Sp. 92; *scopus* Lec. ibid. 92.
27. *T. tuberculatus* Lec., Proc. Acad. Nat. Sc. Phila. v, 341; *impressus* Lec. ibid. v, 341; ♀ *brevicollis* Lec. ibid. v, 341; var. *collaris* || Lec. ibid. 340; *armiger* Couper, Can. Nat. 1865, 62.
28. *T. alticola* Lec. n. sp. ante, 54.
29. *T. bilineatus* Say, Journ. Acad. Nat. Sc. Phila. iii, 182.

E.

30. *T. divisus* Lec., Proc. Acad. Nat. Sc. Phila. v, 340; *latinsculus* Motsch. Bull. Mosc. 1859, 401, pl. iv, f. 25.
31. *T. notatus* Mann., Bull. Mosc. 1843, 246; *pergrinus* Boh. Eugen. Resa, 80; var. *larvalis* Lec. Pacific R.R. Report, 48.
32. *T. lautus* Lec., Proc. Acad. Nat. Sc. Phila. v, 340.
33. *T. ochropus* Lec. n. sp. ante, 54.

F.

34. *T. ingenuus* Lec. n. sp. ante, 55.

G.

35. *T. marginellus* Lec., Proc. Acad. Nat. Sc. Phila. v, 342.

POLEMIUS Lec.

1. **P. platyderus** Gemm., Col. Hefte, 1870; *planicollis* || Lec. Journ. Acad. Nat. Sc. Phila. 1858, 17.
2. **P. laticornis** Say, Journ. Acad. Nat. Sc. Phila. v, 168; *T. dubius* Mels. Proc. Acad. Nat. Sc. Phila. ii, 304; var. *incisus* Lec. ibid. v, 168.
3. **P. repandus** Lec. n. sp. ante, 55.
4. **P. limbatus** Lec., Proc. Acad. Nat. Sc. Phila. v, 339.

SILIS Charp.

1. **S. spinigera** Lec., Trans. Amer. Ent. Soc. 1874, 61.
2. **S. munita** Lec. n. sp. ante, 56.
3. **S. difficilis** Lec., Proc. Acad. Nat. Sc. Phila. v, 230.
4. **S. flavida** Lec., Trans. Amer. Ent. Soc. 1874, 61.
5. **S. cava** Lec. ibid. 1874, 61.
6. **S. pallida** Mann., Bull. Mosc. 1843, 246.
7. **S. percomis** Say, Bost. Journ. Nat. Hist. i, 159; ed. Lec. ii, 637; ♂ *longicornis* Lec. Agass. Lake Sup. 230; ♀ *Telephorus curtus* Lec. ibid. 231.
8. **S. vulnerata** Lec., Trans. Am. Ent. Soc. 1874, 61.
9. **S. lutea** Lec., Journ. Acad. Nat. Sc. Phila. 2d. v, 333; *pallens* || Lec. Proc. Acad. Nat. Sc. Phila. v, 339.
10. **S. filigera** Lec., Trans. Am. Ent. Soc. 1874, 62.
11. **S. spathulata** Lec. n. sp. ante, 57.
12. **S. perforata** Lec. n. sp. ante, 57.

DITEMNUS Lec.

1. **D. bidentatus** Say, Journ. Acad. Nat. Sc. Phila. v, 169; ed. Lec. ii, 278; Lec. Proc. Acad. Nat. Sc. Phila. v, 339.
2. **D. obtusus** Lec., Trans. Am. Philos. Soc. 1874, 62.
3. **D. fossiger** n. sp. ante, 58.

TRYPHERUS Lec.

1. **T. latipennis** Germ. Ins. Nov. 72; Lap. Hist. Nat. i, 277; Lec. Proc. Acad. Nat. Sc. Phila. v, 346; *Lygerus lat.* Kiesenw. Linn. Ent. vii, 246; *Molorchus marginalis* Say, Long's Exp. ii, 192; ed. Lec. i, 293.

LOBETUS Kiesenw.

1. **L. abdominalis** Lec., Proc. Acad. Nat. Sc. Phila. v, 347.

MALTHINUS Latr.

1. **M. atripennis** n. sp. ante, 60.
2. **M. occipitalis** Lec., Proc. Acad. Nat. Sc. Phila. v, 345; *difficilis* Lec. ibid. v, 345.

MALTHODES Kiesenw.**A.**

1. **M. spado** Lec., N. Sp. Col. 93.

B.

2. **M. laticollis** Lec., List Col. N. Am. 53; *transversus* || Lec. Proc. Acad. Nat. Sc. Phila. 1861, 351.
3. **M. concavus** Lec., Proc. Acad. Nat. Sc. Phila. v, 346.

C.

4. *M. fragilis* Lec., Pr. Ac. Nat. Sc. Phil. v. 346 = *transversus* Lec. ibid. v, 346.

I have taken advantage of this synonymy to suppress the latter specific name as more likely to produce confusion.

5. *M. exilis* Mels. ibid. ii. 305.
 6. *M. fuscus* Lec. ibid. v, 346.
 7. *M. rectus* n. sp. ante, 61.
 8. *M. curvatus* n. sp. ante, 61.
 9. *M. furcifer* n. sp. ante, 62.
 10. *M. arcifer* n. sp. ante, 62.
 11. *M. captiosus* n. sp. ante, 61.
 12. *M. fuliginosus* Lec., N. Sp. Col. 93.
 13. *M. niger* Lec., Proc. Acad. Nat. Sc. Phila. v, 346.

Unclassified females.

14. *M. analis* n. sp. ante, 62.
 15. *M. congruus* n. sp. ante, 62.
 16. *M. quadricollis* n. sp. ante, 63.
 17. *M. parvulus* Lec., Proc. Acad. Nat. Sc. Phila. v, 346.

Undetermined species.

Luciola maculicollis Lap. Ann. Ent. Soc. Fr. ii, 148. This genus does not occur in America.

Cantharis vittata Fabr. Ent. Syst. i, 219.

Cantharis rufipes Say, Journ. Acad. Nat. Sc. Phila. iii, 182; ed. Lec. ii, 118.

The form of the claws not being given, this name may be referred to several species of *Telephorus*.

Cantharodema marginipennis Lap. Hist. Nat. Col. i, 276.

Malthodes ruficollis Kiesenwetter, Linn. Ent. vii, 320.

In concluding this paper, I have only to regret, that although, several of my friends, who have collaborated with me, for the procuring of material to render it as perfect as possible, the position and affinities of the tribe Phengodini must still remain uncertain, in consequence of the ignorance in which we remain in regard to the habits of the species, and the form of the females. It may be inferred from the observations of Mrs. King on the larva and male imago of *Mastinocerus* that they are luminous in all stages of development. This inference must, however, be confirmed by those who have the opportunity of observing in a living condition the genera and species of the tribe, which as will be seen in the foregoing pages are widely distributed. The male of *Pterotus*, as I have been recently informed by Mr. Rivers, flies in the evening twilight, but I have not yet learned if it has any luminous power.

Revision of the species of *POLYPHYLLA* of the United States.

BY GEORGE H. HORN, M. D.

The generic characters of *Polyphylla* have been so often given that it is unnecessary to repeat them here. In the "Check List," Mr. Crotch has separated our species from those of Europe under the name of *Macranoxia*, but no reason is apparent to me for such a course.

The males are much more abundantly found than the females the latter rarely flying, while the males are often seen circling in flight in considerable numbers over the spot where the female may be.

As the males are the more abundant and as they present structural characters by which they may be distinguished, the following table is based on that sex alone.

Anterior tibiæ tridentate.

Body above distinctly scaly; clypeus trisinate.....**Hammondi.**

Elytra with scale-like hairs; clypeus truncate.....**cavifrons.**

Anterior tibiæ bidentate.

Clypeus trisinate, the lateral angles distinct.

Head and thorax with moderately long erect hairs and very few scales.

erinita.

Head and thorax scaly with short hairs only.....**decemlineata.**

Clypeus truncate or arcuate, the angles not prominent.

Elytra distinctly vittate.....**occidentalis.**

Elytra with irregularly placed denser spots.....**variolosa.**

Anterior tibiæ with the outer apical angle alone prolonged. (That of the female bidentate).....**gracilis.**

P. Hammondi Lec., Journ. Acad. 1856, p. 228; *subvittata* Lec. loc. cit. p. 229.—Clypeus trisinate, the lateral angles prominent, vertex with short erect hairs. Thorax with few erect hairs in front, surface very sparsely scaly and with three denser vittæ, the median more distinct; hind angles either distinctly rectangular or obtuse. Elytra very sparsely scaly, the scales in indistinct vittæ, the sutural more dense. Body beneath clothed with moderately long fine yellowish hair, abdomen sparsely scaly, scales denser along the posterior borders of the segments. Length .96—1.16 inch; 24—29 mm.

Male.—Antennal club 7-lamellate, arcuate or sigmoid, more than twice as long as the stem. Anterior tibiæ tridentate, middle tibiæ bispinous on the outer edge, posterior tibiæ with two short oblique ridges.

Female.—Angles of clypeus not prominent. Antennæ short, the club not more than half the length of the stem, composed of fine joints forming a rather compact mass, the contiguous joint of the stem half as much prolonged as those of the club. Tibial characters as in the ♂.

The form *subvittata* differs only in having the elytral vittæ a little better marked.

Occurs in Kansas and northern Texas. For a specimen of the female which seems to be rare, I am indebted to Prof. F. H. Snow of Kansas.

P. cavifrons Lee., Proc. Acad. 1854, p. 222; Journ. Acad. 1856, p. 228.—Clypeus truncate in front, margin moderately reflexed, angles not prominent. Front flat coarsely punctured and with few, short, semi-erect hairs. Thorax with very few erect hairs in front, surface sparsely clothed with scale-like hairs which are denser in the median sulcus, lateral vittæ indistinct. Elytra sparsely clothed with scale-like hairs forming a subvittate appearance. Body beneath with moderately long hairs, abdomen with elongate scales sparsely placed. Length .96 inch; 24 mm.

Male.—As in the preceding species.

Female.—Unknown.

This species could be confounded with the preceding only. It has a somewhat more robust facies and differs in the form of the clypeus and the surface vestiture.

My specimen was collected at Ehrenberg, Arizona; those in Dr. Leconte's cabinet are from an uncertain locality in the same Territory.

P. decemlineata Say, Journ. Acad. iii, p. 246; Lee. loc. cit. 1856, p. 229.—Clypeus trisinate, sometimes feebly, the angles distinct. Vertex flat with few, short, semi-erect hairs, densely scaly at the sides. Thorax with a few erect hairs along the margin only, surface sparsely clothed with white scales, forming a denser vitta in the median impression and on each side. Scutellum densely scaly. Elytra scaly, the suture three nearly entire vittæ and a short subhumeral line densely clothed with white scales, the remainder of the surface sparsely clothed with scales which are often yellowish. Pygidium rather densely clothed with narrow elongate scales. Body beneath as in *Hammondi*. Length .96—1.44 inch; 24—36 mm.

Male.—Antennæ as in *Hammondi*. Anterior tibiæ bidentate. Middle and posterior tibiæ with one short spine a little below the middle.

Female.—Anterior tibiæ tridentate, middle and posterior each with two short spines on the outer edge. Antennal club 5-lamellate, a little longer than half the stem.

Specimens occasionally occur in which the vittæ are somewhat irregular or interrupted.

Occurs from Colorado westward to California.

P. crinita Lec., Journ. Acad. 1856, p. 230.—Very closely resembles the preceding species and differs in having moderately long, erect hairs on both the head and thorax. The latter has the usual scales replaced by very narrow scale-like hairs, even the three vittæ can hardly be called scaly. On the elytra the scales are also more hair-like while they form a style of ornamentation resembling that of *decemlineata*. Length .88—1.04 inch; 22—26 mm.

Sexual characters as in *decemlineata*.

This species appears to bear the same relation in the matter of vestiture to the preceding that *cavifrons* does to *Hammondi*.

Occurs in the Central Valley of California.

P. occidentalis Linn., Syst. Nat. ii, p. 555; Oliv. Ent. i, 5, p. 14; pl. 1, fig. 7; Burm. Handb. iv, 2, p. 408; Lec. loc. cit.—Clypeus truncate or slightly arcuate in front, the angles obtuse ♂ or rounded ♀. Head sparsely clothed with recumbent scale-like hairs. Thorax with median sulcus feeble, surface sparsely pubescent with the vittæ scarcely more distinct. Elytra sparsely clothed with recumbent pubescence, with the suture and three nearly entire (but feebly marked) vittæ more densely clothed, subhumeral short line absent. Pygidium pubescent and with rather long erect hairs. Body beneath with moderately long hairs, abdomen sparsely pubescent. Length .88—1.00 inch; 22—25 mm.

Male.—Sexual characters as in *deccmlineata*, with the spine on the outer side of the middle and posterior tibiæ very feeble.

Female.—As in *deccmlineata* except that there is but one short oblique ridge on the middle and posterior tibiæ, and the anterior tibiæ are bidentate as in the male.

This species is the only one in which the anterior tibiæ are known to be similarly dentate in the two sexes.

Occurs near the sea coast in the Southern States, my specimens are from near Wilmington, N. C. The females are said to be more abundant than the males, a fact at variance with the usual habit of the genus.

P. variolosa Hentz, Trans. Am. Philos. Soc. iii, p. 256, pl. 2, fig. 5; Lec. loc. cit. p. 231.—Clypeus arcuate or subtruncate, angles rounded. Head sparsely clothed with short erect hair. Thorax sparsely punctate and with few recumbent hairs forming a denser vitta in the deep median sulcus and indistinct vittæ at the sides. Elytra sparsely clothed with scale-like hairs denser along the suture and forming irregular patches in place of the vittæ of the preceding species. Pygidium sparsely pubescent. Body beneath with long hairs, abdomen sparsely and finely pubescent. Length .84—.90 inch; 21—23 mm.

Male.—Sexual characters of *occidentalis*.

Female.—Sexual characters of *deccmlineata*.

It will be observed that the females of all the species of this genus have a shorter clypeus than the male, but in this species the difference is more especially marked. The hind tibiæ are also broader in the females.

Occurs near the sea coast from Massachusetts to New Jersey.

P. gracilis n. sp.—Form rather slender, pale brownish testaceous. Clypeus truncate, angles prominent and sides convergent posteriorly ♂, or with angles rounded and sides divergent posteriorly ♀. Surface sparsely clothed with recumbent elongate scales. Thorax more than twice as wide as long, sides strongly arcuate at middle, margin crenulate, median impression of disc very feeble, surface sparsely clothed with whitish scale-like hairs forming three distinct denser vittæ. Elytra sparsely punctate and sparsely clothed with whitish elongate scales, a lateral denser vitta distinct, the disc with irregular spots forming two very indistinct vittæ. Body beneath with long hairs, abdomen sparsely pubescent. Pygidium sparsely pubescent. Length .74 inch; 19 mm.

Male.—Antennæ as in *variolosa*. Anterior tibiæ with the outer apical angle alone prolonged, middle and posterior tibiæ without trace of spine or oblique ridge at middle.

Female.—Antennæ as in *variolosa*. Anterior tibiæ bidentate externally, middle tibia with a very distinct oblique ridge, posterior with a feeble trace of ridge.

This species might be mistaken for a debilitated form of *variolosa*, but its more slender form and the sexual characters mark it as abundantly distinct.

Occurs near Jacksonville, Florida; collected by W. H. Ashmead.

Notes on ELATERIDÆ, CEBRIONIDÆ, RHIPICERIDÆ and DASCYLLIDÆ.

BY GEORGE H. HORN, M. D.

ELATERIDÆ.

The genera of the above family to which especial reference is made in the following pages, are those considered most closely allied to the Cebriionidæ, so close in fact that they may be considered as entirely filling the gap which has been supposed to exist between the two families.

The notes are necessarily short, full descriptions of the males having already been given, the females as far as known claim more attention and it is hoped that the accompanying figures will give a better idea of these remarkable insects than description alone.

The females of *Aplastus* and *Euthysanius* are remarkable in having the elytra shorter than the abdomen, but not equally so in all as will be seen by an examination of the figures.

In the former genus there are but six visible ventral segments while in *Euthysanius* there are seven. In the ♀ of *E. lautus* however, the abdomen is so extended by the completeness of the egg development, that the membranous segment which is usually subcoxal becomes visible and eight segments appear. In all the females there is a similarity on the dorsal surface of the abdomen, eight segments being quite distinctly visible. Nor is this number peculiar to the female, the male having the same but the segments are more membranous. In an examination of several other true Elateridæ the number of dorsal segments is eight, therefore the presence of this number in the females of *Euthysanius* and *Aplastus* must be dismissed from the category of remarkable characters.

APHRICUS Lee.

Front slightly concave, anteriorly slightly arcuate, margined. Labrum short, transverse, emarginate and retracted, the suture distinct. Mandibles moderately prominent and toothed a little in front of middle. Maxillary palpi rather slender, the last three joints subequal, the terminal very little broader at tip. Antennæ slender not serrate, two-thirds as long as the body, eleven-jointed, last joint with a distinctly articulated short accessory piece, first joint obconical, slightly curved,

second small, third a little longer, fourth as long as first, 4—11 gradually more elongate. Eyes rather large, round and prominent. Tarsi slender, first joint on each foot shorter than the second and about equal to the fourth.

A. californicus Lec.—Piceo-testaceous, sparsely clothed with greyish pubescence. Head coarsely and densely punctured. Thorax a little longer than wide, sides in front arcuate, posteriorly slightly sinuate, lateral margin rounded without limiting edge, hind angles slightly divergent and with an extremely fine carina, surface sparsely punctate in front and nearly smooth posteriorly. Elytra striate, striæ with coarse and deep, closely placed punctures, intervals finely punctulate, the fifth subcarinate at apical third. Body beneath very sparsely punctulate. Length .24 inch; 6 mm. Pl. II, fig. 6.

Of this insect we know the male only. The female probably does not differ greatly. The general aspect is that of an elongate *Cardiophorus*.

Occurs from San Diego to Owen's Valley, California; but very rare.

APLASTUS Lec.

The species have been so recently the subject of a review that I merely repeat the table given in Trans. Am. Ent. Soc. 1874, p. 24, which applies to males only.

Third joint of antenna similar in size and shape to fourth.

Antennæ slender, feebly serrate, three basal joints only pilose; sides of thorax parallel not margined, hind angles strongly divergent. Pl. I, fig. 9.

angusticollis Horn.

Third joint always much smaller than fourth, sometimes globular never triangular; antennæ with short erect hairs.

Thorax not margined.

Antennæ strongly serrate, joints 2—3 very small, equal, together slightly longer than half the fourth.

Elytra scarcely striate, thorax sparsely punctate.....**tenuiformis** Horn.

Elytra moderately deeply striate, thorax coarsely and moderately densely punctate.....**corymbitoides** Horn.

Antennæ serrate, joint three more than twice as long as second, the two together nearly as long as the fourth.....**speratus** Lec.

Thorax distinctly margined, at least near base.

Antennæ stout, strongly serrate. Pl. I, fig. 6.....**optatus** Lec.

Antennæ more slender, feebly serrate.....**molestus** Horn.

The body is always fully winged in the males. In all the species the constriction of the eleventh joint of the antennæ near the tip is quite evident except in *molestus*.

There are but two females known, one of which belongs with reasonable certainty to *speratus*, the other probably to *optatus*. It may be needless to say that the characters given for the sexes (loc. cit. p. 26), are not valid, they are evidently variations of the male only.

A. speratus ♀ Lec.—Parallel, rufo-piceous, feebly shining, sparsely pubescent, body feebly winged. Head moderately densely and coarsely punctate. Antennæ passing slightly the middle of the thorax, subserrate, first joint stout, second small, round, third a little longer, fourth slightly longer than third, 4—8

gradually decreasing in length, ninth not longer than second, tenth and eleventh longer, less serrate, the latter slightly constricted at tip. Thorax not longer than wide, slightly broader at base than apex, sides nearly straight, hind angles feebly divergent, carinate, surface not densely punctate, a feeble median line posteriorly, an oblique moderately deep impression on each side at end of carina. Elytra about two and a half times the length of the thorax, shorter than the abdomen, striate, intervals alternately broader, the narrower intervals slightly more convex near the tip, surface moderately densely punctulate and near the tip somewhat wrinkled, apex obliquely prolonged. Prothorax beneath densely punctured at middle, sparsely at the sides, metathorax sparsely and finely punctate. Abdomen shining, very sparsely finely punctulate. Length .56 inch; 14 mm. Pl. I, fig. 8.

The maxillary palpi in addition to the normal four joints have a small, narrow joint at the end of the fourth. The structure of the antennæ above described is also somewhat abnormal, and I observe on one side that the eighth and ninth joints are connate and on the other mobile. The impressions in the thorax near the tip of the carina are probably not permanent in their occurrence, as I observe a variation in this respect in the two females of one *Euthysanius* before me.

The abdomen beneath is composed of six segments, the last being retractile and the first and fifth equal to the two adjacent ones. From the female of *Euthysanius* this differs in having one less segment to the abdomen and one less (eleventh) joint in the antennæ.

The reference of this female to *Aplastus speratus* is not without a little doubt, but from its size, general aspect, locality of occurrence, I think the propriety of the reference will be fully confirmed in the future.

One specimen, Marin Co., California; in the cabinet of Mr. Ulke.

A. optatus ♀.—Similar in form and sculpture to the preceding female but with the thorax more nearly square and much more convex. The hind angles have a short carina and the surface sparsely punctured a little more densely near the anterior angles. The elytra are striate, the intervals convex, the surface rather densely punctulate, and the apex less prolonged. Abdomen as in the preceding. Length .84 inch; 21 mm. Pl. I, fig. 7.

I refer this female to *optatus* from its size and the sculpture of the elytra, the preceding female is referred to *speratus* from the very distinct alternation of the elytral intervals. In this female I do not detect the small appendicular piece on the tip of the maxillary palpi nor is there that apparent deformity of the antennæ.

One specimen, in the cabinet of Mr. Ulke. This is the type of *Anamesus convexicollis* Lec.

PLASTOCERUS Lec.

This genus was originally described by Dr. Leconte, (Trans. Am. Philos. Soc. x, p. 502), on a species from California, *P. Schaumii*, at the same time remarking that a "specimen of this insect was sent by

me to Dr. Schaum, who pronounced it strictly congeneric with *Callirhipis angulosa* Germ., which forms the type of the unpublished genus PLASTOCERUS." Lacordaire and, following him, Duval both call *angulosa* the type of the genus, a position which cannot by any means be sustained, as Dr. Leconte did not see that species and probably has not even studied it since that time.

This would be a matter of very little moment if *angulosa* and *Schaumii* were really congeneric, of which I have very considerable doubt from the structure of the labrum and the antennæ and the form of the mandibles. I have not seen the *angulosa* and can go no further, and leave the development of the matter to European students.

Of our own species I have seen and studied many specimens, and conclude that all the forms constitute but one species in which three varieties may be indicated.

Hind angles of thorax strongly divergent and carinate.

Thorax rather narrow not very densely punctured. Pl. II, fig. 1...**Schaumii**.

Thorax as broad as long, coarsely and densely punctured. Pl. II, fig. 2...**frater**.

Hind angles not divergent feebly carinate.

Thorax narrow coarsely and densely punctured. Pl. II, fig. 3.....**maeer**.

In the accompanying plate I have endeavored to represent the three characteristic forms with the details of sculpture and two additional outlines. There is no constancy in the form of the thorax nor in the sculpture of the elytra all intermediate degrees occurring in both particulars.

The figure given of *frater* (Pl. II, fig. 2), is undoubtedly a female, and I find no important difference from the male excepting in the structure of the antennæ and the last ventral segment. In the antennæ the branches are about half the length of those of the male and not ciliate at the sides, and with a few short ciliæ at tip only. The last ventral segment is merely shorter and broader than in the male.

If this is really the female, and I think there is no doubt, the species shows a wide divergence from *Euthysanius* in this sex, the males of the genera differing merely in the number of the joints of the antennæ.

Occurs in southwestern maritime California.

In fig. 4, will be found an illustration of a curious monstrosity which explains itself.

EUTHYSANIUS Lec.

The form of the labrum appears to have no value specific or otherwise, it may be truncate, sinuate or even triangularly emarginate and in the same species. There appear to be but two species in both of which I observe an amount of variation which, with fewer specimens, would

probably cause further subdivision, but it will be observed in all these aberrant and rather soft *Elateridæ*, that there is a certain elasticity in specific characteristics which must always be taken into account.

The two species are :

Terminal joint of antennæ decidedly shorter than the branch of the eleventh; thorax always longer than wide at middle.....**lautus** Lec.
Terminal joint as long as the branch of the eleventh; thorax usually as wide at middle as long.....**pretiosus** Lec.

E. LAUTUS ♂ Lec.—The accompanying plate shows what I consider merely varieties of this species, and it is well here to remark that the impressions in the thorax of one form and their absence in the other is not by any means constant. The typical form (fig. 1), is usually darker in color than the other, a little stouter in form and with the thorax a little more coarsely punctured. It is possible that the discovery of the female will show the variety (fig. 2), to be a distinct species, and if so the female will probably have elytra less short than in the true *lautus*, and more nearly squarely truncate at tip. Length ♂ .80—.92 inch; 20—23 mm. Pl. I, fig. 1, 2.

Occurs at San Diego, San Luis Obispo, Tejon and Owen's Valley, California.

E. lautus ♀.—Elongate, cylindrical, slightly depressed, rufous, moderately shining, sparsely pubescent, feebly winged. Head moderately densely and coarsely punctate. Antennæ passing slightly the middle of the thorax, serrate, first joint obconical, 2—5 small, nearly equal, not angulate in front, 6—11 longer with the free angle becoming gradually longer, twelve as long as the branch of the eleventh and slightly curved. Thorax nearly square, very little narrowed in front, hind angles slightly divergent and carinate, surface not very densely punctured and with a depression and smoother space on each side in front and at middle posteriorly. Elytra very little longer than wide conjointly and not extending beyond the first dorsal abdominal segment, suture slightly separated the angle rounded, apex obliquely truncate the outer angle rounded, striæ deep and distinctly punctate, the intervals convex sparsely punctate. Abdomen with eight free segments, the last two slightly shorter than the others, surface sparsely and finely punctate more densely on the sixth. Thorax beneath coarsely punctured at middle and very sparsely at the sides. Metathorax very sparsely punctate. Abdomen more shining not densely punctate. Length 1.44 inch; 36 mm. Pl. I, fig. 3.

In the only specimen I have seen which is a fully impregnated female the abdomen is greatly extended even beyond what I have shown in the figure, the connecting membranes between the abdominal segments both on the dorsal and ventral aspects are nearly half the length of the segments themselves, the abdomen is thus extended so as to equal very nearly two and a half times the thorax and elytra together. The figure is purposely drawn with less connecting membrane showing. There are

eight abdominal segments on the upper and lower faces, the first ventral is however entirely membranous and almost concealed by the coxæ.

The body is not apterous, but the wings are short and feeble.

One specimen, Fort Tejon, California; in cabinet of Dr. Leconte.

E. pretiosus ♂ Lec.—This species excepting the antennæ has more the form of some of our *Asaphes*. The antennal character is the only constant one for the separation of this from *lautus*. The thorax is usually as broad as long but this is not constantly so. The surface is however less coarsely punctured and at base more finely than in *lautus*. Length .72 inch; 18 mm. Pl. I, fig. 4.

This species is the one referred to by Lacordaire, (*Genera* iv, p. 233, note), and through the kindness of Mr. Alexander Fry of London, I have one of the specimens.

Occurs in the Coast Range region at and north of Santa Barbara.

E. pretiosus ♀.—Elongate, cylindrical, slightly depressed, rufo-testaceous, moderately shining, very sparsely pubescent, body feebly winged. Head moderately densely punctate, vertex slightly impressed. Antennæ slightly passing the middle of the thorax, somewhat variable in structure. Thorax a little wider than long, anterior angles rounded, sides very feebly arcuate, hind angles slightly divergent and carinate, surface sparsely punctate and with a slight depression each side at the end of the carina. Elytra as long or a little longer than the head and thorax and covering the first two abdominal segments, sides arcuate, apex slightly prolonged, suture dehiscent, striate, striæ not punctate, intervals sparsely punctulate. Prosternum coarsely punctate, the side pieces quite smooth, metasternum and abdomen sparsely punctulate. Abdomen above very sparsely and finely punctulate. Length .80—90 inch; 20—23 mm. Pl. I, fig. 5.

The abdomen has eight distinct segments on the dorsal aspect and but seven on the ventral, the first or subcoxal segment not being apparent here, probably from the less extended condition of the abdomen.

The two specimens before me which are without any doubt the females of *E. pretiosus* Lec., show a slight amount of variation. The specimen in my cabinet from which fig. 5 was drawn has the thorax somewhat more convex and the depressions of the thorax well marked, the elytral striæ quite deep and the intervals convex. In Dr. Leconte's specimen the thorax more closely resembles that of the male, the striæ are feebler especially at base and the intervals less convex.

The antennæ show the most important differences. In my specimen the penultimate joint alone has the anterior angle prolonged, while in the other specimen (fig. 5 *a*), this joint and the three which precede are acute in front and are about intermediate in structure between figure 5 and that of *E. lautus*.

Two specimens from the coast region of Cal., south of San Francisco.

CEBRIONIDÆ.

Our genera in the books at present are three in number separated as follows :

Labrum entirely connate with the front.....	Anachilus.
Labrum separated by a suture from the front.	
Anterior tibiæ entire.....	Cebrio.
Anterior tibiæ emarginate externally.....	Scaptolenus.

In studying the specimens of *Anachilus* in the cabinet of Dr. Lecote all are without suture between the labrum and front, of the four in my cabinet, one has a distinct suture, one less distinct, and two no suture at all. Extending the study to *Cebrio* the same thing happens, and specimens occur with a very distinct and probably flexile suture to others where there is absolutely no trace whatever, the front and labrum being perfectly continuous. As there is no other difference between *Anachilus* and *Cebrio* the former must be suppressed.

The species of *Cebrio* have been separated by the form of the labrum (emarginate or not), and maxillary palpi, (terminal joint equal to a shorter than the preceding).

I have had before me about three dozen, perhaps more specimens, and besides observing that some have the labrum and front carinate, the labrum has the anterior margin arcuate in some, truncate in others or emarginate, and in several deeply triangularly incised, and between all these forms every intermediate degree. The maxillary palpi moreover do not possess that degree of difference in structure which enables us to separate species thereby, and I have therefore been compelled to abandon both the above mentioned characters and unite all three species in one.

By the suppression of *Anachilus* and the occurrence of one new, there are three species in *Cebrio* in our fauna as follows :

Antennæ distinctly serrate, the terminal joint rather suddenly constricted at tip; elytra distinctly striate.

Prosternum between the coxæ extremely narrow; mandibles very prominent not capable of closure beneath the labrum.....**mandibularis** Lec.

Prosternum between the coxæ not linear; mandibles more robust and when closed are in great part concealed at their base. Pl. II, fig. 7...**bicolor** Fab.

Antennæ feebly serrate, terminal joint not constricted at tip; elytra not striate.

Mandibles very feebly prominent.....**estriatus** n. sp.

In a revision of the *Cebrioidæ* (Ann. Fr. 1874, p. 534), Chevrolat retains the generic name *Selenodon* for our species, but for what reason he does not state nor can I find out.

C. bicolor Fab.—Upper side brownish, piceous or castaneous, sparsely pubescent, beneath and legs testaceous. Head coarsely and densely punctate. Thorax punctured but less densely than the head. Elytra moderately deeply

striate, striæ coarsely punctured especially near the apex, intervals slightly convex, densely punctate. Length .48—.80 inch, .90 ♀; 12—20 mm, 22.5 ♀. Pl. II, fig. 7.

The thorax is very variable in shape and convexity—usually nearly square slightly narrowed in front, sometimes slightly transverse, the hind angles are never strongly divergent. The disc may be either normally convex or variously impressed. The mandibles when closed leave but a small open space between them and the labrum.

C. mandibularis Lec. (*Anachilus*).—Moderately elongate, fusco-testaceous, sparsely pubescent. Head piceous or nearly black, moderately densely punctate. Labrum transverse, feebly emarginate, usually pale in color, either connate with the front without suture or with the suture more or less distinct. Mandibles slender, prominent, and when closed leaving a wide open space between them. Antennæ moderately serrate, terminal joint deeply constricted at tip. Thorax broader than long, sides moderately areuate, hind angles acute, divergent, surface moderately densely punctate. Prosternum extremely narrow between the coxæ. Elytra a little broader than the thorax, deeply broadly striate, striæ coarsely punctured especially near the apex, intervals densely punctulate. Body beneath paler than above and moderately densely punctate. Length .44—.54 inch; 11—13.5 mm.

Of this species we know males only.

Occurs in Florida.

C. estriatus n. sp.—Moderately elongate, pale brownish testaceous, finely pubescent. Head moderately densely punctured. Labrum transverse, feebly emarginate, suture distinct. Mandibles rather short, when closed not leaving a space between them. Thorax nearly square, sides feebly arcuate, hind angles short, acute, divergent, surface not densely punctate. Prosternum very narrow between the coxæ. Elytra a little wider than the thorax, surface not striate but densely punctate and with faint traces of three discal costæ. Body beneath not densely punctate. Length .44 inch; 11 mm.

The antennæ are less serrate than in the two preceding species and the terminal joint is not constricted, this character with the absence of elytral striæ will serve to distinguish it.

One specimen, Texas.

SCAPTOLENUS Lec.

The species of this genus which occur in our fauna are from Texas. In the *Annales de la Société Entom. de France*, 1874, p. 523, Chevrolat cites *S. Gehini* from Texas? and p. 524, *S. Californicus* from California, while in the list of species p. 509, both are quoted from Mexico. I have no doubt that they are really Mexican.

Three species are otherwise known to me.

Last joint of maxillary palpus as long or longer than the preceding. Last joint of labial palpi longer.

Elytra rather deeply sulcate and subcostulate.....**Lecointei** Sallé.

Last joint of maxillary palpus very decidedly shorter than the preceding. Last joint of labial shorter.

Elytra feebly subsulcate posterior to the basal fourth; anterior tibiæ with the upper tooth strong; tibiæ and tarsi pitchy black. Pl. II, fig. 8.

ocreatus n. sp.

Elytra without traces of striæ, moderately densely punctured; anterior tibiæ with upper tooth feeble; legs pale brownish testaceous.....**estriatus** Lec.

S. Lecontei Sallé (*femoralis* Lec.)—Piceous, moderately shining, elytra pale castaneous. Head piceous, deeply and coarsely punctate and with erect brownish hairs. Thorax transverse, narrowed in front, apex slightly prolonged at middle, anterior angles rounded, sides feebly arcuate, hind angles long, slender and not divergent from the line of the sides, base lobed at middle, sinuate each side, surface densely punctate and with erect brown hairs. Elytra elongate, gradually convergent posteriorly, dehiscent at apical third, at base gibbous, surface moderately deeply sulcate and subcostate, except at base and moderately densely punctulate, sparsely clothed with short pubescence. Body beneath piceous, clothed with yellowish hair, abdomen less punctate and with fewer hairs. Legs piceous, the femora usually paler. Length .64—.72 inch; 16—18 mm.

Only males are known. The anterior tibiæ have the upper tooth strong. The antennæ are serrate. In both the maxillary and labial palpi the terminal joint is longer than the preceding.

The color of the abdomen varies from piceous to testaceous, the segments often being piceous with the posterior edge of the segments paler. In fully mature specimens the tibiæ and tarsi are piceous the femora paler, even pale yellow.

This is the most abundant species in Texas.

S. estriatus Lec.—Piceo-testaceous, less elongate than *Lecontei*. Head and thorax similar but with shorter yellowish hair. Elytra gibbous at base, without trace of striæ or costæ, surface moderately densely punctate. Body beneath paler than above and with the legs luteous. Length .56 inch; 14 mm.

The anterior tibiæ have the upper tooth rather feeble. In the maxillary palpi the last joint is shorter than the preceding, the last joint of the labial is also shorter but less distinctly so than the maxillary.

Occurs in Texas.

S. ocreatus n. sp.—Piceous, elytra testaceous, femora yellow. Head and thorax piceous, moderately densely punctate, clothed with moderately long, erect, yellowish hair. Elytra gibbous at base, pale testaceous, sutural and outer margins near the apex bordered with black, surface faintly subcostate posteriorly and not densely nor coarsely punctured, sparsely clothed with very short black pubescence. Body beneath piceous, clothed with yellowish hair. Legs pitchy black, femora yellow. Length .56 inch; 14 mm. Pl. II, fig. 8.

Very similar in form to *estriatus*, and therefore shorter and less attenuate than *Lecontei*. The anterior tibiæ have the upper tooth well marked. The palpi are as in *estriatus*.

One specimen, Texas.

I find it impossible to place either of the last two species in any of the groups suggested by Chevrolat, the characters given being very indefinite.

The maintenance of the *Cebrionidæ* as a family apart from the *Elateridæ*, is rather the result of universal agreement than from the presence of any good reasons.

“The principal differences between this and the preceding family is in the greater number (six) of the ventral segments, the well developed tibial spurs, the expansion of the anterior tibiæ at apex, and the close connection between the front and labrum. By the intermediate forms of the group *Plastoceri*, of the previous family, all the differences except those of the anterior tibiæ become evanescent; and I place the *Cebrionidæ* as a distinct family, only in deference to the views of the most distinguished foreign authorities.”

In the above quotation from Leconte (Classification p. 175), I fully agree, and add that between the *Plastoceri* and *Cebrio* the dilatation of the anterior tibiæ is a matter of very little difference and almost null.

Chevrolat seems more satisfied with his results :

“For the family of *Cebrionites*, I think I have united the elements constituting a good classification and which present the most sharply defined characters: males notably different from the females, winged, elongate; females apterous, short, stout; the first having the antennæ slender, more or less elongate, flat, of variable form conical or triangular; the second having these members short, moniliform, gradually broader externally; the tarsi filiform in the two sexes.”

I have no further criticism of this than to refer the reader to a comparison of the males and females of *Aplastus* and *Euthysanius*.

From the above extracts, which form the substance of all that has been said in defence of the retention of the *Cebrionidæ* apart from the *Elateridæ*, it will be inferred that there are no characters at present known which will separate these two families.

RHIPICERIDÆ.

This family is represented in our fauna by two genera, *Zenou* with simple tarsi, *Sandalus* with lobed tarsi. *Brachypsectra* placed here by Dr. Leconte seems a veritable *Dascyllide*.

After a careful study of the characters of the family I can find nothing which will warrant us in retaining it apart from the *Dascyllidæ*. The presence of an onychium seems to be the only character at present relied on and this is present in *Stenocolus* (*Lichas* Ww.), a genus which one would not desire to separate from association with *Dascyllus*.

SANDALUS Knoch.

Four species are known to occur in our fauna which may be distinguished in the following manner :

Tarsi broad and flat, the joints deeply emarginate, the lamellæ long and very distinct.

Thorax obtusely subangulate behind the middle. Pl. II, figs. 12—13.

petrophyus Knoch.

Thorax regularly conical.

Thorax densely punctured and opaque with numerous large punctures intermixed.....**porosus** Lec.

Thorax finely punctulate and somewhat shining with very few coarser punctures intermixed.....**niger** Knoch.

Tarsi rather slender, the joints feebly emarginate, the lamellæ small and inconspicuous.

Thorax as in *niger*. Pl. II, figs. 10—11.....**californicus** Lec.

The sculpture of all the species is similar, the head densely and coarsely punctured, thorax densely punctured with coarser punctures intermixed, the latter less evident in *niger*. The elytra are densely coarsely punctured, the punctures arranged in irregular rows, and on the disc are often three faint costæ.

In general form the last three species of the above table are quite similar as shown on Pl. II, figs. 10—11. *S. petrophyus* however is different in outline as shown in figs. 12—13.

In color they vary in the species from castaneous to nearly black, specimens occasionally occurring with the elytra testaceous. The antennal flabellum of the male usually piceous is sometimes reddish.

S. petrophyus Knoch, occurs from Pennsylvania to Illinois.

S. porosus Lec., Texas and New Mexico.

S. niger Knoch, Middle States to Texas.

S. californicus Lec., California and Nevada.

DASCYLLIDÆ.

ACNEUS Horn.

This genus was founded by me on a ♀ in my cabinet which suggested a form distinct from any of the genera known. For its characters I could only say that "the prosternum is depressed between the coxæ, the latter therefore more prominent than it."

The parts of the mouth are very similar to those of *Ectopria*, which it otherwise resembles except in the characters of the male which are as follows :

Male.—Antennæ with first joint stout, suddenly narrowed at base, second small, oval, third longer than the first two together, slender, slightly broader externally, fourth short, bearing a short branch, joints

5—11 flabellate, each joint bearing a long slender branch, those from 5—8 gradually longer, 9—11 gradually shorter. Tarsal claws broadly toothed at base, the anterior claw of each pair bifid at tip as in *Eubria*, the two parts divergent. Pl. II, fig. 14.

Female.—Antennæ with joints 1—3 as in the male, 4—11 short, subserrate. Claws slender and simple on all the feet.

For the privilege of examining the male I am indebted to the kindness of Mr. H. Ulke of Washington. His specimen is I believe from Oregon, showing a wide distribution.

Several unimportant errors have been observed in the "Revision of Dascyllidæ," (Trans. Am. Ent. Soc. vol. viii, 1880).

Page 77, top line, for Parinidæ read Parnidæ.

Page 81, middle of page, for *Dasyppogon* read *Eurypogon*.

Page 91, the generic name EUCINETUS Germ., should be inserted at the middle of page, under *Eucinetini*.

Page 103, in the table, top line, for "wide as long," read "long as wide."

Page 112, in the synonymy of ANCHYTARSUS, for *fragilis* read *debilis*.

BRACHYPSECTRA Lec.

In a preceding page I have suggested the propriety of referring this genus to the Dascyllidæ. The entire absence of onychium excludes it from Rhipiceridæ, and while I have but little faith in the propriety of retaining the latter family as distinct, taking the characters as we find them the genus goes better with the Dascyllidæ.

The anterior coxæ are angulate externally and the trochantin quite distinct. The front is however narrowed by the insertion of the antennæ and the mouth is inferior as in Eubriini, two characters decidedly at variance with the Dascyllini. I would therefore suggest a change of the table proposed by me in a Revision of the Dascyllidæ (Trans. Am. Ent. Soc. 1880, p. 77), as follows:

Antennæ distant at base, front not narrowed.

Epistoma prolonged, etc.....MACROPOGONINI.

Epistoma short, etc.....DASCYLLINI.

Antennæ approximate at base, front narrowed.

Labrum visible, mandibles not prolonged, mouth inferior.....BRACHYPSECTRINI.

The tribe thus suggested indicates a line of affinity between the subfamily Dascyllidæ and the Eubriini, which is otherwise quite wanting except through a series of other Helodide genera.

The specimens I have studied appear to be females only. The antennæ are formed in a manner leading us to expect the antenna of the ♂ to be pectinate. Pl. II, fig. 15.

While on the subject of the Dascyllidæ it might be as well to call attention to *Psephenus*, a genus at present placed among the Parnidæ. It is provided with a very large trochantin to the anterior coxæ, and there is an entire absence of the prosternal lobe which is seen in all the Parnidæ protecting the mouth beneath. The abdomen is also constructed on a plan entirely at variance with the latter family but considerably resembling many of the smaller Dascyllidæ. I do not feel fully prepared to defend a union of *Psephenus* with the Dascyllidæ, but merely to call attention to the obvious disturbance of the otherwise homogeneous structure of the Parnidæ by retaining it there.

In a paper which I hope to present in the future this genus will be more fully discussed and with it *Lara* also, which, though less irregular in its characters, introduces an element in the Parnidæ which does not seem to fully belong there. Having but recently seen an absolutely perfect specimen of this insect, the amount of study which I have been able to devote to it is not sufficient to warrant a decided expression of opinion either way.

Bibliography and Synonymy.

ELATERIDÆ.

APHRICUS Lec.

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APLASTUS Lec.

A. angusticollis Horn, Trans. Am. Ent. Soc. 1874, p. 25.

A. tenuiformis Horn, loc. cit.

A. corymbitoides Horn, loc. cit.

A. speratus Lec., Proc. Acad. 1859, p. 73; Horn, loc. cit. p. 26; ♀ Horn, supra.

A. optatus Lec., Proc. Acad. 1861, p. 349; Cand. iv, p. 489, pl. 6, fig. 12; Horn, loc. cit. p. 26.

convexicollis ♀ Lec., (*Anamesus*), Proc. Acad. 1866, p. 393.

A. molestus Horn, loc. cit. p. 27.

PLASTOCERUS Lec.

P. Schaumii Lec., Trans. Am. Philos. Soc. x, p. 502.

var. *frater* Lec., Proc. Acad. 1859, p. 73; 1866, p. 393; ♀ Horn, supra.

var. *macer* Horn, supra.

EUTHYSANIUS Lec.

- E. lautus** Lec., Trans. Am. Philos. Soc. x, p. 502; ♀ Horn, supra.
E. pretiosus Lec., New Species, 1863, p. 86; ♀ Horn, supra.

CEBRIONIDÆ.

CEBRIO Oliv.

- C. bicolor** Fab., Syst. El. ii, p. 14; Beauv. Ins. p. 9, pl. 7, fig. 2 a—d; Latr. Ann. Ent. Soc. Fr. 1834, p. 163; Lec. Trans. Am. Philos. Soc. x, p. 503.
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simplex Lec. loc. cit. p. 503.
C. mandibularis Lec., (*Anachilus*), New Species, 1863, p. 86.
C. estriatus Horn, n. sp.

SCAPTOLENUS Lec.

- S. Lecontei** Sallé.
femoralis † Lec., Trans. Am. Philos. Soc. x, p. 504.
S. estriatus Lec., Trans. Am. Ent. Soc. 1874, p. 55.
S. ocreatus Horn, n. sp.

RHIPICERIDÆ.

ZENOA Say.

- Z. pioea** Beauv., (*Melasis*), Ins. Africa et America, p. 7, pl. 7, fig. 1; Lacordaire, Genera, Atlas pl. 43, fig. 1; larva Osten Sacken, Proc. Ent. Soc. Phil. i, p. 107, pl. 1, fig. 2.
brunnea Say, Bost. Journ. i, p. 152.
vulnerata Lec., Journ. Acad. ser. 2, i, p. 89; Proc. Acad. vi, p. 229.

SANDALUS Knoch.

- S. petrophyus** Knoch, Neue Beytr. p. 131; Cast. Mon. p. 267; Hald. Proc. Acad. vi, p. 363; Guérin, Spec. et Icon. nr. 2, p. 6, figs. 3, 6, 7, 9, 10, 12.
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Proserpina Newm., Ent. Mag. vi, p. 383.
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S. porosus Lec., Trans. Am. Ent. Soc. 1868, p. 52.
S. niger Knoch, loc. cit. p. 140; Cast. Mon. p. 269; Hald. Proc. Acad. vi, p. 362.
rufipennis ♀ Latr., Règne Anim. p. 461.
rubidus ♀ Mels., Proc. Acad. ii, p. 220.
Knochii Guér. loc. cit. p. 4, figs. 1, 4, 5, 8, 11, 13 ♂; 2, 14 ♀.
scabricollis ♀ Hald., Proc. Acad. 1853, p. 363.
S. californicus Lec., Proc. Acad. 1861, p. 349.

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EXPLANATION OF PLATE I.

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- Fig. 1.—*Euthysanius lautus* ♂ Lec.
 Fig. 2.—A variety of same.
 Fig. 3.—Female of 1.
 Fig. 4.—*E. pretiosus* ♂ Lec.
 Fig. 5.—Same ♀; *a*, antennal variation.
 Fig. 6.—*Aplastus optatus* ♂ Lec.
 Fig. 7.—Same ♀, (*Anamesus convexicollis* Lec.).
 Fig. 8.—*Aplastus speratus* ♀ Lec.; *a*, maxillary palpus, probably a monstrosity.
 Fig. 9.—*A. angusticollis* ♂ Horn.
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EXPLANATION OF PLATE II.

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- Fig. 1.—*Platocerus Schaumii* ♂.
 Fig. 2.—*P. frater* ♀ Lec., a variety of *Schaumii*.
 Fig. 3.—*P. macer* ♂ Horn, a variety of *Schaumii*.
 Fig. 4.—Outline of thorax showing further variation as well as a monstrosity of the antenna.
 Fig. 5.—Another form of thorax.
 Fig. 6.—*Aphricus californicus* ♂ Lec.
 Fig. 7.—*Cebrio bicolor* ♂ Fab.
 Fig. 8.—*Scaptolenus ocreatus* Horn.
 Fig. 9.—*Zenoa picea* Beauv.
 Fig. 10.—*Sandalus californicus* ♀ Lec.
 Fig. 11.—Same ♂.
 Fig. 12.—*S. petrophyus* ♀ Knoch.
 Fig. 13.—Same ♂.
 Fig. 14.—*Acneus quadrimaculatus* ♂ Horn; *a*, antenna more enlarged; *b*, anterior claw; *c*, posterior claw.
 Fig. 15.—*Brachypsectra fulva* Lec. (♀?).

On the genera of CARABIDÆ with special reference to the fauna of Boreal America.

BY GEORGE H. HORN, M. D.

Before entering the subject of the present essay it will be useful to consider some preliminary matters about which there is still some discussion and differences of opinion.

The Carabidæ forms one of the members of the Adephagous series of coleoptera which is readily recognized by the predaceous character of its mouth parts, its slender antennæ (except in Gyrinidæ), pentamerous tarsi and the structure of the first abdominal segment which is in all cases divided or hidden by the posterior coxæ in such a manner, that it is entirely lateral, rarely appearing as a small triangular piece between the posterior coxæ.

The ventral character is an important one and it prevails without exception in the entire series. If we examine the Gyrinidæ, however, which the books all agree in saying have six ventral segments, the first segment will be found apparently very long and passing entirely across the abdomen without interruption by the coxæ. A more careful examination will show that this segment is really composed of two closely united, but with traces of the suture visible near the coxæ as I have illustrated on Pl. III, fig. 9. The Gyrinidæ therefore have seven ventral segments.

With an apparent exception thus disposed of the limits of the families of the Adephaga are to be considered and here is the point where the greatest diversity of opinion prevails, especially with reference to the Haliplidæ and the two aberrant genera *Amphizoa* and *Pelobius*.

The Haliplidæ are placed by Lacordaire in the Dytiscidæ rather under protest, while subsequent authors have removed them in a more or less decided manner either as a separate family or sub-family. In a preliminary sketch of a new classification of Dytiscidæ, (Comptes-rendus de la Soc. Ent. Belg. Sept. 4, 1880), Dr. Sharp says: "I exclude the Haliplides from the family and leave for the Carabophiles to decide whether they should be considered Carabidæ or form a distinct family." They should form a separate family; my reasons will be given hereafter.

Amphizoa immediately concerns our fauna. It was originally described as typical of a distinct family by Dr. LeConte, (Proc. Acad. 1853, p. 227-8), and notwithstanding the opposition of Schaum the

same view is maintained in the Classification of the Coleoptera of North America. Chaudoir (Bull. Mosc. 1872), says: "notwithstanding the opposition of many entomologists, this genus can be placed only in the vicinity of *Trachypachys*, as a distinct group."

Dr. Sharp in the paper above cited claims for *Amphizoa* a place in the Dytiscidæ in the series *Dytisci complicati*, which have the metasternal episternum taking part in the closure of the middle coxæ. This character which I first observed in *Amphizoa* and illustrated by a figure, (Trans. Am. Ent. Soc. 1867, p. 157), appears to have caused Dr. Sharp to arrive at the above conclusion. I believe *Amphizoa* to be far less a Dytiscide than a Carabide.

The series in which Dr. Sharp places *Pelobius* is called *Dytisci fragmentati* which is characterized by the less complex structure of the outer side of the middle coxal cavities. Here the same number of pieces are found which we observe in the sub-family Carabinæ, that is, the mesosternum, its epimeron and the metasternum. These two series of Dytiscidæ Dr. Sharp very aptly compares with a similar division of the Carabidæ in two series, in which the *D. fragmentati* represent the more highly specialized Carabinæ and the *D. complicati* the Harpalinæ. In *Amphizoa* and *Pelobius* I see two distinct types each with a very evident Carabide relationship and intermediate between the Carabinæ and Dytiscidæ in two distinct lines. The Carabinæ seem to be a centre from which the other Carabidæ and the Dytiscidæ diverge, the former toward a simpler the latter to a greater degree of complication of the coxal structure.

Pelobius was accepted by Lacordaire and many since as an undoubted Dytiscide with certain aberrant characters. Dr. Sharp, while admitting that it has but little claim to such a position, places it at the head of that family notwithstanding that he says, "the Carabide predominates over the Dytiscide in its organization." That he acts thus with impartial fairness to two very aberrant genera, must be admitted, but I hope to show that in all the Adephaga there exist characters of very great systematic importance which have been entirely overlooked and which will define with great accuracy the relationship of the various families.

It must be evident to all that there are radical differences in the formation of the under side of the body in the now recognized families of the Adephagous series. Many of the characters making up these differences have been made use of by various authors and they have now become the common property of the science.

The structure of the metasternum demands a new study and here will be found the important characters to which I have already referred.

If we examine that portion of the body of a Cicindelide, Carabide or Haliplide, it will be observed that the metasternum consists of two distinct pieces, the anterior or that which makes up the greater part of that member and the posterior or ante-coxal piece separated from the former by a well marked suture extending entirely across the body. This line of separation has probably been considered merely a matter of sculpture but in some Carabidæ, especially the Ozænini, the two sternal pieces may be entirely separated by a short immersion in a solution of caustic potassa. In fact in these last named insects I am inclined to believe the suture somewhat mobile, as there is an evident laxity of articulation in the side pieces of the body as well as between the meso- and metasternum. The suture and piece intended will be seen on Pl. III, figs. 1—5.

In *Amphizoa* and *Pelobius* the structure is entirely different. There is but a very small ante-coxal piece with the suture in front of it very indistinct and the posterior side truncate and not prolonged between the coxæ as will be observed in the preceding families. This gives the metasternum the appearance of being truncate behind, a form of expression already made use of by various authors. This structure is shown on Pl. III, figs. 6—7.

In the Dytiscidæ and Gyridæ with their short metasternum there will be observed an entire want of any such structure. The ante-coxal piece is entirely absent without trace of suture, and the metasternum is pointed between the coxæ. The under sides of *Dytiscus* and *Dineutus* are represented on Pl. III, figs. 8—9.

The posterior coxæ also differ greatly in the various families. In all the coxæ are contiguous except in a comparatively few Carabidæ, the extent of the contact varying greatly from a mere angular touching to quite a long edge of contact. In the figure of *Cychnus* (Pl. III, fig. 1), the coxæ will be seen separated by a small triangle of the first ventral segment, *Pterostichus* (fig. 2), and *Mormolyce* (fig. 3), show a mere point of contact, while in the other genera on the plate the extent of contiguous edge varies, being greatest in *Dineutus*.

The coxæ reach the side margin of the body, separating the metasternal side pieces from the first ventral segment, in all the families excepting the Carabidæ and Cicindelidæ. *Trachypachys* of the former family makes an exception. With this extent of the coxæ externally we have associated an immobility of the coxæ, thus affording a firm point of support for the hind legs required by the mode of life of all the genera possessing it. The extent of median contiguity tends to

give still greater firmness. *Trachypachys* has the coxæ as mobile as in ordinary Carabidæ, there is however but a short line of median contact.

With the above notes and the characters already well known in the books an arrangement of the Adephagous families may be outlined in the following manner:

Metasternum with an ante-coxal piece, separated by a well marked suture, reaching from one side to the other and extending in a triangular process between the coxæ.

Antennæ eleven-jointed. Posterior coxæ mobile and simple. Habits terrestrial.

Antennæ inserted on the front above the base of the mandibles.

CICINDELIDÆ.

Antennæ arising at the side of the head between the base of the mandibles and the eyes. CARABIDÆ.

Antennæ ten-jointed. Posterior coxæ fixed and with large plates almost entirely concealing the abdomen. Habits aquatic.

HALIPLIDÆ.

Metasternum with a very short ante-coxal piece, the suture indistinct, posteriorly not prolonged between the coxæ. Habits aquatic.

Legs ambulatorial. Anterior coxæ globular.

AMPHIZOIDÆ.

Legs natatorial. Anterior coxæ conical. PELOBIIDÆ.

Metasternum prolonged behind in a triangular process, the ante-coxal piece entirely wanting. Habits aquatic.

Antennæ slender, filiform or setaceous. Abdomen with six segments.

Eyes two. DYTISCIDÆ.

Antennæ irregular, very short. Abdomen with seven segments, the first two closely united. Eyes four. . . . GYRINIDÆ.

The above scheme seems to give a division of families in accord with both structure and habits. I have used the expression "aquatic" in order that *Amphizoa* might be accommodated, its habits, while sub-aquatic, are by no means "natatorial." I have already given a sufficiently full account of the habits of this remarkable insect, (*Proc. Ent. Soc. Phil.* vi, p. 289), and will merely add in brief that it acts precisely like the Parnidæ and is equally poor as a swimmer, and a very awkward walker out of the water.

The Cicindelidæ, with the exception of a few genera, have the maxillæ armed at tip with a movable hook. This is peculiar to the family. For many years the books have presented *Trigonodactyla* of the Carabidæ as an exception and an articulated hook assigned to it. In the discussion

of the *Otenodaetylini* this will be shown not to be true, as illustrated by fig. 70. I have observed among the *Manticorini*, as represented by *Amblychila*, *Omus* and *Manticora*, that the posterior coxæ are separated, the intercoxal process meeting the metasternum by an obtuse articulation. The other tribes have these coxæ contiguous.

In a review of the opinions expressed by authors regarding other possible members of the Adepagous series we find the Paussidæ included by Burmeister (*Mag. Zool.* 1841, *Ins.* pl. 76), and the Rhysodidæ by Crotch (*Proc. Amer. Philos. Soc.* 1873). These must be excluded for many reasons, more especially as they fail to present the ventral structure which may be safely taken as the key. If we admit them there is no reason why some and after them all the Colydiidæ should not be admitted and the door would be open to much of the Clavicorn series. It must be admitted however that *Paussus* is the nearest approach of the Clavicorn series to the Adepaga the approximation in another direction being through the Byrrhidæ and Parnidæ with however a very wide interval.

Having established limits for the series as well as for the family Carabidæ, it will probably produce a better understanding of the subsequent pages if the various parts of the body are reviewed and their modifications studied, so that a correct idea may be obtained of the value to be assigned to each change of structure.

CARABIDÆ.

HEAD.—The head is usually oval, rarely very broad (*Pasimachus*, *Enceladus*, *Siagona*) or very elongate. In the latter case the elongation may be in front of the eyes as in *Cychnus* or behind them as in *Casnonia* and *Mormolyce*. The neck is often suddenly constricted and sometimes behind the constriction expanded to a semiglobular condyle which admits of very free motion of the head in every direction. The clypeus is usually narrower than the front and more or less prolonged but in the *Licinini* is not more prominent than the sides of the front. In *Dicrochile* and *Zargus* the central portion is membranous recalling the structure of that of *Necrophorus*.

The head is provided with setæ which seem to be special tactile organs and which from their constancy, as well in position as presence, have an important bearing from a systematic point of view. The supra-orbital setæ may be either two or one in number or even entirely wanting as in the *Pseudomorphinæ*. When there are two setæ the anterior is situated close to the border of the eye always in front of the middle, the posterior is at a distance within the eye opposite the posterior margin. If one seta

is present it may be close to the eye, usually it is a little removed, it is never in front of the middle.

The clypeus also bears setæ, usually one on each side and as a general rule those genera with two supra-orbital setæ have the clypeal seta situated at the middle of the side of the clypeus at a slight distance from the margin, while those with one supra-orbital have the clypeal near the anterior angle. Rarely there are more than one clypeal setæ at the side, as in certain *Anisodactylus* while in *Pelecium (cyanipes)* there is no seta whatever it being apparently replaced by a considerable development of the outer seta of the labrum.

EYES.—These organs are sometimes entirely absent, the instances are now rather numerous and well known. When present the form shows but little variation from the round or oval form (see Ozæni ni). Their size however varies greatly and with it the prominence, *Siagona* having very small eyes and in *Elaphrus* they are large and prominent. When the eyes are large relatively to the size of the head, whether unduly prominent or not, they approach very closely beneath the head to the edge of the buccal fissure, when small they are distant from the mouth. This seems to be very useful systematically but has not been made use of before the present paper. The granulation also varies but I have not been able to make use of this.

ANTENNÆ.—These are always eleven-jointed, usually filiform or setaceous, sometimes moniliform or compressed. The form seems to have less value from a systematic point of view than the extent of fine pubescence covering the surface of the joints. The antennæ have three kinds of pilosity, sometimes all present at the same time. First, a dense, fine, short, recumbent pubescence which is present on those joints with a fine, dense punctuation indicating probably the presence of a special sense identical with or resembling the sense of smell in animals of a higher organization. Second, a longer hairyness diffusely scattered over the joints, and finally stiffer hairs around the distal ends of the joints, these are especially well marked in *Loricera* and allied genera. The basal joint is not at any time very long but in the *Scarites* and *Dryptini* sufficiently elongate to attract notice, on the anterior face of this joint near the tip is a long seta. The extent to which the pubescence covers the antennæ has been used by many systematists since Lacordaire but there are so many striking exceptions within tribal limits that it can only be used for separating tribes and never for defining any higher groups. The surface of the antennæ is not always uniformly punctured. In those genera with the antennæ at all flattened, one or both sides have a median smooth

space. This is well marked in the Helluonini, *Pterostichus* and many Harpalini. The number of basal joints which may be glabrous varies from two to four, but in *Trachypachys* there is no pubescence whatever.

It is extremely rare that the antennæ are received in well marked grooves on the under side of the head. The Pseudomorphae are I believe the only instance of this.

LABRUM.—This member varies greatly in form and size. It is usually transverse truncate in front or slightly emarginate, ciliate or with four or six setæ along the margin. It is rarely bilobed (*Cychrus*, *Dicrochile*, *Zargus*), sometimes very large and convex (*Anthia*) or prolonged covering in great part the mandibles (*Pericalus*, etc.). In some genera the marginal setæ may be very small, *Anthia* or entirely wanting, *Macrochilus* and other genera of Helluonini.

MANDIBLES.—These are variable in form and prominence, within toothed, serrulate or simple. The tip is usually acute, the left mandible overlapping the right. Sometimes however (certain Harpalini) the mandibles meet in a pincer-like manner. The outer side is usually concave, forming an elongate groove (called the scrobe), in which usually beyond the middle is found a puncture bearing a moderate seta in those genera of riparial habits (*Nebria*, *Bembidium*, *Patrobus*, *Nomius*). The presence of this seta is extremely important in defining the relationship of genera otherwise obscure like *Melœnus* and *Coscinia*. The scrobe is, however, sometimes absent as in the genera allied to *Pentagonica*.

MAXILLÆ.—In the present family the inner and outer lobes are always present as will be observed in the figures (it will be seen that the outer lobe is absent in *Dinutus*, 151). The inner lobe varies somewhat in form, it is usually hooked at tip, the hook *never* articulated. The tip may however be obtuse without hook as observed in Scaritini (19, 21, 22), Promecognathini (18), Pterostichini (45), Cratocerini (107), Orthogonini (*Anoncopencus*), Peleciini (111), or more or less acute, without hook as in *Glyptus* (133). The inner edge is ciliate or spinulose and very rarely with anything approaching a tooth. The outer or palpiform lobe is biarticulate (except in *Callistus* 118, and *Amerizus* 38), the joints of variable relative length, the two together at least equal to the inner lobe, with the single exception of *Glyptus* 133, where they are shorter.

Of the *maxillary palpi* very little can be said in a general way. The accompanying sketches represent every known variety of form.

The maxillary lobes by their differences above mentioned afford merely

generic characters, while the form of the last joint of the palpus is used to separate tribes, but it is not a very safe character.

MENTUM.—The mentum closes the mouth more or less perfectly beneath usually allowing the outer side of the maxillæ at base to be seen. It is supported on a peduncle of the submentum the suture separating them usually very distinct, rarely entirely absent as in *Enceladus* 26, *Siagona* 31, *Lestignathus* 65, certain *Trechi* 40, 41, and the *Pseudomorphinæ* 147. The form of the mentum varies but no character of systematic value has been obtained from this excepting in the *Scarites* where it is very broad, or *Drypta* 76, from its nearly orbicular form.

The epilobes of the mentum are always present in the Carabidæ although much inflexed when the ligula is large as in *Pasimachus* 19. They vary greatly in size from a narrow border, as is the usual occurrence, to a very wide piece as in *Schizogenius* 23. Their extremities are often prolonged in an angle or even an acute process as in *Anophthalmus* 40, or *Perigona* 63. The epilobes have been made use of by Chaudoir in the *Lebiini* (*q. v.*) and *Pogonini*, in the former case erroneously in the latter with very little success.

The mentum is usually emarginate, sometimes very feebly or even *Brachylobus* 117, truncate. At the bottom of the emargination in very many genera a tooth of variable size and form occurs. The tooth is formed in two ways. It may be made entirely of a prolongation of the middle portion of the epilobes, or it may consist of a process of the body of the mentum narrowly bordered by the epilobes. This character as well as the form of the tooth will be found sufficiently represented in the sketches.

As a general rule when the mentum tooth is well developed the "post-dental" setæ are very small, often inconspicuous, when the mentum is deeply emarginate and the central portion of the epilobes membranous these setæ are unusually large and conspicuous, they are also well developed where the ligula is unduly exposed as in *Migadops* 16. I have but rarely represented these in the figures for fear of confusing more important parts of the mouth.

In the emargination of the mentum we usually find a connecting membrane which is the basal support of the ligula, and which varies in extent in accordance with the degree of extensibility of the ligula.

LIGULA or **LABIUM.**—It seems to me better that the latter name should be adopted for the entire organ as most authors in speaking of ligula may mean either the whole or merely the central member.

The labium consists of three parts, the central, usually corneous, piece on each side of which are membranous appendages called paraglossæ.

In every dissection I have made the three parts have always been present, sometimes however very closely united and corneous as in *Helluomorpha* 103. It seems unprofitable to discuss the modifications of the ligula and paraglossæ, their forms are shown in the figures and the explanations given in the tribal headings.

From my own observations I think the labium the most unsafe and unsatisfactory organ that can be made use of in classification and the poor results to be obtained from it need no further illustration than Lacordaire's system of Carabidæ. When the labium is used in the division of tribes into smaller groups and genera we have a microscopic subdivision resulting which overwhelms the science in a chaos of indefinable groups and an infinity of genera which threatens the exhaustion of the capacity of the classic languages for further combination.

A great part of the trouble with this organ seems to have resulted from causes which Jacquelin Duval so well describes, (Gen. Col. Eur. i, p. 34, note). When observed under varying external conditions the paraglossæ present rather diverse forms. They are often thin and membranous and will contract and expand with moisture and fail to present the same appearance when dry as when wet. My own dissections have been drawn while the specimens were moist, and in the smaller ones, enclosed in a drop of water.

The appendages of the ligula, the terminal setæ of varying number, seem useful in assisting the placing of genera when properly subordinated to other characters, but I think that genera based solely on the number of these setæ or their position must ultimately fail of recognition.

While I do not believe the ligula to possess the value assigned by some authors it may be made useful. In some vast groups like the Pterostichini and Platynini there is a similarity of type which one will readily recognize. There are however important modifications that need not mislead if properly studied, *Lestignathus* 65, is one of these. In this the ligula and paraglossæ are both well marked, the former feebly corneous, the latter slender and long but connected with the central ligula by a transparent membrane which serves to add strength to the organ which is at best very weak and thin.

LABIAL PALPI.—These organs are usually similar in their terminal joint to the maxillary palpi, when they differ it affords a very useful means of separating genera. It appears however to have escaped notice that the relative length of the last two joints to each other is a matter of far greater importance than has been recognized. The terminal joint may be equal to or longer than the preceding, or shorter. In the former

case the penultimate joint is bisetose in front and in the latter plurisetose. In the genera allied to *Oodes* 119, 120, 121, I have not found any setæ except in *Evolenes* 122, nor in *Chlænius pensylvanicus* 115, and *Glyptus* 133.

The entire groups Dryptini, Graphipterini, Anthiini, Zabrinini and nearly all the Harpalini have the penultimate joint plurisetose. The same character also occurs exceptionally in other tribes. The character seems to be an important one and has been useful in several of the tables.

PROTHORAX.—The form of the thorax plays but a subordinate part. The obliteration of the lateral margin in *Apotomus* seemed to Schaum to be very important but the same occurs in several remote genera, as *Agra* and *Casnomia*. The basal lobe by its presence has been useful in the Lebiini. The special setæ of the side margin are nearly as important as those of the head. In those genera with two supra-orbitals we can safely expect two at the side of the thorax one being in the hind angle, where there is one supra-orbital that of the hind angle is wanting except in *Bradycellus* and some few allied genera. All the Oodini, Anthiini, Graphipterini, Cratocerini, Orthogonini and *Glyptus* have no lateral setæ that I can discover nor trace of punctures from which they arise.

SCUTELLUM.—This is never large, sometimes entirely concealed (*Omophroru*), and in the pedunculate genera confined to the peduncle. Its form is usually triangular.

ELYTRA.—These organs by their form play an important part in the Harpalinæ, in accordance with the form of the apex whether entire, sinuate or truncate, also the structure of the base whether margined or not. The internal plica, which will be more fully explained further on, has been recognized by Bedel in his tables, but its full import does not seem to have been recognized. Its use seems to be, to hold the elytra more firmly together by an interlocking with the margin of the abdomen.

The elytral sculpture is of course very variable, the normal form is nine-striate but the striæ in *Cychrus* far exceed this number. Sometimes the eighth and ninth striæ are confluent or nearly so as in *Oodes*. The eighth on its outer side bears ocellate punctures which in very recent specimens bear long setæ as shown in *Psydru*s (Pl. IV, fig. 1). The ocellate punctures are wanting in our Panagæini, in *Apotomus* and many Carabinæ.

PROSTERNUM.—The modifications of this portion have proven especially useful in the Carabinæ as will be seen by reference to

the table. In the Harpalinæ it is of less importance generically. In *Cyclosomus* the tip is much prolonged and acute.

ANTERIOR COXÆ.—The cavities receiving these are always closed except in a small number of tribes of Carabinæ. In many cases the positive determination of open or closed cavities can only be made by separating the prothorax.

MESOSTERNUM.—The mesosternum separates the middle coxæ narrowly, not often widely (*Siagona* and some Carabinæ), rarely the coxal cavities are confluent (certain *Ozæniini*). In front it is usually oblique or nearly flat, rarely protuberant and carinate (some Carabinæ). The side pieces, epimera and episterna, by their form and extent give to the division of the entire family one of its most important characters. In the first sub-family Carabinæ the epimera nearly equal the episterna in size and reach the coxal cavity. In the other two sub-families the epimera vary in width but do not reach the coxæ, and in some tribes are extremely narrow, in fact linear or even partly hidden externally by the episterna.

Mormolyce is one of the most remarkable exceptions in the entire family. It is plainly by its structure otherwise, allied to the *Truncatipenne* series but the mesosternal epimera reach the coxæ; nor does the exception end here, the metasternal episterna also form part of the outer side of the coxal cavity, a character otherwise unknown in the Adephaga outside of the *Dytisci complicati* (Pl. III, fig. 3). This gives an answer to the closing lines of Dr. Sharp's paper. (*Comptes rendus Ent. Soc. Belg.* Sept. 1880).

METASTERNUM.—This segment yields nothing of importance in the classification of the family, its structure has given us the means of dividing the Adephaga in a satisfactory manner. The side pieces are of less importance than those of the preceding segment, the fusion of the two pieces in one has been made use of but its importance exaggerated. I have seen in the same species the epimera free or united with the episterna without suture (*Metrius*).

POSTERIOR COXÆ.—While it has been observed that the middle coxæ are sometimes contiguous, it seems to have escaped notice that the posterior are equally variable. In the vast majority of genera the coxæ are contiguous although at times the contact is small and produced by a slight extension inward of a small process of the coxæ as shown in Pl. III, fig. 2. The metasternum and abdomen are however completely separated, as effectually as in those genera in which the contact is larger. This is the form observed in *Pterostichini*, *Lebiini* and

Harpalini. In a comparatively few genera the coxæ are plainly separated and the small triangle of the first ventral segment becomes visible between them. This character is scattered in all parts of the series. In *Brachynus* it seems to lose its value as species occur with the coxæ contiguous or separated. In *Trachypachys* alone the coxæ externally reach the side margin of the body. This character is usual in all the following families but unique here.

ABDOMEN.—There are always six segments, the first lateral. Their length varies but not to an extent to afford systematic characters. In *Brachynus* there are said to be seven or eight segments but this is sufficiently discussed in that tribe.

Each of the first five segments bears near its posterior edge and on each side of the middle a puncture bearing an "ambulatorial seta." The last ventral is apt to vary sexually in its punctuation and the males will be seen to have but one puncture each side and the females two. Other sexual modifications of the last ventral are often observed, but these have more often a specific than generic value.

LEGS.—The only specially important variation is found in the anterior tibiæ whether emarginate or not on the inner side and with this the position of the terminal spurs. In some genera the anterior tibiæ are grooved on the inner side in the axis of the member, these have the spurs of necessity terminal. It will be observed then that the greater the obliquity of the groove the more one spur is elevated so that when the emargination is most perfectly developed the inner spur is at the upper angle of the emargination. The tibial spurs are always present, sometimes very short (*Agra*), or very long (*Tetragonoderus*), and in the latter genus finely serrulate. There are two spurs, never more, notwithstanding the assertion to the contrary in *Zabrus*.

TARSI.—The feet are five-jointed without exception, the joints varying among themselves in form and size, and many times afford a useful resort for separating genera. The vestiture of the under side is variable generically and again sexually. The mode of dilatation of the anterior male tarsi and the vestiture of the dilated joints whether squamulose, papillose, pubescent, spongy or spinous, gives at times the only constant character for the separation of groups of genera.

As a rule the anterior tarsi of the male are dilated in from two to four joints while it often happens that the sexes can not thus be separated.

UNGUES.—The claws are more often simple than otherwise but numerous instances occur in which they are dentate, serrate or pectinate. These variations are useful for the separation of genera.

FACIES.—Species of a genus and genera of a tribe have a greater or less resemblance which affords to the practiced eye an easy guide to position, but there are in many parts of the series such close repetitions of form that this can not be relied on. *Tetragonoderus* and *Bembidium*, *Patrobis* and *Nebria*, *Dyschirius* and *Apotomus*, *Cyclosomus* and *Omophron*, are instances of this mimicry. On the other hand allied genera will be found presenting diversity of aspect and some may be polymorphic as to their species, as *Carabus* and *Cychnus*.

With this review of the separate parts of the body the preliminary portion of this essay closes. I have purposely avoided citing many instances of the occurrence of each character as the genera are unknown to most of the students of our fauna and our native genera have been cited when they answer the purpose.

The Carabidæ may be divided in the following manner into three sub-families :

Middle coxal cavities not entirely enclosed by the sterna, the epimeron of the mesosternum attaining the coxa. . . . *CARABINÆ*.

Middle coxal cavities entirely enclosed by the sterna, the epimeron not attaining the coxa.

Head without antennal grooves beneath and with distinct supra-orbital setæ. Ambulatorial setæ of abdomen usually well developed.

HARPALINÆ.

Head with distinct usually long antennal grooves beneath and without distinct supra-orbital setæ. Ambulatorial setæ of abdomen feeble or wanting. *PSEUDOMORPHINÆ*.

The only exceptions known to me in the structure of the middle coxal cavities is in *Mormolyce*, of which mention has already been made. The *Ozæniini* and *Siaگونini* have been considered exceptions but by careful preparation of specimens I have found the coxal cavities as in the Harpalinæ. In the proper place these matters will be found more fully discussed.

Sub-Family *CARABINÆ*.

Middle coxal cavities partially closed by the sterna the intervening space occupied by the mesosternal epimeron. Head with one or two supra-orbital setigerous punctures. Sides of thorax usually with two setigerous punctures. Anterior tibiæ either entire, obliquely grooved or emarginate, the spurs either both apical or with the inner more or less remote.

The tribes of this sub-family contain a less number of genera than the Harpalinæ, but of such a specialized type as to make it necessary to separate them to such an extent that many of the tribes contain but one genus.

The following table gives in brief the characters which separate the tribes:

- Posterior coxæ attaining the side margin of body. Anterior coxal cavities open behind. Mandibles with setigerous puncture.....Tribe II. **Trachypachini**.
- Posterior coxæ not attaining the side margin of body.
- Anterior coxal cavities open behind.
- Posterior coxæ separated. Labrum bifurcate.....Tribe III. **Cychrini**.
- Posterior coxæ contiguous. Labrum not bifurcate.
- Mandibles without setigerous puncture externally.
- Spurs of anterior tibiæ terminal.....Tribe IV. **Carabini**.
- Inner spur above the outer.
- Outer apical angle of anterior tibiæ prolonged. First antennal joint moderate.....Tribe V. **Pamborini**.
- Outer angle not prolonged. First antennal joint long.....Tribe VI. **Hiletini**.
- Mandibles with setigerous puncture.....Tribe IX. **Nebrini**.
- Anterior coxal cavities closed behind.
- Prosternum prolonged and dilated, entirely concealing the mesosternum. Mandibles with setigerous puncture. Scutellum entirely concealed.
Tribe I. **Omophonini**.
- Prosternum not concealing the mesosternum.
- Antennæ free at base.
- Mandibles without setigerous puncture. Anterior tibiæ strongly emarginate. One supra-orbital seta.....Tribe VIII. **Lorioerini**.
- Mandibles with setigerous puncture. Anterior tibiæ feebly emarginate. Two supra-orbital setæ.....Tribe VII. **Elaphrini**.
- Antennæ arising either under a distinct frontal plate or a ridge which extends backward over the eyes.
- Body not pedunculate, the bases of thorax and elytra in contact.
- Posterior coxæ contiguous. No mandibular seta. Prosternum acute.
Tribe X. **Migadopini**.
- Posterior coxæ separated.
- Prosternum prolonged at tip. Mandibles with seta.....Tribe XI. **Metriini**.
- Prosternum not prolonged. Mandibles without seta.
Tribe XII. **Mystropomini**.
- Body pedunculate, bases of thorax and elytra remote.
- Posterior coxæ separated.
- Anterior tibiæ emarginate within, the inner spur remote from the outer. Mentum with distinct suture at base.....Tribe XIII. **Promecognathini**.
- Anterior tibiæ obliquely grooved within, the spurs terminal and nearly on the same plane. Mentum closely connate with the submentum.
Tribe XIV. **Enceladini**.
- Posterior coxæ contiguous.
- Anterior tibiæ emarginate within, the outer apical angle prolonged.
Tribe XV. **Scaritini**.

Of the above tribes ten are represented within our faunal limits and but one of these, *Metriini*, is peculiar to it as far as the genera of the sub-family are known to me.

It is impossible to give these tribes a linear arrangement without

violating some of the affinities but the numerical sequence above seems to be the least objectionable.

Representatives of all have been studied from nature except *Hiletini*, so rare seem the species that with all my exertion I have been unable to procure one of them.

I can hardly allow the present occasion to pass without expressing my great sense of obligation to Messrs. Bates and the Jansons of London, Sallé of Paris, and Dr. Dohrn of Stettin, for their ready response to my calls for rare and valuable material.

Tribe J.—*Omophronini*.

Antennæ slender, inserted under a slight frontal margin, four basal joints glabrous. Eyes round, moderately prominent, distant beneath from the buccal opening. Head deeply inserted, with one supra-orbital seta. Labrum short, emarginate. Mandibles not prominent, arcuate, acute at tip, simple within or slightly toothed near the base, outer side slightly concave with a setigerous puncture. Maxillæ slender, inner lobe hooked at tip, spinulose within, outer lobe slender biarticulate, palpi slender the last two joints equal. Mentum deeply emarginate and with an acute tooth, ligula truncate and slightly broader at tip and bisetose, the paraglossæ free at tip but not longer, the palpi slender, second joint longer than the terminal and plurisetose in front. Thorax applied directly against the base of the elytra, sides with a single setigerous puncture a little behind the middle. Scutellum invisible. Elytra convex, margined at base, sides narrowly inflexed margin continuous. Prosternum rather widely separating the coxæ, prolonged and dilated behind them and completely covering the mesosternum the coxal cavities closed behind. Mesosternum in front vertical and carinate with two fossæ to receive the under side of the anterior coxæ. Metasternum short, epimera not distinct, posterior coxæ contiguous. Tibiæ finely spinulose externally, the anterior slightly broader to tip, within obliquely grooved, the inner spur above the apex. Tarsi slender.

The males have one or two joints of the anterior tarsi dilated and spongy pubescent beneath.

One genus constitutes this tribe, *Omophron*, concerning which all authors seem to be in accord in permitting it to remain alone.

At first glance the posterior coxæ seem to be separated, but a little care will readily detect the small laminiform processes which by their meeting conceal the small remnant of the first ventral segment.

European authors describe the ligula and paraglossæ somewhat differently but the figure given is that which will be found in *O. dentatum* Lec.

The plurisetose second joint of the labial palpi is a character of extremely rare occurrence in the present sub-family, it is the usual structure in *Cieindelidæ* and very constant in *Dryptini* and *Harpalini* of the sub-family *Harpalinae*.

The affinities of the present tribe are very difficult to define. It seems out of place in any part of the series. Specialization of type

seems to be carried to such an extreme in the present sub-family that tribes may be separated containing one or at most two genera, except in the Scaritini and possibly the Migadopidæ as defined by Chaudoir.

Tribe II.—*Trachypachini*.

Antennæ moderate, arising under a distinct frontal margin, the joints all glabrous with a few hairs near the tip of each, first joint stout but short, third very little longer than the second. Eyes oval, not prominent, moderately distant from the buccal fissure. Head deeply inserted in the thorax, with two supra-orbital setæ. Labrum short, broadly but feebly emarginate. Mandibles stout, arcuate, concave on the outer side and with a setigerous puncture. Maxillæ with inner lobe stout, falciform, ciliate and spinous within, outer lobe rather stout, with two equal joints, palpi stout, the second and fourth joints equal, the third a little shorter. Mentum short, broad, with distinct suture at base, anteriorly feebly emarginate with an emarginate tooth. Ligula broad, rounded and bisetose at tip, the paraglossæ membranous, obtuse at tip, slightly longer than the ligula, the palpi short, the second joint with one seta in front, the third elongate-oval. Thorax with three setigerous punctures at the sides, the first at apical angle, the second at middle, the third at basal angle. Body not pedunculate, scutellum distinct. Elytra not margined at base, sides narrowly inflexed, margin not interrupted. Prosternum horizontal at tip prolonged behind the coxæ, the coxal cavities open behind, prosternal sutures indistinct. Mesosternum oblique and with a carina in front between two fossæ which receive the anterior coxæ. Metasternal epimera invisible, the posterior coxæ contiguous within and reaching the side of the body separating the metasternal side pieces and the abdomen. Legs not long, femora stout, middle and posterior tibiæ spinous externally, anterior tibiæ spinous posteriorly, gradually stouter to tip, sulcate and feebly emarginate, the inner spur above the tip.

The anterior tarsi of the male have two joints feebly dilated and spongy pubescent beneath.

This tribe contains two genera *Trachypachys* and *Systolosoma*, the former occurring in our fauna and Europe, the latter in Chili.

The characters above given show such an apportionment of those peculiar to the sub-family, with the addition of one not found in any of the tribes of Carabidæ, that it is difficult to say in which direction the affinities are most marked, but those toward the Nebriini and Elaphrini seem to be the most evident. As in all the other tribes of the present sub-family the affinities seem to be complex, and will appear stronger or weaker in accordance with the standpoint from which we view them.

The form of the posterior coxæ is the character more especially noteworthy in this tribe. These members are not of unusual dimensions but extend to the margin of the body, their line of contact with each other is also greater than is usual in the entire family.

In the Berlin Zeitschr, 1860, p. 166, Schaum states that *Trachypachys* has three spurs to the anterior tibiæ, two terminal and one above the emargination, and on p. 167 the same is said of *Metrius*. From my

own observation no coleopterous insect ever has more than two spurs to each tibia except by monstrosity, consequently the above statements are incorrect.

Tribe III.—Cychrini.

Antennæ slender, setaceous, four basal joints glabrous (two only in *Nomarethus*), inserted under a feeble frontal ridge; first joint long and often stout, third longer than second. Eyes round moderately prominent, distant beneath from the buccal opening. Head more or less constricted, with one setigerous puncture above the eye, neck often semiglobose. Labrum deeply bifurcate. Mandibles long and prominent, arcuate and acute at tip, and at least bidentate within, and with no setigerous puncture externally. Ligula acute and bisetose at tip, the paraglossæ variable. Labial palpi long, the second joint elongate, plurisetose in front, last joint securiform and concave. Maxillæ with inner lobe slender, hooked at tip, ciliate or spinous within, the outer lobe stout with the terminal joint longer, the palpi long and slender, the last joint securiform and concave. Mentum deeply emarginate without tooth. Thorax variable in form with a lateral and antebasal setigerous puncture. Body not pedunculate, scutellum scarcely evident. Elytra not margined at base, sides rather widely inflexed, margin acute and not interrupted. Prosternum usually not prolonged behind the coxæ the tip obtuse, the coxal cavities open behind. Mesosternum nearly vertical and obtusely carinate in front. Metasternal epimera not distinct. Posterior coxæ separated by a triangular process of the abdomen. Legs long usually slender, the femora usually very feebly clavate. Anterior tibiæ very slightly broader to apex, grooved within near the apex, the spurs terminal but placed slightly obliquely to each other. Tarsi slender, the first joint long, the fourth entire.

Anterior tarsi usually dilated in the males with a variable number of joints spongy pubescent beneath.

As above defined the present tribe contains those genera included by Lacordaire excepting *Damaster* which Chaudoir has properly removed to the Carabini. Probably misled by the presence of *Damaster*, Schaum has suggested the union of the present tribe with the Carabini, but the characters separating the two are so well marked and sharply defined that they must be retained as distinct.

The separation of the posterior coxæ which seems to have escaped notice here as well as in several of the following tribes is a character of too great importance to neglect. It is repeated in *Metrius*, *Promecognathus* and *Enceladus*, but there exists too wide an interval between the Cychrini and these genera for us to suggest any special affinity with either of them. With the Carabini the Cychrini appear to have the closest relationship.

Two genera form this tribe, both represented in the United States.

Antennæ with four basal joints glabrous..... **Cychrus.**
 Antennæ with two basal joints glabrous..... **Nomarethus.**

Cychrus as above defined is rather polymorphic and is capable of division into parts which rank rather as sub-genera than genera. Those

occurring in our fauna have been the subject of a study by me in which these divisions have been treated in sufficient detail (Trans. Am. Ent. Soc. 1878, pp. 168—185).

Two important divisions may however be noticed, those in which the anterior tarsi are similar in the sexes and slender, and those with the anterior tarsi dilated in the males. To the first of these series belong the European species and three in our own fauna which occur west of the Rocky Mountains. Those with dilated tarsi are peculiar to our fauna. These two series seem to bear the same relationship to each other that *Damaster* does to *Carabus*.

In *Nomaretus* and one group of *Cychnus* (*Sphæroderus*), the tip of the prosternum is somewhat prolonged and Chaudoir holds the opinion that, from this fact and the more widely dilated tarsi of the male, the group should have generic value. I do not see any necessity for this, for if we attempt to divide *Cychnus* more than two divisions will be required and the subject unnecessarily complicated.

Tribe IV.—*Carabini*.

Antennæ slender, with four basal joints glabrous, arising under a feeble frontal ridge. Eyes round moderately prominent and distant beneath from the buccal opening. Head not constricted behind the eyes and with one supra-orbital setigerous puncture. Labrum broad and emarginate. Mandibles stout, arcuate, acute at tip, concave on the outer side and without setigerous puncture. Mentum broad, emarginate, with a variable tooth. Ligula variable, the paraglossæ distinct. Maxillæ with inner lobe strongly hooked, densely ciliate within, outer lobe stout. Palpi moderate or long, last joint of both pairs securiform. Thorax with a setigerous puncture at the side and one also near the posterior angle. Body not pedunculate, scutellum small. Elytra feebly embracing the sides of the body, the lateral margin continuous. Prosternum horizontal at tip and prolonged, the anterior coxal cavities open. Mesosternum nearly vertical and subcarinate in front. Meta-sternal epimera invisible, posterior coxæ contiguous. Anterior tibiae gradually broader to tip, slightly grooved within, the spurs terminal but placed obliquely to each other. Femora moderate, the anterior stouter. Middle and posterior tarsi long and slender, the anterior shorter.

In the males the anterior tarsi are dilated and densely pubescent beneath, the dilated joints variable in number, simple in both sexes in *Damaster*.

This tribe is composed of species of at least medium or even of large size, remarkable for the most part for their beauty of form, color and sculpture. As here defined it contains those genera not of the *Nebriide* type with the addition of *Damaster*. This latter genus as remarked by Schaum (Ann. Fr. 1862, p. 68), differs from *Carabus* merely in the absence of dilated tarsi in the male. The entire structure is so closely that of *Carabus* and so different from *Cychnus* that it seems almost impossible that Lacordaire should have associated it with the latter genus.

I entirely agree with Chaudoir (Bull. Mose. 1861, p. 502), in placing *Damaster* in the present tribe.

Within our faunal limits but two genera occur separated by the form of the third antennal joint.

Third joint of antennæ cylindrical.....**Carabus.**
Third joint of antennæ compressed.....**Calosoma.**

In their numbers of species these genera in our fauna reverse that of Europe where *Carabus* is far more numerous than *Calosoma*, with us the latter genus has the greater number of species but the disparity between the genera is not so great as in Europe.

Tribe V.—Pamborini.

Antennæ straight, moderate in length, arising under a distinct frontal margin; first four joints glabrous, first joint slightly elongate, third longer than second. Eyes not large, moderately prominent, distant from the buccal fissure. Head narrowed behind the eyes to a distinct neck and with a single setigerous puncture over each eye. Labrum transverse, deeply but broadly emarginate. Mandibles arcuate, acute at tip, strongly dentate within, without setigerous puncture. Mentum short, broad, narrowed in front, broadly but feebly emarginate, epilobes narrow but distinct, mental suture distinct. (Ligula and maxillæ not dissected.) Labial palpi robust, the terminal joint longer, elongate securiform, second joint without setæ. Maxillary palpi similar but with the second joint longer than the fourth. Thorax somewhat narrowed behind the hind angles slightly prolonged, a setigerous puncture at middle of sides another near the hind angle. Body not pedunculate, scutellum short and broad. Elytra not margined at base, lateral margin entire, sides moderately inflexed. Prosternum horizontal and prolonged at tip, anterior coxal cavities open behind. Mesosternum nearly vertical obtusely carinate in front. Metasternal epimera indistinct, posterior coxæ contiguous. Femora moderate, the anterior slightly stouter. Anterior tibiæ broader to tip, the outer apical angle prolonged, deeply grooved on the inner side, the inner spur situated considerably above the outer. Tarsi slender, the first joint equal to the next three together, fourth joint slender.

Anterior tarsi slender and similar in both sexes.

This tribe contains but one genus peculiar to Australia, *Pamborus*. Lacordaire has associated *Teflus* with it, but by what process of reasoning I have been unable to determine and which has been very properly separated by Chaudoir and associated with *Panagæus*. By the open anterior coxal cavities, the form of the mesosternum and the contiguous posterior coxæ, *Pamborus* exhibits a decided relationship with the Carabini, but the structure of the anterior tibiæ and the more widely inflexed elytra are abundantly sufficient to separate it as a distinct tribe. By the latter character a relationship is exhibited with the Cychrini and by the anterior tibiæ with Šcaritini. It might also be observed that the structure of the head above resembles *Pelecium* but beyond the resemblance there is no further affinity.

Tribe VI.—**Hiletini**.

Antennæ moderate in length, inserted under a well marked frontal plate, geniculate, the first joint elongate, received in repose in a depression beneath the eyes. Head oval, stout, with two supra-orbital setæ. Eyes small not prominent. Labrum transverse feebly emarginate. Mandibles broad, arcuate externally and curved from above downwards and without seta on the outer side, pluridentate within. Maxillary palpi securiform ♂ or triangular ♀. Mentum broad, deeply emarginate with a large quadrifid tooth. Ligula elongate, spatuliform, rounded at tip, the paraglossæ shorter, linear and ciliate, terminal joint of the palpus more strongly securiform in the male. Thorax subcordiform. Elytra parallel feebly convex. Prosternum prolonged at tip and received in a depression of the mesosternum, anterior coxal cavities open behind. Metathoracic epimera distinct. Legs moderate. Anterior tibiæ entire, the spurs terminal. Tarsi short. Posterior coxæ not contiguous.

The first three joints of the anterior and middle tarsi of the male are feebly dilated and spongy beneath.

The tribe contains but one genus *Hiletus* which is unknown to me in nature, the above characters have been obtained from the books in great part, to which I have added others kindly observed for me by Mr. H. W. Bates.

The relations of the tribe, like many others of the sub-family, are complex, but on the whole it seems better placed near the Pamborini and Carabini than elsewhere.

Tribe VII.—**Elaphrini**.

Antennæ moderate in length, rarely longer than head and thorax, three basal joints glabrous, the fourth pubescent at tip or entirely glabrous in *Diachila*, base free, a slight ridge in *Blethisa*. Eyes round, usually prominent, moderately distant from the buccal fissure. Front more or less deflexed, with two supra-orbital setæ. Labrum moderate, truncate. Mandibles stout, concave externally, with a setigerous puncture, arcuate, acute at tip. Maxillæ hooked at tip, ciliate or spinulose externally, outer lobe slender biarticulate, palpi moderate in length, terminal joint longer than the preceding. Mentum emarginate with a bifid or emarginate tooth, ligula free at tip, bisetose, acute in *Elaphrus*, broad in the other genera, paraglossæ slender longer than the ligula, the palpi moderate, the last two joints equal the penultimate bisetose in front, except in *Diachila*. Thorax variable in form, the seta in the posterior angle always present, the lateral absent in most *Elaphrus*. Body not pedunculate, scutellum distinct. Elytra not margined at base except feebly near the humeri in *Blethisa*, sides narrowly inflexed, margin entire. Prosternum obtuse at tip not prolonged behind the coxæ, the coxal cavities closed. Mesosternum not prominent. Metasternal epimera not distinct, the posterior coxæ contiguous. Legs moderate. Middle and posterior tibiæ slightly spinulose externally, the anterior obliquely grooved, the inner spur above the apex. Tarsi slender.

This tribe contains the three genera quoted above, and I suspect that some if not all of those placed by Chaudoir in his Migadopidæ should be added unless the ligular structure is allowed to have weight in their separation. The affinities of the tribe are feeble except in the direction of the Nebriini.

The genera are separated in the following manner :

Mentum tooth large, nearly as long as the lateral lobes, emarginate. Thorax without lateral seta. Elytra with variolate foveæ, not striate... **Elaphrus.**

Mentum tooth short bifid at tip. Thorax with lateral setigerous puncture.

Head not sulcate, elytra with feeble striæ of punctures..... **Diachila.**

Head with deep lateral grooves, elytra striate with interstitial foveæ... **Blethisa.**

ELAPHRUS.—The affinities existing between this genus and *Opisthius* have been referred to in the proper place. It is remarkable that the lateral seta of the thorax is absent in all the species of this genus except *viridis* Horn, which is the only one in our fauna with the thorax wider than the head including the eyes. In the larger species the males have four joints dilated, in the smaller but three.

DIACHILA.—Two species occur in our fauna, *arctica* Gyll., common to both Europe and America, and *subpolaris* Lec., from Hudson's Bay. The anterior tarsi of the male have four dilated and spongy pubescent joints and in *subpolaris* the middle femur has a small tooth near the base.

BLETHISA.—Four joints of the anterior tarsi are slightly dilated and spongy pubescent beneath in the male, and in *quadricollis* Hald., the anterior femora have an acute tooth beneath.

Tribe VIII. **Loricerini.**

Antennæ slender, base free, first four joints glabrous, first joint elongate, third longer than second, joints 2—6 with long bristles in front. Eyes round, prominent. Head forming a distinct neck and with one supra-orbital seta. Labrum moderately prominent, arcuate in front. Mandibles thin, curved, acute at tip, without setigerous puncture. Maxillæ with a moderate foliaceous expansion at base which bears long ciliæ, inner lobe hooked at tip, sparsely ciliate within, outer lobe with slender joints, palpi slender the last joint longer than the preceding and acute. Mentum moderately emarginate with an obtuse tooth, basal suture distinct. Ligula not prominent, slightly prolonged in front and bisetose, the paraglossæ adherent in their entire length and not longer, the palpi slender the last two joints nearly equal, the penultimate bisetose in front. Thorax transversely cordate, with a single setigerous puncture at the side behind the middle. Body not pedunculate, scutellum distinct. Elytra margined at base, sides narrowly inflexed, lateral margin entire but with a distinct internal plica. Prosternum not prolonged behind, the anterior coxal cavities closed. Mesosternum oblique not carinate in front. Metasternal side pieces distinct the suture between them well marked, posterior coxæ contiguous. Legs slender, middle and hind tibiæ spinulose externally, anterior tibiæ deeply emarginate within, the inner spur remote from the apex. Tarsi slender.

The anterior tarsi of the male have three joints rather broadly dilated and densely spongy pubescent beneath.

This tribe contains but one genus *Loricera*, in our fauna, with which *Elliptosoma* Woll., a Maderan form has been associated. These are said to differ in the absence of metasternal epimera in the former

and their presence in the latter, but in all the specimens of *Loricera* I have examined the suture between the episterna and epimera are quite distinct.

Associated for a time with the Panagæides, *Loricera* has been properly removed by Schiødte, Schaum and Chandoir. While it must be considered a member of the present sub-family allied to the Elaphrini and Nebriini, it presents two striking characters at variance with all the tribes of Carabinae and which approach it to the Harpalinae, the deeply emarginate anterior tibiae and the presence of the internal elytral plica which is so well marked in Pterostichini and Panagæini.

Tribe IX.—**Nebriini.**

Antennæ with four basal glabrous joints, inserted under a slight frontal plate which is not extended backward over the eyes in a supra-orbital ridge. Eyes round, moderately or very prominent, distant from the buccal opening beneath, less however in *Leistus* and *Notiophilus*. Head horizontal (front deflexed in *Opisthius* and with two supra-orbital setæ), and with one supra-orbital seta. Parts of mouth variable, mandibles always with setigerous puncture. Thorax usually with a setigerous puncture at the side and hind angle, both are absent in *Opisthius*, and the posterior in *Leistus*. Elytra margined at base except in *Opisthius*, sides narrowly inflexed, margin entire. Prosternum horizontal and prolonged behind the coxæ, the cavities open behind; lateral suture of thorax beneath normally distant from the margin except in *Opisthius*. Mesosternum carinate in front. Metasternal epimera indistinct, posterior coxæ contiguous. Legs slender, middle and posterior tibiae spinulose or ciliate externally. Tarsi slender, ciliate beneath.

The parts of the mouth are so variable that I will give in brief the principal characters:

LEISTUS.—Labrum prominent, arcuate at tip. Mentum feebly emarginate with a short emarginate tooth. Ligula prominent narrowed at tip and then trifurcate, bisetose behind the trifurcation, the paraglossæ short with their tips free. Labial palpi long and slender the second joint longer than the last, without setæ in front. Mandibles broad, explanate at the sides, acute at tip. Maxillæ with slender processes on the outer side of variable length each bearing a stiff seta at its tip, the palpi slender. The first three joints of the anterior tarsi of male are dilated and with squamules beneath.

OPISTHIUS.—Labrum short, transverse, more prominent at middle. Mentum moderately emarginate, the tooth moderately long with nearly parallel sides, feebly emarginate at tip. Ligula small concealed behind the mentum tooth, narrowed at tip, slightly bifid and bisetose, the paraglossæ slender arcuate and longer than it. Labial palpi slender the last two joints nearly equal, the terminal finely ciliate externally, the preceding bisetose in front. Maxillæ ciliate within, the palpi slender. Mandibles rather stout arcuate and acute at tip, outer side not concave.

Anterior tarsi of male with four joints feebly dilated and densely spongy pubescent beneath.

NOTIOPHILUS.—Labrum moderately prominent arcuate in front. Mandibles stout not prominent, acute at tip. Maxillæ feebly ciliate internally the palpi moderate the terminal joint but little longer than the preceding. Mentum moderately deeply emarginate, the tooth notched, ligula prominent, the tip slightly prolonged and bisetose, paraglossæ slender, arcuate, longer than it, the palpi with last two joints nearly equal, the penultimate bisetose in front. The first three joints of the anterior tarsi are feebly dilated and spongy pubescent beneath.

NEBRIA.—Labrum truncate or feebly emarginate. Mandibles acute at tip, not concave externally. Maxillæ ciliate at base, the palpi slender the terminal joint a little longer than the preceding. Mentum deeply emarginate with a bifid tooth, ligula not prominent the tip truncate or slightly prolonged and bisetose, the paraglossæ usually adherent in their entire extent, sometimes slightly free at tip, the palpi moderate, the penultimate joint bisetose in front. The anterior tarsi of the males have three joints feebly dilated and pubescent beneath.

PELOPHILA.—Characters nearly as in *Nebria* with the last joint of the palpi more oval. First three joints of anterior tarsi of male rather broadly dilated and densely pubescent beneath.

The above characters seem to show the danger of attaching too great value to characters drawn from the ligula and paraglossæ as a basis for the arrangement of the genera of Carabidæ.

In *Notiophilus* the anterior tibiæ are very obliquely truncate the inner spur above the apex. In the other genera both spurs are terminal but placed slightly obliquely to each other.

The genera which occur in our fauna belonging to this tribe are as follows:

Front deflexed, head with two supra-orbital setæ, spurs of anterior tibiæ terminal.

Elytra with ocellate foveæ, not margined at base.....**Opisthius.**

Front horizontal, head with one supra-orbital seta. Elytra margined at base.

Anterior tibiæ very obliquely truncate, the inner spur above the apex. Vertex sulcate.....**Notiophilus.**

Anterior tibiæ scarcely obliquely truncate, spurs terminal.

Mandibles explanate at the sides, maxillæ at base with spine-bearing processes.....**Leistus.**

Mandibles stout, not explanate, maxillæ not appendiculate and merely setose at base.

Anterior tarsi of male feebly dilated.....**Nebria.**

Anterior tarsi of male broadly dilated.....**Pelophila.**

In addition to the peculiarities already mentioned it might be observed that while all the genera above mentioned (except *Notiophilus*), place

their antennæ backward over the body in a more or less curved position when in repose, in *Notiophilus* the antennæ are bent down under the head and encircle the margin of the eye.

The affinities of this tribe are more marked in the direction of the Elaphrini than elsewhere, and it may be especially observed that all those characters which separate *Opisthius* from the other genera are found in *Elaphrus*, the ligula and paraglossæ of these two genera are also similar.

Baron Chaudoir (Bull. Mose. 1861, i, pp. 492 and 502), separates the above genera making *Notiophilus* a separate tribe and placing the others as a sub-tribe of Carabini. If it be considered advisable to divide the above tribe, *Opisthius* and *Notiophilus* are equally worthy of representing distinct tribes. The union of the tribe with Carabini seems to me unnatural from the appearance of the genera as well as from their characters.

Tribe X.—Migadopini.

Antennæ slender, arising under a slight frontal ridge, four basal joints glabrous. Eyes round, not prominent, moderately distant from the mouth beneath. Head short, broadly oval, clypeus distinct and with a setigerous puncture each side distant from the margin, one supra-orbital seta. Labrum short, truncate, quadrisetose in front and ciliate at the sides. Mandibles acute at tip, feebly arcuate, without setigerous puncture externally. Maxillæ arcuate at tip, spinulose within, outer lobe biarticulate, palpi stout, the terminal joint somewhat oval, obtuse at tip. Mentum short and broad, emarginate, with a broad emarginate tooth nearly as long as the lateral lobes, ligula oval, bisetose at tip, the paraglossæ moderately broad and adherent in their entire length, palpi moderate, terminal slightly longer and truncate at tip, the penultimate bisetose in front. Thorax broad, hind angles distinct, no lateral setæ. Elytra slightly margined at base, sides narrowly inflexed, margin continuous. Prosternum acute at tip and prolonged, concave beneath and covering the middle of the mesosternum, anterior coxæ closed behind. Middle coxæ moderately separated, the mesosternal epimera very indistinctly separated from the episterna but attaining the coxal cavity. Metasternal epimera indistinct, posterior coxæ contiguous. Legs moderate. Anterior tibiæ obliquely grooved within at tip, outer edge slightly spinulose, the inner spur above the apex. Middle and posterior tibiæ spinulose externally, the spurs moderate in length. Tarsi moderate in length, the first joint not longer than the second.

In the specimen before me of *Migadops* (*Brachycælus*) *virescens* the anterior and middle tarsi of the male have four joints dilated and papillose beneath.

Through the great kindness of my friend Mr. H. W. Bates, I have been enabled to examine the specimen above indicated. I regret that I have been compelled to define the tribe in a somewhat incomplete manner but there will be no difficulty in assigning a place here to those genera whose affinities indicate it.

The tribe as defined by Chaudoir (Bull. Mosc. 1861, i, p. 510), is certainly composed of very dissimilar material and I have removed *Metrius* to form a distinct tribe the reasons for which will be found in the proper place.

The genera referred to this tribe by Chaudoir (omitting *Metrius*), are—*Antarctonomus*, *Brachycælus* and *Migadops* from Tierra del Fuego, *Monolobus* and *Rhytidognathus* from Chili, *Lissopterus* from Falkland Islands, and *Heterodactylus* from Auckland.

Monolobus is remarkable in having the outer maxillary lobe of one piece as in *Amphizoa*.

The tribe seems very naturally to lead from the Nebriini to the Metriini.

Migadops virescens Waterh., has considerable superficial resemblance to *Nebria virescens* Horn.

Tribe XI.—**Metriini.**

Antennæ moderate in length, straight, arising under a distinct frontal margin; first four joints glabrous, the first joint stouter but not longer than the third, 5—11 subequal, pubescent. Eyes small, round, distant beneath from the buccal opening. Head with a single setigerous puncture over the middle of each eye. Labrum short, feebly bisinuate. Mandibles short, concave on the outer side and with a distinct setigerous puncture. Mentum transverse broadest at middle, deeply emarginate and with a rather stout, bifid tooth, epilobes distinct, mental suture well marked. Ligula broad, obtuse and bisetose at tip, the paraglossæ distinct and adherent in their entire length; palpi rather stout, the last two joints of nearly equal length, the second bisetose in front, the third broader to apex and truncate. Maxille with inner lobe rather short, distinctly hooked at tip and ciliate internally, the outer lobe biarticulate and with equal joints; palpi rather stout, the terminal joint nearly as long as the second, gradually broader to tip and obtuse. Thorax transverse, a seta at point of greatest width another in front of the hind angles. Bases of thorax and elytra in close apposition, scutellum indistinct. Elytra not margined at base, moderately inflexed at the sides, the margin acute and entire. Anterior coxal cavities closed behind, prosternum slightly prolonged and partly covering the declivous and flat mesosternum. Femora moderately stout, the anterior scarcely thicker. Anterior tibiæ obliquely grooved and emarginate near the apex, both spurs terminal. Middle tibiæ ciliate externally. Posterior coxæ separated by a rather broad triangular process of the abdomen. Tarsi moderate, first joint longer than either of the three following, fourth not emarginate.

The first joint of the anterior tarsus of the male is rather broadly dilated and with the second densely spongy pubescent beneath.

The metasternal side pieces of which no mention is made above are sometimes simple, that is, with all trace of suture between the episternum and epimeron obliterated or the suture may be more or less distinct and the side pieces consequently double.

The genus *Metrius* is the only one known to me which finds a place in the present tribe. It is a very distinct type the affinities of which

are not easy to define. The posterior coxæ being separated a relationship seems to be indicated with the Promecognathini and Cycbrini, especially with the latter by the more widely inflexed sides of the elytra but it differs widely from either by the structure of the anterior tibiæ. The presence of a setigerous puncture on the mandible is a very curious addition to the other characters, as I observe that this is in nearly if not quite all other cases associated with riparial habits which cannot from my observation be said of *Metrius*.

Chaudoir (Bull. Mose. 1861, i, p. 510), places the present genus in his tribe Migadopidæ, and while but one other genus of that tribe is known to me I feel very safe in saying that the present can not be allowed to take place with it. In the synoptic table the structure of the metasternal side pieces is used for the separation of *Migadops* (*Brachycælus*) from *Metrius*. In the specimen of *Mig. virescens* before me the met-epimera are not distinct while in *Metrius* the suture is sometimes visible and in others not.

Tribe XII.—**Mystropomini.**

Antennæ arising under a slight frontal plate, four basal joints glabrous. Eyes small, round, not prominent, distant from the mouth beneath. Head oval, with two small supra-orbital setæ. Clypeus rather large with two small setigerous punctures each side. Labrum short, sinuate in front and plurisetose. Mandibles acute at tip, feebly arcuate, toothed at middle, no setigerous puncture externally. Maxillæ arcuate and acute at tip, spinulose and ciliate internally, outer lobe biarticulate, palpi rather stout, the terminal joint longer, flattened, broader externally with the tip rounded. Mentum large, deeply emarginate and with a large median emarginate tooth, ligula cuneiform suddenly broader in front, the tip slightly prolonged in front and sexsetose, paraglossæ rather broad, adherent in their entire length and obtuse at tip, the palpi stout, terminal joint as in the maxillary. Thorax without marginal setæ. Elytra not margined at base, (scutellum indistinct), sides rather widely inflexed, margin entire not interrupted. Prosternum obtuse at tip, not prolonged, anterior coxal cavities closed behind. Mesosternum narrowly separating the coxæ, the epimera indistinctly separated from the episterna but distinctly reaching the middle coxal cavities. Metasternal episterna short and broad, the epimera distinct, posterior coxæ separated. Legs moderate in length. Anterior tibiæ deeply obliquely grooved within the spurs both terminal. Middle tibiæ ciliate with short depressed hairs externally and within, the outer edge of posterior tibiæ not ciliate, the tibial spurs rather short. Tarsi slender, the first joint as long as the two following.

The tarsi are said by Chaudoir to be similar in the sexes.

For a specimen of *Mystropomus subcostatus* Chd., the only known member of the present tribe, I am indebted to Mr. H. W. Bates.

Of all the genera which I have studied this has caused me the greatest surprise from the position in which it is placed and which appears to be now accepted without question.

Mystropomus is now placed at the head of the tribe Ozæniini by Chaudoir, but the reasons why it should not be placed there are very many. In the discussion of that tribe will be found the reasons for removing it from association with the true Carabinae. The mesosternal epimera do not reach the middle coxal cavities as one can prove by softening the specimens in a solution of caustic potassa when the sutures become evident and mere plications of the surface obliterated.

In *Mystropomus* however we have a structure of body resembling very closely *Metrius* not only in the inflexed sides of the elytra but their general appearance. The epimera and episterna of both segments are likewise constructed on a similar plan and the posterior coxæ separated. On comparing the form of head and antennæ and even the mouth parts we have a striking analogy with *Metrius*. I am disposed to consider *Mystropomus* the closest ally in every respect with *Metrius* and with *Migadops* an intermediate link toward the Nebrini.

It is remarkable that this genus should occur in Australia. Lacordaire (Atlas pl. 5, fig. 5), gives an illustration of the species which might however be improved.

Tribe XIII.—*Promecognathini*.

Antennæ slightly geniculate, arising under a slight frontal margin, first four joints glabrous, the first much larger and stouter than the others, 5—11 slightly compressed and finely pubescent. Eyes small slightly oval and distant from the buccal opening. Head with two supra-orbital setæ, neck slightly broader behind the eyes. Labrum short, bisinuate. Mandibles elongate, arcuate and acute at tip and decussating, not toothed within. Mentum short, broad, broadly emarginate and with a broad short tooth, epilobes narrow but distinct, mental suture distinct. Gula deeply transversely impressed so that the mentum is inserted at a right angle to the peduncle. Ligula moderately prominent narrower and free at tip, truncate, with two setæ, paraglossæ long, rather slender and ciliate within at the tip. Maxillæ with inner lobe slender and long, obtuse at tip, densely ciliate within, outer lobe biarticulate the terminal joint much shorter. Maxillary palpi moderately long, the second joint equal to the next two together, terminal joint broader at tip truncate and twice the length of the third. Labial palpi with the last two joints about equal in length, the terminal broader at tip and truncate, the preceding bisetose in front. Thorax narrowed at base, sides narrowly inflexed, lateral margin distinct, a setigerous puncture near the hind angle and three at the side in front. Body pedunculate, scutellum invisible. Elytra not margined at base, lateral margin distinct and entire, sides narrowly inflexed. Anterior coxal cavities closed behind, prosternum not prolonged, mesosternum declivous. Metasternal epimera indistinct. Femora stout, the anterior more strongly clavate. Anterior tibiæ gradually broader to tip, smooth externally, deeply emarginate internally, the inner spur remote from the tip. Posterior coxæ separated by a triangular process of the abdomen which meets the metasternum. Tarsi moderate, the posterior longer, first joint moderately long, fourth slightly emarginate. Tarsi similar in the sexes.

The above characters which I have drawn entirely from our only representative should be somewhat modified by the omission of the descriptions of the palpi and other parts which may be considered purely generic. The description is rather detailed in order that the omissions in previous descriptions of *Promecognathus* may be supplied.

This tribe as typified by our genus has been the subject of some discussion and very diverse opinions have been expressed regarding its systematic position. From my own study I feel convinced that the views expressed by LeConte (Class. Col. N. A. p. 12), are correct.

As far as known to me two genera only belong to this tribe, as follows:

Last joint of maxillary palpi oblong-oval truncate.....**Promecognathus.**
Last joint of maxillary palpi strongly securiform.....**Axinidium.**

These two genera are placed by Laeordaire (Genera i, p. 247), in a tribe which owes its origin to Chaudoir, (Bull. Mosc. 1846, p. 511), composed as very justly observed by Schaum (Berl. Zeitschr. 1860, p. 178), of very dissimilar material, held together it may be added by a bond of the feeblest nature. The positions of the other genera will be discussed in their proper places and the correctness of Schaum's views shown except as to *Glyptus*, which has very little to do with the Orthogoniens but far more with the Harpalini.

As restricted above the tribe falls very naturally between the tribes which precede and the Scaritini.

Promecognathus occurs in California, *Axinidium* in western Africa.

Tribe XIV.—**Enceladini**

Antennæ moderate in length, straight, arising under a distinct frontal margin; first four joints glabrous, the first joint stouter suddenly narrowed at base, second equal in length, 3—11 gradually shorter and more slender. Eyes comparatively small, round and distant from the buccal fissure. Head with a single setigerous puncture over each eye. Labrum moderately prominent, arcuate at the sides and feebly emarginate at middle. Mandibles stout, arcuate, a large tooth near the base, outer side deeply grooved and without setigerous puncture. Maxillæ with inner lobe strongly hooked at tip and with short spinules on inner edge, outer lobe stout biarticulate, the palpi stout, second joint longer than the others, the terminal broad, oboval. Mentum large without distinct suture at base, broadly arcuate at the sides, deeply emarginate and with a moderate tooth emarginate at tip, epilobes distinct. Ligula prolonged in a broad obtuse point, bisetose, the paraglossæ corneous and closely united it: labial palpi moderate, the terminal joint somewhat triangular and arcuately truncate at tip. Thorax broad, a seta at the side another in front of hind angle. Body pedunculate, scutellum forming the larger space of the peduncle above. Elytra not margined at base, the lateral margin entire and very narrowly inflexed. Prosternum obtuse at tip, not prolonged, the coxal cavities closed behind. Mesosternum broad convex and oblique. Metasternal epimera indistinct, the posterior coxæ distinctly separated by a narrow

abdominal process. Femora moderate and nearly equal. Anterior tibiæ gradually broader to tip, grooved on the inner side near the tip, the spurs nearly on the same line transversely. Tarsi moderate in length, the first joint longer, the fourth not emarginate.

The tarsi do not differ in the sexes.

As in the other tribes of the present sub-family which contain but one or two genera, the description of the present is made with considerable detail drawn entirely from the typical genus, the only one known to me in nature. In the books *Enceladus* is placed with *Siagona*, a genus with which it seems to have very little relation except the large mentum without suture at base. Schiœdte and Chaudoir have been deceived by a line of sculpture and have placed the Siagonides as a whole in the present sub-family. I do not find the mesosternal epimera attaining the coxæ in *Siagona* while they do very plainly in *Enceladus*. Another character used by Schiœdte is of very doubtful utility "*antennæ scrobiculis recipiendæ*," the antennal grooves or scrobes being merely the result of the dilated genal plates which are variable within generic limits, and have already been made use of by me in separating the species of *Cychrus* in subgeneric sections.

Not knowing *Luperca** in nature I am unable to say whether it enters the present tribe or not, should it be as closely allied to *Enceladus* as stated by Lacordaire the two genera form a very distinct type equal in value to the Metriini or Promecognathini and with its affinities but little better marked. Lacordaire perceives relationships with the Ozanides, Galeritides and Scaritides, but these entirely escape me except as to the last of these tribes, to which there is but little resemblance except in external form. I believe however it is better placed near the Scaritini than anywhere else in the series.

Enceladus occurs in Colombia and Guiana, *Luperca* in the East Indies.

Tribe XV. — Scaritini.

Antennæ moderate in length, inserted under a frontal plate with a variable number of glabrous joints. Eyes comparatively small very finely granulate and distant from the buccal opening (Scarites), or normally convex and granulate and not distant from the mouth (Clivinæ). Head variable in form and with one (Scarites) or two (Clivinæ) supra-orbital setæ. Labrum short, emarginate or sinuate. Mandibles at least moderately prominent, without setigerous puncture, simple or dentate. Maxillæ with the inner lobe often obtuse at tip, in some genera normally hooked, ciliate or spinulose within, outer lobe biarticulate the terminal joint usually shorter, palpi variable in form. Mentum emarginate, often deeply, the tooth variable in size, epilobes narrow, but very wide in *Schizogenius*.

*Chaudoir replaces this name by *Holoscelis* Chd. For other remarks which may properly be read as a supplement to the present tribe, the reader is referred to the Siagonini.

Ligula either broad and large (*Scarites*) or small and prolonged (*Clivinæ*) the tip narrow and bisetose, except in *Pasimachus* in which it is but little prominent at middle and with the two setæ very closely approximated, paraglossæ usually slender and longer than the ligula, spinulose within in the *Scarites*. Palpi moderate, terminal joint variable in form, shorter than the penultimate (*Scarites*) equal or longer (*Clivinæ*), the penultimate bisetose in front (*Clivinæ*) plurisetose (*Scarites*). Thorax variable in form, hind angles rarely prominent, side margin with a setigerous puncture in the hind angle (*Scarites*) or with two lateral punctures (*Clivinæ*). Body pedunculate, scutellum not visible between the elytra. Elytra rarely slightly margined at base, sides narrowly inflexed margin entire except in *Ardistomis* where there is a distinct interruption posteriorly and an internal plica. Prosternum not prolonged behind the coxæ, the cavities closed behind. Mesosternum vertical, not carinate in front. Metasternal epimera not visible in *Pasimachus*, more or less distinct in all the other genera. Posterior coxæ contiguous. Legs stout more or less fossorial, the anterior femora especially stout. Middle and posterior tibiæ ciliate or spinulose externally but often very finely, anterior tibiæ palmate the outer apical angle prolonged, inner side deeply emarginate with the inner spur above the emargination. Tarsi slender.

From the above characters it is evident that the tribe must be subdivided into two groups in the following manner:

Basal joint of antennæ long. Mentum broad, concealing at the sides the base of the maxillæ. Head with one supra-orbital setigerous puncture, thorax with one setigerous puncture at the hind angle.....	SCARITES.
Basal joint of antennæ not elongated. Base of maxillæ not covered by the mentum. Head with two supra-orbital setigerous punctures, sides of thorax with two.....	CLIVINÆ.

In addition to the above characters the form of the labial palpi and the paraglossæ give additional means of separating the groups.

The sexual characters of the genera of this tribe are very feeble. In *Scarites* the last ventral segment has four marginal punctures, in the female the inner two are more distant from each other than from the outer, while in the male they are equidistant. In *Pasimachus* some species have the posterior tibiæ pubescent within at tip in the male. There are no marginal punctures on the last ventral segment, in the males there will usually be observed on each side one ante-apical puncture and in the females two, but these are not constant in any respect.

In the *Clivinæ* the last segment is the same as in *Scarites*, the tarsi are often alike slender in both sexes but when dilated are more so in the male. In *Dyschirius* the palpi differ as will be seen below.

The antennæ vary in the number of glabrous basal joints, the *Scarites* have four and the *Clivinæ* two. In *Aspidoglossa* the base of third is glabrous but even here as in all the *Clivinæ* the second joint though not pubescent is hairy.

Group SCARITES.

In our fauna two genera occur separated in the following manner:

- Hind angles of thorax distinct. Elytra with humeral carina of variable length. Maxillæ very obtuse at tip.....**Pasimachus.**
 Hind angles of thorax wanting. Elytra without humeral carina. Maxillæ slightly hooked at tip.....**Scarites.**

In these two genera the four basal joints are glabrous and in repose the scape is received in a depression beneath the eye.

Group CLIVINE.

The genera which occur with us are as follows:

- Margin of elytra entire. Mandibles flat and arcuate.
 Anterior tarsi slender in both sexes.
 Palpi dissimilar in the sexes, the terminal joint more dilated in the male, excavate beneath with a large sensitive space. Thorax globose or globose-oval.....**Dyschirius.**
 Palpi similar in the sexes, not dilated nor excavated in the male. Thorax more or less quadrate.....**Clivina.**
 Anterior tarsi more or less dilated in both sexes.
 Mentum feebly emarginate. Head not grooved.....**Aspidoglossa.**
 Mentum deeply emarginate. Head with numerous longitudinal grooves.
Schizogenius.
 Margin of elytra interrupted posteriorly and with an internal plica. Mandibles slender, prolonged not arcuate. Anterior tarsi of both sexes rather widely dilated.....**Ardistomis.**

In the arrangement of the genera of this group I regret that I am unable to follow my friend M. Jules Putzeys, nor can I from my dissections find the ligular characters which he aims to illustrate in his Postscriptum (Mem. Liege xviii, 1863). The dissection of the species of this group is by no means an easy task, and the difficulties attendant on its accomplishment must be the cause of the entire absence of resemblance between the drawings of M. Putzeys and the objects themselves.

In all our genera the ligula is small and is usually hidden by the supports of the labial palpi. The ligula is slender, the tip more or less acute, free and bisetigerous the paraglossæ slender and acute, not longer than it. The form of the maxillæ, mentum, ligula and palpi, are shown in the accompanying figures and need no further description. *Clivina* and *Dyschirius* are best separated by the form of the palpi, all other characters heretofore given fail in our series of species.

As arranged in the preceding table our genera show the transition from the simple form of inner maxillary lobe of *Pasimachus* to that which is the more common form in all Carabidæ.

It is curious in this tribe that *Ardistomis* should have the elytral margin interrupted with an internal plica. It thus shows considerable more affinity with the Harpalinæ than do the other genera and seems to be the nearest Carabine relation of the Panagæini, in place of the Cychrini as suggested by most authors.

Sub-Family *HARPALINÆ*.

Middle coxal cavities entirely enclosed by the central pieces of the meso- and metasternum, the epimera not attaining the coxæ. Head with setigerous punctures over the eyes. Thorax with setigerous punctures at the side and posterior angle very rarely without the latter and still more rarely without either. Anterior tibiæ always either obliquely sinuate or deeply emarginate within, the inner spur remote from the apex.

These characters seem to be the only ones in which all the tribes agree. As there are many points in which wide differences occur these will be left for discussion in their proper places.

For convenience of study the sub-family may be divided in two grand sections.

Head with two supra-orbital setigerous punctures.

HARPALINÆ BISETOSÆ.

Head with one supra-orbital setigerous puncture.

HARPALINÆ UNISETOSÆ.

Small as this character may seem it is probably one of the most invariable of any that have been suggested for the division of any large series of genera or tribes. I have never observed an exception, although Bedel* says that in two European *Amara* one has but one supra-orbital seta (*spectabilis*) and the second (*pyrenæa*) none whatever.

When two setæ occur the anterior is close to the margin of the eye in front, the posterior is a little remote from the eye opposite the posterior margin. When there is one seta it is almost always a little removed from the margin of the eye and is situated opposite the middle of the eye or a little posterior to that point.

The Harpalinæ as here constituted seem to be the true development of what might be called the Carabidè idea of the present geological period. There is evidently a close relationship in the entire series with fewer breaks in the line of affinity and with very few genera that are abnormal or specially differentiated in the sense in which we observe

* Ann. Fr. 1879, suppl. p. 52, note.

it in the Carabinae. It will be observed in glancing over the series of tribes and genera that there are three well marked types, *Pterostichus*, *Lebia* and *Harpalus*, closely related among themselves around which we may group other types either more or less intermediate between the three or related to them as a centre and from thence diverging with no definite affinity. It is therefore impossible to construct any linear arrangement which will exhibit all the evident relationship without at the same time interrupting other equally evident affinities.

The tribes which follow are so placed that those which seem to exhibit the closest relationship with the Carabinae are at the beginning with those following which seem to lead to the true Harpaline type.

Those with the two supra-orbital setae will be considered first and for convenience of reference will be called by the following name.

HARPALINÆ BISETOSÆ.

This section contains by far the larger number of tribes and genera and presents many difficulties in its study. Many of the characters used in the table are the common property of science others are new or have been brought into greater prominence for the first time here. To those acquainted with the literature of the subject no special references are needed.

As in the Carabinae it appears to have escaped notice that a number of genera have the posterior coxæ separated and the metasternum and abdomen meeting. This is an important character and its use is attended with good results.

The internal clytral plica by its presence serves to separate a number of tribes. The object of this structure is to afford a means of support to the edge of the abdomen and at the origin of the plica posteriorly the last ventral segment is firmly held when in repose. It will be observed that in those genera with a plica the upper edges of the ventral segments are vertical, those without the plica have the edge inflexed. As a rule the pliciferous genera are terrestrial and are at best feeble flyers, the majority of the others are easy flyers and less terrestrial in their habits. This however is merely a general statement with many exceptions on both sides.

The tribe *Panagæini* is placed at the head in the belief that some of its members will show a closer relationship with the *Clivine* than has yet been indicated.

The table which follows is the result of a study not only of the genera of our fauna but of all which were accessible, the cabinets of the Academy of Natural Sciences, supplemented by that of our own

Society have afforded an amount of material which had never been properly estimated. Many of the genera will be found mentioned in the following pages, but only those which seemed to require it and which are but a part of those actually studied.

Those who know the extent of the subject will properly estimate the amount of labor expended and with the hope that the table will prove an incentive to additional work with many improvements and emendations, it is presented for the consideration of those interested.

Mandibles with a setigerous puncture in the groove (scrobe) on the outer side.

Antennæ slender with at most two basal joints glabrous. The abdominal segments entirely corneous.

Last joint of palpi subulate. Mesosternal epimera wide.

Tribe XXII. **Bembidiini.**

Last joint of palpi slender—elongate or subcylindrical. Mesosternal epimera narrow.....Tribe XXIII. **Pogonini.**

Antennæ moniliform or slightly compressed externally, four basal joints glabrous. (The abdominal segments 3—4—5 narrowly coriaceous on their posterior margins in *Nomius*).....Tribe XIX. **Nomiini.**

Mandibles without setigerous puncture in the scrobe.

Posterior coxæ separated, the first ventral segment visible between them. Thorax with setigerous puncture in the hind angle.

Suture at base of mentum distinct; margin of elytra interrupted posteriorly. Middle coxæ closely approximated or contiguous.

Tribe XVIII. **Ozæniini.**

Suture at base of mentum entirely obliterated; margin of elytra not interrupted and without internal plica. Middle coxæ distant.

Tribe XVII. **Siagonini.**

Posterior coxæ contiguous, (except in *Egini*.)*

A.—Margin of elytra interrupted at posterior third and with a distinct internal plica.

Four basal joints of antennæ glabrous, antennæ moniliform or slightly compressed.

Mesosternal epimera broad; anterior tibiæ not dilated; segments 3—4—5 of abdomen coriaceous posteriorly. Body not pedunculate.

Tribe XX. **Psydrini.**

Mesosternal epimera narrow; anterior tibiæ dilated; abdomen entirely corneous. Body pedunculate.....Tribe XXI. **Morionini.**

Three basal joints of antennæ or less glabrous.

Head more or less constricted behind the eyes and dilated to a semi-globular neck. Terminal joint of maxillary palpi arising obliquely from the preceding joint.....Tribe XVI. **Panagæini.**

Head not constricted behind the eyes. Terminal joint of the maxillary palpi arising normally from the end of the preceding joint.

Tribe XXIV. **Pterostichini.**

* The *Egini* can not be confounded with either of the two preceding tribes from the other special characters which they possess.

- B.**—Margin of elytra not interrupted posteriorly, without internal plica.
 Front short, labrum impressed.....Tribe XXV. **Licinini**.
 Front normal.
- Penultimate joint of labial palpi bisetose.
 Posterior coxæ separated.....Tribe XXXIII. **Egini**.
 Posterior coxæ contiguous.
- Head elongate, prolonged behind the eyes, neck constricted and dilated
 behind in a semiglobular condyle.
- Elytra entire.....Tribe XXVIII. **Ctenodactylini**.
 Elytra truncate.
- Terminal joints of palpi similar, cylindrical or slightly oval.
 Three basal joints of antennæ glabrous. Ungues simple.
 Tribe XXIX. **Odacanthini**.
 Four basal joints glabrous; elytra explanate. Ungues simple.
 Tribe XXXI. **Mormolycini**.
- Terminal joints of palpi dissimilar, the labial triangular the maxillary
 cylindrical. Thorax feebly margined at sides.
 Tribe XXXII. **Agrini**.
- Head not prolonged behind the eyes, neck not semiglobose.
 Elytra rounded at tip. Ungues simple...Tribe XXVII. **Anchonderini**.
 Elytra obliquely sinuate. Ungues simple or feebly pectinate.
 Tribe XXVI. **Platynini**.
- Elytra truncate at tip.
 Thorax with distinct lateral and basal setigerous punctures.
 Anterior tibiæ slender. Paraglossæ membranous.
 Tribe XXXIV. **Lebiini**.
 Anterior tibiæ rather stout, gradually broader to tip. Paraglossæ
 corneous.....Tribe XXXV. **Helluonini**.
- Thorax without lateral or basal setæ.
 Tibiæ carinulate and serrulate externally.
 Tribe XXXIX. **Orthogonini**.
 Tibiæ with the outer edge rounded.....Tribe XXXVIII. **Cratocerini**.
- Penultimate joint of labial palpi plurisetose in front and always longer
 than the terminal joint.
- Eyes normal, their lower margin very close to the buccal opening. First
 antennal joint elongate.....Tribe XXX. **Dryptini**.
 Eyes large, prominent, distant beneath from the mouth. First antennal
 joint not elongate.
- Tibial spurs rather short.....Tribe XXXVII. **Anthiini**.
 Tibial spurs long, those of the posterior tibiæ dissimilar.
 Tribe XXXVI. **Graphipterini**.

The preceding table contains twenty-four tribes of which seventeen have representation in our fauna. There is no tribe peculiar to our fauna. Those not represented are *Siagonini*, *Mormolycini*, *Agrini*, *Orthogonini*, *Cratocerini*, *Anthiini* and *Graphipterini*. The third and fifth being the only ones with representation in our Hemisphere and these so far from our limits that it is not likely they will ever be found with us.

Tribe XVI.—**Panagæini.**

Antennæ slender arising under a distinct frontal ridge, three basal joints glabrous, without fine punctuation and pubescence, but ciliate. Head usually constricted behind the eyes and dilated to a semiglobular neck, front with two supra-orbital setæ. Eyes round, rather prominent, distant beneath from the buccal opening. Labrum with four setæ only. Maxillæ small the inner lobe slender, hooked at tip ciliate or spinous within, outer lobe stout, biarticulate, palpi elongate the last joint triangularly dilated and inserted obliquely on the preceding, these two hairy. Mentum emarginate, toothed at bottom, the basal suture distinct. Ligula moderately prominent, bisetose at tip the paraglossæ adherent and rarely longer than it, palpi moderate in length the terminal joint triangular. Thorax variable in form. Body not pedunculate, scutellum distinct. Elytra not margined at base, sides narrowly inflexed, margin interrupted posteriorly and with an internal plica. Prosternum not prolonged. Mesosternum oblique, the epimera very narrow. Metasternal epimera distinct, posterior coxæ contiguous. Tibiæ ciliate externally, the anterior emarginate within, the spurs distant. Tarsi slender in our genera, the fourth joint bilobed in certain exotic genera.

The males rarely have the anterior tarsi dilated. In our genera the first two joints of the anterior tarsi are dilated and hairy beneath.

Of late years authors seem pretty well in accord as to the limits of this tribe. Lacordaire included *Loricera* which has already been discussed. To the tribe as left by the latter author Schaum (Ins. Deutschl. i. p. 318), added *Tefflus*, and *Disphæricus* which however is not included by Chaudoir in his essay on the tribe (Ann. Belg. 1878). I have not seen the latter genus in nature. *Geobius* included by Lacordaire is excluded by Chaudoir for reasons which seem scarcely more than of generic value. I cannot see any relation with *Pelecium*.

Chaudoir in the characters of the tribe has the following paragraph :

“Mâchoires crochues et très ciliées en dedans, lobe inférieur à *dernier article* court, très large, comprimé et terminé par un petit crochet (excepté dans le genre *Micrixys*).”

I can find no such character as that mentioned for the outer maxillary lobe and if it did exist would be unique in the tribe and extraordinary in the entire family.

The affinities of the tribe are not well marked in any direction, it appears in fact to stand more nearly alone than any tribe of the present sub-family, and I have already expressed the opinion that its affinities with the Carabinæ are rather through the Clivinæ than the Cychrini. I can see no reason for suspecting any relationship with the Chlæniini.

Two genera occur in our fauna which differ in the following manner :
 Clypeus prolonged beyond the base of the mandibles, the latter decussating,
 scissor-like.....**Panagæus.**
 Clypeus emarginate at middle, the mandibles stout, pincer-like.....**Micrixys.**

The latter genus has the head not distinctly constricted but the neck is of the same semi-globular form as in the former.

In both genera the ocellate punctures which are usually observed near the margin of the elytra in Carabidæ are absent, but are present in other genera of the tribe. I have observed also that they are absent in *Apotomus*, a genus not related to the present tribe.

Tribe XVII.—*Siagonini*.

Antennæ slender, arising under a distinct frontal plate, first joint elongate conical pilose, second short glabrous at base, 3—11 equal and, with the apex of the second, pubescent. Clypeus prolonged at middle. Head depressed, quadrate, two approximated supra-orbital setæ. Eyes small oval, truncate posteriorly, very distant beneath from the buccal fissure. Labrum sinuate or denticulate. Mandibles strongly areuate, either dentate or simple within, scarcely concave externally without setigerous puncture. Maxillæ ciliate within, the outer lobe with terminal joint longer, palpi stout, the joints with short hairs, the terminal shorter than the preceding, oval, truncate at tip. Mentum large almost entirely concealing the maxillæ, the suture at base indistinct, deeply emarginate and with a large bifid tooth, ligula large prominent, slightly emarginate in front and plurisetose, the paraglossæ corneous and closely united with it, palpi moderate, last joint securiform. Thorax narrowed at base, grooved above and with a setigerous puncture on the hind angle and others along the side margin. Body pedunculate. Elytra elongate-oval, depressed, sides narrowly inflexed, margin entire, base not margined. Prosternum not prolonged. Mesosternum rather widely separating the coxæ, horizontal, the epimera narrow and not attaining the coxal cavity. Metasternal epimera small but distinct. Posterior coxæ slightly separated, the first ventral segment distinct between them. Anterior tibiæ emarginate within and deeply obliquely grooved, the inner spur superior. Tarsi simple in the two sexes.

This group contains but one genus *Siagona* (possibly also *Luperca* = *Holoscelis*), not represented in our fauna. It has been made by most authors the type of a tribe and placed in the Carabinæ. The Siagonides of European authors contains two very dissimilar elements. *Enceladus* and *Luperca* (?) having the middle coxæ partially closed externally by the mesosternal epimera form in the present essay the tribe Enceladini of the sub-family Carabinæ. *Siagona* on the other hand has the mesosternal structure of the present sub-family and Schiødte, Schaum and Chaudoir have been deceived by a mere plication in the mesosternal side pieces and have been lead to believe that the mesosternal epimera reach the coxæ. By macerating a specimen of *Siagona* for a sufficient time in a solution of caustic potassa the sutures become apparent and will be found as stated above.

The latest review of the Siagonini is that published by Baron Chaudoir (Bull. Mosc. 1876), in which *Enceladus* still retains its place in the tribe. In recognizing the great value of the discovery (which we owe to Dr. LeConte), of the difference in form of the mesosternal epimera in the sub-families of Carabidæ, Chaudoir states that in associating *Siagona* with *Enceladus* one reasons rather by analogy as the suture which sepa-

rates the epimera is so obsolete as not to be distinguished. It is to be regretted that so able an entomologist should have allowed himself to perpetuate an error when the truth was so nearly within his grasp and so easily obtained, and had the above mentioned process (so well known to microscopists) been made use of, more service would have been done to science than by many ligular dissections.

If I have correctly interpreted the feeble traces of the suture at the base of the mentum this organ is not attached merely to the central gular piece but also to the side pieces of the gula, in a manner similar to that observed in the Pseudomorphinæ. In all other Carabidæ which I have dissected the central gular piece is expanded at tip and forms the entire basal attachment of the mentum even in those genera with a very broad mentum.

With a very indefinite relationship with the Pseudomorphinæ the present tribe shows very decided affinities with the Ozænini.

Tribe XVIII.—Ozænini.

Antennæ arising under distinct frontal plates, the four basal joints not finely pubescent but hairy. Clypeus prolonged at middle. Head more or less narrowed behind the eyes to a neck and with at least two supra-orbital setæ. Eyes round, moderately prominent, irregular in outline behind, distant from the buccal opening beneath by the moderately widened genæ. Mentum broad, the suture at base usually very plainly visible, toothed (except *Eustra*), ligula moderate or small, the paraglossæ narrow and entirely adherent, the palpi variable in form, the terminal joint usually cylindrical, flattened and truncate at tip, the maxillary palpi similar. Thorax with numerous small setigerous punctures along the margin. Body more or less pedunculate. Scutellum not prolonged between the elytra. Elytra not margined at base, narrowly inflexed at the sides, margin interrupted one-third from apex but without internal plica. Prosternum not prolonged at tip. Mesosternum very narrow, in some cases not separating the middle coxæ. Mesosternal epimera broad, not attaining the middle coxæ. Metasternal epimera visible. Posterior coxæ distant, the first ventral segment visible between them. Anterior tibiæ emarginate on the inner side the spurs distant. Tarsi slender, simple in the two sexes.

The sexual characters are feeble, the males sometimes having the anterior femora toothed beneath.

By all European authors this tribe has been placed in the series in which the mesosternal epimera attain the coxal cavities. The idea originated with Schiedte, has been adopted by Schaum and acknowledged by Chaudoir.

The latter gentleman with his usual sagacity realizes the impropriety of such a position of the tribe and uses the following language (Ozénides, Ann. Belg. xi, 1868, p. 3), in reference to the epimeral character: "un caractère auquel Schiedte et après lui beaucoup d'entomologistes ont pendant quelque temps attaché une importance que je trouve maintenant exagérée."

After a careful examination of *Physeæ* and *Pachyteles* I find that the mesosternal epimera do not attain the middle coxæ, and that no better evidence is required of the value of the character than the fact that these genera and their allies are thereby excluded from the Carabinae.

The value of the character drawn from the mesosternum is certainly very much overestimated, as it will be observed that while certain species of *Pachyteles* (*marginicollis*, *biguttatus*), have the middle coxæ as distinctly separated as in many *Platynus*, others have the middle coxal cavities confluent (*mexicanus*). It will be observed however that there is an unusual degree of flexibility of the central region of the body and that the articulation between the meso- and metathorax is rather loose. The lateral process of the central piece of the mesosternum, that is, those processes which partly enclose the coxæ externally, are capable of a slight motion under the opposite processes of the metasternum and the limit of this motion is indicated by a slight ridge on the former process, which ridge is exactly continuous with the suture separating the mes-episternum from the mes-epimeron and has been the unfortunate cause of the deception of all those who have heretofore studied these parts. For those who desire to verify the above statements a preparation made in the manner indicated for *Siagona* will remove all doubts.

The interruption of the lateral margin of the elytra is a character entirely different from that observed in the succeeding tribes. If the margin is followed from the apex to the interruption it will be observed that this end passes *over* that which is formed by the anterior portion, while in the Pterostichini, etc., the posterior end passes *under* the anterior and is continued on the under side of the elytron in a long ridge.

The relationships of the Ozaenini are feeble in the direction of *Pseudomorpha* and *Siagona*, but more decided toward *Nomius* and *Psydrus* which lead through the Moriouini to the central mass of the Harpaline series.

Mystropomus placed here by Chaudoir seems to me to be a true Carabine allied to *Metrius*.

One genus is represented in our fauna, and the species *Pachyteles testaceus* Horn, occurs in Arizona. *Physeæ* has occurred at Tampico, Mexico, and may possibly be found in Texas.

Tribe XIX.—**Nomiini.**

Antennæ somewhat moniliform, arising under a distinct frontal ridge, four basal joints glabrous, first joint stouter not long, third nearly as long as the two following, terminal oval acuminate. Head stout, oval, neck broad, front with two supra-orbital setæ, clypeus slightly prolonged. Eyes round, prominent, free posteriorly, closely approaching the buccal opening beneath. Labrum short, broadly

emarginate. Mandibles slightly prominent, arcuate, acute at tip, inner edge feebly toothed at middle, outer lower edge slightly expanded, the outer face concave and with a distinct setigerous puncture. Maxillæ stout, with a double row of short stiff spines within, palpi stout, terminal joint slightly fusiform and obtuse at tip. Mentum broad, deeply emarginate without tooth, basal suture distinct. Ligula short, broad, acute and bisetose at tip, the paraglossæ slender slightly longer than it and ciliate within at tip, palpi short, last joint slightly fusiform, obtuse at tip. Thorax with two setæ near the front angles and one at the posterior. Body pedunculate, scutellum not visible between the elytra. Elytra slightly margined at base near the hind angles, sides very narrowly inflexed, margin slightly interrupted posteriorly and with a short internal plica, no dorsal punctures. Prosternum obtuse, not prolonged at tip. Mesosternum oblique the coxæ separated, epimera and episterna nearly equal. Posterior coxæ contiguous. Abdomen with posterior margins of segments 3—4—5 narrowly coriaceous. Legs moderate, middle and posterior tibiæ ciliate externally, the anterior slightly broader at tip, emarginate within, the spurs distant. Tarsi not dilated. Sexual characters as in *Scarites*.

As far as I can ascertain this tribe is represented by a single genus *Nomius*, (*Haplochile* Lec.), the position of which has been the cause of differences of opinion. For Dejean, Duval and Schaum it was a Morionide, Lacordaire (not knowing *Haplochile*), places *Nomius* in the Ozénides and *Haplochile* in Morionides. Chaudoir properly omits it from his essay on the Ozénides, while Bedel (*Ann. Fr.* 1879, suppl. pp. 24 and 42), places it in his tribe Bembidiini which is part of a very heterogeneous and impossible sub-family Bembidiidæ. Under *Psydrus* will be found its history in our fauna.

From the Morionini it differs in the form of the anterior tibiæ and mesosternal epimera and the presence of a mandibular setigerous puncture, the form of the ligula and paraglossæ and the structure of the abdomen.

The mesosternum is not narrow between the coxæ but emarginate, receiving the metasternum and in this respect differs greatly from the Ozæniini which have the mesosternum, at most, linear between the coxæ and never wide enough at tip to be emarginate.

I cannot understand why Bedel is willing to place *Nomius* near *Bembidium*, *Patrobus*, etc., the only point in which it resembles these is in the presence of mandibular seta. Its affinities seem to me to be best indicated by placing it between the Ozæniini and the Morionini.

Nomius contains but one species *N. pygmaeus* Dej., which occurs in various parts of southern Europe, and in many places in our country from Georgia to California.

It occurs under stones, etc., in moist places, and exhales a strong fetid odor.

To this tribe two anomalous foreign genera should be referred *Melænus*

and *Coscinia*. These with *Nomius* seem to represent three groups in the tribe. *Coscinia* has very little relationship with *Siagona* except a slight resemblance in aspect. All the genera of this tribe as thus defined have a well marked elytral plica internally, a character sufficiently restricted in its distribution to indicate more or less approximately the relationship of genera possessing it.

For the privilege of examining these genera I am indebted to Mr. H. W. Bates.

Tribe XX.—*Psydrini*.

Antennæ moderate arising under a distinct frontal ridge, first joint moderately stout, cylindrical, third longer than second, the three basal joints and the base of fourth glabrous, 4—10 elongate-ovate, eleventh nearly as long as the two preceding. Head triangular, moderately constricted behind the eyes forming a broad neck, front with two supra-orbital setigerous punctures the posterior distant from the margin of the eye, epistome slightly prolonged. Eyes oval, slightly truncate behind, distant beneath from the buccal opening. Labrum short, slightly emarginate. Mandibles moderately prominent, arcuate, acute at tip, inner margin with a small tooth at middle, outer edge concave and without setigerous puncture. Maxillæ spinous within, the palpi moderate, the last joint longer than the preceding. Mentum broad, lateral lobes rounded, deeply emarginate and with a short, broad, bifid tooth, the mental suture distinct. Ligula short and broad, truncate and sexsetose at tip, the paraglossæ semicorneous adherent in all their length and not longer than the ligula, the palpi rather short, last two joints equal, the terminal somewhat fusiform and truncate at tip. Thorax trapezoidal, sides with three setigerous punctures, one at each angle and one slightly in front of middle. Body not pedunculate, scutellum distinct between the elytra. Elytra slightly margined at base near the humeri, sides narrowly inflexed, lateral margin slightly interrupted posteriorly and with a short internal plica, disc punctato-striate, two dorsal punctures on the third interval adjacent to the third stria, one-fourth from base and one-fourth from apex. Prosternum not prolonged. Mesosternum nearly flat, the middle coxæ distant, epimera wide nearly equalling the episterna. Metasternal epimera distinct, posterior coxæ contiguous. Ventral segments 3—4—5 with posterior margins coriaceous. Legs moderate, the tibiæ smooth externally, the anterior emarginate within, the spurs distant.

The anterior tarsi do not differ in the sexes, the sexual characters are the same as in *Scarites*.

The only genus known to me which can be referred to this tribe is *Psydrus*. Its form is not unlike some *Bembidia*, the color piceous.

Regretting the multiplication of tribes, I can find no place in which the genus can be put and am compelled to adopt the present course and consider it the type of a tribe the affinities of which are in the direction of *Nomius* and *Siagona*, as well as in a less marked degree toward *Morio*.

Psydrus was originally placed near *Ozæna*, (Ann. Lyc. iv, p. 153), subsequently with *Haplochile* (= *Nomius*), as a group of the tribe Broscini, a position retained in the Class. Col. N. Am. p. 30, Lacordaire in the meantime placing it in the Morionini. None of these positions

seem to me tenable, Ozæniini having the posterior coxæ separated, *Nomius* the body pedunculate and a mandibular seta, *Morio* the anterior tibiæ dilated and body pedunculate. If we take the ligula as a point of comparison the resemblance is rather with *Pachyteles* (which however, has but two setæ or *Siagona* where there are six) than with *Morio* and *Nomius* where the paraglossæ are long and slender.

The body is not at all pedunculate and there are two supra-orbital setæ, characters which perfectly exclude it from all association with Broscini. There can be no suspicion of association with Pterostichini from the differences in tarsal and antennal structure.

There is then no course left but to consider it a distinct tribe leading directly from the Siagonini, Ozæniini and Nomiini through *Morio* to the Pterostichini.

One species of *Psydrus* is known (*P. piceus* Lec.), which occurs from Lake Superior to northern California. I found it in the latter region living under dead bark, it ejects a liquid from its anus when disturbed which is not, like in *Nomius*, especially offensive.

Tribe XXI.—Moriionini.

Antennæ more or less moniliform with four entirely glabrous joints, arising under slight frontal plates. Head suddenly narrowed behind the eyes, neck stout, front with two supra-orbital setæ, clypeus slightly prolonged. Eyes round, moderately prominent, truncate posteriorly by the sides of the head, distant beneath from the buccal opening. Mandibles at least slightly prominent without setigerous puncture externally. Maxillæ ciliate internally (with a tooth behind the apex in *Morio*); the palpi moderate, the last joint slightly fusiform. Mentum deeply emarginate, usually with a bifid tooth; ligula broad, free and bisetose at apex, the paraglossæ slender, longer than it, not ciliate; palpi moderate the last joint cylindrical (longer than that of the maxillary *Morio*). Thorax with a setigerous puncture at each angle (and three at the side *Morio*). Body slightly pedunculate, scutellum distinct. Elytra feebly margined at base, sides narrowly inflexed, disc with a single dorsal puncture at apical third, on the third interval near the third stria, margin with a very feeble interruption but with a distinct internal plica. Prosternum not prolonged. Mesosternum rounded in front, the epimera very narrow. Metasternal side pieces narrow, the epimera distinct, posterior coxæ contiguous. Ventral segments without coriaceous margin. Tibiæ gradually broader to apex, the middle finely spinulose externally, the anterior more dilated, the apical angle somewhat prolonged, inner side deeply emarginate, the inner spur above the emargination.

The first three joints of the anterior tarsi are slightly dilated in the male.

The remarks which have been made on the preceding tribes and their relationship with the present, sufficiently explain the views intended in the present paper. As constituted by Lacordaire (Genera i, p. 180), the tribe is a mixture of very dissimilar material. *Psydrus* and *Nomius* are already excluded. Schaum (Berl. Zeitschr. 1860, p. 177), suggests the

exclusion of *Physocrotaphus* and its union with the Helluonini in which position it appears in the Munich Catalogue. From the figures and description it seems to me probable that this also is incorrect, while the details already known to me seem clearly to indicate its affinities, but not knowing the insect in nature it seems unnecessary to venture farther.

Those genera without neck to the head should, in great part, if not all be excluded, especially those with truncate elytra (see remarks on *Basolia*, etc., in Cratocerini). This tribe is represented in our fauna by *Morio monilicornis* Latr., a shining black insect of moderate size, resembling somewhat *Pterostichus*. It occurs in the Southern States and is found under bark.

Tribe XXII.—**Bembidiini.**

Antennæ slender, arising under a slight frontal margin, the first two or often the first only glabrous, third joint sometimes not longer than the second. Head rarely narrowed behind the eyes to a neck (*Thalassobius*), with two supra-orbital setæ. Eyes round prominent, very narrowly separated beneath from the mouth (absent in *Anillus* and *Scotodipnus*). Clypeus usually moderately prolonged and with an erect seta on each side. Labrum transverse, sexsetose in front, rarely quite small (certain *Bembidia*). Mandibles feebly arcuate, acute at tip and with a setigerous puncture externally. Maxillæ slender, hooked at tip, ciliate or slightly spinulose within, the outer lobe slender and biarticulate or with the two joints united (*Amerizus*), the palpi moderate in length, the last joint usually small, subulate, sometimes conical, the penultimate club-shaped and pubescent. Mentum with basal suture distinct, variably emarginate, toothed, the tooth simple or notched, the ligula broader in front, free and truncate at tip and bisetose, the setæ usually very closely approximated, the paraglossæ slender, longer than the ligula and not ciliate within, the palpi moderate in length, the terminal joint small, subulate, the penultimate more or less club-shaped and bisetose in front. Thorax with a setigerous puncture at the side and at the hind angle. Elytra sometimes margined at base, sides narrowly inflexed, the margin interrupted posteriorly and with a distinct internal plica, disc with dorsal punctures or foveæ. Prosternum not prolonged. Mesosternum moderately separating the coxæ, the epimera moderately broad and wider externally. Metasternal epimera distinct, posterior coxæ contiguous. Legs moderate, the middle and posterior tibiæ slightly ciliate externally, the anterior deeply emarginate within and sometimes with the outer apical angle obliquely truncate (certain *Tachys*). Tarsi slender, claws simple, rarely serrulate (*Elaphropus*). Surface usually glabrous, pubescent in (*Tachypus*).

The males have usually two joints of the anterior tarsi dilated and squamulose or pilose (*Tachypus*) beneath, but in some *Tachys* the tarsi are similar in the sexes.

This tribe is about as well defined as any in the Carabidæ, the form of the last joint of the palpi being peculiar to it and giving the name by which it is often known. *Subulipalpi*.

It is remarkable that, in a tribe so remote from *Callistus*, the form of the outer lobe of the maxilla in that genus should be here repeated. It must however be especially remarked, that there is in *Amerizus* no

such complete fusion of the two pieces as in *Callistus* where the suture is not at all visible. In the former genus the suture is plainly evident if the under side is examined and not visible on the upper as shown in figure 38.

The serrate claws of *Elaphropus* Motseh., is a very singular character to occur in the present tribe, that it does occur I have assured myself by the examination of a specimen which I owe to the liberality of Dr. Dohrn. The species of this genus resemble *Tachys* and notably *incurvus*, etc.

The genera known to occur in our fauna are as follows :

Anterior tibiæ not obliquely truncate at apex. Sutural stria not recurved at apex.
Eyes large or moderate.

Elytra punctured without striæ, surface finely pubescent.....**Tachypus.**

Elytra striate or striato-punctate, glabrous.....**Bembidium.**

Eyes entirely wanting.....**Anillus.**

Anterior tibiæ obliquely truncate at apex. Sutural stria recurved at apex.

Elytra with the eighth stria interrupted or less deep at middle.....**Tachys.**

Elytra with the eighth stria very deep.....**Pericompsus.**

With *Bembidium* I include *Lymnæum* and also for the present *Amerizus* Chaud. (Rev. Mag. Zool. 1868). The latter genus was founded on *Trechus spectabilis* Mann., from the peculiar structure of the outer maxillary lobe. Beneath his generic description Chaudoir takes occasion to refer *Trechus oblongulus* Mann., to the genus *Lymnæum* as an aberrant species. On dissection I find the outer maxillary lobe probably more completely consolidated than in the true *Amerizus*. Rather than recognize a genus with two so dissimilar species I think it better to ignore the character and refer both to *Bembidium* where each will find better associates. It is well known that the mouth parts in *Bembidium* vary otherwise to an extent which would be considered generic in other parts of the series but all attempts to divide it have thus far been unsuccessful, the characters becoming evanescent.

Tachypus is however capable of feeble definition but the general appearance of the species is so distinct that it seems preferable to retain it.

Tachys and *Pericompsus* should probably be united the characters separating the latter being rather those of a group of species than a genus.

After placing at the head of the present series those tribes which appear to link the aggregate Carabinæ and Harpalinæ, the present tribe should then follow as that which most intimately connects a particular tribe (Elaphrini), of the former with the latter. Next in order follow naturally the Pogonini and Pterostichini.

Tribe XXIII.—*Pogonini*.

Antennæ slender arising under a feeble frontal ridge, the third joint usually very little longer than the second, the first two joints only glabrous. Head sometimes constricted behind the eyes, two supra-orbital setæ. Eyes (sometimes absent), rarely prominent, distant beneath from the mouth. Clypeus moderately prolonged and with a setigerous puncture each side. Labrum short, truncate or broadly emarginate, plurisetose in front. Mandibles moderately prominent, feebly arcuate, acute at tip and with a setigerous puncture on the outer side. Maxillæ slender, acute at tip, ciliate with a few stiff hairs inside, the outer lobe biarticulate, palpi moderate or long, the terminal joint variable but not subulate, the penultimate joint not pubescent. Mentum broad, its basal suture often obsolete, deeply emarginate and toothed, the tooth bifid or simple, the epilobes often dentiform, ligula moderately prominent, usually broad the tip free and arcuate, uni- or bisetose (*Pogoni*) or even plurisetose (*Trechii*), the paraglossæ slender, very little longer than the ligula and not ciliate within (*Pogoni*) or slender, long and ciliate within at tip (*Trechii*), the palpi slightly variable the last joint not subulate. Thorax with a seta at the sides and at hind angle. Body not pedunculate, scutellum distinct. Elytra sometimes margined at base, sides narrowly inflexed, margin posteriorly entire or with a very feeble sinuation and without internal plica, disc more or less striate, dorsal punctures distinct. Prosternum not prolonged at tip. Mesosternum declivous in front, moderately separating the coxæ, the epimera narrow. Metasternum variable in length, the epimera distinct, the posterior coxæ contiguous. Legs moderate or slender, the tibiæ not spinulose externally, the anterior deeply emarginate within the inner spur remote from the apex. Tarsi slender, claws simple.

The anterior tarsi of the males have two joints dilated and squamulose beneath.

As above constituted the tribe contains in our fauna two groups, separated in the following manner:

Terminal joint of palpi more or less cylindrical and obtuse at tip, that of the labial palpi as long as the preceding..... *POGONI*.
Terminal joint of palpi slender, acute at tip, that of the labial palpi shorter than the preceding..... *TRECHII*.

In addition to the above characters the form of the paraglossæ and the setæ of the ligula add some weight to the separation of the two groups.

The group *POGONI* contains in our fauna two genera:

Head more or less constricted behind the eyes or transversely impressed. Elytra not margined at base..... ***Patrobus***.
Head not constricted behind the eyes. Elytra usually margined at base. ***Pogonus***.

This group has been the subject of a special essay by Baron Chaudoir, (Ann. Belg. xiv, pp. 21—61), in which he divides the species of the former genus in our fauna into two genera *Patrobus* and *Platidius*, and the latter into *Pogonus*, *Pogonistes* and *Diplochætus*. I have given elsewhere a review of our genera and species in which will be found my reasons for not adopting the genera suggested by Chaudoir, (Trans. Am. Ent. Soc. v, pp. 130 and 248).

The group TRECHI contains in our fauna two genera which have the second joint of the antennæ somewhat pubescent, they are as follows:

Head with distinct eyes. Anterior tibiæ slightly broader to tip, the emargination extending nearly to the middle of the tibia.....**Trechus.**
 Head without eyes. Anterior tibiæ slender, the emargination at apical third.

Anophthalmus.

Our species of the latter genus may be divided in two series, the first contains *Tellkampfi* in which the last joint of the maxillary palpus is very distinctly shorter than the penultimate, the second comprises all our other species with the same joint equal to or even a little longer than the preceding.

The tribe Pogonini of the present essay is about the same as that intended by Lacordaire, (Genera i, p. 364), less the genera which have been properly removed by Schaum and others. The latter author however, separates the two groups and places the Pogoni among the Pterostichini rendering that tribe heterogeneous and indefinable while the Trechi are found near Bembidiini.

I believe that Lacordaire and LeConte are correct in approximating the Pogoni and Trechi but I do not think the characters separating them are of tribal value. That they should be placed near Bembidiini as these authors have done seems to me proper while the relationship of the Pogoni with Pterostichus is much less evident. The structure of the ligula and paraglossæ varies but little between the Pterostichini, Patrobini and Bembidiini.

The suture between the mentum and its support is often entirely obliterated especially in *Anophthalmus*, and is very indistinct in some *Putrobis* although sufficiently marked in others, and in nearly all *Trechus*.

To this tribe and closely related to the Trechi I would refer the genus *Oopterus*. Lacordaire places the genus in his Cnemacanthides, the Broscides of other authors, but Putzeys in his monograph rejects it. Guérin-Méneville in the origin placed it among the subulipalpi and was more nearly correct than Lacordaire. *Oopterus* has all the essential characters of the group Trechi even to the impressed and recurrent stria and it seems to indicate a strong attempt to unite the Pogonini and Bembidiini.

Tribe XXIV.—Pterostichini.

Antennæ arising under a distinct frontal ridge, the three basal joints glabrous. Head more or less constricted behind the eyes, except in *Amara*, and with two supra-orbital setigerous punctures, clypeus prolonged beyond the base of the mandibles, the latter without setigerous puncture externally. Maxillæ ciliate or spinulosé within, hooked at tip (except *Stomis* and *Agclæa*), the palpi of moderate length and of variable structure. Mentum broad, of variable length, usually

deeply emarginate and toothed, varying to a simple bisinuation; ligula at least moderate in size, often large, more or less free at tip and bisetose (quadrisetose in *Myas*), the paraglossæ slender and usually longer than it, sometimes much longer (*Stomis*, *Loxandrus*), the palpi variable in form the second joint sometimes longer than the terminal. Thorax with at least one setigerous puncture at the side and one at the hind angle. Body not pedunculate, (subpedunculate in some *Evarthrus*), scutellum distinct. Elytra narrowly inflexed, margin strongly interrupted posteriorly and with a well marked internal plica, disc usually with dorsal punctures. Prosternum not prolonged at tip, margined or not. Mesosternum oblique or vertical in front, rather widely separating the coxæ, the epimera narrow and often wider internally than externally. Metasternum and side pieces variable in length, the epimera always distinct, posterior coxæ contiguous. Middle and posterior tibiæ variably spinulose externally, the anterior slightly so near the tip, the latter broader at tip deeply emarginate within, the inner spur situated at the summit of the emargination:

The anterior tarsi of the male have three joints rather broadly dilated and squamulose beneath.

As here intended the tribe contains several groups which Lacordaire places in a higher rank. Schaum (Berl. Zeitschr. 1860, p. 179), extends the limits of the tribe in such a manner that it would be impossible to define it, as he includes the Platynini, Patrobini and the genus *Antarctia*. The former I have excluded from the structure of the elytra, the anterior tibiæ and the male tarsi, the Patrobini by the characters especially noted in the table as well as the pubescence of the antennæ and mode of dilatation of the male tarsi, while *Antarctia* belongs also near *Platynus*. Schaum has already scattered Lacordaire's *Pseudo-Feronides*, and of Section viii of the latter author (Genera i, p. 306), we have but two tribes remaining *Trigonotomides* and *Feronides*, these with all that remains of the dismembered *Stomides* constitute the tribe of the present essay which may be divided into three groups.*

Mentum feebly emarginate, sometimes simply bisinuate, the maxillæ hooked at tip..... TRIGONOTOMÆ.

Mentum emarginate and toothed.

Maxillæ hooked at tip..... PTEROSTICHI.

Maxillæ not hooked at tip..... STOMES.

Chandoir has already indicated (Bull. Mosc. 1872), some changes in the composition of the first group, the second is the only one represented in our fauna and the third contains as far as I know but two genera, *Stomis* and *Agelæa*. From the Pterostichi (*Feronides* Lac.), in addition to the eliminations already made I would exclude *Zabrus* which is by far more closely to the Harpalinæ than to the present tribe although through it and *Amara* the relationship is approximated.

* From the characters given of the tribe Drimostomides by Chandoir. (Ann. Belg. xv), it seems probable that it might form a fourth group of the present tribe.

Among the genera of the first group Lacordaire places *Amblytelus* Erichs. After a careful examination of the species on which it is founded I believe that author to be entirely correct. It is however an exception in the entire tribe, as far as I know, in having the fourth tarsal joint bilobed on all the feet. The general appearance of the species is rather that of a Callidide but the entire elytra with the well marked internal plica indicate the correctness of its referencé here. The group Trigonotomæ seems however rather unnatural and should in all probability be separated. *Amblytelus* will in any event represent a distinct group.

The group PTEROSTICHI is the only one represented in our fauna and the number of the genera must remain the subject of discussion until a thorough monograph shall have fixed their limits. Those of our own fauna require discussion here.

In order that the reader may have some point of departure from which to follow the argument I reproduce the table of genera given by Dr. LeConte in his last discussion of the subject, (Proc. Acad. 1873, p. 302), to which I add *Myas* and *Amara*.

Last joint of palpi dilated. Mentum tooth obtuse.....	Myas.
Last joint of palpi cylindrical or slightly oval.	
Mandibles striate; elytra with one dorsal puncture.....	Evarthrus.
Mandibles not striate.	
Mentum tooth emarginate.	
Ligula carinate.	
Metathoracic episterna long.....	Lophoglossus.
Metathoracic episterna short.....	Holciophorus.
Ligula not carinate.	
Front tarsi of ♂ normally dilated.	
Second joint of labial palpi bisetose.....	Pterostichus.
Second joint plurisetose.....	Amara.
Front tarsi of ♂ obliquely dilated.....	Loxandrus.
Mentum tooth entire.....	Piesmus.

In *Myas* the characters are undoubtedly valid and in addition it might be added that the ligula is quadrisetose in front, a character figured by Migneaux but not mentioned by Duval. The elytra have no dorsal puncture and the mandibles are obliquely striate.

The striation of the mandibles which seems to have been a character of last resort in the separation of *Evarthrus* will not by any means hold good with many species of *Pterostichus*, (*rostratus*, *tumescens*, *mancus*, *coracinus*, etc.), which have the mandibles more deeply striate than very many *Evarthrus*.

The species of *Evarthrus* are readily separable into two series, the first has the penultimate joint of the labial palpi longer than the last and with three or four long setæ, the second has the terminal joint

longer and the penultimate merely bisetose, the mandibles are decidedly sulcate in the first series (species 1—12), and often very feebly so in the second, (species 13—25, Synopsis loc. cit.).

The carination of the ligula has no value as a generic character, in fact the carinate ligula occurs in many places in *Pterostichus*, (varying in degree), especially in the flatter species from the Pacific region.

The manner of the dilatation of the tarsi in *Loxandrus* serves to separate it sufficiently in a group where the characters are so feeble.

The plurisetose second joint of the labial palpi, and its consequently greater length than the third, serves to separate *Amara* from all the other genera except the first or genuine series of *Evarthrus*.

The mentum tooth seems also to have lost value as many *Pterostichus* in Europe have an obtuse tooth as in our *submarginatus*, while it appears to have escaped notice that *P. honestus* Say, has a rather long acute tooth.

While retaining *Myas* and *Loxandrus* as distinct on characters which are undoubtedly valid the other genera require some modification.

The following table represents the conclusions which I have arrived at :

Terminal joint of palpi dilated. Elytra without dorsal puncture.....**Myas.**

Terminal joint of palpi cylindrical or slightly oval.

Anterior tarsi of male normally dilated.

Terminal joint of palpi as long as or longer than the penultimate, the latter bisetose in front.....**Pterostichus.**

Terminal joint of palpi shorter than the penultimate, the latter plurisetose in front.

Elytra with one dorsal puncture..... **Evarthrus.**

Elytra without dorsal puncture.....**Amara.**

Anterior tarsi of male obliquely dilated.....**Loxandrus.**

By this arrangement *Holciophorus*, *Lophoglossus*, *Piesmus* and the second series of *Evarthrus* revert to *Pterostichus*. *Amara* is intended in its most comprehensive sense although some of its groups have characters of apparently greater value than those used above in the separation of genera. *Loxandrus* is the nearest approach in our fauna to the Trigonotomæ.

Tribe XXV.—**Licinini.**

Antennæ slender, moderately long, arising under a distinct frontal plate, the three basal joints glabrous (two in *Badister*). Head short, moderately stout, with two supra-orbital setæ, elypeus short not prolonged between the mandibles, emarginate and exposing the basal membrane of the labrum, with a setigerous puncture in each angle. Labrum usually short, emarginate, longitudinally impressed. Eyes moderate in size not very distant from the mouth except in *Dicalus* where they are small and very distant. Mandibles stout more or less arcuate, tips usually obtuse except in *Dicalus* where they are feebly arcuate and acute. Maxillæ hooked at tip ciliate within, the outer lobe rather slender, biarticulate, the palpi moderate in length, the last joint variable in form. Mentum deeply emarginate without

tooth (in our genera), the ligula and paraglossæ variable in form, the former bisetose at tip, the palpi moderate, the last joint variable in form but equal in length to the preceding which is bisetose in front. Thorax variable in form, with one (rarely two) lateral setigerous punctures and one near (rarely at) the hind angle. Body not pedunculate. Elytra margined at base, sides at most moderately inflexed the margin rarely (*Licinus*) sinuate, not interrupted and without internal plica, surface striate and with one (*Diplochila*) two (*Badister*) or no dorsal puncture (*Dicælus*). Prosternum obtuse at tip. Mesosternum concave in front, the epimera very narrow. Metasternal epimera distinct. Posterior coxæ contiguous. Anterior tibiæ deeply emarginate within, the middle and posterior tibiæ slightly spinulose or ciliate externally. Tarsi slender, claws simple.

The anterior tarsi of the males have three joints rather broadly dilated, densely spongy pubescent and ciliate at the sides. In *Licinus* however there are but two dilated joints.

This tribe contains but few genera and all authors seem pretty well in accord as to its composition and it is a surprising thing to find *Amblystomus* placed here by Bedel, (Ann. Fr. 1879, Suppl. p. 58), a genus whose affinities are so plainly with the Harpalini.

The affinities of the tribe are not well marked. The form of the head recalls some Harpalini, *Diplochila* resembles superficially *Microcephalus* of the Pterostichini, while *Dicælus* has some analogy with *Petecium*.

The genera proper to our fauna are three in number, *Licinus silphoides* has in one or two instances been found but under circumstances which induce me to believe that it had been introduced, for convenience however I add it to the table.

Antennæ with three basal joints entirely glabrous.

Eighth and ninth striæ of elytra very closely approximated. The third interval with a dorsal puncture, apex very feebly sinuate..... **Diplochila.**

Eighth and ninth striæ distant.

Elytra not sinuate at apex.

Seventh interval more or less carinate at base..... **Dicælus.**

Elytra strongly sinuate at apex.

Seventh interval not carinate..... **Licinus.**

Antennæ with two basal joints only glabrous. Eighth and ninth striæ not approximated, third interval with two dorsal punctures, apex not sinuate..... **Badister.**

Diplochila has the terminal joint of the palpi more or less cylindrical and obtuse at tip. *Dicælus* and *Licinus* have the last joint more or less triangular and in *Badister* somewhat oval and flattened.

To this tribe should be referred the Australian genus *Dicrochile*. Its front closely reproduces that of our *Diplochila* while the bifid labrum is the legitimate development of the latter genus. The tarsi of the male are moreover similarly dilated while the general aspect of the species before me (*D. Goryi* Bdv.), is that of an elongate *Badister*. *Dicrochile* has the tip of the mandibles emarginate.

Tribe XXVI.—**Platynini.**

Antennæ slender rarely (*Perigona*) slightly thickened, arising below a slight frontal ridge, the condyle exposed, three basal joints glabrous, first joint not long, second usually short rarely as long as the third in which case neither is elongate, third moderate in length usually longer than the others, but rarely equal to or shorter than the fourth. Eyes moderately prominent, close to the mouth beneath. Head oval, rarely elongate, eyes not very distant from the thorax, two supra-orbital setæ, front slightly narrowed before the eyes, clypeus moderately prolonged and with a setigerous puncture each side. Labrum moderately prominent usually truncate in front and sexsetose, rarely deeply emarginate. Mandibles moderately prominent, feebly arcuate, acute at tip, without external seta. Maxillæ hooked at tip, ciliate or spinulose within, outer lobe biarticulate, palpi moderate in length, the terminal joint variable, rarely securiform. Mentum deeply emarginate, toothed or not, basal membrane more or less prominent, ligula very variable in form, bisetose in front, the paraglossæ variable in form and extent of union with the ligular, palpi moderate, the last joint somewhat variable in form, the penultimate bisetose in front. Thorax variable, sides with a setigerous puncture, a second at the hind angle when the latter is distinct or in front of the angle when it is obtuse or rounded. Elytra margined at base, sides narrowly inflexed, margin entire without internal plica, apex obliquely sinuate, sometimes deeply, or even barely perceptibly, dorsal punctures usually present, rarely (*Pristonychus*) wanting, surface striate, the eighth stria distant from the margin except in *Perigona*. Prosternum not prolonged at tip. Mesosternal epimera narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs slender, the femora sometimes thickened, tibiæ slender, not sulcate externally, the middle and posterior slightly ciliate externally, the anterior slender emarginate within, spurs moderate in length. Tarsi slender, the joints often sulcate on their outer side the fourth entire, emarginate or bilobed. Claws simple, finely serrate or pectinate.

The males have the anterior tarsi with three joints feebly dilated and squamulose beneath.

The tribe as here intended is the equivalent of Lacordaire's *Anchomenides* from which however some genera have been removed, *Loxocrepis* and *Monolobus* to the Carabinae, *Oxyglossus* and *Stenognathus* to the Lebiini.

As a part of the tribe, constituting probably a distinct group I would suggest the addition of *Antarctia* and *Geobænus* and I entirely agree with C. G. Thomson in adding *Masoreus*. I can not understand why Chaudoir (Bull. Mosc. 1876), associates in a complex, (it can not be called a tribe) *Masoreus*, the *Tetragonoderides*, *Nemotarsus* and the *Sarothrocrepides*.

Perigona seems also better placed here than elsewhere and appears to be a lead towards the Trechini in the same manner that *Olisthopus* does to the Lebiini.

A study of the form of the ligula and paraglossæ of those genera which are acknowledged on all sides to be undoubted members of the present tribe *Platynus*, *Calathus* and *Olisthopus*, seems to me to show

what little value these organs have in the formation of tribes and groups of genera. The ligula of *Olisthopus* is very plainly that of many Lebiides, *Platynus* reproduces very closely that of *Pterostichus*, *Calathus* proper is as nearly as possible intermediate between the two while the section *Pristodactyla* is a modification of *Platynus*. The tip of the ligula is free in *Platynus* and *Pristodactyla* and not free in the other genera.

The mentum tooth also seems to furnish characters of an evanescent nature. In some *Platynus*, especially those in which the hind angles of the thorax are distinct (*brunneomarginatus*, *ovipennis*, etc.), the tooth is longitudinally impressed and emarginate at tip, while in the *Agonum* type the tooth is very obtuse. The same variation is observed in *Calathus*, some having quite an acute tooth, others even bifid.

The tribe seems to be divisible primarily into three groups by the following characters:

Eighth elytral stria distant from the margin and not deeply impressed.	
Thorax truncate or emarginate at base.....	PLATYNI.
Thorax slightly lobed at middle of base.....	MASOREI.
Eighth elytral stria confluent with the margin in its basal half, deeply impressed and attaining the suture.....	PERIGONI.

Group PLATYNI.

This group might easily be separated in many minor subdivisions by including the genera not represented in our fauna.

The following genera occur with us:

Ungues more or less serrate. Mentum toothed.	
Tarsi glabrous above. Elytra with dorsal punctures.....	Calathus.
Tarsi hairy above. Elytra without dorsal punctures.....	Pristonychus.
Ungues not serrate. Elytra with dorsal punctures.	
Mentum toothed.....	Platynus.
Mentum not toothed.....	Olisthopus.

Olisthopus is represented in the Atlantic region by two species, the other genera occur on both sides of the continent. Of *Pristonychus* two species are known both of them identical with European forms (*complanatus* and *terricola*), and have probably been introduced, the first mentioned being rather widely spread by commerce over the globe.

Anchus Lec., founded on *Platynus pusillus* is not distinct from *Platynus*. The species is our equivalent for *Anchomenus oblongulus* Fab., of Europe, and may even be specifically identical, the only striking difference between the two being in the slightly wider thorax of our species.

To this group I would refer Wollaston's genus *Zargus*. The facies of the species is not unlike that of certain of our *Platynus* (*striatus*, *sulcatus*). The clypeus is membranous at middle even to a greater extent than in *Dicrochile* while the labrum is also bifid. Chaudoir is

willing to believe *Zargus* allied to *Dicrochile* evidently from the form of labrum, but it is really a true *Platynus* form allied to *Olisthopus* the ligular characters of which it exaggerates.

Lestignathus is also a member of the group. The description of the ligula heretofore given is certainly very erroneous. The ligula is in great part membranous with merely a small urn-shaped piece at the tip corneous, the paraglossæ are very distinct and longer than the ligula. By comparing the figure which I give of the parts it will be observed that the ligula does not differ essentially from *Platynus*. The tip of the ligula is connected with the paraglossæ by a very thin transparent membrane.

In the species of *Lestignathus* before me I observe that the suture between the mentum and its support is as completely obliterated as in *Enceladus*. It is the only instance known to me of this character in the present or the preceding tribe.

For the opportunity of examining *Zargus Schaumii* Woll., and *Lestignathus Simsonii* Bates, I am indebted to Mr. E. W. Janson.

GROUP MASOREI.

No representative of this group occurs in our fauna. The latest revision of the genera is by Chaudoir, (Bull. Mosc. 1876), in which contrary to his usual custom he says but little of the parts of the mouth. The fullest accounts of these are by Lacordaire and Duval, and both are inaccurate in the description of the ligula and paraglossæ. In *Masoreus Wetterhalli* the ligula is triangular, truncate in front, the paraglossæ rather broad and not connate with the ligula to the tip but folded behind it as represented in the accompanying dissection. It is evident that Lacordaire and Duval have either dissected a *Perigona* or that the latter author copied from the former who considered *Perigona* a synonym of *Masoreus*. In his tribe of Masoreides Chaudoir places seven genera some of which seem to me to belong to the next group.

GROUP PERIGONÆ.

This group is represented by one genus *Perigona* which has for its synonyms *Trechicus*, *Nestra* and *Spathinus*. The mentum has its epilobes prolonged to an acute spine, the emargination is deep without tooth. The ligula is narrow and truncate at tip, the paraglossæ slender and a little longer than the ligula, and united with the latter by a thin almost transparent membrane which extends from the base of the paraglossæ to the tip of the ligula.

The antennæ are rather stout beyond the third joint and the second is as long as the third.

There is certainly no reason why *Perigona* should be placed as a Truncatipenne. The two supra-orbital setæ remove it from association with the Harpalide series. Taking its entire organization it seems better placed in the present tribe than anywhere else.

Tribe XXVII.—**Anchonoderini.**

Head oval or rounded, not prolonged nor constricted to a narrow neck; with two supra-orbital setigerous punctures. Antennæ slender, not thicker externally. Eyes variable in prominence but always close to the buccal fissure beneath. Thorax more or less cordiform the lateral margin distinct, setigerous punctures at side striated the one in front of middle the second at the hind angle (except in *Lachnophorus* where it is slightly in front). Elytra feebly margined at base, the lateral margin distinct, apices rounded. Scutellum and scutellar stria distinct. Tarsi slender, fourth joint simple. Claws simple. Posterior coxæ contiguous. Body above pubescent or pilose.

In the above characters will be found all that will define the genera placed here. With other genera the tribe might possibly be more properly divided in three but for the present they will be considered groups forming an osculant tribe.

These groups are as follows:

Antennæ with four glabrous joints.

Thorax ovate, lateral margin obtuse, the posterior setigerous puncture in front of the basal angle. Body subpedunculate.....**LACHNOPHORI.**

Last joint of palpi ovoid, suddenly acuminate at tip, the surface pubescent.

Elytra with three dorsal punctures.....**Lachnophorus.**

Last joint of palpi conical, gradually narrowed to tip, the surface glabrous.

Elytra without dorsal punctures.**Euphorticus.**

Thorax cordiform, lateral margin acute, the posterior setigerous puncture at the hind angle. Body not pedunculate.....**ANCHONODERI.**

Last joint of palpi gradually narrowed to tip and slightly oval. Elytra with three feeble dorsal punctures.....**Anchonoderus.**

Antennæ with three basal joints glabrous. Thorax cordate margin acute, the hind angle with setigerous puncture..... **ATRANI.**

Palpi as in *Anchonoderus*. Dorsal punctures not evident..... **Atranius.**

The structure of the antennæ of the first two tribes seems to have been overlooked. The joints 2—4 are not absolutely glabrous in the strict acceptation of the term but they are devoid of the fine punctuation and pubescence which covers the following joints.

From the characters above given it will be evident that the Lachnophori osculate closely with the Egini and the Atrani with the Platynini, while the Anchonoderi are intermediate between the other two groups.

Group **LACHNOPHORI.**

Eyes large moderately prominent. Head oval, sometimes slightly constricted behind the eyes, front more or less deflexed. Elytra not margined at base, the apex with very feeble sinuation in *Lachnophorus*

or rounded in *Euphorticus*, the striæ entire, the eighth stria distant from the margin with very distinct ocellate punctures in the former genus, not distinct in the latter. The setigerous punctures of the side of the thorax are two in number, the first situated at the point of greatest width, the second midway between this and the hind angle. The thorax is not wider than the head between the eyes.

The males have the anterior tarsi slightly dilated and from the anterior angle at the inner side of the joints 1—3 proceeds a brush of fine silken hair.

To the two genera above named it will probably be necessary to add *Lasiocera*. *Euphorticus* n. g. is founded on *Lachn. pubescens* Dej., and the only characters separating it are those given in the table.

Group ANCHONODERI.

The eyes are not prominent. Head oval slightly narrowed behind the eyes, front horizontal. Elytra not margined at base, the apices rounded, surface striate, eighth stria distant from the margin and with the ocellate punctures feeble, dorsal punctures three but fine and indistinct. Thorax cordate as wide as the head, lateral setigerous punctures situated at the point of greatest width and in the hind angle.

The anterior tarsi of the males have three joints slightly dilated and with squamiform papillæ and ciliate at the side.

Anchonoderus and probably *Camptotoma* enter this group. The former genus alone is represented in our fauna by one species from Texas.

Group ATRANI.

Head oval, more elongate than *Anchonoderus* the eyes not prominent. Antennæ with but three joints glabrous, the fourth punctured and pubescent as the fifth. Thorax cordate, a little broader than the head, the setæ in the normal position at the side and in the hind angles. Elytra margined at base, the apices rounded, surface striate, the ocellate punctures well marked, dorsal punctures not distinct.

The sexual characters are as in *Anchonoderus*.

This group contains in our fauna but one genus *Atranus* Lec. The species *A. pubescens* Dej., was originally described as an *Anchomenus*; separated by LeConte with its present generic name it was placed among the Chlæniini. Chaudoir first suggested its removal from that position to that in which it is now found.

Tribe XXVIII.—Ctenodactylini.

Antennæ slender, base free, three basal joints glabrous, first joint stouter, as long as the next two, 3—11 equal or nearly so. Head rhomboidal, prolonged behind the eyes and narrowed to a distinct neck, front with two supra-orbital setæ; clypeus moderately prolonged, a setigerous puncture each side. Eyes large

moderately prominent, narrowly separated from the mouth beneath. Labrum transverse, feebly emarginate, margin sexsetose. Mandibles arcuate acute at tip, not prominent. Maxillæ slender, ciliate and spinous within, the outer lobe slender and with two equal joints, the palpi slender, the terminal joint elongate-oval and acute. Mentum deeply emarginate, toothed, (except in *Pionycha*), ligula moderately prominent, the tip bilobed or narrowed and bisetose, paraglossæ slender and acute usually longer than the ligula, palpi slender, last joint oval acute, the penultimate bisetose in front. Thorax elongate, narrower than the head, margin feeble, sides with a setigerous puncture near the middle and at the hind angle. Body subpedunculate, scutellum not prolonged between the elytra. Elytra oblong-oval, not margined at base, lateral margin distinct and entire, without internal plica, apices rounded without sinuation, disc striate, third interval with three indistinct dorsal punctures. Prosternum slightly prolonged at tip. Mesosternum oblique, the epimera very narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs slender, middle and posterior tibiæ slightly ciliate externally, the anterior emarginate, its spurs very small. Tarsi slender, the first joint as long as the next two which are oval, the fourth broad, deeply bilobed and papillose beneath, claws simple dentate or pectinate.

The tarsi are alike in the sexes. The males have one seta on each side of the apex of the last ventral segment, the females two.

The tribe as here constituted contains not only the Ctenodactylides of Lacordaire but also his Trigonodactylides.

Two groups may be indicated.

Thorax narrow, elongate. Ligula slender usually narrowed in front.

CTENODACTYLÆ.

Thorax nearly or fully as wide as long. Ligula bilobed at tip.....HEXAGONIÆ.

The CTENODACTYLÆ alone are represented in our fauna by *Leptotrachelus* which occurs in the Atlantic region.

Regarding the HEXAGONIÆ as typified by *Hexagonia* (= Trigonodactyla) the only genus known, it can only be said that it is remarkable that such an extraordinary error should have been allowed to pass current from one author to another as has been done in the description of the maxilla. After having carefully dissected the mouth of *Trigonodactyla* the parts were placed under the microscope and an appearance of the tip of the maxilla seemed to indicate that it was really terminated by a moveable hook. My custom however has been in doubtful cases to surround the parts with a drop of water on glass when all sutures and other lines become apparent. Without wishing to describe in detail the structure of the maxilla the reader is referred to the figure.

It will be observed in the two groups above indicated that the paraglossæ arise apparently by their base from the side of the ligula in the Ctenodactyli, but are prolonged to the base of the ligula in the Trigonodactyli. The difference is however more apparent than real. If the ligula be observed from the inner side the paraglossæ will be found adherent to that side, their outer edge being very close to that of the ligula itself.

The tribe has affinities in two directions, the first group with the Odacanthini, the second with the Dryptini. Schaum (Ins. Deutschl. i, p. 251), places the genera of the present tribe in his group Odacanthidæ which includes also the Odacanthini and Anchonoderini of the present essay.

Tribe XXIX.—Odacanthini.

Antennæ slender, free at base, first joint as long as the next two, three basal joints glabrous. Head oval more or less elongate, prolonged behind the eyes and narrowed to a neck, two supra-orbital setæ, clypeus moderately prolonged, truncate, a setigerous puncture on each side. Eyes large moderately prominent, very narrowly separated from the mouth beneath. Labrum moderately prominent, sexsetose in front. Maxillæ slender, ciliate and spinous within, outer lobe biarticulate with equal joints, palpi slender, the last two joints nearly equal the terminal slightly fusiform, acute at tip. Mentum emarginate and toothed, ligula usually truncate at tip and bisetose, the apex free for a short distance, the paraglossæ small rarely longer than it, the palpi slender the last joint slightly fusiform acute at tip, the penultimate not longer than it and bi- rarely trisetose in front. Thorax narrow, the margin usually feeble or even entirely obliterated, a seta near the middle of the side, a second at the hind angle which is often feeble. Body subpedunculate, scutellum not projecting between the elytra. Elytra oblong-oval, base not margined, sides narrowly inflexed, margin entire without internal plica, the apices truncate, sometimes rather obliquely. Prosternum not prolonged. Mesosternum oblique the epimera very narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs slender, the middle and posterior tibiæ slightly ciliate externally, the anterior emarginate within, the spurs small. Tarsi usually slender rarely flattened, the fourth joint at most feebly emarginate. Claws simple.

The anterior tarsi exhibit no differences in the two sexes.

In all the genera there will be observed numerous punctures, bearing short erect hairs, situated either in the second stria or the third interval.

The tribe as here constituted is the same as in Lacordaire except that *Stenochila* is excluded and *Calophæna* added. There is a close relationship between this tribe and the Ctenodaetylini, and they are united by some authors, the only difference of moment being that the elytra are here truncate and there entire.

With the Lebiini and Dryptini there is also a very close relationship, the characters separating the present tribe from the former are certainly not very well marked if we admit the Lacordairean aggregation. The Lebiini of the present essay is composed of the Lebiides of Lacordaire excluding especially *Agra*, the Pericalides and *Mormolyce*. Two of these genera have an elongated head and thorax and all have truncate elytra.

I can find no constant character separating the Odacanthini from the Dryptini, excepting in the form of the labial palpi. For this reason I remove *Stenochila* which has not only the long joint of the antennæ but also the penultimate joint of the labial palpi plurisetose. *Calophæna* however has the palpi and antennæ of the present tribe.

The only genus which occurs in our fauna is *Cusnonia* represented by two species *pensylvanica* and *ludoviciana*, in which the setigerous punctures of the second stria are very indistinct and rarely more than four in number. The last mentioned species is remarkable in having the thoracic margin rounded and the sutures of the under side entirely obliterated. The only other instance known to me of such a structure is in *Apotomus*, which Schaum says is distinguished from all other Carabidæ in this manner.

Tribe XXX.—Dryptini.

Antennæ setaceous, free at base, three basal joints somewhat less pubescent, the first usually elongate and thicker than the following. Head constricted at a variable distance behind the eyes to a neck which sometimes expands semi-globularly at its insertion in the thorax, front narrowed before the eyes, two supra-orbital setæ, clypeus moderately prolonged and with a variable number of setigerous punctures, sometimes (*Drypta*) without any. Eyes oval moderately prominent, usually not very close to the mouth beneath. Labrum transverse, moderately prominent, truncate or feebly emarginate, sexsetose in front, the two lateral setæ in *Drypta* stouter, longer and nearly vertical. Mandibles slightly prominent, feebly arcuate, acute at tip. Maxillæ hooked at tip, ciliate or spinous within, outer lobe usually slender, biarticulate, with equal lobes, palpi long, more or less hirsute, the terminal joint more or less triangular. Mentum variable in form, deeply emarginate with or without tooth, ligula and paraglossæ variable in form, the palpi moderately long, the terminal joint shorter than the preceding, more or less triangular in form, the penultimate longer and plurisetose in front. Thorax variable in form, often moderately long, the lateral margin acute, (except in *Drypta*) the lateral setæ often indistinct, that of the posterior angle usually entirely absent. Scutellum distinct. Elytra not margined at base, lateral margin acute, entire, apex truncate, dorsal punctures absent except in *Stenochila*. Prosternum not prolonged. Mesosternal epimera very narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs moderately long, the femora often slightly clavate, the middle and posterior tibiæ ciliate or slightly spinous externally, the anterior slender, deeply emarginate within, the tibial spurs moderate in length, rarely (*Galerita*) long. Tarsi variable in form, the claws simple or pectinate.

The males have the anterior tarsi dilated, sometimes very slightly and densely pubescent beneath.

The tribe as here constituted is the equivalent of Lacordaire's *Galeritides*, for which later authors have adopted the name which I retain.

I have already given in the Ctenodactylini the reasons for the change of places of *Stenochila* and *Cataphæna*. *Polystichus* is removed to Helluonini for reasons which will hereafter be given. The essential character separating the Dryptini from all other Truncatipennes is found in the structure of the labial palpi. The form of the basal joint of the antennæ usually relied on is by no means a good character as several of the preceding tribes have the first joint even longer than some of those of the present. Where the scape attains its typical length it is usually

more or less curved near the base as in *Agra*. It is difficult in many of the genera to say how many joints are truly pubescent as the hairs extend nearly to the base of the first joint.

The head assumes three forms, the first is that typified by *Galerita* in which the head is elongate-oval, considerably prolonged behind the eyes then constricted to a very narrow neck which dilates to a semiglobular condyle, the second is the *Zuphium* type where there is a moderate prolongation behind the eye and then very suddenly constricted to a narrow neck which is cylindrical, while in *Drypta* the constriction is close to the eyes, not abrupt and the neck rather stout and cylindrical. The latter genus is further remarkable in having the setæ of the clypeus entirely wanting, their function being replaced by those of outer side of the labrum which acquire an unusual development, a similar occurrence has been observed in *Pelecium*.

This tribe through *Galerita* and *Stenochila* shows a relationship well marked with the Odacanthini, and by *Thalpius* to the Helluonini through *Polystichus* which must be placed in the latter tribe.

Our genera are not numerous and may be known by the characters of the following table:

Neck very narrow.

Head prolonged behind the eyes, neck inserted in thorax by a semiglobular condyle. Clypeus with two setigerous punctures each side.....**Galerita.**

Head triangular scarcely prolonged behind the eyes, very suddenly constricted to a narrow cylindrical neck. Clypeus with but one setigerous puncture on each side with a long seta.....**Zuphium.**

Neck stout, head very little constricted.

Thorax truncate at base, antennæ with third joint shorter than the fourth.

Diaphorus.

Thorax subpedunculate at base, antennæ with joints 2—4 nearly equal.

Thalpius.

The above genera are represented on both sides of the continent.

Tribe XXXI.—**Mormolycini.**

Antennæ slender, nearly as long as the body, the base exposed, four basal joints glabrous, the following densely punctured and very finely pubescent, first joint elongate pyriform, second short, third as long as the head, fourth a little shorter, 5—11 much shorter, subequal. Head very long behind the eyes, forming a flattened neck which is moderately constricted at base and expanded semiglobularly at its insertion in the thorax, front with two small supra-orbital setæ. Clypeus moderately prolonged, feebly emarginate, a setigerous puncture each side. Eyes round, moderately prominent, distant beneath from the buccal fissure. Labrum nearly square, feebly emarginate and sexsetose in front. Mandibles stout, arcuate, tip acute, a small tooth at middle on the right side, near apex on the left, outer side concave at base, without setigerous puncture, upper side with a short but deep cicatrix-like fissure at the end of the carina. Maxillæ moderately short, hooked at tip, inner edge densely ciliate, outer lobe slender, biarticulate, the palpi stout,

the terminal joint subcylindrical obtuse at tip. Mentum deeply emarginate and with a slender acute tooth. Ligula slender acute and bisetose at tip, the paraglossæ broad, membranous, adhering to the ligula to the tip and prolonged beyond it but not becoming united, the palpi stout, terminal joint subcylindrical, obtuse at tip, with short ciliæ on its inner side, penultimate joint bisetose in front. Thorax elongate the margin with a coarsely dentate expansion and without setigerous punctures. Scutellum distinct. Elytra (less the expansion) oblong-oval, truncate at tip, the sutural angle acute, base not margined, very narrowly embracing the body, the margin acute and expanded in a foliaceous plate which is prolonged beyond the apices of the elytra, surface striate, the third interval with three dorsal punctures each situated in a small tubercle. Prosternum not prolonged, the thoracic sutures obsolete. Mesosternum narrowly separating the coxæ, the epimera broad and attaining the coxæ. Metasternal episterna also attaining the middle coxæ, the epimera distinct. Posterior coxæ contiguous. Legs long and slender, middle tibiæ ciliate near the tip, posterior tibiæ not ciliate, anterior tibiæ emarginate within, the spurs on all the tibiæ small. Tarsi similar in the sexes, slender, the first joint as long as the next three and with short hairs beneath, the other joints not ciliate. Claws simple.

This tribe is represented by the single genus *Mormolyce* containing three species which occur in Java and adjacent regions. It is especially remarkable in being the only exception, as far as I know, to the value of the mesosternal epimeron in determining the position of a genus in the Carabide series. In the preceding pages I have attempted to demonstrate that *Siagona* and the Ozænini have the mesosternum formed in the manner normal to the present sub-family. It will also be observed by the figure of the under side of *Mormolyce* (Pl. III, fig. 3), that the metasternal episterna also reach the middle coxæ, a character entirely without parallel in all the Carabidæ although quite common in Dytiscidæ and present in *Amphizoa*.

The position of the genus after disregarding the anomalous sternal structure is still open to discussion. The association of it with the Feronides (Pterostichini) by the older authors is now generally abandoned and all seem to agree that it is a true Truncatipenne. Chaudoir (Bull. Mosc. 1848, i, p. 123), indicated for it a position near *Thyreopterus* an opinion since repeated (Ann. Belg. xii, 1869, p. 133), but with which I can not agree. Even the most enthusiastic advocates of such an idea must admit that it is about as unlike the other genera of the Thyreopterides of Chaudoir as it is unlike an ordinary *Lebia*.

Those whose range of study extends over the entire Coleoptera have observed that genera occur in very many families in which the species, by the enormous development of some members of the external portion of the body, assume a form or appearance entirely concealing the true relationship. Instances of mimicry are numerous but these are foreign to the idea at present intended.

Mormolyce is in particular one of those genera with unusual developments. These are the margining of the thorax and the leaf-like expansion of the elytral margin. If we dismiss for a moment from our consideration these appendages and allow *Mormolyce* to stand as if deprived of them it becomes reduced to an insect not very different from an Odaecanthide or a Ctenodaetylide.

The elongate head, with the extremity of the neck dilated in a semi-globular manner, the narrow thorax, the elytra not margined at base, the dorsal punctures all on the third interval, are characters which cannot be neglected.

The ligula and paraglossæ of *Mormolyce* are said to be as in the Thyreopterides but from the descriptions these organs vary in that group, and in the present genus I do not find as much resemblance to *Eurydera* as to *Coptodera ærata* (84).

I would suggest that *Mormolyce* be constituted a distinct tribe to be placed in the vicinity of the Odaecanthini and Ctenodaetylini.

Tribe XXXII.—Agrini.

Antennæ slender, moderately long, arising under a slight frontal plate, three basal joints glabrous, first joint moderate in length, slightly arcuate near the base, second short, third longer than the following which are subequal in length. Head elongate, prolonged behind the eyes and suddenly constricted to a neck which forms a semiglobular condyle, front with two supra-orbital setæ. Clypeus moderately prolonged, a setigerous puncture each side. Eyes moderately prominent, close to the mouth beneath. Labrum moderately prominent, nearly square or slightly transverse, sexsetose in front. Mandibles slightly prominent, feebly arcuate, acute at tip without setigerous puncture. Maxillæ hooked at tip, with very short ciliæ within, the outer lobe rather stout, biarticulate, the terminal joint shorter, palpi stout not long, the terminal joint subcylindrical, longer than the preceding and obtuse at tip. Mentum moderately emarginate with an obtuse tooth sometimes nearly as long as the lateral lobes. Ligula coriaceous, more or less rhomboidal, moderately prominent, quadrisetose, two setæ at the tip and one on each side posteriorly, paraglossæ membranous, adherent to the ligula and not longer, palpi longer than the maxillaries, the terminal joint broadly securiform, the penultimate bisetose in front. Thorax elongate conical, the lateral margin almost obliterated, the lateral and angular setigerous punctures indistinct. Scutellum distinct, feebly prolonged between the elytra. Elytra prolonged at base and not margined there, sides narrowly inflexed, lateral margin entire, without internal plica, the apex truncate and often spinous or dentate, surface variably sculptured but when striate the dorsal punctures are numerous and very evident on the striae 2—4—6, the ninth stria close to the margin. Prosternum not prolonged. Mesosternum oblique, the epimera very narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs moderate in length, femora, especially the anterior, somewhat clavate, tibiæ slightly ciliate externally, the terminal spurs small, anterior tibiæ deeply emarginate within. Tarsi moderate in length, flattened on all the feet, ciliate above, densely pubescent beneath and ciliate at the sides, fourth joint deeply bilobed. Claws stout, pectinate in their entire length.

The anterior tarsi of the male are more dilated than in the female. The sexual characters are otherwise variable and are found in the form of the middle and posterior tibiæ and the sculpture and pubescence of the abdomen.

In comparing the species of this tribe with those of the Odacanthini and Ctenodactylini it will be seen that there is a close relationship which can not be neglected for the structure of the ligula alone. By retaining *Agra* in any part of the true Lebiide series we introduce confusion as great as with *Mormolyce*. In many parts of the Carabide series the ligula has been entirely neglected where its consideration would cause an obvious violation of natural affinities. Conspicuous among these cases of neglect we find the Graphipterini and Athiini.

It may be well to call attention to the fact that in all the tribes with long head and thorax the tibial spurs are exceptionally small, and Lacordaire says of *Agra* "sans épines terminales."

The species of this tribe belong to two genera, *Agra* and *Agridia* and all with one exception occur in intertropical America.

Tribe XXXIII.—Egini.

Antennæ moderate in length, slightly thicker externally, arising under a feeble frontal ridge, the four basal joints glabrous, that is they are somewhat hairy but not densely punctured and finely pubescent as the following joints, the basal joint moderately stout but not equal in length to the two following joints together. Head oval rather strongly constricted at a distance behind the eyes to a neck, with two supra-orbital setæ. Eyes oval in the axis of the head, moderately prominent but distant beneath from the mouth. Clypeus feebly prolonged, a setigerous puncture each side. Labrum feebly prominent, slightly emarginate, sexsetose. Mandibles acute at tip, without setigerous puncture externally. Maxillæ slender, slightly hooked at tip, spinulose and ciliate internally, outer lobe slender, biarticulate, the terminal joint shorter, the palpi moderate in length, the terminal joint obovoid, suddenly narrowed and prolonged at tip, surface pubescent. Mentum deeply emarginate and with a short obtuse tooth; ligula not prominent, emarginate and bisetose at apex, the tip free for a short distance, paraglossæ slightly longer than it, palpi moderate the terminal joint like that of the maxilla, the penultimate bisetose in front. Thorax ovate, somewhat constricted at base, margin almost entirely obliterated, sides with two setigerous punctures placed almost as in the *Clivinæ*. Body distinctly pedunculate, scutellum not visible between the elytra. Elytra not margined at base and without scutellar stria, lateral margin obsolete, sides narrowly inflexed, apex subtruncate, disc striate at base, dorsal punctures three but indistinct. Prosternum not prolonged. Mesosternum oblique, the epimera very narrow. Metasternal epimera distinct, posterior coxæ separated. Legs slender, tibiæ ciliate externally, the anterior deeply emarginate within. Tarsi slender and long, fourth joint entire. Claws simple.

The anterior tarsi of the male are merely a little stouter than those of the female and somewhat more ciliate.

I know of but one genus which enters this tribe, *Egja*. In the books it forms a part of Lacordaire's tribe Anchonoderides and with Schaum and LeConte of the more comprehensive tribe Odacanthini.

The many peculiar characters which *Ega* possesses seem to me sufficient to place it as a distinct tribe. In the present series the pedunculate body is known to me as occurring only in the Anthiini and it is here too that we have the posterior coxæ separated and the eyes oval in the axis of the head. It is by no means easy to determine the true thoracic setigerous punctures as there are many short erect hairs, the true tactile setæ will be found remaining when the others are lost. The obliteration of the side margin of the thorax is nearly as complete as in *Apotomus* while the absence of the lateral margin of the elytra is an important character which appears to have been lost sight of.

The separation of the posterior coxæ seems to me evidence of a degraded or undeveloped type.

The relationship of the present tribe is undoubtedly with certain members of the Anchonoderini while the relationship with the Anthiini indicated above may be merely the possession of several characters in common; there may, however, be genera unknown to me which show a true affinity between the two tribes.

Ega is represented in our fauna by two species, *Sallei* from the Gulf States, *lætula* from California. In the first the elytral grooves or striæ do not extend behind the middle and the three dorsal punctures are faintly indicated; in the second the striæ extend at least two-thirds of the elytra and I have been unable to detect any dorsal punctures.

Tribe XXXIV.—Lebiini.

Antennæ slender, rarely slightly thickened, arising under a slight frontal ridge, the condyle usually exposed, the three basal joints generally glabrous, sometimes however, but two or four. Head oval, constricted to a neck or not, with two supra-orbital setæ, front either parallel or with convergent sides, clypeus with a setigerous puncture each side. Eyes round or oval, moderately prominent very narrowly separated from the mouth beneath. Labrum usually broader than long, sometimes prolonged covering the mandibles, either truncate or emarginate and sexsetose in front. Maxillæ slender hooked at tip, rather obtusely in *Tetragonoderus*, ciliate or spinulose within rarely toothed behind the tip (*Eucarus* and *Tetragonoderus*) the apex ciliate in many genera, outer lobe biarticulate but otherwise variable, the palpi variable in form from slender to securiform. Mentum more or less deeply emarginate, the epilobes always distinct, the bottom of the emargination either without tooth or with a tooth of variable form; ligula and paraglossæ very variable, the palpi also variable the terminal joint equal to the preceding or longer, the latter bisetose in front (except in some *Cymindis*). Thorax variable in form, sides distinctly margined and with a seta at the side and at the basal angle. Elytra truncate at tip in a variable manner, the margin acute, entire and narrowly inflexed, without internal plica, the base margined. Prosternum usually obtuse at tip, rarely acute or prolonged (*Cyclosomus*). Mesosternal epimera narrow, sometimes almost entirely concealed by the episterna. Metasternal epimera distinct, the posterior coxæ contiguous. Legs usually slender, not very

long, tibiæ slender the terminal spurs moderate or short, rarely long (*Tetragonoderus*, *Nemotarsus*), simple, rarely finely serrulate along their margins (*Tetragonoderus*, etc.). Tarsi variable in form, the fourth joint narrow, emarginate, or deeply bilobed, the claws usually pectinate or serrulate, sometimes however simple.

The sexual characters are variable. The anterior tarsi are often very nearly equal in the sexes, sometimes with three or four joints slightly dilated in the male, rarely the middle tarsi are dilated (*Pinacodera*). The anal segment has usually more setæ in the female than in the male.

The tribe as here intended is the equivalent of Lacordaire's Lebiides and Pericalides omitting especially *Agra* and *Mormolyce*.

After having given the tribe a careful study, having purposely left it for the final work in the present paper, I have found myself with the same result as that arrived at by Lacordaire and LeConte, namely, that it is not possible to divide the tribe in any satisfactory manner. I have dissected the mouth parts of all our own genera which are figured, with many foreign to our fauna and the only conclusion I can arrive at, is, that the ligula and paraglossæ have very little value in defining groups of genera. I can cite the two figures of the ligula of *Callida* (93, 94), in these the paraglossæ are not united by a membrane which crosses the front of the ligula, nor do we find it so in *Dromius*. In both of the groups which Chaudoir bases on these two genera as types the paraglossæ should be united by a membrane crossing the front of the ligula.

The Lebiides of Baron Chaudoir are separated more especially by the paraglossæ pilose at tip and the intermediate tibiæ of the male notched within near the tip. The other characters given, occur, as every one will see, in all parts of the Lebiide series. Other genera as in *Dromius* (86) and *Pinacodera* (97) have the paraglossæ ciliate at tip, while the male of *Coptodera ærata* has the middle tibiæ incised as in *Lebia*. The further division of the Lebiides into genera with and without epilobes to the mentum is also misleading and I am quite prepared to state that there is no Carabide without epilobes.

By these remarks I do not desire to discredit the work done by Baron Chaudoir* who is acknowledged to be the ablest Carabologist of the present time. The tribes and groups he indicates are composed of

* This and the preceding paragraphs may read strangely now that Chaudoir is no more. They were written before his death and intended as fully for his perusal as for any one else. For many years Chaudoir has contributed valuable papers to our knowledge of the *Truncatipenne* series, and as it has been found impossible to present my own views without directly quoting him, I do not think that any change of language, apparently less critical, would be of benefit in any respect. I can only add that our relations, even with differences of opinion, have always been of the most cordial nature, and were he living the remarks here presented would be accepted in the spirit in which they are intended.

genera very closely and naturally allied, but the definition of these groups is very artificial and we find already a great number of odd genera thrown aside which will not fit in any tribe he has proposed and which must of necessity form groups by themselves. Such a minute subdivision is confusing but would be excusable and even acceptable if the characters on which it is founded were even moderately constant, but with the few genera which occur in our fauna I can say that no characters exist in the ligula which can be used to divide the tribe into groups.

In the accompanying table the characters seem hardly to warrant any further explanation. Attention might be directed to the very long tibial spurs of *Tetragonoderus* and *Nemotarsus*, in the former genus their edges are finely serrulate a remarkable character in the present family and one which is by no means common in Coleoptera generally.

In *Pentagonica* (*Rhombodera*) which in its form occupies an intermediate position between *Lebiu* (*Aphelogenia*) and *Eucærus* the mandibles are without scrobes, that is they are deprived of that triangular groove on the outer side so commonly present in the Carabidæ. The mandibles here recall those of *Loricera* or *Leistus* although the lower edge is less expanded than in these two genera.

To the present tribe and in close association with *Tetragonoderus*, Chaudoir has added *Cyclosomus* a curious genus of a form and aspect closely resembling *Omophron*, it is however correctly placed by that author.

Eucærus which will be found in one of the extremes of the following table is one of those unfortunate genera which has never been allowed to remain for any length of time in any one position. At its beginning it was placed near the Harpali, thence (*Class. Col. N. A.* p. 22), it was removed and made part of a rather composite tribe and placed near the Lachnophori. Chaudoir accepts this view. While it is doubtless an osculant form it seems to me more nearly allied to the present series than to *Lachnophorus*.

The maxillæ present a few variations from the usual fixed type and attention is directed to the figures of *Tetragonoderus*, *Eucærus* and *Piniacodera*.

The antennæ are very constant in their pubescence. In the vast majority of species the three basal joints and the adjacent half of the fourth are glabrous, but in *Phlæoxena* four joints are smooth while in *Eucærus* the third is pubescent and the second scarcely less so.

The genera below are those known at present in our fauna. To have introduced those exotic genera known to me would not have been a difficult task, but it seemed to me to be unnecessary as very nearly if

not quite all the subdivisions suggested by Chaudoir are represented by genera around which the exotics may be grouped.

The following table will enable our genera to be recognized :

Tibial spurs very long.

Head not constricted; the tibial spurs finely serrulate. Ungues simple or finely serrulate.....**Tetragonoderus.**

Head constricted; tibial spurs simple. Ungues with long pectination.

Nemotarsus.

Tibial spurs short or at most moderate in length.

A.—Mandibles with distinct scrobes.

A-a.—Antennæ with at least three glabrous joints.

b.—Head constricted behind the eyes.....**Lebia.**

bb.—Head not constricted.

c.—Labrum large prominent, covering in great part the mandibles.

d.—Antennæ with three glabrous joints; middle tibiæ of male incised within near the tip**Coptodera.**

dd.—Antennæ with four glabrous joints; middle tibiæ of male not incised.

Phlecoxena.

cc.—Labrum moderate, not large.

e.—Tarsi slender, fourth joint entire.

f.—Labial palpi slender.

g.—Thorax truncate at base.

Mentum not toothed, unguis serrate.....**Dromius.**

Mentum toothed, unguis simple.....**Apristus.**

gg.—Thorax slightly lobed at base, unguis serrate.

Mentum not toothed.....**Blechnus.**

Mentum with a small emarginate tooth.....**Metabletus.**

ff.—Labial palpi thick, oval; unguis more or less serrate....**Axinopalpus.**

ee.—Tarsi with the fourth joint emarginate or bilobed.

h.—Unguis simple.....**Tecnophilus.**

hh.—Unguis serrate.

i.—Mentum not toothed, fourth tarsal joint deeply bilobed. Tarsi hairy above.

Euproctus.

ii.—Mentum toothed.

j.—Thorax truncate at base.

k.—Tarsi with fourth joint bilobed.....**Callida.**

kk.—Tarsi with fourth joint emarginate.

l.—Tarsi not hairy above.

m.—Last joint of labial palpi more or less triangular or securiform.

n.—Thorax with the base oblique each side, the sides narrowly margined.

Philophuga.

nn.—Thorax with base squarely truncate, the sides rather widely margined especially posteriorly.....**Plochionus.**

mm.—Terminal joints of both palpi similar, more or less cylindrical, truncate.

Pinacodera.

ll.—Tarsi hairy above. Penultimate joint of labial palpi usually with more than two setæ.....**Cymindis.**

jj.—Thorax lobed at middle of base. Tarsi hairy above. Last joint of labial palpi securiform.....**Apenes.**

A-b.—Antennæ with less than three joints glabrous. Mentum not toothed. Terminal joint of palpi ovate, acuminate at tip and pubescent. Ungues simple..... **Eucærus.**

B.—Mandibles without serobes. Mentum not toothed.

Ungues simple, fourth tarsal joint not dilated..... **Pentagonica.**

Ungues pectinate, fourth tarsal joint bilobed..... **Onota.**

TETRAGONODERUS Dej.—This genus is made the type of a tribe by Baron Chaudoir (Bull. Mosc. 1876), in which four other genera are included, the essential characters being the form of the maxillæ (80) and the structure of the tibial spurs. The extremity of the inner lobe of the maxilla is spoken of by Chaudoir rather as an appendix, but it seems to be rather the true termination, the hook behind it corresponding with the tooth which will be seen in the figure of *Eucærus* (100). If we consider the tooth as the tip of the maxilla we have the anomaly presented of the outer or palpar lobe longer than the inner, a character not otherwise observed in the Carabidæ.

NEMOTARSUS Lec.—This name has through the suggestion of some extreme purists been lengthened to *Nematotarsus* without however adding anything to a knowledge of the genus itself. This genus is placed by Chaudoir in association with *Tetragonoderus* but not in the same tribe. It is one of those genera which will fit in several tribes on a ligular basis but will be excluded by characters which must be allowed to have more weight.

LEBIA Latr.—This genus has also been made the type of a tribe by Chaudoir, to which he assigns characters by no means peculiar to the genera included. Attention has already been partially directed to these characters. In consequence of the existence of epilobes in the mentum of all our species, it has been found impossible to retain the divisions suggested by Chaudoir. In the figures of the mentum *Aphelogenia* (83) will be found to have epilobes but less developed than in *Ioxopeza* (82). The species occurring in our fauna are all referred to *Lebia* while the divisions suggested by Chaudoir are rather groups of species than genera.

COPTODERA Dej.—This is also the type of a tribe in the hands of Baron Chaudoir, and that future students of our fauna may have the special characters of the tribe at hand I reproduce them. (Ann. Belg. xii, 1869): "*Ligula* cornea, apice haud libera plerumque bisetosa, interdum præterea pluripilosa; *paraglossæ* membranacæ, apice pilosulæ, aut conniventes (ut in *Coptodera*) aut ligulam vix superantes. *Cætera* ut in *Thyreopteridis*."

In what respect the Coptoderides differ from the Thyreopterides I have not been able to realize even with patient study.

PHILÆOXENA Chaud.—This genus is due to Chaudoir (Ann. Belg. xii, 1869, p. 145), and is founded on species mostly Mexican with which our *Coptodera signata* Dej., is associated. In his generic characters Chaudoir says: "*Mentum* * * * medio sinu dente majusculo, trigono, apice rotundato," but I do not observe any tooth whatever in our species.

This genus is part of the tribe Thyreopterides.

DROMIUS Bon., *APRISTUS* Chd., *BLECHIRUS* Motsch., *METABLETUS* Schmidt, and *AXINOPALPUS* Lec., have not, as far as I am aware, been reviewed by Chaudoir, and are probably a part of his intended tribe *Dromiides* which is merely casually mentioned in his preliminary remarks on the *Callidides*, (Ann. Belg. xv, 1872). These genera may therefore be passed without further remark than—that the ligula is not always bordered in front by the extension of the paraglossæ, not even in *Dromius*. Certain European authors, among them Baron Chaudoir, have rejected the name *Axinopalpus* for *Variopalpus* having been misled, evidently, by the date given in the Munich Catalogue. The former genus was published in 1846, the latter in 1848.

TECNOPHILUS Chaud., Bull. Mosc. 1877, i, p. 240.—This genus is suggested for those species in our fauna formerly placed in *Philotecnus* Mann., with which Chaudoir says they have nothing to do.

“Vu la configuration de sa languette que ses paraglosses ne bordent pas antérieurement, ce genre ne fait pas partie du groupe des *Callidides*, mais de celui des *Mimodromiides* dont je n'ai pas encore exposé les caractères qui demandent à être mieux étudiés.”

The ligula and paraglossæ reproduce exactly those of a species of *Callida*, as yet undescribed, which resembles *smaragdina* very closely and differs from it in nearly the same manner that *decora* and *punctata* do from each other.

CALLIDA Dej., *EUPROCTUS* Sol., *PLOCHIONUS* Dej., form part of the *Callidides* of Chaudoir, (Ann. Belg. xv, 1872), which has already been sufficiently remarked upon. Several of our species of *Callida* have been separated to form the genus *Spongoloba* Chd., based on sexual peculiarities of the male which seem to me to have had too great value assigned them. *Euproctus* is represented in our fauna by one species described as *Onota trivittata* Lec. (Pl. IV, fig. 3).

PHILOPHUGA Motsch., contains those species formerly placed in *Glycia*. They are reviewed by Chaudoir, (Bull. Mosc. 1877, i, p. 243), who leaves us in doubt whether the genus is part of his *Callidides* or not. They are not included in that essay.

CYMINDIS Latr., is the subject of an essay by Chaudoir, (Berl. Zeitschr. 1873), and with three other genera constitutes the tribe Cymindides, but I find that there are no special characters assigned to it.

PINACODERA Schaum, and APENES Lec., are treated by Chaudoir in a paper entitled, "Genres aberrants du groupe des Cymindides," (Bull. Mosc. 1875), and as there are no characters assigned to the group it is impossible to ascertain in what respect these genera are especially aberrant.

EUCÆRUS Lec., has already been referred to.

PENTAGONICA Schmidt-Gœbel, which has for its synonyms *Didetus* Lec., and *Rhombodera* Reiche, is the subject of a short essay by Chaudoir, (Bull. Mosc. 1877, i, p. 212), who says that it is "one of those aberrant genera which can not be made to enter any of the groups established at the present time. I believe that Mr. Bates is correct in placing it in a special group under the name *Pentagovicinæ*," (Trans. Ent. Soc. London, 1873, p. 320). This is certainly an easy settlement of the difficulty, more particularly as no characters are assigned to the group.

CORSYRA.—This genus does not occur in our fauna. I merely introduce it here to express a view that it has nothing to do with *Graphipterus* as intimated by Chaudoir, (Bull. Mosc. 1876). The well marked supra-orbital and thoracic setæ, the structure of the labial palpi and tibial spurs all forbid its position there.

ONOTA Chd., is represented by one species found in Florida:

O. Floridana n. sp.—Rufo-testaceous, elytra brilliant green with extremely narrow lateral and apical rufous border. Antennæ and palpi entirely pale. Front with moderately deep arcuate groove within the insertion of the antennæ, another near the edge. Thorax as wide as the head including the eyes, as broad as long, angulate in front of middle, the sides anteriorly feebly arcuate, posteriorly sinuate, hind angles acute. Elytra moderately deeply striate, the striæ finely punctured, intervals slightly convex, smooth. Legs rufo-testaceous. Length .20—.25 inch; 5—6.25 mm. Pl. IV, fig. 4.

Three specimens without sexual differences are before me, collected by Hubbard and Schwarz, near Lake Poinsett, Florida.

It appears to resemble *O. bicolor* Chd., but is larger and the pale border of the elytra is extremely narrow. Among our Lebiini it will be at once known by the angulate sides of the thorax and distinct hind angles.

A fuller description of the genus (which is placed by Chaudoir in the *Callidides*), will be given in a future essay on the species of the present tribe.

In concluding the Lebiini I regret to believe that the genera have been inordinately multiplied, and the higher divisions whether called

groups, tribes, or sub-families, have become so numerous and are based on such shadowy characters as to envelope the subject in an almost impenetrable cloud.

Tribe XXXV.—**Helluonini.**

Antennæ moderate in length, rather stout, usually compressed arising under a distinct frontal plate, all the joints more or less pubescent, two or four at the base less densely, first joint stout, equal in length to the next two. Head broadly oval, not narrowed in front of the eyes, with a distinct neck more or less abruptly formed, clypeus moderately prolonged, a setigerous puncture at each side, front with two supra-orbital setigerous punctures. Eyes round, moderately prominent, close to the mouth beneath. Labrum usually large and prominent, more or less concealing the mandibles, sexsetose in front. Mandibles stout, arcuate, rarely prominent, acute at tip. Mentum broad, deeply emarginate usually toothed, ligula prominent, bisetose at tip, the paraglossæ adherent to the sides rarely (*Polystichus*) longer than it and usually semicorneous, the palpi of moderate length, the terminal joint elongate-oval or fusiform and obtuse at tip, the penultimate bisetose in front. Maxillæ hooked at tip, ciliate or spinous within the outer lobe rather stout, biarticulate, the palpi stout, the terminal joint oblong-oval truncate at tip, more or less flattened. Thorax more or less cordate, sides and hind angles with a distinct setigerous puncture. Elytra oblong, truncate at apex, base not margined, sides narrowly inflexed, margin entire, disc striate or broadly sulcate, without dorsal punctures. Prosternum not prolonged. Mesosternal epimera narrow. Metasternal epimera distinct, the posterior coxæ contiguous. Legs moderate in length, the anterior femora more or less clavate. Tibiæ sometimes (*Helluomorpha*) compressed and finely bicarinate on the outer edge, the anterior rather stout and broad, deeply emarginate within, spurs moderate in length. Tarsi moderate in length usually ciliate above, the fourth joint either entire, emarginate or even bilobed. Claws simple.

The anterior tarsi of the male are rarely broader than the female.

This tribe is the equivalent of the Helluonides of Lacordaire, to which I add *Polystichus*.

The form of the ligula has been almost the entire reliance in the separation of this tribe from the other Truncatipennes, but the method usually adopted in describing the ligula as having no paraglossæ is entirely erroneous. Although the labium (which term includes the entire organ, ligula and paraglossæ), is almost entirely corneous in the majority of genera, the parts which compose it are as evident as in *Agra* in which the whole organ is almost entirely membranous.

Polystichus is added from the Dryptini, as it lacks the palpar structure which is characteristic of that tribe; it has moreover the front parallel before the eyes, forming a plate over the antennæ, the anterior legs rather stout and the antennæ distinctly compressed. These latter are decided characters approaching it to the present tribe. It is however one of those forms which should be placed in the position of an intermediate. Its ligula and paraglossæ are unlike the present tribe the paraglossæ

being membranous, a little longer than the ligula, arcuate, obtuse and finely ciliate. In the general form of body, especially the thorax, *Polystichus* resembles very greatly *Helluomorpha*.

The latter genus is the only one known to inhabit our fauna.

Helluodes Westw., placed by him in the present tribe does not belong here, it is evidently allied to *Anthia*.

Tribe XXXVI.—*Graphipterini*.

Antennæ more or less compressed, arising at a distance beneath a slight frontal ridge, three basal joints glabrous, third joint equal in length or a little longer than the next two together. Head with front deflexed, two supra-orbital setæ, neck stout, clypeus slightly prolonged, a setigerous puncture each side. Eyes oval in the axis of the head, very distant beneath from the buccal fissure. Labrum moderately prominent, arcuate in front but slightly emarginate at middle, sex-setose. Mandibles moderately stout, arcuate near the tip which is acute, inner edge with slight tooth behind the middle, outer edge without setigerous puncture. Maxillæ hooked at tip, coarsely and densely ciliate within, outer lobe biarticulate, the terminal joint a little longer, palpi moderate in length the last two joints nearly equal, the terminal slightly oval and truncate at tip. Mentum deeply emarginate, not toothed but with the bottom of the emargination slightly prominent, ligula moderately prominent, elongate-oval, bisetose at tip, the paraglossæ broad, membranous, adherent in their entire length and meeting by a narrow band at the apex of the ligula, palpi moderate in length, the terminal joint cylindrical, arcuate, slightly stouter at middle, truncate at tip, shorter than the preceding which is plurisetose in front. Thorax variable in form, cordate or trapezoidal, margin acute, sides without setigerous punctures. Elytra not margined at base, broadly oval or suborbicular, feebly convex, apex truncate, margin acute, no internal plica, the ocellate punctures of the margin indistinct (or entirely wanting?). Prosternum acute at tip, not prolonged. Mesosternum oblique, the epimera extremely narrower. Metasternal epimera distinct, posterior coxæ contiguous. Legs slender moderately long. Tibiæ with the outer edge sulcate in its entire length and spinulose, the anterior emarginate within, the inner spur remote from the apex. Posterior tibiæ with the terminal spurs dissimilar, the inner very slender, the outer cylindrical, compressed, and obliquely truncate at apex. Tarsi slender with stiff bristles beneath, those at the tips of the joints long. Claws very slender, simple. Body winged or not.

The males have three joints of the anterior tarsi slightly dilated with narrow squamules beneath.

This tribe which is essentially African contains but two genera, *Graphipterus* and *Piezia*. As Lacordaire correctly observes they are in most respects *Truncatipennes*, but if the ligular characters were given full power the two genera would be found in a very uncomfortable position in the *Lebiide* series.

It will be observed that the setigerous punctures of the upper surface are reduced almost to the minimum and the supra-orbital setæ are never long, often inconspicuous. In quite a number of specimens which have been examined no thoracic setæ have been observed.

The dissimilarity of the spurs of the hind tibiæ is a character which I do not remember having observed elsewhere in the Carabidæ.

The Graphipterini and Anthiini form together an isolated group of genera with very little affinity with the other groups.

Tribe XXXVII.—**Anthiini.**

Antennæ moderately robust and long, the base free, three basal joints glabrous, third joint as long as the first. Head large sometimes slightly constricted behind the eyes, the neck usually stout, two supra-orbital setigerous punctures. Eyes moderately prominent, oval in the axis of the head, very distant beneath from the mouth, the genæ usually dilated. Clypeus moderately prolonged, truncate or broadly emarginate, a setigerous puncture each side. Labrum large, prominent, convex above anterior margin with four or six setæ. Mandibles usually variable in the sexes, more elongate in the males, arcuate and acute at tip without setigerous puncture on the outer side. Maxillæ relatively slender, hooked at tip, densely ciliate within, the outer lobe biarticulate, the terminal joint a little longer, the palpi rather stout, the terminal joint slightly flattened, broader to tip and truncate. Mentum very deeply emarginate without tooth, the palpi stout the terminal joint much shorter and more slender than the second, this plurisetose in front, ligula variable usually long and dilated in oval form with three short setæ on each side, the paraglossæ short and corneous. Thorax cordiform or somewhat hexagonal and angulate at the sides with a setigerous puncture at the most prominent part of the sides and none at the hind angle. Body subpedunculate, scutellum small. Elytra not margined at base, sides narrowly inflexed, margin entire, no internal plica, apices usually obliquely sinuate, the sutural angle often prominent. Prosternum not prolonged. Mesosternum convex in front, the epimera very narrow. Metasternal epimera distinct, posterior coxæ usually separated, sometimes however but narrowly. Legs moderately long. Tibiæ very feebly spinous and not sulcate on the outer edge, the anterior moderately emarginate on the inner side, the inner spur remote from the apex. Spurs of posterior tibiæ slender and similar. Tarsi usually flattened, the first joint as long as the next three, the fourth more or less emarginate, beneath spinous. Claws long, simple.

The males have three joints of the anterior tarsi moderately dilated and ciliate and spinous beneath.

There are also sexual characters in the mandibles and the thorax is often prolonged behind in two lobes in the males.

The ligula is described as having no paraglossæ, but this is certainly incorrect and these members will be found by dissection as I have figured them (105).

The genera of this tribe occur in Africa. They seem to bear the same relation to the Graphipterini that the Anchonoderini do to the Lebiini.

Closely related to the present and preceding tribes are two genera *Helluodes* and *Physocrotaphus*, which should probably form a distinct tribe to be placed between the Anthiini and Graphipterini. Lacordaire places the former genus in his *Helluonides* (ante p. 160), the latter in the *Morionides* (ante p. 133). I have studied *Helluodes* in nature and

had I sufficient details of the other genus would have defined the tribe as indicated. The structure of the labial palpi is that of the present tribe and the ligula of nearly the same type, the paraglossæ are however more developed.

Tribe XXXVIII.—**Cratocerini.**

Antennæ shorter than the head and thorax, inserted under a slight frontal ridge with however the condyle visible, three basal joints glabrous, 4—11 compressed or somewhat moniliform. Head short, not narrowed behind to a neck, clypeus slightly prolonged and without setigerous punctures, front with the setigerous punctures over the eye extremely indistinct. Eyes moderately prominent, close to the mouth beneath. Labrum short transverse, feebly emarginate and sexsetose in front. Mandibles moderately robust, arcuate, acute at tip. Maxillæ ciliate within, (the inner lobe not hooked in *Basolia*), the outer lobe slender, biarticulate, the palpi rather stout, the last joint oval rather obtuse. Mentum transverse, deeply emarginate and toothed, the lateral lobes obtuse, obliquely truncate, ligula feebly prominent, tip free for a short distance and arcuate, bisetose, paraglossæ semiopaque, not longer than the ligula (spinulose at tip in *Basolia*), and united to the ligula by a translucent membrane, palpi rather slender, the last two joints equal in length the penultimate bisetose in front. Thorax more or less quadrate, not narrowed at base, the setigerous punctures entirely obliterated. Elytra not wider at base than the thorax, sides narrowly inflexed, margin entire, apices truncate or rounded, surface striate, without scutellar stria, dorsal punctures?. Prosternum not prolonged. Mesosternal epimera narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs rather stout, the tibiæ not carinulate, the spurs rather small, the anterior tibiæ dilated at tip, the outer angle rounded, inner side deeply emarginate. Tarsi rather stout, claws simple.

The anterior tarsi of the males have four joints moderately dilated and biserially squamulose beneath.

I regret that I can only imperfectly formulate the characters of this tribe. I know only one specimen of *Basolia nitida* Sol. It may be almost unnecessary to state that the tribe is not the equivalent of Lacordaire's *Cratocerides* which equals nearly the *Dapti* of the present essay. Lacordaire was unfortunate in naming his tribe after a genus entirely unknown to him and which by no means typified his idea of the tribe.

To Baron Chaudoir we are indebted for a proper description of the tribe and an association of genera which seem naturally to belong together, (*Ann. Belg.* 1872). From my own study I would place these insects not far from the *Labiidæ* series, the ligula even being quite suggestive of that idea. I do not perceive a close relationship with the *Morionini* but rather with the *Helluonini*.

The three genera are *Basolia* (= *Catapiesis*), *Cratocerus* and *Brachidius*, the first two from Brazil, the third from the Philippine Islands. There is nothing allied to them in our fauna.

Tribe XXXIX.—*Orthogonini*.

Antennæ of variable length, more or less compressed beyond the third joint, three basal joints glabrous, inserted under a slight frontal ridge, the condyle however visible. Eyes moderately prominent, close to the mouth beneath. Head short, oval, not constricted, front with two supra-orbital setæ, clypeus moderately prolonged, its front margin subcoriaceous, a setigerous puncture each side. Labrum quadrangular, moderately prominent, apical margin sexsetose. Mandibles slightly prominent, arcuate, acute at tip. Maxillæ usually hooked at tip, (except *Anoncopeucus*), ciliate within and sometimes at tip, the outer lobe slender, palpi moderate in length, last joint subcylindrical or ovate, apex obtuse. Mentum emarginate without tooth, the emargination nearly filled with the basal membrane of ligula, the latter moderately prominent, corneous, 2—6 setose at tip, the paraglossæ large, auriculate, and longer than the ligula, the palpi moderate, the last two joints equal, the penultimate bisetose in front. Thorax broader than long, lateral margin acute, depressed and without setigerous punctures. Elytra oblong usually depressed, base margined, sides narrowly inflexed, margin entire, apex usually truncate sometimes almost rounded, surface striate and with three dorsal punctures, the first on the second interval near the third stria, the posterior two near the second stria. Prosternum not prolonged. Mesosternal epimera narrow. Metasternal epimera distinct, the posterior coxæ contiguous. Legs moderately stout, the tibiæ on the outer edge sulcate and carinate, the carinæ crenulate and finely spinulose: anterior tibiæ moderately stout, the outer apical angle acute, inner side emarginate, tibial spurs moderate in length. Tarsi moderate in length, the fourth joint emarginate or bilobed, the claws slender, simple or pectinate.

The tarsi on all the feet are dilated in both sexes and are either densely pubescent or densely papillose beneath.

The only species of this tribe that I have been able to procure for dissection is *Orthogonius acrogonus* Wied., in which I find the ligula distinctly free at tip, the paraglossæ large and auriculate extending beyond the ligula and united *behind* the ligula by a thin translucent membrane (108).

It is interesting to find that in this tribe we have a genus with the maxillæ obtuse at tip, a character very irregularly diffused in the Carabidæ.

As indicated above the elytra are variable at tip, being either entire or feebly truncate. Exceptional cases of this kind must be expected in so extensive a family.

In the present tribe the characters seem to indicate an aberrant Truncatipenne with decided Harpalide affinities, *Glyptus* forming a link in the line of affinity. As *Zabrus* seems to be the link between the *Pterostichini* and Harpalini, so *Orthogonius* is between the Truncatipenne complex and the Harpalini.

An interesting essay on this tribe by Baron Chaudoir will be found in the *Annales de la Soc. Ent. Belg.* xiv, pp. 95—130, in which will be found an expression of opinion very nearly the same as that above.

HARPALINÆ UNISetosÆ.

This section is not by any means as large as the preceding, the tribes numbering only a third and the genera even less proportionately numerous. The essential character of this section is the presence of but one supra-orbital seta. This carries with it the tendency to a loss of the seta at the hind angle of the thorax, in fact the existence of this seta either at or near the hind angle is more of an exception here than its absence is in the *Harpalinæ bisetosæ*.

The elytral plica exists in some of the tribes here and in about the same proportion as in the preceding section, and it is by this means that we can trace some affinity with *Pterostichini* on the one side or *Lebiini* on the other.

The setigerous puncture on the outer side of the mandible is also observed here in a relatively greater number of tribes but in far fewer genera.

Of the eight tribes which follow six have representation in our fauna, the *Apotomini* and *Peleciini* being absent, while *Zacotini* is peculiar to it.

Mesosternal epimera usually wide, sometimes nearly as large as the episterna, elytra truncate. Mandibles with setigerous puncture. Posterior coxæ often separated, the first ventral segment visible between them.

Tribe XL. **Brachynini.**

Mesosternal epimera very narrow and indistinct, elytra always entire.

Mandibles with setigerous puncture on the outer side. Abdomen pedunculate.

Thorax not margined at the side, its sutures beneath obliterated. Middle and posterior tibiæ emarginate on outer edge at tip. Antennæ with two glabrous joints. Posterior coxæ separated. Labial and maxillary palpi elongate.....Tribe XLI. **Apotomini.**

Thorax margined, sutures distinct. Middle and posterior tibiæ not emarginate. Palpi not long. Posterior coxæ contiguous or but narrowly separated.

Tribe XLII. **Broschini.**

Mandibles without setigerous puncture.

Posterior coxæ distinctly separated.

Body pedunculate. Elytra not margined at base.....Tribe XLIII. **Zacotini.**

Body not pedunculate. Elytra margined at base.....Tribe XLIV. **Peleciini.**

Posterior coxæ contiguous.

Elytral margin more or less interrupted and with an internal plica. Antennæ with three glabrous joints.

Anterior tarsi of male with three, rarely four, joints spongy pubescent beneath. Elytral plica feeble.....Tribe XLV. **Chlæniini.**

Anterior tarsi of male with three joints dilated and squamulose beneath. Elytral plica strong.....Tribe XLVI. **Zabrini.**

Elytral margin not interrupted, no internal plica. Antennæ with two, rarely with three, glabrous joints. The male tarsi variable.

Tribe XLVII. **Harpalini.**

Tribe XL. — **Brachynini.**

Antennæ slender, the condyle of the basal joint exposed, two basal and a portion of the third joint glabrous. Head gradually narrowed behind the eyes forming a neck, front with one supra-orbital seta, clypeus moderately prolonged. Labrum broad, truncate. Eyes oval, oblique, narrowly separated from the buccal opening. Mandibles stout, feebly arcuate and with a setigerous puncture externally. Maxillæ hooked at tip, ciliate within and at the tip, the outer lobe slender, with equal joints, the palpi moderate, the last two joints more or less pubescent. Mentum moderately broad, emarginate, toothed or not, the ligula in great part membranous, the oval centre corneous and bisetose at tip, the paraglossæ broad, adherent and ciliate at tip, the palpi moderate in length, the second joint longer than the last and plurisetose in front. Thorax with short marginal setæ, no special seta at the hind angle. Scutellum distinct. Elytra not margined at base, narrowly inflexed, margin not interrupted, no internal plica, apex truncate and with a membranous border, disc not striate and without dorsal punctures. Prosternum not prolonged at tip. Mesosternal epimera broad. Metasternal epimera distinct, the posterior coxæ either contiguous or separated. Middle and posterior tibiæ finely ciliate or spinulose externally, the anterior deeply emarginate within, the inner spur at the summit of the emargination. Tarsi slender, the fourth joint feebly emarginate, the anterior of the males with three joints feebly dilated and squamulose beneath.

This is one of the tribes the composition of which seems at present free from differences of opinion. Its position among the other tribes seems, however, far from settled, and I would merely suggest that it be placed after the Graphipterini for want of a better place although its wide mesosternal epimera exclude it, not only from any intimate association with these, but also any of the tribes of the present sub-family excepting the Ozænini and the two adjacent tribes. With the latter it can hardly be said to have much affinity.

The only genus occurring in our fauna is *Brachynus* and to this it is necessary to direct our attention. In the general diagnosis the posterior coxæ are said to be either contiguous or separated. It will be observed in the larger species that many of the specimens have the coxæ plainly contiguous, the smaller species have the coxæ separated and in the case of *carinulatus* rather widely, so that in the present genus a character shrinks into insignificance which in other parts of the series is of the highest importance. This is one of the few instances known to me in the entire Carabide series in which a really important character ceases to have its full value.

On the other hand the apparent increase of the number of the abdominal segments to seven or eight has been exaggerated in value very far beyond its importance. If we examine the species of any of the genera which emit from the anus a liquid whether explosive or not, it will be seen that the structure in no way differs from that of *Brachynus* except that the latter has a broader sixth segment which, being truncate

or slightly emarginate, allows the genital armature to become more plainly visible and we thus count more segments. *Galerita* and any of the larger Dryptini will illustrate the above ideas.

The species of *Brachynus* are found under logs and stones usually in damp situations and often in colonies. Those in our fauna have the head, thorax and legs yellowish, the elytra blue. They have not yet been separated in any satisfactory manner.

Tribe XLI.—*Apotomini*.

Antennæ slender arising under a slight frontal ridge, two basal joints glabrous, third very little longer than the fourth. Head broader behind the eyes, front with one supra-orbital seta, clypeus moderately prolonged. Labrum short, truncate. Eyes oval, not prominent, narrowly separated from the mouth beneath. Mandibles arcuate, acute at tip and with a setigerous puncture externally. Maxillæ hooked at tip, ciliate within, the outer lobe rather slender, biarticulate, the palpi very long and slender, the joints hairy, the last shorter than the preceding and pubescent. Mentum broad, feebly emarginate without tooth, ligula moderately prominent, rounded at tip and with four long setæ, the paraglossæ adherent, a little longer than the ligula and obtuse at tip, the palpi slender, second joint plurisetose in front, last joint a little shorter, slender, acute at tip and hairy. Thorax globular, truncate in front, tubularly prolonged at base, sides not margined, sutures entirely obliterated, sides with but one setigerous puncture at middle, none at hind angle. Body subpedunculate, scutellum very small. Elytra oblong, sides narrowly inflexed, obliquely sinuate near the tip which is somewhat prolonged, no internal plica and no marginal ocellate punctures and no dorsal punctures. Prosternum not prolonged at tip. Mesosternum nearly vertical in front, the coxæ rather widely separated, the epimera narrow and indistinct. Metasternal epimera distinct. Posterior coxæ rather widely separated, the first ventral segment distinctly visible between them. Femora stout, especially the anterior. Tibiæ not ciliate or spinulose, the anterior deeply emarginate within, the inner spur superior, middle and posterior tibiæ obliquely grooved and emarginate at the outer apical angle. Tarsi slender in both sexes, claws simple.

This tribe contains only *Apotomus* which occurs in Europe, East Indies and Australia. It has been placed near *Bembidium* and *Scarites* by Latreille. Dejean removed it to the Ditomides in which position Lacordaire leaves it. Duval (*Genera* i, p. 43), recognizing its want of affinity with these, forms of it a distinct tribe which he places between the Clivinites and Ditomites, a line of affinities which seems as unnatural as any that could have been chosen. It seems to me better placed near the Broscini as one of the most sharply defined tribes of the sub-family.

Tribe XLII.—*Broscini*.

Antennæ moderate in length with a variable number (three to five) of basal joints glabrous. Head not constricted but usually gradually broader behind the eyes, front not sulcate, one supra-orbital setigerous puncture and often with a post-orbital cicatrix. Eyes oval, distant beneath from the mouth. Clypeus moderately prolonged with lateral setæ. Labrum moderately prominent, slightly emarginate.

Mandibles arcuate at tip with a setigerous puncture on the outer side. Maxillæ with the inner lobe hooked at tip, ciliate or spinulose within, outer lobe moderately stout, biarticulate, the palpi rather stout, the last joint longer than the third, elongate-oval or fusiform. Mentum broad, deeply emarginate, toothed or not, the ligula moderately prominent, truncate and bisetose at tip, the paraglossæ adherent, sometimes free for a short distance and rarely longer than the ligula, the palpi rather stout, the last joint a little longer than the second, more or less oval in shape, (impressed beneath in *Miscodera*), the second joint bisetose in front. Thorax more or less ovoid, the sides narrowly margined and bisetose, the posterior seta in front of the hind angles. Body pedunculate, scutellum in the peduncle. Elytra not margined at base, sides narrowly inflexed, margin not interrupted posteriorly but with a short internal plica, disc without dorsal punctures. Prosternum obtuse at tip. Mesosternum rather wide, oblique, the epimera narrow. Metasternal epimera distinct, posterior coxæ contiguous or very narrowly separated. Legs moderately stout, the tibiæ not spinulose externally, the anterior moderately dilated at tip, deeply emarginate within, the inner spur at the upper angle of the emargination. The tarsi filiform, fourth joint simple.

The anterior tarsi of the males may have four, three or two joints dilated, their vestiture usually hairs, rarely squamules.

The creation of this tribe under the name of *Cnemacanthides* is due to Lacordaire. *Diectes* has been removed by Schaum (Ins. Deutschl. i, p. 353), to the *Ditomides*, but *Promecognathus* was added, the mistake, however, having been corrected on a subsequent page, (p. 773).

The *Broschini* have a slight sub-ocular ridge at the side of the head. This ridge is well marked in the *Cicindelidæ* but I have not observed it elsewhere in *Carabidæ*.

The latest revision of the tribe is by Putzeys, (Stett. Zeit. 1868, p. 305—379), who recognizes seventeen genera and by the characters given of the first six, some of them might with propriety be removed to form a tribe between the present and the *Harpalini*.

In our fauna we have but one genus represented by two species.

MISCODERA Esch.—In form the species resemble a large *Dyschirius*. The two species are:

M. ARCTICA Payk.—Occurs in northern Europe and in Siberia where it has received the name *erythropus* Mots., crossing to Alaska it becomes *americana* Mann., and it finally reaches Newfoundland under the name *Hardyi* Chaud. It is all one species varying in size and brilliancy of surface in the different localities.

M. INSIGNIS Mann., is altogether different. The anterior half of the thorax is ovate, the basal half prolonged, somewhat like *Promecognathus*. It occurs in Alaska.

I have in the next tribe given my reasons for removing *Zacotus*, and in the same place and in *Peleciini* will be found remarks on the affinities of these two tribes with the present.

Tribe XLIII.—*Zacotini*.

Antennæ filiform arising under a slight frontal margin, first joint stouter, cylindrical, third a little longer than the following, the first four joints glabrous. Head subquadrangular, slightly constricted at a distance behind the eyes, a distinct temporal cicatrix, front with one supra-orbital seta, clypeus slightly prolonged and with the usual setigerous puncture each side. Eyes round, moderately prominent and distant from the buccal fissure beneath. Labrum transverse feebly emarginate, sexsetose in front. Mandibles not prominent, arcuate at tip only, acute and without setigerous puncture externally. Maxillæ ciliate within, hooked at tip, the outer lobe rather stout, biarticulate; palpi stout, the last joint shorter than the preceding, oval and truncate at tip. Mentum transverse, emarginate and acutely toothed, the epilobes acute and prominent; ligula moderately prominent, tip arcuate and free with two setæ, paraglossæ free for a short distance at tip which is acute, shorter than the ligula. palpi moderate, third joint elongate-triangular, slightly arcuate, truncate at tip, the preceding joint shorter and bisetose in front. Thorax ovate, slightly constricted behind, margin distinct, two lateral setæ, one near the middle, one in front of base. Body pedunculate, scutellum not visible. Elytra oblong-oval, humeri rounded, base not margined, sides narrowly inflexed, margin entire not interrupted posteriorly without internal plica. Prosternum not prolonged. Mesosternum obtuse in front, rather widely separating the coxæ, the epimera distinct, broader externally. Metasternum short, body apterous, epimera distinct, posterior coxæ slightly separated. Legs rather slender, middle tibiæ slightly spinulose externally near the tip, anterior tibiæ moderately dilated, emarginate internally, the inner spur at the upper angle of the notch. Tarsi slender, the fourth joint simple.

The males have four joints of the anterior tarsi quadrangularly dilated, the first three with squamiform papillæ beneath, the middle tarsi are not dilated but the first two joints are squamulose beneath.

While I regret the multiplication of tribes I am unwilling to place *Zacotus* either in the Broscini or Peleciini, and must therefore make it the type of a separate tribe.

In size and general appearance (except the head) it resembles *Promecoderus concolor* Germ. The head is subquadrangular, slightly prolonged behind the eyes and then constricted but to a less degree than in *Pelecium*, the front has similar longitudinal depressions but less marked. The body is pedunculate as in the Broscini but the palpi are more nearly those of *Pelecium*. The maxillæ are hooked at tip in *Zacotus* and the Broscini, not hooked in *Pelecium*. The mandibles have no setigerous puncture.

Zacotus seems therefore to form a tribe with nearly equal relations with the Broscini and Peleciini, and to indicate that these two tribes are far more closely allied than any one has yet admitted.

But one species *Z. Matthewsii* Lec., occurs in Washington Territory and Vancouver. I am informed by Mr. Morrison that it lives near small streams in dense woods. It is piecous with bright raneous or cupreous surface lustre.

Tribe XLIV.—*Peleciini*.

Antennæ moderately long, filiform, arising under a distinct frontal ridge, first joint stout, a little longer than the others, 2-11 subequal, the first three joints glabrous. Head quadrangular, suddenly narrowed at a distance behind the eyes to a neck which broadens in a semiglobular manner, front with one supra-orbital seta and with a cicatrix behind the eye, clypeus moderately prolonged and without lateral setigerous punctures. Eyes small, oval, and very distant from the buccal opening. Labrum transverse, concave and emarginate, with six setæ, the outer one on each side vertical and longer, functionally replacing the clypeal seta. Mandibles stout, prominent, decurved, arcuate, acute at tip, without external setigerous puncture. Maxillæ slender not hooked at tip, ciliate within, outer lobe slender, biarticulate, the palpi stout, the outer joints setose, the terminal joint securiform or oval-truncate. Mentum transverse, the lateral lobes obtuse at tip, emarginate with an acute tooth as long as the lateral lobes. Ligula moderately prominent, arcuate or truncate in front and bisetose, the paraglosse adherent at the sides, free and slender at their tips and ciliate within, palpi stout, terminal joint longer than the second, securiform or oval-truncate, second joint bisetose in front. Thorax margined at the sides and with two setigerous punctures, the posterior distant from the hind angles. Body not pedunculate, scutellum more or less distinct. Elytra more or less distinctly margined at base, the humeri prominent, fifth interval at base often subcarinate, sides narrowly inflexed, margin slightly interrupted posteriorly but with a well marked internal carina, disc without dorsal punctures. Prosternum not prolonged at tip. Mesosternum obtuse in front, the epimera very narrow. Metasternal epimera very indistinctly separated, the posterior coxæ separated rather widely, the first ventral segment visible at middle. Legs moderately robust, the tibiæ not ciliate or spinulose externally, the anterior moderately wide, deeply emarginate internally, the inner spur remote from apex but situated posteriorly. Tarsi not slender, the fourth emarginate or bilobed.

The tarsi of the front and middle legs have four joints dilated and densely pubescent beneath in both sexes, the males have sometimes the middle tibiæ arcuate.

This tribe contains but one genus *Pelecium* Kby., (*Eripus* Dej., *Angasmosomus* Chd.), with the species extending from Mexico to Brazil, all of which are of moderate size, and some (*cyanipes* Kby.), with the elytra recalling the sculpture of our *Dicælus* but more convex. No member of this tribe has been found in our fauna.

Kirby placed the genus between *Cychnus* and *Panagæus* and is followed by others. Dejean while placing it among the Harpalini remarks that it does not well fit there. Lacordaire following Chaudoir places it in a group Stomides which Schaum justly says has no fundamental character and which is in fact the most heterogeneous tribe in Lacordaire's Carabidæ. Schaum, however, while indicating that it must form a separate group, (Berl. Zeitsch. 1860, pp. 128 and 193), writes around the subject leaving us as much in doubt as to its position as before.

I do not believe there can be much doubt of the relationship of the *Peleciini* with the *Broschini* through *Baripus* and *Zacotus*.

It is a singular character that the setæ which are found in the vast majority of Carabidæ, arising either from the middle of the side of the clypeus or from its anterior angle, should be here (I speak especially of *P. cyanipes* Kby.), functionally replaced by the lateral setæ of the labrum, which, instead of being directed to the front in the usual manner, arise vertically and are long. The rather wide separation of the posterior coxæ does not appear to have been noticed. The temporal cicatrix to which Putzeys directs attention (Stett. Zeitsch. 1868, p. 306), is observed in *Pelecium* as well as in *Broschini*.

Tribe XLV.—*Chlœniini*.

Antennæ slender, rarely slightly compressed (*Evolenes*) arising under a slight frontal ridge, the three basal joints glabrous. Head not narrowed behind the eyes to a neck, one supra-orbital setigerous puncture. Clypeus more or less prolonged between the mandibles, often without the lateral seta. Eyes oval, moderately prominent, more truncate behind in the *Oodes*. Labrum transverse, truncate or emarginate, with three, four or six setæ in front. Mandibles feebly arcuate, without setigerous puncture externally. Maxillæ slender, hooked at tip, ciliate or spinous within, the outer lobe usually slender, biarticulate (except *Callistus*), the palpi moderately long, the terminal joint variable in form. Mentum broad, usually emarginate and toothed, sometimes feebly bisinuate in front (*Evolenes*) or even almost truncate (*Brachylobus*), the basal suture always distinct, ligula moderately prominent, usually free at tip and bisetose, the paraglossæ membranous more or less free at tip, longer or not than the ligula, elongate and slender in *Anomoglossus* and ciliate within, palpi moderate in length, the terminal joint variable, the penultimate bi- or plurisetose or even without setæ. Thorax variable in form, the setæ of the margin either slender or entirely wanting. Body not pedunculate, scutellum distinct. Elytra margined at base, sides narrowly inflexed, margin interrupted posteriorly and with a distinct internal pliea, surface striate, without dorsal punctures. Prosternum prominent at tip but not prolonged. Mesosternum rather widely separating the coxæ, grooved in front, the epimera narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs moderate, middle and posterior tibiæ finely spinulose externally, the anterior moderately broad, a few stout spines at the outer apical angle, within deeply emarginate the inner spur at the angle of the emargination. Tarsi slender, claws simple.

The males have three or four joints of the anterior tarsi dilated and densely spongy beneath.

After the very able papers by Baron Chaudoir on this tribe (Bull. Mosc. 1856 and 1857; Ann. Mus. Civ. di Genova viii, 1876), it seems entirely unnecessary to enter into any further discussion of the subject. I can not realize the necessity for separating *Callistus* as a distinct tribe but his conclusion concerning *Atranus* seems to me just. *Callistus* affords one of the rare instances in Carabidæ in which the outer maxillary lobe is formed of one piece by the complete fusion of the two which usually exist, without leaving any trace of suture as is the case in *Amerizus*. The mentum of *Brachylobus* (117), is the most complete illustration of

the obliteration of the usual emargination known to me, although the epilobal piece is very distinctly present.

The present tribe is divided into two groups :

Eighth stria of the elytra with its ocellate punctures distant from the margin, the ninth stria very distinct. Eyes regular in outline not truncate behind.

CHLÆNIÆ.

Eighth stria very close to the margin, the ninth indistinct. Eyes truncate behind.....*Oodes*.

In the first group three genera occur in our fauna :

Mentum with distinct lateral lobes.

Toothed in the bottom of the emargination..... **Chlænius.**

Not toothed.....**Anomoglossus.**

Mentum truncate in front.....**Brachylobus.**

In the second group the genera may still be the subject of discussion, those represented in our fauna are recognized by the following characters :

All the tarsi pubescent beneath.

Anterior tarsi ♂ with four joints not widely dilated. Clypeus with a setigerous puncture each side. Labrum 6-setose.....**Lachnocrepis.**

Posterior tarsi not pubescent beneath.

Anterior tarsi ♂ with four joints dilated, the first three spongy beneath.

Clypeus without setigerous punctures. Labrum with six setæ, the four central small and close, the outer large and erect.....**Anatrichis.**

Anterior tarsi ♂ with three joints dilated and spongy.

Second joint of labial palpi without setæ in front.....**Oodes.**

Second joint of labial palpi bisetose in front.....**Evolenes.**

EVOLENES has the antennæ somewhat flattened. The clypeus has a large setigerous puncture each side and the labrum six. It is the only genus in the group in which the second joint of the labial palpi has the setæ so universally observed in the Carabidæ.

ODES as above intended contains *Oodes*, *Stenous* and *Crossocrepis* of Chaudoir. The latter is based on the supposed conformation of the ligula which my own dissections prove not to exist. The other two genera are separated by the mode of dilatation of the anterior tarsi. In *Oodes* proper the clypeus has a setigerous puncture each side and the labrum six in front, in the other two there are no clypeal punctures and three only on the labrum.

The inconstancy of the setigerous punctures in the *Oodes* is remarkable, the only one absolutely present in all is the one over the eye. The entire absence of these punctures from the side of the thorax would be an excellent means of separating the *Chlæniæ* and *Oodes*, were it not that even in *Chlænius* these punctures although constantly present are often lost in the general punctuation and the seta is small and hair-like and not very evident except in the glabrous species.

It may be observed in *Chlænius* that those species in which the males have not the pubescent space near the tip of the middle tibiæ, that is, those of my division A (Trans. Am. Ent. Soc. v, 1876, p. 257), are without setæ on the second joint of the labial palpi, while division B (and *Anomoglossus* with its long second joint) is plurisetose.

Tribe XLVI.—**Zabrini.**

Antennæ filiform, arising beneath a slight frontal ridge, the three basal joints glabrous. Head short, without distinct neck, one supra-orbital puncture. Clypeus very slightly prolonged, a puncture in each anterior angle. Eyes oval, relatively small, not more convex than the sides of the head, distant beneath from the mouth. Labrum feebly emarginate and plurisetose in front. Mandibles stout, arcuate, more or less obliquely furrowed above, without setigerous puncture externally and feebly bidentate on inner margin. Maxillæ strongly hooked at tip with stiff bristles within, outer lobe biarticulate, palpi stout, third joint longest, fourth oval. Mentum broad deeply emarginate, variably toothed, the ligula moderately prominent, apex free, truncate or bisinuate and bisetose, the paraglosse obtuse and not longer than it, the palpi moderate, the second joint longer, plurisetose in front, last joint somewhat oval, shorter than the preceding. Thorax broad, as wide as the elytra, a setigerous puncture at the side but none at the hind angle. Body not pedunculate, scutellum distinct. Elytra narrowly inflexed at the sides, the margin interrupted posteriorly and with a well marked internal plica. Prosternum not prolonged. Mesosternum rather wide between the coxæ and broadly concave, the epimera narrow. Metasternal epimera distinct, posterior coxæ contiguous. Legs moderate, middle and posterior tibiæ gradually broader to tip, spinulose externally, the anterior of elongate-triangular form, spinulose at outer apical angle, the inner side obliquely grooved, the inner spur not remote from tip, the terminal spur short, broad, laminate at the sides and suddenly narrower at tip. Tarsi filiform, fourth joint simple.

The males have the first three joints of the anterior tarsi rather widely dilated and biserially squamulose beneath.

In some species the males have the apices of the middle and posterior tibiæ prolonged on the inner side in a dentiform process. By all European authorities the anterior tibiæ are said to have two spurs at the apex and one above the emargination in the usual position. This statement of the facts of the case seems to me a very loose expression. All Carabidæ have at the tips of the tibiæ two spurs which are in all cases articulated appendages of the tibiæ. These in whatever language used are called by the equivalent of our word "spur." That which makes the so-called smaller terminal spur is merely a dentiform prolongation of the inner apical angle of the tibia which is in all respects the homologue of the apical tooth of the middle and posterior tibiæ of certain males. I am not aware of any coleopterous insect having more than two true tibial spurs and I therefore venture to object to any form of expression conveying a false idea.

It will also be observed that the anterior tibiæ are far less emarginate

than usual in the present series of Carabidæ, and the structure of the inner side may be compared rather to the deep oblique groove already mentioned in some of the earlier tribes.

The opinion expressed by Zimmerman that *Zabrus* should constitute a special tribe seems to me far more nearly correct, than that expressed by Lacordaire, Schaum and others in placing it in the Pterostichini. It is however, as remarked by Bedel, an intermediate tribe between the Pterostichini and Harpalini, with strongly marked characters of each tribe equally present and yet abundantly distinct from either by the structure of the anterior tibiæ. The head and thorax are decidedly Harpalide in structure while the elytra and anterior tarsi are Pterostichide. The mouth parts do not exhibit any more decided relation with the one tribe than the other.

Zabrus belongs to the Circum-Mediterranean fauna extending to the Caspian Sea.

Tribe XLVII.—Harpalini.

Antennæ usually slender arising under a slight frontal ridge, the two basal joints glabrous, sometimes also the greater part of the third. Head often large, usually moderate, not narrowed to a neck, with one supra-orbital seta. Eyes usually moderate in size, never very convex, not distant beneath from the mouth, sometimes however small and distant. Clypeus slightly prolonged between the mandibles, with one or two setigerous punctures near the apical margin. Labrum moderately prominent, truncate or emarginate, plurisetose in front. Mandibles stout, rarely (*Glyptus*) prominent, acute at tip and without setigerous puncture externally. Maxillæ hooked at tip (except in *Glyptus*), although rather feebly in some genera (*Aristus*), the inner margin ciliate, the outer lobe usually slender, as long as the inner lobe but shorter in *Glyptus*, biarticulate, the terminal joint often longer than the first, the palpi moderate, the terminal joint slightly oval or subcylindrical, sometimes slightly pilose. Mentum broad, emarginate, with or without a median tooth which is sometimes as long as the lobes (*Aristus*); ligula prominent, variable in form, the tip free (usually bisetose) and in most cases dilated, the paraglossæ variable in form always as long as, frequently longer than the ligula and very often ciliate at tip, the palpi moderate in length, the terminal joint never longer and very rarely equal to the preceding which is plurisetose except in *Glyptus* where there are no setæ. Thorax variable in form, with a lateral seta, but none in the hind angles. Body sometimes subpedunculate, scutellum distinct. Elytra usually margined at base, sides narrowly inflexed, the margin variable but never with an internal plica, surface striate, often densely punctured, either pubescent or glabrous, with or without dorsal punctures. Prosternum not prolonged. Mesosternum separating the coxæ, the epimera very narrow. Metasternal epimera distinct, the posterior coxæ contiguous. Legs variable, often stout and fossorial. The middle and posterior tibiæ often spinulose or even serrulate externally, the anterior with the outer apical angle spinous or prolonged obtusely. The tarsi variable in structure.

Sexual characters variable.

From the great number of genera which have been established on

trivial characters, this tribe has become the most difficult to study of any in the Carabidæ excepting possibly the Lebiini. Characters drawn from the ligula and paraglossæ have here as in the Lebiini been pushed to an extreme, and a study of them from my own dissections proves that in both tribes they have not the great value which has been assigned to them. It seems to me better to reject them almost entirely, certainly as a means of separating tribes or groups and possibly even genera.

The tribe Harpalini as here intended contains the Ditomides of Lacordaire, (Genera i, p. 165), the Cratocerides, Anisodactylides and Harpalides of the same author, and I add also *Glyptus*.

From the Ditomides all authors who have studied it agree that *Apotomus* should be removed. From the Cratocerides *Cyclosomus* should be removed as suggested by Schaum and Chaudoir and placed, as indicated by the latter in the Lebiini, (Bull. Mosc. 1872). *Somoplatus* and *Macracanthus* are allied to *Masoreus*, (Schaum, Berl. Zeits. 1860, p. 178; Chaudoir, Bull. Mosc. 1876, Monog. des Masoreides. After all this dismemberment Chaudoir forms of *Cratocerus*, *Brachidium* and *Basolia* a special group, "plus ou moins voisin des *Drimostoma*." Among the Anisodactylides *Orthogonius* and *Migadops* should be removed, the former constituting a distinct tribe near the Lebiini, the latter being a member of the first sub-family. The Harpalides does not appear to contain any offending material.

To the tribe must be added *Polpochila* (for which however, Lacordaire uses a synonym *Melanotus* Dej. , and *Stenomorphus*, the affinities of the latter having been properly recognized by Schaum.

From my own study I am convinced that *Glyptus* can find no better place than as a group in the present tribe. The genus was described by Brullé who placed it in the Ditomides, a position which does not to me seem so erroneous as Lacordaire intimates. The latter author places it in the most heterogeneous of his tribes (Stomides) near *Idiomorphus* to which it seems not to be greatly allied, although Schaum (Berl. Zeits. 1860, p. 178), says that these two genera are Orthogoniens, while Chaudoir properly omits them from his monograph of that group, (Annales Belg. xiv, 1872). *Idiomorphus* is known to me by the figure which Lacordaire gives and I can therefore express no opinion.

The characters of *Glyptus* are decidedly those of a Harpalide and I think it can very properly be compared with our own *Geopinus*. In both genera it will be observed that the antennæ are rather short and quite distinctly geniculate, the third joint feebly pubescent at tip in *Geopinus* and almost entirely glabrous in *Glyptus*. In both genera

the following joints are pubescent at the edges only the middle being glabrous. The legs are similar, the anterior tibiæ especially so. The mouth parts are also of the same general type observed throughout the Harpalini, especially *Nothopus* and *Piosoma*. It will be observed however that the maxillæ are not hooked at tip although acute, and the outer lobe considerably shorter than the inner, a character which I have not elsewhere found in the Carabidæ. The tarsi are also truly Harpalide, the male having four joints of the anterior and middle pairs dilated and biserially squamulose. Finally, the position of the tactile setæ of the head and thorax show that *Glyptus* must be placed in the present series.

The tribe Harpalini may be divided primarily by the tarsal vestiture of the male into three series one of which may be again divided, the four groups thus formed may be characterized in the following manner:

Anterior tarsi of male pilose or spinous beneath, usually feebly sometimes not at all dilated.....	DAPTI.
Anterior tarsi of male dilated and biserially squamulose.	
Maxillæ not hooked at tip, the outer lobe much shorter than the inner, penultimate joint of labial palpi not setose, labrum very short.....	GLYPTI.
Maxillæ hooked at tip, the outer lobe equal to or longer than the inner, the penultimate joint of labial palpi plurisetose, labrum normal.....	HARPALI.
Anterior tarsi of male densely spongy pubescent beneath.....	ANISODACTYLI.

The tarsal vestiture above outlined appears to be the only means yet devised for the division of the tribe. It is not however without exceptions as certain Dapti, *Geopinus* for example have a few squamules on the under side of the anterior tarsi, and certain *Acinopus* have the anterior tarsi feebly dilated and the squamules rudimentary.

Group DAPTI.

The genera of this group present certain special characters which require passing mention. In the majority of the genera the eyes are small and beneath widely separated from the buccal fissure. In *Daptus*, *Polpochila*, *Agonoderus* and *Pogonodaptus* the eyes are normal in form and close to the mouth beneath. The mandibles of *Geopinus*, *Daptus* and *Pogonodaptus* are normally decussating, the left overlapping the right with its tip somewhat chisel-shaped and deeply strigose in the first two genera, acute and not strigose in the third. In all the other genera mentioned below the right mandible appears to be shorter than the left and is capable of being drawn more within the mouth, its chisel-shaped tip passing along the obtuse inner edge of the left reminding me of the manner of the articulation of the lower mandible of the Parrot on the upper or like the incisor teeth of a Rodent.

Daptus has also a small triangular plate over the insertion of the antennæ as observed in *Ditomus*.

On examining the under side of the head the usual setæ may be seen at the middle of the mentum, one on each side and behind the base of the mentum tooth and which may for convenience be called post-dental setæ. In all the genera with one exception there will also be seen two setigerous punctures at the side of the submentum immediately behind the angle of the mentum. In *Polpochila* and *Agonoderus* the two setæ are quite conspicuous, the inner one of each pair, however, larger than the outer, but in the other genera the outer seta gradually becomes more and more feeble so that it finally disappears or can only with great difficulty be found. In *Geopinus* however there is but one seta on each side and this is situated in the posterior angle of the mentum itself.

The anterior tibiæ are usually gradually dilated to apex and spinous at tip externally, but in *Geopinus* the outer angle is expanded in a plate, spinulose on its edge resembling in general form that of *Glyptus*. In *Nothopus* the outer angle is more narrowly prolonged and rather deeply sinuate above the tooth. *Daptus* has a thicker anterior tibia the outer angle rounded, the posterior face rather closely beset with spinules as in *Phaleria*, the fossorial habits of which it imitates.

The following table will enable our genera to be recognized :

- Mandibles prominent, decussating. Body subpedunculate.
 - Mandibles deeply strigose at tip. Anterior tibiæ decidedly fossorial.
 - Eyes small. Mentum with a seta at hind angles.....**Geopinus.**
 - Eyes large. Setæ at sides of submentum..... **Daptus.**
 - Mandibles acute at tip not strigose. Anterior tibia not fossorial. No scutellar stria.
 - Head with deep arcuate impression each side.....**Pogonodaptus.**
- Mandibles not prominent, at most feebly decussating. Body not pedunculate.
 - Outer apical angle of anterior tibiæ prolonged. **Nothopus.**
 - Outer apical angle of tibiæ not prolonged.
 - Mentum toothed.
 - Apical angles of joints 1—3 of anterior tarsi prolonged in spines. Eyes large. Hind angles of thorax obtuse or rounded.....**Polpochila.**
 - Apical angles of joints of anterior tarsi not prolonged. Eyes small. Hind angles of thorax sharply rectangular.....**Cratacanthus.**
 - Mentum not toothed.
 - Posterior tarsi with the first joint a little longer than the second, outer edge of middle tibiæ rather flat and with a double row of spinules closely placed.
 - Eyes relatively small, distant beneath from the mouth; elytra with numerous dorsal punctures.....**Piosoma.**
 - Eyes relatively large, very narrowly separated from the mouth; elytra with one dorsal puncture..... **Agonoderus.**
 - Posterior tarsi with the first joint nearly as long as the next three.
 - Middle tibiæ with the spinules sparsely placed, in the male arcuate and serrate on the inner side.
 - Eyes rather small; three series of elytral punctures....**Discoderus.**

The sexual characters are not very well marked. The males have four joints of the anterior tarsi feebly dilated (two in *Polpochila*) and rarely (*Discoderus*) with a few squamules beneath. The latter genus has the middle tibiæ distinctly arcuate and serrate within. In *Cratacanthus* the right mandible of the male has the basal portion which borders the clypeus more elevated, while the upper edge in front of this is much depressed, a similar structure is observed in *Acinopus*.

The Ditomides of Lacordaire should not in my opinion be widely separated from the present group. The only character in which they differ is in the apex of the ligula being plurisetose. Their punctured surface gives them a somewhat different aspect but this has a parallel in *Dichirus* in the Anisodactyli and *Ophonus* in Harpali.

To this group belong also *Cratognathus* placed by Lacordaire in the Anisodactyli and *Paramecus* of his Harpali.

I have introduced *Daptus* in the above table for convenience of comparison, it does not occur in our fauna. The genera above mentioned differ to a greater or less extent in the form of the ligula and paraglossæ as well as in the extent of pilosity of the terminal joint of the palpi. *Agonoderus* and *Pogonodaptus* are the only genera in which I have observed the penultimate joint of the labial palpi to be bisetose. *Nothopus* and *Piosoma* have the ligula quadrisetose and the paraglossæ ciliate externally at tip, the upper surface is also sparsely setose in these genera. In *Cratacanthus* the paraglossæ are very broad and lie behind the ligula, so that when viewed from the front the entire ligula has very much the appearance of that of a Lebiide.

The name *Pogonodaptus* is proposed for a small species resembling *Daptus* and somewhat also *Pogonus* (*Pogonistes*), which has the following characters.

POGONODAPTUS n. g.

Head moderately large, horizontal, not narrowed behind the eyes to a neck. Eyes moderately large and prominent, narrowly separated from the mouth. Antennæ arising under a slight frontal ridge, the second joint a little shorter than the third. Clypeus slightly prolonged between the mandibles, narrow, emarginate in front, a seta in each angle. Labrum broadly emarginate, sexsetose. Mandibles prominent, decussating, feebly arcuate, tips acute, a slight tooth at the middle of the right. Mentum broad, feebly emarginate, a short broad tooth at middle. Ligula small, free and bisetose at tip and narrowed, the paraglossæ falciform a little longer than it, the palpi slender, penultimate joint a little longer than the last and bisetose. Maxillary palpi moderate in length, the terminal joint slender, slightly fusiform, a little longer than the preceding. Thorax transverse, narrowed behind, posterior angles distinct. Body pedunculate. Elytra oblong, parallel, very slightly sinuate near the tip, surface striate, without scutellar stria, a dorsal puncture on the third interval near the second stria. Anterior tibiæ

not fossorial, the outer edge spinous, middle tibiæ on the outer edge biserially spinulose, the posterior more finely so. Posterior tarsi slender with joints 1—4 gradually decreasing in length.

This genus is known from any in the tribe by its prominent and smooth mandibles, the non-fossorial tibiæ, the absence of scutellar stria, while the form of the ligula and paraglossæ distinguishes it from *Daptus*.

P. piceus n. sp.—Moderately elongate, parallel, piceous, shining, legs pale testaceous. Head smooth, a moderately deep arcuate impression each side. Antennæ piceous, two basal joints pale. Thorax transversely cordate, sides arcuate and narrowing posteriorly, hind angles small moderately prominent, base arcuate, apex very feebly emarginate, disc moderately convex, median line finely impressed, a short intra-angular basal impression, surface smooth, shining. Elytra oblong, parallel, humeri obtuse, surface striate, the striæ entire and not punctate, no scutellar stria, intervals flat, smooth. Body beneath piceous, shining, tip of abdomen paler, surface smooth, impunctate. Length .24 inch: 6 mm.

I have but one specimen, a female, from Texas, given me by Mr. A. S. Fuller.

Group GLYPTI.

I have already given the reasons not only for placing *Glyptus* in the present tribe but also for considering it a group apart. With the exception of the characters which mark it as a special type in the tribe it seems to bear the same relation to the Harpali which follow, that *Geopinus* does to other Dapti. *G. sculptilis* Br., is figured by Lacordaire (Genera, Atlas, pl. 10, fig. 3), in such a position on the plate as to make its comparison with the better figure of *Geopinus* quite easy. The species above cited occurs in western part of Africa and lives in the nests of White Ants. A second species has been described by Chaudoir from Egypt.

Group HARPALI.

It is extremely difficult to draw the line with accuracy between this group and the Dapti, and I am convinced that other characters will be found which will separate the genera but which will not allow the groups to remain as at present constituted.

Not having access to as much exotic material as I desire I cannot venture on a discussion of the genera which should be here included, and will confine my remarks to those of our own fauna.

At the time of the publication of the "Classification of the Coleoptera of North America," by Dr. LeConte, six genera were placed in the Harpali. Since then two have been suppressed *Philodes* (= *Stenolophus*) and *Gynandrotarsus* (= *Anisodactylus*). It is however necessary to add *Stenomorphus*, and *Selenophorus* should be rehabilitated as suggested by Dr. LeConte.

I have already referred to the fact that in by far the larger number of genera of Harpalini the labial palpi have the last joint shorter than the preceding, while the latter is then more than *bi*-setose except in *Glyptus* which seems to have lost the setæ entirely. In the *Dapti Agonoderus* has been referred to as one of the rare exceptions to the rule and the terminal joint is as long or longer than the preceding and the latter simply bisetose in front. The presence of a few hairs more or less may seem a very trivial character, but when this is always associated with another important structural character and is moreover absolutely constant, it assumes an importance far greater than the slight ligular differences which are apt to be described and even figured differently by two equally competent students.

In order that the argument may be followed more easily it will be better to discuss the genera separately, and will call the labial palpi normal when the last joint is short and the preceding plurisetose.

STENOMORPHUS.—Labial palpi normal. Anterior tarsi of male moderately dilated, the first joint nearly equal to the three following and not squamulose beneath, the next three biserially squamulose, the fourth transverse feebly emarginate. Anterior tibiæ ciliate within. Middle femur with a triangular dilatation of the anterior condyle at the knee, the middle tibia slightly arcuate, middle tarsus not dilated. Mandibles chisel-shaped at tip.

The female has the first joint of the anterior tarsi rather broadly dilated and not spongy nor papillose, the tibia is not ciliate within. The middle femur is not toothed at apex, the tibiæ slightly curved.

It will be seen by the above characters that the genus should not be placed with *Anisodactylus* as stated by Schaum, much less with the Pogonini as Lacordaire has done.

GYNANDROPUS.—The labial palpi are normal. The anterior tarsi are moderately dilated in the male, the first four joints biserially squamulose, the first about as long as the next two. The female is as in *Stenomorphus*.

This genus makes a nearer approach to the true Harpali than the preceding.

TRICHOPSELAPHUS.—Palpi unknown, probably normal. The anterior tarsi of male with four joints dilated and squamulose beneath, joints 1—4 decreasing gradually in length, the fourth emarginate. Posterior tibiæ arcuate, inner edge crenulate and ciliate. In the female the first four joints are dilated, the first strongly, much longer than any of the following joints, not squamulose or spongy beneath.

This genus occurs in Brazil and is introduced here as it shows some relation with *Discoderus* of the preceding group while plainly a member of the present.

ACINOPUS.—Palpi normal. In both sexes the anterior and middle tarsi are dilated, and in the males biserially squamulose beneath.

In this genus was first observed the difference between the right and left mandible of the male to which I have called attention in *Cratacanthus*. It occurs in Europe and is mentioned as one of the links between the present group and the Dapti.

HARPALUS.—Palpi normal. In the male the anterior and middle tarsi are dilated and biserially squamulose beneath, the fourth joint emarginate or subbilobed. In the female the tarsi are slender. The posterior tarsi have the first joint never longer than the next two. The elytra have one dorsal puncture or none. Paraglossæ ciliate at tip.

SELENOPHORUS.—Palpi normal. Sexual characters of *Harpalus*. First joint of hind tarsus equal to the next three. Elytra with three rows of dorsal punctures. Paraglossæ with at most one cilia at the sides.

A review of the species of our fauna will be found in Proc. Amer. Philos. Soc. 1880, p. 178.

STENOLOPHUS.—Palpi abnormal, the last joint of the labial oval, acuminate, the penultimate bisetose in front. Anterior tarsi of male with four joints dilated and biserially squamulose beneath, the fourth joint deeply bilobed, middle tarsi moderately dilated and squamulose. First joint of hind tarsi about as long as the two following together. The females have the tarsi slender, the fourth joint of the anterior pair emarginate.

In the above genus will be contained those species in our fauna included by Dr. LeConte in his divisions A, B, D, (Proc. Acad. 1868, p. 376). It will be observed that the last joint of the labial palpi is more slender and less oval than in the species of his group C. I have also observed that in some species this same joint is impressed or concave beneath in the male, (*limbalis*, *fuliginosus*, *conjuuctus*, *anceps*, *cincticollis*, *flavipes* and *ochropezus*), in others it is entirely simple, (*carbonarius*, *plebejus* and *dissimilis*). Several have not been examined as males are not at hand. In some species also the hind tarsi have a fine carina on the outer side of the first three joints. The middle tarsi are sometimes sulcate as in *Platynus*. I mention these observations that they may be made use of by future students of the genus.

ACUPALPUS.—Palpi abnormal, the terminal joint of the labial rather stoutly oval but slender at tip, the penultimate bisetose in front. Ante-

rior tarsi of male moderately dilated, biserially squamulose beneath, the fourth joint feebly emarginate. Middle tarsi feebly dilated but distinctly squamulose. The first joint of posterior tarsi is distinctly shorter than the next two together. The females have slender tarsi.

Here also may be observed the depression in the last joint of the labial palpi of the male. I was at first inclined to believe that this might be a *post-mortem* character the result of contraction, but its occurrence in males only seems to indicate that it is probably a character found also in life, of a sexual import.

In this genus are contained those species in section C, (loc. cit. p. 377), *hydropicus*, *carus*, *longulus*, *flavilimbus* and *rectangulus*. *Acupalpus* seems fully as worthy of being maintained as many of the genera of the present tribe, if we reject its characters as invalid for generic separation it will be almost impossible to separate genera in the group Harpali.

BRADYCELLUS.—As far as the species in our fauna are concerned this genus is a composite and contains three distinct forms.

First.—Labial palpi normal, the second joint longer than the terminal and plurisetose in front. The anterior and middle tarsi are dilated nearly equally and biserially squamulose beneath, the fourth joint emarginate. The antennæ have the two basal joints glabrous and also a small portion of the base of the third.

I believe the species so constituted should be placed in *Harpalus*, (Lec. Proc. Acad. 1861, p. 374). They are *dichrous*, *vulpeculus* and *autumnalis*.

Second.—Labial palpi abnormal, the second joint bisetose in front not longer than the last. Anterior tarsi of male normally dilated and squamulose beneath, the fourth joint emarginate. Middle tarsi narrowly dilated but distinctly squamulose. The antennæ have three basal joints entirely glabrous.

Here belong *badiipennis*, *atrime dius*, *nigrinus*, and one new species all of which should be referred to the genus TACHYCELLUS MORAV.

Baron Chaudoir (Rev. Mag. Zool. 1868), first suggested the placing of these species in *Tachycellus* but the characters made use of were of such a trivial nature that Dr. LeConte did not deem it advisable to follow him. I can not myself agree with Chaudoir in adding also *vulpeculus*, *dichrous* and *autumnalis*.

In the same paper Chaudoir makes the first step toward the re-establishment of *Acupalpus* in our fauna by the description of a new species (*rectangulus*), included in the list above given.

Third.—The remaining species belong to *Bradycellus* proper. The

labial palpi are as in *Tachycellus*. The anterior tarsi above dilated. The middle tarsi about as slender as in the female. The antennæ have at most two basal joints glabrous and the second and often the first are hairy.

From the above notes it will be evident that the genera are not easily separable except both sexes are at hand. The following table will assist the student of our fauna.

Antennæ with two glabrous joints only.

Labial palpi with the terminal joint shorter than the preceding, the latter plurisetose in front.

Anterior tarsi dilated in both sexes. (The first joint only, however, in the female).

Body pedunculate. First joint of anterior tarsus of male not squamulose beneath, the middle tarsi not dilated nor squamulose....**Stenomorphus**.

Body not pedunculate. First four joints of anterior and also of the middle tarsi squamulose beneath.....**Gynandropus**.

Anterior tarsi dilated in the male only.

First joint of hind tarsus not longer than the two following, elytra with at most one dorsal puncture.....**Harpalus**.

First joint of hind tarsus equal to the next three, elytra with three series of dorsal punctures.....**Selenophorus**.

Labial palpi with the terminal joint equal to or even a little longer than the preceding which is bisetose only.

Penultimate joint of anterior and middle tarsi of male bilobed, the middle tarsi dilated.....**Stenolophus**.

Penultimate joint simply emarginate, the middle tarsi not or very feebly dilated.

Mentum not toothed.**Acupalpus**.

Mentum toothed.....**Bradycellus**.

Antennæ with three glabrous joints.

Thorax without setigerous puncture in hind angle.

Mentum toothed.....**Tachycellus**.

Thorax with setigerous puncture in hind angle. A small mentum tooth.

Middle tarsi simple, not dilated in male.....**Dichirotrichus**.

Middle tarsi dilated in male. Inner angle of anterior tibiae prolonged in a spine.....**Diachromus**.

The last two genera do not occur in our fauna and are introduced in the table for convenience of comparison. I observe that the three basal joints are glabrous, that is, the third joint is not punctured and pubescent in the manner of the following joints. It has it is true a few hairs but the surface is like the second and not the fourth. In these genera the hind angle of the thorax bears a long erect seta, presenting the only instance in which this is the case in genera with one supra-orbital seta. Duval refers these genera to the *Anisodactyli*, but from the tarsal vestiture they seem more properly to belong here.

As already remarked three species formerly placed in *Bradycellus*

are included in *Harpalus*. The mouth parts of *vulpeculus* 139, show some difference from those figured as *Harpalus*, but the other two species have the ligula and paraglossæ as in fig. 138. except that the paraglossæ are not ciliate.

Group ANISODACTYLI.

The essential character of this group is that the dilated tarsal joints of the male are spongy pubescent beneath.

As constituted by Lacordaire it contains very diverse forms—*Orthogonius* is a distinct tribe, *Cratognathus* and *Pisoma* are Dapti, *Geobænus* allied to *Platynus*; *Migadops*, *Loxomerus* and *Brachycælus* are Carabinae, *Gynandropus* and *Diachromus* go to the Harpali; *Gynandrotarsus* has already been suppressed in *Anisodactylus*, and I hope to show good reasons for doing the same with *Gynandromorphus*.

The genus *Anisodactylus* not only gives its name to the group but is also its central idea. From this as a starting point the relative values of the genera may be discussed, as a convenient point of comparison.

In a review of our species of the genus published by me, (Proc. Am. Philos. Soc. 1880, p. 162, etc.), will be found a full discussion of the characters which serve to divide the species in subgenera and lower groups—the trifold anterior tibial spur, the spur broader at middle and the slender spur. In two species *harpaloides* and *opaculus*, the first joint of the anterior tarsus of the female is dilated and in the former that joint is somewhat prolonged under the second.

Gynandromorphus has the trifold anterior tibial spur in both sexes, the first joint of the anterior tarsi dilated in the female while the posterior tarsi are somewhat flattened and pilose above. In the first character it is equally related to the *Dichirus* and *Triplectrus* groups of *Anisodactylus*, by the second to the latter more especially and by the third character to the former more especially. The upper surface is densely and rather coarsely punctured and finely pubescent. I have therefore no hesitation in placing *Gynandromorphus* as a division of *Anisodactylus* intermediate between the groups *Dichirus* and *Triplectrus*.

NESTONOTUS.—Anterior tarsi broadly dilated in the male, the first four joints densely spongy pubescent beneath, middle tarsi with four joints less widely dilated and spongy pubescent beneath, the first entirely glabrous, posterior tarsi slender and long. Elytra with one dorsal puncture. The ligula is rather narrow and parallel, the paraglossæ broad and a little longer than it.

Comparing the differences between the ligula and paraglossæ with those observed in *Harpalus* there does not seem any valid reason for

retaining the genus apart from *Anisodactylus*, and the species will find a suitable position between the *amaroides* and *sericeus* groups of that genus.

AMPHASIA.—Here the characters are essentially those of *Anisodactylus sericeus*. The paraglossæ are similar in form to *Anisodactylus* and merely a little longer.

ANISOTARSUS.—The sexual characters and those derived from the posterior tarsi are precisely those of *Anisodactylus cœvus* and *lætus*. The paraglossæ are a little broader than in typical *Anisodactyli*.

SPONGOPUS.—The ligula and paraglossæ are intermediate in structure between the typical *Anisodactylus* and *Xestonotus*, and the ligula is free for a greater distance at tip. The sexual characters are those of the *amaroides* group. The posterior tarsi are however slender. The elytra being punctulate and with a single dorsal puncture this species forms an intermediate between the *discoideus* group and *sericeus*.

From the above remarks it must be evident that my opinion is that the above genera are inseparable from *Anisodactylus*. I have examined the species from every possible standpoint and can find no reason either from my own studies or the remarks of others to do otherwise than suggested above.

While I have given these genera all the study possible with me at present, I consider the question of the total suppression of *Anisotarsus* and *Spongopus* still open for further discussion, there is no doubt in my mind, however, regarding *Gyandromorphus*, *Xestonotus* and *Amphasia*.

It is worthy of note in *Anisodactylus* that we may have more than one setigerous puncture at each angle of the clypeus while in most Carabidæ there is but one and even this may be lost.

Sub-Family PSEUDOMORPHINÆ.

Middle coxal cavities enclosed by the central pieces of the meso- and metasternum. Head without supra-orbital setæ and with grooves beneath of variable extent for the reception of the antennæ. Eyes in great part superior, very widely separated beneath from the mouth. Legs short, contractile, tarsi slender, rigid.

The genera which compose the present division are the most abnormal of all Carabidæ. That they belong to the family and should not be separated is I believe now generally admitted, the only difficulty being their proper position in the series, and from my own study they do not seem to be well placed anywhere and are equally aberrant in any

position. The affinity so often mentioned in the direction of the Gyrinidæ seems rather feeble, and is expressed rather in an outward resemblance of form than in the more important anatomical details.

There seems to be an undiscovered form or possibly a lost type to which certain tribes of the Carabinæ and Harpalinæ as well as Amphizoidæ appear to point, and it is with this hypothetical centre that the Pseudomorphinæ seem to be allied. The tribes referred to are Enceladini, Siagonini and Ozæni. In the discussion of the Gyrinidæ there will be found important reasons why we cannot suspect any relation between it and the present sub-family.

One tribe alone forms the sub-family.

Tribe XLVIII. **Pseudomorphini.**

Antennæ usually slender, filiform, compressed and subserrate in *Adelotopus* arising under a moderately dilated frontal plate, the three basal joints glabrous, received in repose in grooves of greater or less length, within the eyes beneath the head. Head short, obtuse, deeply inserted in the thorax, sides of front more or less dilated and infringing on the eyes in front, clypeal suture rarely visible, front without supra-orbital setæ. Eyes oval, not prominent, usually confined almost entirely to the upper side of head and widely distant from the buccal fissure beneath. Labrum short, transverse, rounded in front and feebly sexsetose. Mandibles short, broad, arcuate externally, sometimes slightly toothed within. Maxillæ slender, ciliate and spinous within, not strongly hooked at tip, the outer lobe slender, biarticulate with the terminal joint longer, the palpi short and thick, the terminal joint cylindrical, compressed, obliquely truncate at tip. Mentum large without basal suture, deeply emarginate toothed or not, the epilobes narrow, ligula and paraglossæ variable in form, the palpi longer than the maxillary, the terminal joint cylindrical and obliquely truncate or securiform. Thorax as broad at base as the elytra and overlapping them, the lateral margin more or less explanate and often fimbriate but without the usual setæ. Elytra oblong, truncate at tip, not margined at base, lateral margin acute, sides narrowly inflexed but more widely near the base, the epipleuræ proper very narrow, no internal plicæ, surface at most obsolete striate without dorsal punctures. Scutellum distinct. Prosternum narrow usually somewhat prolonged behind the coxæ, the coxal cavities very narrowly closed behind. Mesosternum very narrow between the coxæ, the epimera distinct, not reaching the coxal cavity. Metasternal epimera distinct, posterior coxæ contiguous. Legs short not visible beyond the elytra, the femora stout, rather deeply channeled beneath and receiving the tibiæ, the latter slender and with moderate terminal spurs, the anterior tibiæ emarginate within, the inner spur remote from the apex. Tarsi slender very feebly flexile, the claws slender, feebly arcuate and simple.

This tribe is represented in our fauna by the genus *Pseudomorpha* with three species.

In the two specimens of *P. Cronkhitei* before me the fourth and fifth ventral segments have at middle a short, transverse, pilose band, while *P. Behrensii* my unique presents no such character. This may be sexual. I have observed no other sexual differences.

Our species are so rare that it was impossible to procure one for dissection, and I have substituted *Sphallomorpha quadrisignata* Cast., from Australia, (see Pl. III, fig. 4, also dissection 147).

ADDITIONAL NOTES.

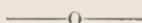
On p. 93 I have made use of the expression that "the (posterior) coxæ reach the side margin of the body, separating the metasternal side pieces from the first ventral segment." By this I mean to be understood, the side margin as it appears from the examination of an entire specimen, the limit of the body being the margin of the elytra. The extent of the coxæ outwardly is such that the side pieces become more dorsal, they are never cut off from articulation with the abdomen but merely hidden. It is not a question of greater or less inflexion of the elytral margin, as it will be observed in those genera with most widely inflexed elytra (*Cychrus* et al.), that the coxæ do not attain the side margin of the body.

From the families of Adephaga given on p. 94 there appears to be a tendency on the part of some able entomologists to exclude the GYRINIDÆ. I believe I have studied this type with some care and the structure of the external skeleton as well as the mouth parts seem to me so plainly Adephagous as to leave no room for doubt. It is true the antennæ are irregular in their form, the eyes are so broadly divided as to make a superior and inferior pair on each side, and in *Dineutus* the outer or palpar lobe of the maxilla is lost. These are certainly important characters but must not be allowed to outweigh all the rest of the organization. The Adephaga do not present an unbroken chain and in its fragmentary condition some aberration must be expected.

After entering on the description of the various tribes recognized in the preceding pages, I have used Lacordaire's first volume of the Genera as a convenient means of comparison. It is well known that this volume although not old in years is somewhat antiquated through the researches of Schaum, Chaudoir and LeConte, but with all its defects it is the only general system of Carabidæ extant. Several authors have started in an attempt to revise the system but beyond the arrangement of the genera of local faunæ nothing has been done. It has been easy enough as far as the tribes of the CARABINÆ extend, beyond this all is in confusion. The present essay aims to go a step farther and if but little has been

accomplished, it is hoped that discussion will clear up much of the obscurity and bring some order from the existing chaos.

All of Lacordaire's tribes will be found to have been reviewed, and from among the genera I have endeavored to select for special study those about which he or others appeared to be in greatest doubt. The judgment on the choice of genera must be left to the criticism of all who choose to find out which they are by a perusal of the preceding pages or a reference to the index.



That section of the genus *Cychrus* known as *Sphæroderus* has been supposed to be peculiar to the eastern portion of the Atlantic region, no species having heretofore been found west of the Mississippi River. Within a few days a species has been received from Washington Territory. I give the description here as an interesting contribution to geographical distribution.

***Cychrus* (*Sphæroderus*) *relictus* n. sp.**—Form slender, black, shining. Head smooth. Thorax cordiform, one-fourth broader than long, sides arcuate in front, oblique behind, base not broader than apex and one-third shorter than the length, hind angles slightly obtuse, margin very narrowly reflexed, apical arcuate line and basal transverse line moderately deeply impressed, median line less deeply, the intra-angular impressions rather deep and curved in front toward the median line, disc very little convex, surface smooth, slightly wrinkled posteriorly. Elytra very regularly elliptical, twice as wide at middle as the thorax and a little more than one-half longer than their width, margin very narrowly reflexed, surface with a slight violet tinge with numerous rows of moderately deeply impressed punctures, the striae irregular. Body beneath smooth, shining. Length .68 inch; 17 mm.

This species is more elongate than any of our eastern *Sphæroderus*, and differs also in the absence of any punctuation at the base of the thorax and by the sculpture of the elytra. The legs are also more slender and longer than in the other species. The general aspect of the insect is that of a *Sphæroderus* imitating *Cychrus striatopunctatus*.

One male collected at Spokane, Wash. Terr. by Mr. L. E. Ricksecker.

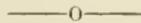


To the *Clivinae* belongs the European genus *Reicheia* Sauley, remarkable as the only known member of the *Carabinae* with the eyes so reduced as to be with difficulty observed. The species is extremely small (.06 inch) even for a member of the tribe to which it belongs. Synonymous with this genus is *Spelæodytes* Mill. A figure of *R. lucifuga* is given by Sauley, Ann. Ent. Soc. Fr. 1862, pl. viii, fig. 5, from which it seems allied to *Clivina* rather than *Dyschirius*.

In the *Bullet. Ent. Soc. Fr.* 1881, No. 17, p. 148, M. Abeille de Perrin presents a good argument for the union of *Trechus* and *Anophthalmus*. The series of species in our fauna is too small for me to express any opinion, but from the ability shown by M. Abeille in more difficult observations I have no doubt he is entirely correct.

While I would be willing to accept the idea above indicated I am not prepared to coincide with those who would unite *Anillus* with *Bembidium* on the ground that these bear the same relation to each other that *Trechus* and *Anophthalmus* do. Through the kindness of Dr. Dohrn I have been enabled to study *Scotodipnus* (*Microtyphlus*), and as it did not appear to present anything of special moment for a general essay, its closer examination was deferred until the present time. The upper surface presents no peculiarities of moment except that I do not find the elytra truncate as stated by Linder, (*Ann. Ent. Soc. Fr.* 1863, p. 483, pl. ix, fig. 7). The usual setæ of the Bembidiini are present and that on the mandible well marked. On examining the under side, which I had omitted to do at first, I was surprised to find the *posterior coxæ rather widely separated*. In *Anillus* the same character exists, while in *Anophthalmus* the posterior coxæ are contiguous as in ordinary *Trechus*. This structure is certainly a valid generic difference and whatever course is taken with *Anophthalmus* the other two genera must remain. Notwithstanding the small size of *Scotodipnus* I have observed the internal elytral plica of the Bembidiini, feeble of course, but quite as distinct as in some *Tachys*.

In my "Synopsis of the Silphidæ," (*Trans. Am. Ent. Soc.* 1880), I have directed attention to the fact that all the eyeless genera have the posterior coxæ separated, but I am not able to explain the correlation of these distant members of the body.



CORRECTIONS.

Page 103, line 14 from bottom, for "exceptions" read "exception."

Page 110, line 4 from bottom, omit the words "if not all."

Page 130, on the first line of larger type, after "represented" add "in our fauna."

Page 142, in the first synoptic table, for "Perigoni" read "Perigonæ."

Page 144, line 10 from top, for "striated" read "situated."

Page 161, line 18 from bottom, for "narrower" read "narrow."

Page 165, line 16 from top, for "six" read "five," and add *Zabrini* after *Apotomini*, (in next line).

Page 176, line 9 from top, for "position" read "positions."

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- Fig. 1.—Under side of *Cychrus alternatus* Motsch.
 Fig. 2.— “ *Pterostichus validus* Dej.
 Fig. 3.— “ *Mormolyce phyllodes** Hagenb.
 Fig. 4.— “ *Sphallomorpha quadrisignata** Cast.
 Fig. 5.— “ *Haliplus triopsis* Say.
 Fig. 6.— “ *Amphizoa insolens* Lec.
 Fig. 7.— “ *Pelobius Hermannii** Fab.
 Fig. 8.— “ *Dytiscus confluens* Say.
 Fig. 9.— “ *Dineutus discolor* Aubé.
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EXPLANATION OF PLATE IV.

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- Fig. 1.—*Psydrus piceus* Lec.
 Fig. 2.—*Nemotarsus elegans* Lec.
 Fig. 3.—*Euproctus trivittatus* Lec.
 Fig. 4.—*Onota Floridana* Horn.
 Fig. 5.—*Eucærus varicornis* Lec.
 Fig. 6.—*Pentagonica pallipes* Lec.
 Fig. 7.—*Zacotus Matthewsii* Lec.
 Fig. 8.—*Pogonodaptus piceus* Horn.
 Fig. 9.—*Evolenes exaratus* Dej.
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* The asterisk affixed to names indicates that the genus does not occur in our fauna. Occasionally foreign species have been used when ours is too rare to dissect, as in Nos. 7, 33, 127, of the following plates.

EXPLANATION OF PLATE V.

This and the following plates consist of the mentum and appendages and maxilla of the various genera and species mentioned with a few under bodies. The numbering is continuous for easy reference in the text.

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| 1.— <i>Omophron dentatum</i> Lec. | 14.— <i>Metrius contractus</i> Esch. |
| 2.— body beneath. | 15.— body beneath. |
| 3.— <i>Elaphrus fuliginosus</i> Say. | 16.— <i>Migadops virescens</i> * Waterh. |
| 4.— <i>Blethisa oregonensis</i> Lec. | 17.— <i>Mystropomus subcostatus</i> * Chaud. |
| 5.— <i>Diachila arctica</i> Gyll. | 18.— <i>Promecognathus lævissimus</i> Dej. |
| 6.— <i>Notiophilus semistriatus</i> Say. | 19.— <i>Pusimachus elongatus</i> Lec. |
| 7.— <i>Pelophila borealis</i> Payk. | 20.— <i>Scarites subterraneus</i> Fab. |
| 8.— <i>Opisthinus Richardsonii</i> Kby. | 21.— <i>Dyschirius sphaericollis</i> Say. |
| 9.— <i>Leistus ferruginosus</i> Mann. | 22.— <i>Clivina bipustulata</i> Fab. |
| 10.— <i>Nebria Mannerheimii</i> Fisch. | 23.— <i>Schizogenius lineolatus</i> Say. |
| 11.— <i>Loricera californica</i> Lec. | 24.— <i>Aspidoglossa subangulata</i> Chaud. |
| 12.— <i>Cychnus angusticollis</i> Fisch. | 25.— <i>Ardistomis viridis</i> Say. |
| 13.— <i>Carabus tordatus</i> Fab. | |

EXPLANATION OF PLATE VI.

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| 26.— <i>Encladus gigas</i> * Bonelli. | 39.— <i>Patrobis californicus</i> Motsch. |
| 27.— <i>Trachypachys inermis</i> Motsch. | 40.— <i>Anophthalmus Tellkampfi</i> Erichs. |
| 28.— body beneath. | 41.— <i>Trechus ovipennis</i> Motsch. |
| 29.— <i>Panagæus crucigerus</i> Say. | 42.— <i>Oopterus Muceyi</i> * Bates. |
| 30.— <i>Psydrus piceus</i> Lec. | 43.— <i>Morio monilicornis</i> Latr. |
| 31.— <i>Siagona Europæa</i> * Dej. | 44.— body beneath. |
| 32.— body beneath. | 45.— <i>Stomis pumicatus</i> * Panz. |
| 33.— <i>Pachytelcs mexicanus</i> Chaud. | 46.— <i>Pterostichus Hamiltoni</i> Horn. |
| 34.— body beneath. | 47.— <i>Lophoglossus scrutator</i> Lec. |
| 35.— <i>Nomius pygmaeus</i> Dej. | 48.— <i>Holciophorus ater</i> Dej. |
| 36.— <i>Bembidium Mannerheimii</i> Lec. | 49.— <i>Piesmus submarginatus</i> Say. |
| 37.— " n. sp. | 50.— <i>Evarthrus sodalis</i> Lec. |
| 38.— <i>Amerizus oblongulus</i> Mann. | |

EXPLANATION OF PLATE VII.

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| 51.— <i>Myas coracinus</i> Say. | 64.— <i>Olisthopus parvatus</i> Say. |
| 52.— <i>Amara obesa</i> Say. | 65.— <i>Lestignathus Simsoni</i> * Bates. |
| 53.— <i>Loxandrus rectus</i> Say. | 66.— <i>Anchonoderus quadrinotatus</i> Horn. |
| 54.— <i>Dicælus elongatus</i> Dej. | 67.— <i>Atranus pubescens</i> Dej. |
| 55.— <i>Diplochila laticollis</i> Lec. | 68.— <i>Lachnophorus elegantulus</i> Mann. |
| 56.— <i>Dicrochile Goryi</i> * Bdv. | 69.— <i>Leptotrachelus dorsalis</i> Fab. |
| 57.— <i>Badister pulchellus</i> Lec. | 70.— <i>Trigonodactyla terminata</i> * Dej. |
| 58.— <i>Zargus Schaumii</i> * Woll. | 71.— <i>Casonia pensylvanica</i> Linn. |
| 59.— <i>Platynus brunneomarginatus</i> Mann. | 72.— <i>Galerita janus</i> Fab. |
| 60.— <i>Calathus ruficollis</i> Dej. | 73.— <i>Zuphium mexicanum</i> Chaud. |
| 61.— <i>Pristodactyla dubia</i> Lec. | 74.— <i>Thalpius Hornii</i> Chaud. |
| 62.— <i>Masoreus Wetterhali</i> * Gyll. | 75.— <i>Trichognathus marginipennis</i> * Latr. |
| 63.— <i>Perigona nigriceps</i> Dej. | |
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EXPLANATION OF PLATE VIII.

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| 76.— <i>Drypta dentata</i> * Rossi. | 89.— <i>Blechrus nigrinus</i> Mann. |
| 77.— <i>Mormolyce phyllodes</i> * Hagenb. | 90.— <i>Axinopalpus californicus</i> Mots. |
| 78.— <i>Agra cancellata</i> * Dej. | 91.— <i>Tecnophilus nigricollis</i> Lec. |
| 79.— <i>Ega Sullei</i> Chevr. | 92.— <i>Euproctus trivittatus</i> Lec. |
| 80.— <i>Tetragonoderus fasciatus</i> Hald. | 93.— <i>Callida</i> n. sp. |
| 81.— <i>Nemotarsus elegans</i> Lec. | 94.— <i>Callida punctata</i> Lec. |
| 82.— <i>Loxopeza grandis</i> Hentz. | 95.— <i>Philophuga amœna</i> Lec. |
| 83.— <i>Aphelogenia furcata</i> Lec. | 96.— <i>Plochionus pallens</i> Fab. |
| 84.— <i>Coptodera ærata</i> Dej. | 97.— <i>Pinacodera limbata</i> Dej. |
| 85.— <i>Phlæorena signata</i> Dej. | 98.— <i>Cymindis americana</i> Dej. |
| 86.— <i>Dromius piceus</i> Dej. | 99.— <i>Apenes lucidula</i> Dej. |
| 87.— <i>Apristus subsulcatus</i> Dej. | 100.— <i>Eucærus varicornis</i> Lec. |
| 88.— <i>Metabletus americanus</i> Dej. | |

EXPLANATION OF PLATE IX.

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| 101.— <i>Pentagonica pallipes</i> Lec. | 114.— <i>Promecoderus concolor</i> * Germ. |
| 102.— <i>Onota Floridana</i> Horn. | 115.— <i>Chlaenius pensylvanicus</i> Say. |
| 103.— <i>Helluomorpha ferruginea</i> Lec. | 116.— <i>Anomoglossus emarginatus</i> Say. |
| 104.— <i>Polystichus fasciolatus</i> * Rossi. | 117.— <i>Brachylobus lithophilus</i> Say. |
| 105.— <i>Anthia sexmaculata</i> * Fab. | 118.— <i>Callistus lunatus</i> * Fab. |
| 106.— <i>Graphipterus variegatus</i> * Fab. | 119.— <i>Lachnocrepis parallela</i> Say. |
| 107.— <i>Basolia brasiliensis</i> * Gray. | 120.— <i>Anatrichis minuta</i> Dej. |
| 108.— <i>Orthogonius acrogonus</i> * Wied. | 121.— <i>Oodes amaroides</i> Dej. |
| 109.— <i>Brachynus fumans</i> Fab. | 122.— <i>Evolenus exaratus</i> Dej. |
| 110.— <i>Apotomus rufus</i> * Rossi. | 123.— <i>Zabrus aurichalceus</i> * Adams. |
| 111.— <i>Peleciium cyanipes</i> * Kirby. | 124.— <i>Geopinus incrassatus</i> Dej. |
| 112.— <i>Zacotus Matthewsii</i> Lec. | 125.— <i>Pogonodaptus piceus</i> Horn. |
| 113.— <i>Miscodera arctica</i> Payk. | 126.— <i>Nothopus zabroides</i> Lec. |
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EXPLANATION OF PLATE X.

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| 127.— <i>Polpochile flavipes</i> Dej. | 140.— <i>Selenophorus palliatus</i> Fab. |
| 128.— <i>Cratacanthus dubius</i> Beauv. | 141.— <i>Tachycellus</i> n. sp. |
| 129.— <i>Piosoma setosum</i> Lec. | 142.— <i>Anisolactylus piceus</i> Mén. |
| 130.— <i>Discoderus americanus</i> Mots. | 143.— <i>Anisotarsus terminatus</i> Say. |
| 131.— <i>Agonoderus pallipes</i> Fab. | 144.— <i>Xestonotus lugubris</i> Dej. |
| 132.— <i>Aristus capito</i> * Dej. | 145.— <i>Amphasia interstitialis</i> Say. |
| 133.— <i>Glyptus sculptilis</i> * Brullé. | 146.— <i>Spongopus verticalis</i> Lec. |
| 134.— <i>Stenomorphus rufipes</i> Lec. | 147.— <i>Sphallomorpha quadrisignata</i> * Cst. |
| 135.— <i>Gynandropus hylacis</i> Say. | 148.— <i>Anphizoia insolens</i> Lec. |
| 136.— <i>Stenolophus limbalis</i> Lec. | 149.— <i>Pelobius Hermannii</i> * Fab. |
| 137.— <i>Harpalus oblitus</i> Lec. | 150.— <i>Gyrinus analis</i> Say. |
| 138.— <i>Harpalus</i> n. sp. | 151.— <i>Dreventus discolor</i> Aubé. |
| 139.— <i>H.</i> (<i>Bradycellus</i>) <i>vulpeculus</i> Say. | |

Index to the Coleoptera described by J. L. LeConte, M. D.

BY SAMUEL HENSHAW.

The following list prepared at the suggestion of Dr. Horn owes much of its completeness to the assistance of that gentleman and Dr. LeConte, both of whom kindly examined the manuscript and have added considerable synonymy as yet unpublished.

To Dr. Sharp of Thornhill, Scotland, I am indebted for a similar service with the Dytiscidæ.

It may be noticed that a number of the names adopted are of more recent date than those suppressed, (as *Evarthrus vagans* 6-349 = *E. Engelmanni* 17-228, *Anisodaetylus similis* 14-183 = *A. semi-punctatus* 65-83); the reason for this is that the retained name is either more expressive or one that has come into general use, and as both the retained and suppressed names were proposed by the same author no favoritism is shown.*

As a rule Catalogue names published without descriptions are not included.

In order to avoid confusion a list of the species described by Major J. E. LeConte is appended.

In the following pages the first number after a generic or specific name refers to the title in the accompanying list, the second the page. When a species was described under a different generic name from that used here, the original name follows in brackets.

The types are for the most part in Dr. LeConte's cabinet. When a name is followed by * the type is with Dr. Horn, when by ** with Mr. Ulke, other exceptions will be referred to by note.

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* The reasons for the changes above mentioned will be found in their proper places in the synoptic works of Drs. LeConte and Horn, and are, consequently, not suggested here for the first time.

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Omus.

Hornii 104-157.

Cicindela.

amana 6-177 = *splendida Hentz.*

ascendens 14-172 = *tortuosa Dej.*

Auduboni 2-201 & 3-207 = race of *purpurea Oliv.*

baltimorensis † (nec Herbst), 61-43

= *repanda Dej.*

blanda † var. (nec Dej.), 6-180

= *macra Lec.*

blunda † var. b. (nec Dej.), 6-180

= *cuprascens Lec.*

celeripes 6-183.

cimarrona 91-49 = race of *purpurea Ol.*

cinetipennis 6-182.

corvina 61-53. Mexican.

eumatis 14-173 = var. of *sedecim-punctata Klug.*

cuprascens 21-65.

eursitans 61-60 = *celeripes Lec.*

cyarella 61-46 = var. of *pusilla Say.*

decostigma † (nec Chev.), 61-54

= *rectilatera Chaud.*

gravida 14-170 = *hirticollis Say.*

guttifera 61-42 = var. of *duodecim-guttata Dej.*

hæmorrhagica 14-171.

hirtilabris 104-161.

hyperborea 80-1.

imperfecta 14-171 = var. of *cinetipennis Lec.*

latesignata 14-172.

lemniscata 45-220.

macra 61-50.

maga 104-161 = *Pilatei Guér.*

magdalene 96-321. "Possibly S. African" *Horn.* Type in Hope collection, Oxford, Eng.

media 61-47 = race of *dorsalis Say.*

montana 72-338 = race of *longilabris Say.*

nevadica 104-159.

Cicindela (continued).

- nigrocærulea 6-181.
obsoleta ‡ var. (nec Say), 6-178
 = *prasina* *Lec.*
oregona 61-41 = var. of *12-guttata* *Dej.*
pamphila 96-321.
Pilatei ‡ (nec Guér.), 73-4
 = *Belfragei* *Sallé.*
pimeriana 87-363, pro *viatica* ‡ *Lec.*
 (nec Chev.).
politula 104-159.
prasina 61-31 = var. of *obsoleta* *Say.*
prætextata 45-220.
serpens 14-173 = *tortuosa* *Dej.*
sigmoidea 14-172 = *tortuosa* *Dej.*
sperata 61-50.
spretæ 6-177 = *splendida* *Hentz.*
striga 104-160.
tarsalis 21-66 = *blanda* *Dej.*
tenuisignata 14-171.
texana 79-1, pro *decostigma* ‡ *Lec.*
 = *rectilatera* *Chev.*
venusta 6-179 = var. of *generosa* *Dej.*
viatica ‡ (nec Chev.), 61-62
 = *pimeriana* *Lec.*
vulturina 33-439 = var. of *obsoleta* *Say.*
Wapleri 104-158.
Willistoni 117-507.

CARABIDÆ.**Omophron.**

- dentatum* 14-200.
gilæ 14-201.
nitidum 6-447.

Elaphrus.

- cicatricosus* 6-448.
Clairvillei ‡ (nec Kirby), 6-448
 = *fuliginosus* *Say.*
intermedius ‡ (nec Kirby), 6-449
 = *Lecomtei* *Crotch.*
lævigatus 14-200.
olivaceus 80-1.
politus 8-209 = *Clairvillei* *Kirby.*
punctatissimus 8-210 = *riparius* *Linn.*
similis 6-449 = *riparius* *Linn.*
snuatus 8-210 = *riparius* *Linn.*

Diachila.

- subpolaris* 80-2. * *

Blethisa.

- Julii* 80-2.
oregonensis 34-401.

Loricera.

- californica* 80-3.
foveata 14-180.
neoscotica 80-3 = *cærulescens* *Linn.*

Trachypachys.

- Gibbsii* 72-339.

Notiophilus.

- confusus* 6-449 = *sibiricus* *Motsch.*
nitens 60-31.
9-striatus 6-450 = *semistriatus* *Say.*
punctatus 8-210 = *sibiricus* *Motsch.*

Nebria.

- castanipes* ‡ (nec Kirby), 79-2
 = *Eschscholtzii* *Mén.*
diversa 79-2, pro *livida* || *Lec.*
hudsonica 80-3.
livida || 65-84 = *diversa* *L. c.*
longula 110-478.
mæsta 8-209 = *Sahlbergi* *Fisch.*
obliqua 87-363.
obtusa 110-478.
ovipennis 110-477.
purpurata 110-477.
Rathvoni 34-400.
suturalis 8-209.
trifaria 110-478.

Pelophila.

- rudis* 80-3, (*Nebria*).

Calosoma.

- anescens* 36-16 = *cancellatum* *Esch.*
angulatum || 14-199
 = *peregrinator* *Guér.*
carbonatum 76-53.
discors 60-31.
laqueatum 69-318 = *moniliatum* *Lec.*
lepidum 2-201 & 3-208 = *calidum* *Fab.*
lugubre 34-400.
macrum 34-400.
moniliatum 14-200, (*Callisthenes*).
prominens 34-400 = *peregrinator* *Guér.*
protractum 76-52.
semilæve 14-199.
simplex 113-61.
striatum 68-4 = var. of *luxatum* *Say.*
tepidum 14-199 = var. of *calidum* *Fab.*
triste 2-201 & 3-208.
Wilkesii 14-200, (*Callisthenes*).
Willeoxi 6-446.
Zimmermani 6-445, (*Carabus*), = var.
 of *luxatum* *Say.*

Carabus.

- Agassii* 8-209 = race of *tædatus* *Fabr.*
canadensis 26-10 = *serratus* *Say.*
ligatus † (nec Kirby), 6-444
 = *vinctus* *Weber.*
oregonensis 36-16 = race of *tædatus* *Fab.*
innom. 6-444 = *palustris* *Fisch.*

Nomaretus.

- cavicollis* 68-3.
debilis 34-399.
fissicollis 34-399.

Cychrus.

- bicarinatus* 34-399 = *Lecontei* *Dej.*
Brevoorti 6-443 (*Sphæroderus*), = race
 of *nitidicollis* *Chevr.*
constrictus 34-398 = *interruptus* *Mén.*
cordatus 34-399.
dilatatus 34-398 = *elevatus* *Fabr.*
Guyoti 87-363.
obliquus 92-61.
punctatus 65-69.
striatus 65-69.
Snowi 123-74.
violaceus 80-4 = var. of *viduus* *Dej.*

Promecognathus.

- crassus* 92-62.

Pasimachus.

- assimilis* 5-148 = *sublævis* *Beauv.*
corpulentus 62-15 = *californicus* *Chaud.*
costifer 40-79 = var. of *duplicatus* *Lec.*
duplicatus 34-395.
elongatus 5-147.
lævis 5-146 = *depressus* *Fabr.*
morio 5-145 = *depressus* *Fabr.*
obsoletus 5-148.
punctulatus † (nec Hald.), 5-146
 = *californicus* *Chaud.*
rugosus 5-149 = *sublævis* *Beauv.*
strenuus 99-267.
validus 62-14 = *californicus* *Chaud.*
viridans 63-61 = *mexicanus* *Gray.*

Scarites.

- affinis* 2-201 & 3-206 = *subterraneus* *Fab.*
californicus 14-198 = *subterraneus* *Fab.*
ephiatlus 2-201 & 3-205
 = *substriatus* *Hald.*
intermedius 2-201 & 3-205
 = *substriatus* *Hald.*
patruelis 2-201 & 3-207
 = *subterraneus* *Fabr.*

Dyschirius.

- æneolus* 8-204.
 analis 14-196.
apicalis † 8-204 = *nigripes* *Lec.*
aratus 14-196.
basalis 59-77.
brevispinus 112-593.
consobrinus 14-196.
converus 14-195 = *tridentatus* *Lec.*
dentiger 59-79 = *pumilus* *Dej.*
erythrocerus 59-78.
falciger 111-173 = *pumilus* *Dej.*
filiformis 59-78.
gibbipennis 59-77.
hispidus 80-4.
integer 14-196.
longulus 8-204.
marinus 14-195, (*Akephorus*).
moutanus 117-507.
nigripes 34-396, pro *apicalis* † *Lec.*
obesus 87-363.
parvus 8-204 = *globulosus* *Say.*
patruelis 14-196.
pilosus 59-80.
rufiventris 59-79 = *pumilus* *Dej.*
salivagans 106-169.
sellatus 59-78.
setosus 59-79.
terminatus 6-212.
tridentatus 14-195.
truncatus 59-78.
- Ardistomis.**
Schaumii 59-80.
- Clivina.**
confusa 14-198 = var. of *dentipes* *Dej.*
convexa 1-50.
ferrea 59-81.
georgiana 59-81 = var. of *dentipes* *Dej.*
impressifrons 1-50.
morula 59-81.
planicollis 59-81.
postica 6-213.
punctigera 59-81.
punctulata 14-198.
Randalli 59-81, pro *elongata* † *Randall,*
 = *fossor* *Linn.*
rubicunda 59-81.
rufa 59-81.
texana 80-4.

Schizogenius.

- crenulatus 14-197.
 depressus 14-197.
frontalis 6-215, (*Clivina*),
 = *amphibius* *Hald.*
 planulatus 80-5.
 pluripunctatus 14-197.
simplex 14-197 = pluripunctatus *Lec.*
sulcatus 6-214, (*Clivina*),
 = ferrugineus *Putz.*

Physea.

- hirta* 34-393. Mexican.

Brachinus.

- affinis* 6-204.
americanus 1-48, (*Aptinus*).
ballistarius 6-199.
cephalotes † (nec *Dej.*), 6-205
 = *perplexus* *Dej.*
conformis † (nec *Dej.*), 6-207
 = *cordicollis* *Dej.*
cordicollis † (nec *Dej.*), 6-206
 = *cyanipennis* *Say.*
cyanopterus 1-49 = *fumans* *Fabr.*
fidelis 78-524. †
kansanus 78-524.
Lecontei 1-49 = *perplexus* *Dej.*
neglectus 1-49 = *quadripennis* *Dej.*
ovipennis 78-525 = *perplexus* *Dej.*
patruelis 1-50 = *conformis* *Dej.*
perplexus † (nec *Dej.*), 6-203
 = *fumans* *Fabr.*
pumilio 6-208 = *minutus* *Harris.* ‡
rejectus 78-525 = *cyanipennis* *Say.*
similis 6-199 = var. of *fumans* *Fabr.*
strenuus 1-48 = *alternans* *Dej.*
sufflans 6-204 = *fumans* *Fabr.*
tenuicollis 1-49.
tormentarius 6-200.
velox 6-206 = *cordicollis* *Dej.*
viridis 1-49 = *perplexus* *Dej.*

Helluomorpha.

- ferruginea* 34-373.
texana 34-374.

Galerita.

- atripes* 63-59.
dubia 1-48 = *bicolor* *Drury.*

Zuphium.

- longicolle* 116-62.

Diaphorus.

- tenuicollis* 14-173.

Thalpius.

- rufulus* 14-174, (*Enaphorus*).

Ega.

- laetula* 14-173.

Eucærus.

- varicornis* 34-387.

Plochionus.

- valens* 80-5 = *pallens* *Fabr.*
vittatus 1-48 = *amandus* *Newm.*

Lebia.

- atriceps* 80-5.
concinna † 6-192 = *divisa* *Lec.*
conjungens 6-194 = *scapularis* *Dej.*
divisa 8-203. pro *concinna* † *Lec.*
furcata 6-193.
guttula 14-178.
lobulata 80-5.
mulicicornis 6-195 = race of *pumila*
Dej.
marginella † (nec *Dej.*), 79-5
 = *analis* *Dej.*
mœsta 8-203.
pleuritica 6-193.
ruficollis 14-178.
testacea 118-164 = race of *tricolor* *Say.*

Nemotarsus.

- elegans* 34-378.

Tetragonoderus.

- latipennis* 100-44.
undulata 80-6 = *fasciatus* *Hald.*

Perigona.

- pallipennis* 34-386, (*Trechicus*).
umbripennis 34-386, (*Trechicus*),
 = *nigriceps* *Dej.*

Dromius.

- atriceps* 118-163.
quadricollis 65-82 = var. of *piceus* *Dej.*

Apristus

- cordicollis* 6-190, (*Dromius*).
latens 6-191, (*Dromius*),
 = *subsulcatus* *D.j.*
laticollis 14-176.

† *B. glabripennis*, a list name in 62-28, is the same as *carinulatus* *Motsch.*

‡ *B. puncticollis*, mentioned but not described in 62-28, is synonymous with *Tschernikhii* *Motsch.*

Blechnus.

- angustus* || 6-191, (*Dromius*),
= *linearis* *Lec.*
linearis 14-177, (*Bomius*),
pro *angustus* *Lec.*
lucidus 14-177, (*Bomius*),
= *nigrinus* *Mann.*
pusio 80-6.

Axinopalpus.

- fusciceps* 14-175.
nigriceps 118-164 = *fusciceps* *Lec.*

Apenes.

- nebulosa* 87-364.
opaca 14-175.

Philophuga.

- amœna* 6-188, (*Cymindis*).
viridicollis 6-188, (*Cymindis*).

Cymindis.

- abstrusa* 65-82 = *eribricollis* *Dej.*
borealis 80-7.
cribrata 68-2.
cribricollis ‡ (nec *Dej.*), 6-186
= *planipennis* *Lec.*
elegans 6-186.
hudsonica 80-6 = *unicolor* *Kirby.*
planipennis 80-6.
reflexa 8-203 = *eribricollis* *Dej.*

Pinacodera.

- punctigera* 14-178, (*Cymindis*).

Callida.

- cyanoptera* 63-59.
planulata 63-59.
punctata 6-189.

Euproctus

- trivittatus* 111-373, (*Onota*).

Tecnophilus.

- nigricollis* 14-176, (*Philotecnus*).
ruficollis 14-176, (*Philotecnus*),
= *croceicollis* *Mén.*

Pentagonica.

- bicolor* 80-7, (*Rhombodera*), = var. of
flavipes *Lec.*
flavipes 34-377. (*Didetus*).
pallipes 79-6, (*Rhombodera*), err. typ.
pro *flavipes*.

Phlœoxena.

- collaris* 6-197, (*Coptodera*),
= *signata* *Dej.*

Coptodera.

- viridipennis* 6-196 = *terata* *Dej.*

Calathus.

- advena* 6-217, (*Pristodactyla*).
confusus 38-36 = *ingratus* *Dej.*
corvinus 6-217. (*Pristodactyla*),
= *impunctatus* *Say.*
distinguendus 1-53 = *gregarius* *Say.*
dubia 38-38, (*Pristodactyla*).
obscurus 38-37.
opaculus 38-37.
quadricollis 38-37.

Platynus.

- æneolus* 38-45.
agilis 79-6, pro *fragilis* || *Lec.*
americanus ‡ (nec *Laporte*), 6-356,
(*Stomis*), = *pusillus* *Lec.*
atratus 8-205.
basalis 6-227, (*Agonum*).
bicolor 38-43 = race of *brunneomarginatus*
Mann.
carbo 8-205.
caudatus 80-7.
chalconum 6-224, (*Agonum*),
= *cupreus* *Dej.*
cinctellus 38-43 = *brunneomarginatus*
Mann.
clemens 80-8.
consumilis 38-57 = *vicinus* *G & H.*
coracinus 6-220, (*Anchomenus*),
= *decens* *Say.*
corvus 69-319.
crassicollis 69-319
= a distorted *cupreus* *Dej.*
crenistriatus 80-9.
crenulatus 38-53
= *striatopunctatus* *Dej.*
deceptivus 115-53.
decepiens 6-229, (*Agonum*),
= *striatopunctatus* *Dej.*
dissectus 80-8.
elongatulus 6-222, (*Anchomenus*),
= *extensicollis* *Say.*
erasus 115-52.
floridanus 111-374.
fragilis || 38-41 = *agilis* *Lec.*
frater 38-49.
fraterculus 94-373.
funebrius 38-45 = race of *micans* *Mén.*
gemellus 115-54.
Hardyi 115-53.
Harrisii 6-225, (*Agon.*), = *affinis* *Kby.*

Platynus (continued).

jejunus 110-449.

lævis || 38-48 = *atratus Lec.*

larvalis 6-219, (*Rhadine*).

Lecontei 1-53, (*Anchomenus*),

= *extensicollis Say.*

lenum † (nec Dej.), 6-229, (*Agonum*),

= *picipennis Kirby.*

lutulentus 38-54.

marginatus || 6-221, (*Anchomenus*),

= *reflexus Lec.*

marginellus 69-315 = *bicolor Dej.*

metallescens 38-48.

molestus 85-346, pro *lævis* || *Lec.*

= *atratus Lec.*

nigriceps 6-229, (*Agonum*).

obscurus 6-223, (*Anchomenus*),

= *decorus Say.*

opaculus 80-8.

perforatus 80-9.

piceus || 6-226, (*Agonum*),

= *propinquus G. & H.*

piceolus 115-52.

piceicornis 69-319.

placidus † (nec Say), 6-227, (*Agonum*),

= *obsoletus Say.*

protractus 38-55 = *cupreus Dej.*

pusillus 38-39. (*Anchus*).

quadratus 38-50.

reflexus 115-55, pro *marginatus* || *Lec.*

retractus 6-228, (*Agonum*).

ruficornis 8-205.

simplex 38-46.

stigmatus 38-58 = *quadripunctatus Dej.*

stygius 38-42 = *maurus Motsch.*

subcordatus 38-51 = *errans Say.*

subsericeus 80-8 = var. of *cupripennis Say.*

tenuicollis 6-222, (*Anchomenus*).

tenuis 38-48.

texanus 111-374.

vagans 38-52 = *basalis Lec.*

variolatus 14-178.

viridis 6-222, (*Anchomenus*), = race of *extensicollis Say.*

Olisthopus.

micans 6-230.

Loxandrus.

brevicollis 6-338. (*Argutor*).

calathinus 111-376.

crenatus 17-253.

floridanus 111-376.

minor † (nec Chaud.), 6-338, (*Argutor*),
= *brevicollis Lec.*

nitidulus 6-339, (*Argutor*),

= *minor Chaud.*

picipentris 6-337, (*Argutor*), = var. of *velox Dej.*

pusillus 17-252 = var. of *velox Dej.*

rectangulus 111-377.

rectus † (nec Say), 6-338, (*Argutor*),

= *velox Dej.*

reflexus 111-376.

taniatus 17-252 = var. of *velox Dej.*

Evarthrus.

abdominalis 6-347. (*Molops*),

= *incisus Lec.*

acutus 17-231.

approximatus 6-354, (*Brosicus*).

Brevoorti 6-352, (*Pterostichus*),

= *spoliatus Newm.*

colossus 6-343, (*Molops*).

convivus 17-229 = *orbatus Newm.*

corax 6-347, (*Molops*), = *sodalis Lec.*

Engelmani 17-228.

fatuus 17-233 = *sodalis Lec.*

furtivus 17-234.

incisus 6-345, (*Molops*).

lævipennis 6-354, (*Brosicus*).

latebrosus 17-233 = *substriatus Lec.*

licus 6-346, (*Molops*), = *incisus Lec.*

nonnitens 95-318.

orbatus † (nec Newm.), 6-348,

(*Pterostichus*), = *sodalis Lec.*

ovipennis 6-345, (*Molops*),

= *constrictus Say.*

rotundatus 17-230.

Sallei 95-319.

seximpressus 6-350, (*Pterostichus*).

sodalis 6-349, (*Pterostichus*).

substriatus 6-344, (*Molops*).

torvus 80-9.

vagans 6-349, (*Pterostichus*),

= *Engelmanni Lec.*

vinctus 17-232.

Holciophorus.

serripes 106-169.

Pterostichus.

abjectus 17-243 = *luctuosus Dej.*

adjunctus 17-245 = *coracinus Newm.*

Pterostichus (continued).

- algidus* 17-238 = *validus* Dej.
atratus † (nec Newm.), 79-8
 = *corvus* Lec.
bicolor 6-232, (*Pæcilus*),
 = *lucublandus* Say teste Chaud.
californicus † (nec Dej.), 17-238
 = *vicinus* Mann.
contractus 14-182 = *castanipes* Mén.
corrusculus 95-314.
corvus 95-307.
crenicollis 95-311.
cursor 17-254, pro *cursorius* || Lec.
 = *occidentalis* Dej.
cursorius || 14-181, (*Pæcilus*),
 = *occidentalis* Dej.
cyanus 6-231, (*Pæcilus*).
desidiosus 80-11 = var. of *femoralis*
 Kirby.
dilatatus 6-232, (*Pæcilus*),
 = *lucublandus* Say.
flexibilis 17-245 = *coracinus* Newm.
gracilior 95-304.
grandiceps † (nec Chaud.), 6-336,
 (*Stereocerus*), = *rostratus* Newm.
Hornii 95-313.
hudsonicus 80-11.
illustris 14-182 = *congestus* Mén.
isabellæ 14-182.
lætulus 80-10.
linearis 17-239 = *angustus* Dej.
longicollis 17-239.
longulus 95-312.
lubricus 17-240.
lustrans 14-181. †
maneus 17-234, (*Evarthrus*). ‡
obesulus 95-307. *
occidentalis † (nec Dej.), 17-253,
 (*Pæcilus*), = *lætulus* Lec.
oregonus 72-339.
pennsylvanicus 95-314.
planetus 17-239.
protensus 80-12 = *relictus* Newm.
protractus 69-319.
purpuratus 17-242.
quadricollis 6-343, (*Abar*),
 = *parallelus* Duft.

- rejectus* 17-236.
scitulus 6-334, (*Pæcilus*).
sculptus 17-248.
scutellaris 95-312.
simplex 14-181 = *californicus* Dej.
sphodrinus 80-10. **.
splendidulus 80-10.
Spraguei 95-313.
subarcuatus 17-238 = *adoxus* Say.
subcordatus 14-181, (*Pæcilus*).
surgens 110-449.
sustensus 17-236 = *adoxus* Say.
tarsalis 95-311.
texanus 80-10.
tumescens 80-11.

Lophoglossus.

- gravis* 95-316.
Haldemanni 6-341, (*Lyperus*).
scrutator 6-342, (*Lyperus*).
strenuus 17-249.

Myas.

- foveatus* 6-355 = *cyanescens* Dej.

Amara.

- arenaria* 6-403, (*Geobænus*).
carinata 6-368, (*Curtonotus*).
conflata 49-352.
confusa 6-361.
contempta 6-367, (*Acrodon*),
 = *musculus* Say.
convexa 6-363 = *polita* Lec.
crassipina 49-352.
cylindrica 110-450.
depressa 6-365, (*Triana*),
 = *pallipes* Kirby.
difficilis 6-362 = *impuncticollis* Say.
diffinis 6-359, (*Percosia*).
elongata 8-207, (*Curtonotus*).
fallax 6-362.
fareta 49-353.
fortis 118-164.
gibba 6-360, (*Celia*).
harpalina 49-355.
hyperborea † (nec Dej.), 6-357,
 (*Isopleurus*), = *latior* Kirby.
inepta 49-351 = *erratica* Sturm.
infausta 49-347.
jacobina 49-346.

† *P. Macklini* is a manuscript name and synonymous with *vitreus* Dej.

‡ *P. mutator* and *muticus* = *californicus* Dej., are manuscript names.

Amara (continued).

- lacustris* 49-346 = *rufimanus Kirby*.
laticollis 6-368, (*Curtonotus*).
libera 49-349 = *latior Kirby*.
longula 49-350.
obtusa 49-348 = *hyperborea Dej*.
oregona 49-349 = *latior Kirby*.
polita 6-364.
rectangula 49-355.
septentrionalis 6-358, (*Isopleurus*).
stupida 49-347.
subænea 8-208, (*Acrodon*).
subpunctata 49-352.
terrestris 6-358, (*Isopleurus*).

Badister.

- anthracinus* 65-83.
elegans 118-165.
flavipes 34-388.
maculatus 34-387.
micans 1-52.
obtusus 112-594.
pulchellus 6-418.
reflexus 118-166.
terminalis 1-51 = *notatus Hald*.

Diplochila.

- assimilis* 1-51, (*Rembus*),
 = *laticollis Lec*.
laticollis 6-419, (*Rembus*).
major 6-418, (*Rembus*), = var. of *laticollis Lec*.
obtusa 6-420, (*Rembus*).
striatopunctata 1-50, (*Rembus*),
 = *impressicollis Dej*.

Dicælus.

- ambiguus* ‡ (nec *Ferté*), 6-428
 = *simplex Dej*.
confusus 6-424 = *purpuratus Bon*.
costatus 34-389.
crenatus 34-389.
decoloratus 6-423 = *splendidus Say*.
iricolor 6-426 = *purpuratus Bon*.
lævipennis 6-421.
obscurus 6-429 = *simplex Dej*.
opacus ‡ (nec *Ferté*), 6-429
 = *simplex Dej*.
ovalis 6-427.
planicollis 6-427.
quadratus 6-422.
reflexus 6-430 = *ambiguus Ferté*.
turbulentus 80-12 = *ambiguus Ferté*.

Chlænienus.

- amplus* 56-29 = var. of *tomentosus Say*.
apicalis † 14-179 = *ruficauda Chaud*.
atripennis 6-436 = *tricolor Dej*.
brevicollis 6-432 = *laticollis Say*.
brevilabris 6-437.
chlorophanus ‡ (nec *Dej*), 6-435
 = *leucoscelis Chev*.
congener 1-51 = *æstivus Say*.
consimilis 6-437 = *brevilabris Lec*.
cumatilis 14-179.
glaucus 56-28.
laticollis ‡ (nec *Say*), 6-433
 = *diffinis Chaud*.
monachus 14-180 = *leucoscelis Chev*.
nebraskensis 56-28.
obscurus 14-179 = *variabilipes Esch*.
obsoletus 14-180.
patruelis 1-51 = *herbaceus Chev*.
perviridis 6-434 = *sericeus Forst*.
posticus † 34-390 = *ruficauda Chaud*.
regularis 14-179 = var. of *sericeus Fst*.
sparsus 80-12 = *cursor Chev*.
vafer 21-66.

Oodes.

- elegans* 14-180.
fluvialis 80-13.
picipcs 1-52 = 14-striatus *Chaud*.
14-striatus ‡ (nec *Chaud*), 6-431
 = *Lecontei Chaud*.
texanus 80-13.

Oedenes.

- impressa* 34-392.

Zacotus.

- Matthewsii* 94-373.

Psydrus.

- picus* 5-154.

Nothopus.

- zabroides* 5-152, (*Euryderus*).

Polpochile.

- erro* 45-221, (*Melan*), = *capitatum Chd*.

Piosoma.

- alternatum* 80-13, (*Cratognathus*). **
setosum 6-375.

Agonoderus.

- dorsalis* 6-372 = *comma Fabr*.
maculatus 90-374.
micros 6-412, (*Acupalpus*).
rugicollis 65-83.
suturalis 6-373 = *infuscatus Dej*.

Discoderus.

- amœnus 80-14.
 impotens 62-14, (*Harpalus*).
 tenebrosus 6-391, (*Selenophorus*).

Anisodactylus.

- agricola* ‡ (nec Say), 6-379
 = *melanopus* Hald.
alternans 14-184 = *porosus* Motsch.
anaroides 14-184.
brvicollis 14-183 = *consobrinus* Lec.
chalcus 68-2 = *porosus* Motsch.
confusus 14-183 = *californicus* Dej.
consobrinus 14-183.
crassus 6-382 = var. of *rusticus* Say.
ellipticus 6-384 = *dulicollis* Ferté.
furvus 80-14.
gravidus 6-383 = var. of *rusticus* Say.
 Harrisii 80-14.
nigrita ‡ (nec Dej.), 6-379
 = *interpunctatus* Kirby.
obscurus 6-386 = *cœnus* Say.
obtusus 14-185, (*Dicheirus*).
opaculus 80-16, (*Gynandrotarsus*).
parallelus 14-184, (*Dicheirus*),
 = *piceus* Mén.
pinguis 6-382 = *rusticus* Say.
pitychrous 72-339.
punctulatus 80-14 = *nigerrimus* Dej.
rudis 80-15 = *porosus* Motsch.
rufipennis 6-381 = *carbonarius* Say.
semipunctatus 65-83.
similis 14-183 = *semipunctatus* Lec.
striatus 6-380 = *agricola* Say.
subaneus 6-385 = var. of *cœnus* Say.
viridescens 72-339 = *porosus* Motsch.

Spongopus.

- verticalis* 6-378.

Anisotarsus.

- flexilis* 80-16, (*Eurytrichus*).
nitidipennis 6-388, (*Eurytrichus*).
piceus 6-388, (*Eurytrichus*).

Stenomorphus.

- rufipes* 63-59.

Gynandropus.

- elongatus* 6-408.

Bradycellus.

- californicus* 60-29, (*Stenolophus*).
congener 6-407, (*Geobanus*).
cordicollis 6-406, (*Geobanus*).
linearis 80-16.

- lugubris* 6-405, (*Geobanus*),
 = *badiipennis* Hald.
nebulosus 34-385, pro *suturalis* || Lec.
neglectus 6-407, (*Geobanus*).
nigriceps 90-381.
nitens 63-60 = *cognatus* Gyll.
nubifer 63-60 = *congener* Lec.
quadricollis 6-405, (*Geobanus*),
 = *nigrinus* Dej.
rivalis 63-61.
ruficrus ‡ (nec Kirby), 6-405,
 (*Geobanus*), = *badiipennis* Hald.
suturalis † 6-411, (*Acupalpus*),
 = *nebulosus* Lec.
ventralis 63-61 = *congener* Lec.

Selenophorus.

- areus* 6-393 = *pedicularis* Dej.
excisus 111-377 = *fatuus* Lec.
fatuus 80-17, (*Harpalus*).
iripennis ‡ (nec Say), 6-389
 = *opalinus* Lec.
læsus 63-59, (*Harpalus*),
 = *palliatius* Fabr.
opalinus 79-13, (*Harpalus*),
 pro *iripennis* ‡ Lec., (nec Say).
planipennis 6-394 = *pedicularis* Dej.
subtinctus 87-365.
varicolor 6-392 = *iripennis* Say.
viridescens 6-392 = var. of *gagatinus*
 Dej.

Harpalus.

- adrena* 14-185 = *cantus* Dej.
alienus 117-508.
carbonatus 69-319.
clandestinus 110-450.
compar 6-395.
convivus 82-102.
cordatus 34-381, (*Cratognathus*).
desertus 68-3 = *ochropus* Kirby.
ellipsis 6-400.
fallax 68-2.
foveicollis 6-399.
fraternus 14-185.
funestus 6-402.
furtivus 82-103.
gravis 63-60.
impiger || 40-79 = *retractus* Lec.
innocuus 80-17.
laticeps 8-208.
Lewisii 82-103.

Harpalus (continued).

- longicollis* 6-396 = longior *Kirby*.
lucidus 82-104.
megacephalus 6-397.
montanus 82-102.
obesulus 14-185 = basilaris *Kirby*.
oblitus 68-2.
proximus 6-398 = herbivagus *Say*.
retractus 62-29, pro *impiger* || *Lec*.
rufimanus 6-402.
stupidus 68-3.
testaceus || 34-385, (*Pangus*).
vagans 82-102.
varicornis 6-401.
ventralis 6-399.
viduus 82-103.

Stenolophus.

- alternans* 34-386, pro *testaceus* || *Lec*.
anceps 60-28.
earus 80-18.
cineticollis 63-60.
convexicollis 6-409 = ochropezus *Say*.
flavilimbus 90-378.
flavipes 63-60.
fuscipennis 6-410 = fuliginosus *Dej*.
hydropicus 80-17.
limbalis 60-28.
rotundatus 80-17.
tener 60-29.
testaceus || 1-52, (*Badister*),
 = *alternans Lec*.

Pogonus.

- depressus* || 100-44 = planatus *Horn*.
parallelus || 100-44 = *Lecontei Horn*.

Patrobus.

- fulvatus* 94-374 = aterrimus *Dej*.
rufipes 80-18 = septentrionis *Dej*.
tenuis 8-207, (*Pterostichus*).
 = septentrionis *Dej*.
trochantericus 94-375
 = californicus *Motsch*.

Anophthalmus.

- angulatus* 80-18 = Menetriesii *Motsch*.

Trechus.

- fulvus* 6-415, (*Epaphius*),
 = chalybeus *Mann*.
lucigatus 79-14 = ovipennis *Motsch*.
micans 6-414, (*Epaphius*),
 = chalybeus *Mann*.

Anillus.

- debilis* 34-397.

Lymnæum.

- laticeps* 63-61.

Bembidium.

- acutifrons* 117-509.
æneicolle 6-459, (*Ochthedromus*).
anguliferum 14-185, (*Ochthedromus*).
approximatum 14-187, (*Ochthedromus*).
aptum 66-281.
aratum 14-189, (*Ochthedromus*).
areuatum 112-594.
axillare || 8-211, (*Ochthedromus*),
 = mutatum *G & H*.
basale 6-454, (*Ochthedromus*),
 = antiquum *Dej*.
bifossulatum 14-186, (*Ochthedromus*).
Bowditchii 110-451.
carinatum 14-186, (*Odontium*).
cautum 6-464, (*Ochthedromus*).
compar 57-5 = transversale *Dej*.
connivens 14-188, (*Ochthedromus*).
consentaneum 14-187, (*Ochthedromus*),
 = approximatum *Lec*.
constrictum 6-462.
cordatum 6-457, (*Ochthedromus*).
crurale 14-189, (*Ochthedromus*).
dilatatum 6-455, (*Ochthedromus*).
dubitans 14-189, (*Ochthedromus*).
dyschirinum 72-340.
ephippigerum 14-188, (*Ochthedromus*).
erasum 65-83.
fraternum 57-6.
frontale 6-462, (*Ochthedromus*),
 = assimile *Gyll*.
fugax 6-467, (*Ochthedromus*).
funereum 69-320.
gelidum 6-464, (*Ochthedromus*),
 = scopulinum *Kirby*.
grandicolle 14-189, (*Ochthedromus*).
incrementum 69-316.
insulatum 14-186, (*Ochthedromus*).
iridescens 14-191, (*Ochthedromus*).
lacustre 6-451 = var. of *paludosum*
Sturm.
laticolle || 14-187 = platyderum *G. & H*.
longulum 6-456, (*Ochthedromus*).
lucidum 6-466, (*Ochthedromus*).
lugubre 57-6.
Mæklini 79-14.

Bembidium (continued).

- Mannerheimii 14-190, (*Ochthed.*). †
 mixtum 79-14.
 morulum 80-19. **
 mundum 14-190, (*Ochthedromus*).
 nebraskense 80-19.
 nitens 8-211, (*Ochthedromus*),
 pro *picipes* † *Mann.*, (nec Kirby).
 obliquulum 65-83.
 obtusangulum 80-19.
 pedicellatum 57-6.
 perspicuum 6-466, (*Ochthedromus*).
 pictum 6-461, (*Ochthedromus*).
 planatum 6-456, (*Ochthedromus*).
 planipenne 8-211, (*Ochth.*), = *fugax Lec.*
 præinectum 117-509.
 purpurascens 6-454, (*Ochthedromus*),
 = *concolor Kirby*.
 quadrulum 72-340.
 rapidum 6-460, (*Ochthedromus*),
 = *intermedius Kirby*.
 recticollis 80-19.
 rubiginosum 117-508.
 salebratum 6-453, (*Ochthedromus*),
 = *concolor Kirby*.
 Scudleri 110-451.
 sexpunctatum 14-186, (*Ochthedromus*).
 simplex 79-14.
 stabile 117-508.
 striola 14-190.
 subæneum 6-457, (*Ochthedromus*),
 = *longulum Lec.*
 substrictum 6-465, (*Ochthedromus*),
 = *lucidum Lec.*
 sulcatum 6-463, (*Ochthedromus*).
 tessellatum 14-188, (*Ochthedromus*).
 tigrinum 117-509.
 timidum 6-460, (*Ochthedromus*).
 trechiforme 14-190, (*Ochthedromus*).
 trepidum 6-463 (*Ochth.*) = *sulcatum Lec.*
 umbratum 6-458, (*Ochthedromus*).
 versicolor 6-462, (*Ochthedromus*).
 versutum 112-594.
 vile 14-189, (*Ochthedromus*).
- Tachys.**
 ænescens 6-473, (*Blenus*).
 albipes 80-20.

- anceps 6-470.
 anthrax 14-192.
 audax 14-193.
 capax 80-20.
 corax 14-194.
 corruscus 6-472.
 dolosus 6-470.
 edax 14-194.
 incurvus † (nec Say), 6-469
 = *nebulosus Chaud.*
 marginellus 14-193 = *vittiger Lec.*
 mendax 6-469 = *ferrugineus Dej.*
 mordax 14-193.
 obesulus 14-192.
 occultus 6-470 = *granarius Dej.*
 pumilus † (nec Dej.), 79-15
 = *umbripennis Chaud.*
 rapax 14-192.
 scitulus 6-471.
 sequax 6-472.
 ventricosus 80-20.
 virgo 14-194.
 vittiger 14-193.
 vivax 6-468.
 vorax 14-194.

Pericompsus.

- lætulus 14-192.
 sellatus 14-191.

AMPHIZOIDÆ.**Amphizoa**

- insolens 27-228.

DYTISCIDÆ.**Haliplus.**

- borealis 8-212.
 concolor 14-201.
 cribrarius 8-212.
 longulus 79-15.
 nitens 8-212 = *cribrarius Lec.*
 tumidus 118-166.

Cnemidotus.

- callosus 14-201.
 edentulus 80-21.
 muticus 80-21.
 simplex 14-201 = ♀ *callosus Lec.*

Celina.

- grossula 80-22.

† *B. mimum* mentioned in the Gemminger and Harold Catalogue and synonymous with *versicolor Lec.*, is a manuscript name.

Hydroporus.

- acaroides 47-294.
 amandus 14-207.
 axillaris 26-32, pro *humeralis* || *Lec.*
 caliginosus 8-215.
 einctellus 14-206.
collaris || 47-297 = *stagnalis* *G. & H.*
 concinnus 47-297.
 congruus 110-452.
 conoideus 8-216.
 consimilis 8-214.
 difformis 47-298.
discoideus 47-299 = *patruelis* *Lec.*
dispar || 8-216 = *dissimilis* *G. & H.*
 12-lineatus 8-214.
 farctus 47-293.
 flavicollis 47-295.
 fortis 14-207.
 fraternus 14-209.
 granum 47-294.
hirtellus 14-208 = *subpubescens* *Lec.*
humeralis || 14-207 = *axillaris* *Lec.*
 hydropicus 14-205.
inconspicuus 47-294
 = *pulicarius* *Aubé*, (Sharp).
 laccophilinus 112-595.
 latebrosus 14-208.
 latissimus 14-205.
lineolatus || 47-296 = *vittipennis* *G. & H.*
luridipennis || 8-216 = *tenebrosus* *Lec.*
 lutescens 14-208.
lutulentus 47-292 = *tenebrosus* *Lec.*
macularis 14-206 = *affinis* *Say*, (Sharp).
 medialis 14-209.
 mellitus 47-299.
 mixtus 47-296.
 notabilis 8-216.
 nubilus 47-298.
obesus 87-365 = *rivalis* *Gyll.*, (Sharp).
obscurellus 14-206 = *affinis* *Say*, (Sharp).
 ovoideus 8-216.
patruelis 47-298.
puberulus 8-215 = *caliginosus* *Lec.*
pulcher 47-298 = *concinnus* *Lec.*
 pullus 47-294.
rotundatus 80-21 = *depressus* *Fabr.*,
 (Sharp).
scitulus 47-295 = *septentrionalis* *Gyll.*,
 (Sharp).
 sellatus 87-365.

- seminulum 111-377.
scmirufus || 47-296 = *dimidiatus* *G. & H.*
 sericeus 8-214.
 spurius 47-296.
 striatellus 14-207.
 subpubescens 14-208.
 subtilis 14-206.
 subtonsus 47-297.
 suturalis 8-216.
 tartaricus 8-215.
 tenebrosus 8-215.
 turbidus 47-298.
varians 8-215 = *tristis* *Payk.*
venustus 47-295 = *hybridus* *Aubé.*
 vilis 14-208.
 vitiosus 47-297.
 vittatus 47-296.

Hydrocanthus.

- nanulus 80-22.

Suphis.

- semipunctatus 112-595.

Colpius.

- inflatus 80-22.

Agabinus.

- morulus* 72-340, (*Agabus*),
 = *glabrellus* *Motsch.*

Cybister.

- ellipticus 14-202.
 explanatus 14-202.

Laccophilus.

- decipiens 14-205.
 gentilis 80-23.
 pumilio 112-596.

Acilius.

- latrusculus* 60-34 = *semisulcatus* *Aubé.*
simplex 14-202 = *semisulcatus* *Aubé.*

Thermonectes.

- laticinctus* 14-203, (*Acilius*), = var. of
basilaris *Harris.*
maculatus || 45-221, (*Acilius*),
 = *marmoratus* *Hope.*

Hydaticus.

- piceus 80-23.

Scutopterus.

- angustus 8-213, (*Agabus*).

Colymbetes.

- densus 66-282.
Drewseni 77-523
 = a distorted *grœnlandicus* *Aubé.*
 exaratus 77-522.

Colymbetes (continued).

- strigatus 14-203.
 strigosus 77-522,
 err. typ. pro strigatus *Lec.*

Cymatopterus.

- longulus 77-522, (*Colymbetes*).
 seminiger 77-522, (*Colymbetes*).

Dytiscus.

- diffinis* 8-212 = confluens *Say*, (Crotch).
marginicollis 2-201 & 3-209.
sublimbatus 60-34 = ? *Cordieri Aubé*.

Rhantus.

- sinuatus 77-522, (*Colymbetes*).
 tostus 87-366, (*Colymbetes*).

Ilybius.

- fraterculus 77-521, (*Colymbetes*).
 ignarus 77-521, (*Colymbetes*).
 laramæus 68-4. Dr. Sharp considers
 this distinct from *biguttulus Germ.*,
 where Crotch placed it.
pleuriticus 8-213. Synonymous with
confusus Aubé, according to Crotch.
 Dr. Sharp considers it distinct.
ungularis 77-521, (*Colymbetes*),
 = *ater De Geer*.

Coptotomus.

- difficilis* 14-204 = *interrogatus Fabr.*
 longulus 14-205.

Ilybiosoma.

- regulare 14-203, (*Ilybius*).

Agabus.

- clavatus 68-4.

Gaurodytes

- brevicollis 60-34, (*Agabus*).
 confertus 72-340, (*Agabus*).
discolor 14-204, (*Agabus*),
 = *Lecontei Crotch*.
discors 72-341, (*Agabus*).
fimbriatus 8-214, pro *reticulatus* || *Aubé*.
griseipennis 68-5, (*Agabus*).
leptapsis 112-596.
lineellus 72-340, (*Agabus*).
 longulus 112-596.
lugens 14-203, (*Agabus*).
morosus 14-204, (*Agabus*).
 nanus 110-452.
obliteratus 68-5, (*Agabus*).
obsoletus 62-15, (*Agabus*).
ovoideus 79-17, (*Agabus*),
 = *confinis Gyll*.

- parallelus* 8-213, (*Agabus*).
semivittatus 14-204, (*Agabus*).
pilotus 68-5, (*Agabus*).
subfasciatus 79-17, (*Agabus*),
 = *arcticus Payk*.

Anisomera.

- cordata 27-226.
 recta 94-375.

GYRINIDÆ.

Dineutes.

- angustus 111-378.
 carolinus 89-366.
integer 45-221 = *sublineatus Chev.*
 serrulatus 89-366.

Gyrinus.

- æneolus 89-368.
 aquiris 89-368.
Aubei 79-18 = *analisis Say*.
 confinis 89-368.
 consobrinus 14-209.
 dichrous 89-368.
 elevatus 89-368.
 gibber 89-370.
 lugens 89-369.
 maculiventris 89-368.
 pectoralis 89-370.
 pernitidus 89-369.
 plicifer 14-209.
 rockinghamensis 89-370.

Gyretes.

- compressus* 80-23 = *sinuatus Lec.*
 sinuatus 14-210.

HYDROPHILIDÆ.

Helophorus.

- alternatus* 72-341 = *angustulus Mann*.
 fortis 87-366.
 lacustris 8-217.
 linearis 50-357.
 nitidulus 50-357.
 oblongus 8-217.
 obscurus 14-210.
scaber 8-218 = *tuberculatus Gyll*.

Hydrochus.

- callosus 50-359.
 excavatus 50-360.
 inæqualis 50-359.
 simplex 50-361.
 squamifer 50-359.

Hydrochus (continued).

vagus 14-211.
variolatus 14-211.

Ochthebius.

attritus 111-380.
benefossus 111-381.
cribricollis 8-217.
discretus 111-379.
fossatus 50-362 = *nitidus Lec.*
foveicollis 111-381.
interruptus 14-210.
lævipennis 111-381.
lineatus 14-211.
nitidus 8-217.
puncticollis 14-210.
rectus 111-379.
sculptus 111-381.
simplex 111-380.
tuberculatus 111-380.

Epimetopus.

costatus 100-48, (*Sepidulum*).

Hydræna.

punctata 50-362.

Hydrophilus.

subsulcatus 45-221, (*Stethoxus*), = var.
of *triangularis Say*.

Tropisternus.

californicus 50-367, (*Hydrophilus*).
ellipticus 50-368, (*Hydrophilus*).
limbalis 50-367, (*Hydrophilus*).
mixtus 50-368, (*Hydrophilus*).
striolatus 50-368, (*Hydrophilus*).
sublævis 50-368, (*Hydrophilus*).

Hydrocharis.

glaucus 72-341.
lineatus 50-369 = a discolored glaucus
Lec.
substriatus 79-18, err. typ. pro *lineatus*
Lec. = glaucus *Lec.*

Berosus.

aculeatus 50-363.
altus 50-366.
exilis 14-211.
fraternus 50-364 = *striatus Say*.
infuscatus 50-365.
miles 50-363.
ordinatus 50-365 = *striatus Say*.
palescens 50-366 = *exiguus Say*.
pantherinus 50-364.
pugnax 80-24.

punctatissimus 14-211.

punctulatus 14-211 = *infuscatus Lec.*

subsignatus 50-364.

Laccobius.

ellipticus 50-363.

Chætarthria.

atra 80-24, (*Cyllidium*).
nigrella 72-342, (*Cyllidium*).
nigriceps 72-342 = *pallida Lec.*
pallida 72-342, (*Cyllidium*).

Philhydrus.

bifidus 50-371.
carinatus 50-370.
consors 80-24.
cristatus 50-370.
diffusus 50-371.
imbellis 72-341.
lacustris 50-369.
normatus 72-341.
pectoralis 50-370.
perplexus 50-371.
simplex 80-24 = *ochraceus Melsh.*

Hydrobius.

castaneus 112-597.
cuspidatus 112-597.
despectus 80-25.
digestus 50-373.
feminalis 112-597.
insculptus 50-372 = *fuscipes Linn.*
regularis 50-372 = *fuscipes Linn.*
seriatus 50-372 = *fuscipes Linn.*
saturalis 87-366, (*Limnebius*).
tumidus 50-372.

Cyclonotum.

cacti 50-373.

Cercyon.

capillatum 50-374.
pubescens 50-374.

Megasternum.

costatum 50-374.

Cryptopleurum

vagans 50-375.

HYDROSCAPHIDÆ.**Hydroscapha.**

natans 100-46.

LEPTINIDÆ.**Leptinus.**

americanus 87-367 = *testaceus Mull.*

TRICHOPTERYGIDÆ.

- Ptenidium.**
 foveicolle 80-63.
 lineatum 80-63.
- Ptilium.**
 canadense 80-62.
 fungi 80-62.
- Trichopteryx.**
 Haldemani 79-29,
 pro *rotundata* | Hald.
- Ptinellodes.**
testacea 80-62, (*Ptilium*),
 = *Lecontei* Matth.
- Pteryx.**
 balteata 80-62, (*Ptilium*).
 brunnea 80-62, (*Ptilium*).
- Ptinella.**
nigrovittis 80-63, (*Ptilium*),
 = ♀ *quercus* Lec.
 pini 80-62, (*Ptilium*).
 quercus 80-63, (*Ptilium*).

STAPHYLINIDÆ.

- Falagria.**
 cavipennis 87-372.
 cingulata 87-370.
 læviusecula 87-371.
 partita 87-371.
 quadriceps 87-371.
 scutellaris 87-370.
 vaga 87-371.
- Homalota.**
 opaca 80-28, (*Phytosus*).
- Tachyusa.**
 baltifera 80-29.
 cavicollis 80-29.
 gracillima 80-29.
 nigrella 80-29.
- Myrmedonia.**
 rudis 87-372.
- Atemeles.**
 cava 80-30.
- Euryusa.**
 obtusa 87-373.
- Homœusa.**
 expansa 87-373.
- Aleochara.**
 valida 62-16.
- Oligota.**
 pedalis 87-372.

- Hypocyptus.**
 nigritulus 117-510.
Ziegleri 80-30 = *longicornis* Payk.
- Anacyptus.**
 testaceus 80-30, (*Hypocyptus*).
- Trichopsenius.**
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- Xenistusa.**
 cavernosa 118-167.
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- Tachyporus.**
maculicollis 87-374 = *chrysomelinus* Ln.
maculipennis 87-374.
- Physetoporus.**
 grossulus 80-31, (*Coproporus*).
- Erchomus.**
 lævis 80-31, (*Coproporus*).
 punctipennis 80-31, (*Coproporus*).
- Conosoma.**
 Knoxii 87-374.
- Boletobius.**
gentilis 80-31 = *cinctus* Grav.
 longiceps 80-32.
rostratus || 80-32 = *quæsitör* Horn.
- Bryoporus.**
 flavipes 80-32.
rubidus 80-33 = *rufescens* Lec.
 rufescens 80-33.
testaceus 80-33 = *rufescens* Lec.
- Mycetoporus.**
 consors 80-34.
 flavicollis 80-33.
 lucidulus 80-33.
- Habrocerus.**
 magnus 112-598.
- Acylophorus.**
 densus 111-387.
 flavipes 111-387.
gilensis 80-34 = *pronus* Erich.
 pratensis 80-34.
- Heterothops.**
californicus 80-35 = *fumigatus* Lec.
 fumigatus 80-35.
fusculus 80-35 = *fumigatus* Lec.
 pusio 80-35.
- Quedius.**
 explanatus 63-61.
 ferox 111-388.
 vernix 111-389.

Thinopinus.

pictus 14-216.

Hadrotus.

extensus 72-342 = *crassus* Mann.

Trigonophorus.

subcæruleus 80-35.

Staphylinus.

badipes 80-36.

cæsareus † (nec Cederh.), 112-598
= *erythropterus* Linn.

carbonatus 80-36 = *badipes* Lec.

cicatricosus 80-37 = *prælongus* Mann.

comes 80-36.

luteipes 72-342.

ornaticauda 80-37 = *cæsareus* Cederh.

pleuralis 72-342.

saphyrinus 72-342.

submetallicus 72-342 = *tarsalis* Mann.

Philonthus.

confertus 80-40.

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dubius 80-39.

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terminalis 80-38.

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Xantholinus.

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Leptacinus.

brunnescens 118-169.

cephalicus 118-170.

flavipes 80-41.

longicollis 80-41.

nigritulus 118-169.

pallidus 118-169.

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Metaponcus.

floridanus 118-170.

Leptolinus.

grandiceps 80-42.

nigripennis 80-42.

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Lathrobium.

ambiguum 118-177.

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bicolor 118-175.

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concolor 80-44.

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pimerianum 80-45.

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Stilicus.

- biarmatus 118-178.
 opaculus 118-178.
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Scopæus.

- brunnipes 118-179.
 dentiger 118-179.
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 opacus 80-46, (*Echiaster*).

Liparocephalus.

- cordicollis 118-177.

Daenochilus.

- latus* 80-47 = *angularis* *Erich.*

Stilicopsis.

- monstrosus 80-48, (*Sunius*).

Pæderus.

- compotens 80-48.
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Pinophilus.

- densus 80-48.
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Palaminus.

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 cribratus 111-397.
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- chalybeus 80-49.
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Stenus.

- comma 80-50.
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Stictocranius.

- puncticeps 87-374.

Edaphus.

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Osorius.

- planifrons 109-215.
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Bledius.

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 annularis 80-53.
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Protinus.

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- Ceophyllus.**
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 = *formiceti Lec.*
- Eupsenius.**
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- Arthmius.**
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aculeatus ♂ 79-21 = *albionicus Aubé.*
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cristatus 9-96 = var. of *monstrosus Lec.*
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punctatus 9-97 = *Schaumii Aubé.*
scabriceps 9-98.
simplex 112-598.
spretus 9-100.
striatus 9-99 = *globosus Lec.*
- Rhexius.**
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bistriatus 111-382.
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- similis 118-186.

Faronus.

- isabellæ 14-215.
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SILPHIDÆ.**Necrophorus.**

- confossor* 36-20 = *pustulatus* *Hersch.*,
 var. *Melsheimeri* *Kirby*.
lunatus || 28-277 = *Sayi* *Lap*.
Melsheimeri † (nec *Kirby*), 28-275
 = *obscurus* *Kirby*.
pollinator 36-19 = var. of *vespilloides*
Herbst.

Silpha.

- bituberosa 68-6.

Pteroloma.

- tenuicornis 65-84, (*Necrophilus*).

Agyrtes.

- longulus 66-282, (*Necrophilus*).

Choleva.

- clavicornis 28-281, (*Catops*).
 terminans 8-218, (*Catops*).

Ptomaphagus.

- brachyderus 80-25, (*Catops*).
 californicus 28-281, (*Catops*).
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strigosus || 28-281, (*Catops*),
 = *consobrinus* *Lec*.

Hydnobius.

- curvidens* 117-511 = *substriatus* *Lec*.
latidens 117-512.

longidens 117-511 = *longulus* *Lec*.

longulus 117-511.

obtusus 117-511.

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substriatus 80-25.

Anogdus.

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Anisotoma.

assimilis 8-221.

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morula 66-282 = *curvata* *Mann*.

strigata 8-221.

Colenis.

impunctata 28-284.

Cyrtusa.

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picipennis 80-25, (*Amphicyllus*).

Liodes.

basalis 28-285.

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globosa 8-222, (*Cyrtusa*).

polita 28-285.

Agathidium.

difforme 8-222, (*Phalacrus*).

globatile 112-598 = *oniscoides* *Beauv*.

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politum 87-370.

pulchrum 28-286.

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ruficornis 8-222 = *exiguum* *Melsh*.

Clambus.

gibbulus 8-222, (*Sternuchus*).

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* *vulneratus* 117-512.

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grossus 80-26, (*Microstemma*).

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Soydmænus.

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angustus 24-151.

basalis 24-152.

bicolor || 24-154 = *Lecointei* *Schauf*.

capillosulus 24-152.

cautus 79-21.

clavatus 24-153.

consobrinus 24-154.

Scydmænus (continued).

- eribrarius 24-151.
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 flavitarsis 24-152.
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 magister 79-21, pro *Schaumii* || *Lec.*
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pilosicollis 8-218 = *clavipes* *Say.*
pyramidalis 80-27.
rasus 24-153.
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Schaumii || 24-151 = *magister* *Lec.*
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- impressa* 117-513.
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- corporosum* 24-150.

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- nitidus* 24-157.
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- marinus* 23-142.

Orthoperus.

- elongatus* 112-599.
glaber 23-142, (*Microsphara*).
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- marginicollis* 23-143.
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Sericoderus.

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Saonium.

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Cyparium.

- flavipes* 70-322.

Bæocera.

- apicalis* 70-323.

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Bonvouloiria.

- parviceps* 48-304, (*Lathridius*).

Stephostethus.

- liratus* 80-72, (*Lathridius*).

Lathridius.

- costicollis* 48-303 = *fulvipennis* *Mann.*
crenatus 48-304.
duplicatus 112-600.
laticollis 112-601.
maculatus 112-600.
opaculus 112-600.
reflexus 48-304 = *minutus* *Linn.*
sculptilis 48-303 = *carinatus* *Gyll.*
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Corticaria.

- angularis* 48-301.
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grata 48-301.
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herbivagans 48-302.
Kirbyi 48-300 = *deleta* *Mann.*
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- morsa 48-302.
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 pumila 48-302.
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 rugulosa 48-300 = pusilla *Mann.*
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DERMESTIDÆ.**Byturus.**

- grisescens 79-34.

Dermestes.

- elongatus 41-109 = bicolor *Fab.*
 fasciatus 41-107.
 Mannerheimii 41-107.
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 pulcher 41-108.
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 signatus 100-50 = var. of lardarius *Linn.*
 sobrinus 41-108.

Attagenus.

- dichrous 41-110 = megatoma *Fabr.*
 longulus 80-73, (*Dearthrus*).
 rufipennis 65-71.
 spurcus 41-109 = megatoma *Fabr.*

Perimegatoma.

- Belfragei 100-50, (*Trogoderma*).

Trogoderma.

- inclusa 41-110 = pallipes *Ziegl.*
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- balteatum 41-111.
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Anthrenus.

- flavipes 41-112.
 lepidus 41-112 = var. of scrophulariae
Linn.

Orphilus.

- subnitidus 72-344 = race of glabratus
Erich.

ENDOMYCHIDÆ.**Aphorista.**

- læta 32-358, (*Epipocus*).
 morosa 65-82, (*Mycetina*).

Epipocus.

- cinctus 32-358.
 discoidalis 32-358.
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- Melsheimeri 52-13.
 obscurus 52-13 = var. of Melsheimeri
Lec.
 pluriguttatus 52-13.
 pluripunctatus 52-13.

Triphyllus.

- elongatus 106-171.
 ruficornis 80-72 = humeralis *Kirby.*

Litargus.

- balteatus 52-14.
 infulatus 52-14 = balteatus *Lec.*
 nebulosus 52-15.
 tetraspilotos 52-14.
 transversus 52-14 = balteatus *Lec.*

Berginus.

- pumilus 80-72.

SPHINDIDÆ.**Sphindus.**

- americanus 80-104.

Odontosphindus.

- denticollis 112-601.

Eurysphindus.

- hirtus 112-602.

CIOIDÆ.**Cis.**

- dichrous 79-58.

EROTYLIDÆ.**Languria.**

- collaris 43-159.
 discoidea 43-160.
 læta 43-159.
 Latreillei 43-160 = gracilis *Newm.*
 pulchra 43-159 = angustata *Beauv.*
 tædata 43-160.

Dacne.

- picea 106-170.

Hypodacne.

punctata 106-171.

Cyrtotriplax.

atriventris 4-72, (*Triplax*).
ruficeps 4-72, (*Triplax*), } = vars. of
tæniata 4-73, (*Triplax*), } humeralis
vittata 4-72, (*Triplax*), } *Fabr.*

Triplax.

antica 72-358.
 californica 43-161.
confinis 43-162 = *flavicollis Lec.*
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convexus 80-71.

Emphylus.

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Cryptophagus.

debilis 63-64.
 difficilis 79-33.
hirtulus || 79-33, pro *pilosus* || *Lec.*
pilosus || 63-64 = *Lecontei Harold.*

Henoticus.

denticulatus 8-223, (*Paramecosoma*),
 = *serratus Gyll.*
inconspicuus 79-33, (*Paramecosoma*),
 = *serratus Gyll.*

Tomarus.

pulchellus 80-71.

Atomaria.

lætula 60-39.

Epistemus.

apicalis 80-72.

Telmatophilus.

americanus 80-70.

Loberus.

impressus 80-70.

Diplocælus.

brunneus 80-73.
 rudis 80-73, (*Marginus*).

Silvanus.

cognatus 39-77 = *planatus Germ.*
 imbellis 39-77.
 nitidulus 39-78.
 opaculus 39-78.
 rectus 39-78.

Nausibius.

repandus 87-379.

Psammæchus.

signatus 65-85, (*Pseudophanus*),
 = *Desjardinsii Guér.* †

CUCUJIDÆ.**Taphrosclidia.**

linearis 80-70, (*Catogenus*).

Pediacus.

planus 8-223, (*Silvanus*) = *fuscus Erich.*
subglaber 39-73 = *depressus Herbst.*

Lathropus.

vernalis 87-379. ‡

Læmophilæus.

adustus 39-74.
 angustulus 87-379.
bullatus 39-75 = ♂ *testaceus Fabr.*
 cephalotes 39-76.
 convexus 114-2.
geminatus 39-75 = *punctatus Lec.*
nitens 39-75 = *testaceus Fabr.*
puberulus 39-75 = *pusillus Sch.*
 punctatus 39-75.
Zimmermanni 39-75 = *testaceus Fabr.*

Nartheceus.

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Ino.

reclusa 118-186.

Dendrophagus.

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Brontes.

debilis 39-76.

Hemipeplus.

marginipennis 39-79.

LYCTIDÆ.**Lyctus.**

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Trogoxylon.

punctatum 80-104.

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costatum 63-63.

Synchita.

laticollis 80-66, (*Ditoma*).

† *Cryptamorpha musæ* Woll., is also a synonym, vide Abeille xiii.

‡ See Trans. Amer. Ent. Soc. ii, 257.

Synchita (continued).

nigripennis 80-67 = *fuliginosa* *Melsh.*
variegata 63-63.

Ditoma.

carinata 80-68, (*Eulachus*).
ornata 63-63.
sulcata 63-63.

Cozelus.

guttulatus 80-65.

Lasconotus.

complex 66-282.
laqueatus 87-378 = *pusillus* *Lec.*
pusillus 80-67.
simplex 87-378.

Aulonium.

æquicolle 65-84 = *parallelopipedum* *Say.*
longum 87-378.
tuberculatum 80-67.

Colydium.

nigripenne 80-67 = *lineola* *Say.*

Nematidium.

filiforme 80-68 = *mustela* *Pascoe.*

Oxylæmus.

americanus 80-68.

Sosylus.

costatus 80-68.

Penthelispa.

nitidus 80-69, (*Endectus*),
 = *reflexus* *Say.*

Pycnomerus.

sulcicollis 80-69.

Cerylon.

angustum 80-69 = *castaneum* *Say.*
simplex 60-39 = *castaneum* *Say.*

Philothermus.

glabriculus 80-69.

Myhocerus.

depressus 87-376, (*Murmidius*).

RHYSODIDÆ.**Rhysodes.**

hamatus 105-163.

Clinidium.

calcaratum 105-164.

MONOTOMIDÆ.**Monotoma.**

foveata 48-305 = *picipes* *Herbst.*
mucida 48-305.
parallela 48-305.
producta 48-305.

Phyconomus.

marinus 63-64, (*Monotoma*).

Hesperobænus.

rufipennis 63-64, (*Monotoma*),
 = *abbreviatus* *Motsch.*
rufipes 80-65.

Europs.

pallipennis 73-86, (*Nomophlæus*).

Bactridium.

striatum 63-65, (*Monotoma*).

TROGOSITIDÆ.**Nemosoma.**

cylindricum 80-65.

Trogosita.

acuta 63-63, (*Temnochila*), } = *virides-*
area 63-63, (*Temnochila*), } *cens* *Fabr.*
barbata 80-65, (*Temnochila*).

Tenebrioides.

sinuata 72-344, († *Trogosita*).

Nosodes.

serrata 65-84, (*Peltis*), = *scabra* *Thunb.*

NITIDULIDÆ.**Cercus.**

sericans 65-69.

Amartus.

rufipes 72-344.

Carpophilus.

apicalis 68-6 = *discoideus* *Lec.*
carbonatus 68-6 = *brachypterus* *Say.*
caudalis 65-70 = *discoideus* *Lec.*
discoideus 63-62.

Colastus.

limbatus 63-62 } = var. of *truncatus*
obliquus 63-62 } *Randall.*

Brachypeplus.

glaber 111-398.

Epuræa.

nubila 60-36 = *avara* *Randall.*

Nitidula.

humeralis 65-70 = var. of *ziezæ* *Say.*

Omosita.

inversa 60-36 = *discoidea* *Fabr.*

Soronia.

guttulatus 80-64, (*Lobiopa*).
setulosa || 80-63, (*Lobiopa*),
 = *undulata* *Say.*
Ulkei 87-376, (*Amphotis*).

Thalycra.

concolor 8-223, (*Amphicrossus*).

Meligethes.

mærens 60-37 = *rufimanus* *Lec.*
obsoletus 79-30 = *seminulum* *Lec.*
ruficornis || 68-6 = *mutatus* *Harold.*
rufimanus 60-37.
sævus 68-6.
seminulum 60-37.

Oxycnemis.

histrina 28-287, (*Psilopyga*).
nigripennis 80-64, (*Psilopyga*).

Cyllodes.

biplagiatus 87-377.

Cybocephalus.

nigritulus 80-64.

Tisiphone.

palmicola 111-399, (*Smicrips*),
 = *hypocoproides* *Reitter.*

Cryptarcha.

liturata 79-30 = *concinna* *Melsh.*

Ips.

cylindricus 80-64.

Pityophagus.

cephalotes 87-377.

Rhizophagus.

approximatus 87-378.
cylindricus 87-377.
remotus 87-378.

PHALACRIDÆ.**Phalaorus.**

dispar 117-513.
ovalis 53-15.
pumilio 53-16.
seriatus 53-15.
simplex 53-16.

Olibrus.

aquatilis 53-17.
nigricollis 91-50 = var. of *vittatus*
Lec.
obtusus 53-17.
pusillus 53-17.
rubens 53-16.
rufipes 53-16.
semistriatus 53-16.
striatulus 53-16.
vittatus 80-63 & 91-50.

Litochrus.

pulchellus 53-17.

COCCINELLIDÆ.**Hippodamia.**

ambigua 23-131.
mæsta 36-19 = var. of *Lecontei* *Muls.*
Mulsanti 23-131 = *5-signata* *Kirby.*
punctulata 23-131 = *ambigua* *Lec.*
spuria 72-358.

Coccinella.

barda 66-286 = var. of *trifasciata* *Linn.*
lacustris 23-131 = *monticola* *Muls.*
monticola † (nec. *Muls.*), 23-132
 = *prolongata* *Crotch.*
subversa 36-19 = var. of *trifasciata* *Lin.*

Adalia.

melanopleura 66-286, (*Coccinella*),
 = *frigida* *Sch.*

Anatis.

Rathvoni 23-132, (*Myzia*).

Psyllobora.

taxata 60-70 = var. of *20-maculata* *Say.*

Chilocorus.

fraternus 60-70 = *bivulnerus* *Muls.*

Exochomus.

Guexi 23-132 = *contristatus* *Muls.*
pleuralis 65-90, (*Chilocorus*),
 = *Pilatei* *Muls.*
texanus 63-88 = *Pilatei* *Muls.*

Pentilia.

marginata 111-400.
misella 111-400.
ovalis 111-400.

Oeneis.

pallida 111-400.
puncticollis 23-135 = *pusilla* *Lec.*
pusilla 23-135.

Brachyacantha.

quadrillum 63-89 = var. of *dentipes* *Fab.*
tau 68-28 = var. of *dentipes* *Fabr.*

Hyperaspis.

annexa 23-133.
Bolteri 118-186.
cincta 63-89 = *fimbriolata* *Melsh.*
consimilis 23-134 = *mærens* *Lec.*
cruenta 118-187.
discreta 118-187.
gemina 118-188.
jucunda 23-134 = *lugubris* *Randall.*
mærens 8-238, (*Oxynychus*).
oseulans 118-187.
postica 118-188.

Hyperaspis (continued).

- pratensis 23-134.
 punctata 118-188.
quadrivittata 23-133 = *annexa* Lec.
 tædata 118-187.
 tæniata 23-134.
 tristis 118-188.

Hyperaspidius.

- arcuata 23-133, (*Hyperaspis*).
 militaris 23-133, (*Hyperaspis*).
vittigera 23-133, (*Hyperaspis*),
 = *trimaculata* Linn.

Scymnus.

- abbreviatus 23-140.
 amabilis 23-135.
 balteatus 111-399.
caudalis 8-238 = *consobrinus* ♂ Lec.
 cinctus 23-137.
 consobrinus 23-139.
 debilis 23-137.
 femoralis 23-136.
 fraternus 23-138.
 guttulatus 23-136.
 hæmorrhous 23-138.
 lacustris 8-239.
 nanus 23-140.
 nebulosus 23-137.
 nigripennis 110-453.
 ornatus 8-239.
 pallens 23-137.
 puncticollis 23-139.
 punctum 23-141.
 quadritæniatus 111-400.
 socer 23-139.
suturalis || 23-138 = *Lecontei* Crotch.

Coccidula.

- lepida 23-132.

GEORYSSIDÆ.**Georyssus**.

- californicus 100-51.
 pusillus 19-44.

BYRRHIDÆ.**Simplocaria**.

- inflata* 92-62 = *simplicipes* Mann.
tessellata 8-224, (*Byrrhus*),
 = *metallica* Steph.

Pedilophorus.

- acuminatus* † (nec Mann.), 42-115
 = *oblongus* Lec.

- aneolus* 80-74.
oblongus 60-39.
subcanus 112-609.

Byrrhus.

- americanus* 8-224.
eximius 8-224.
geminatus 42-114.
 Kirbyi 42-114.

Syncalypta.

- albonotata* 72-344.
echinata 8-224.
grisca 117-514.

Limnichus.

- analis* 117-515.
 ater 42-117.
californicus 117-515.
lutrochinus 117-515.
montanus 117-514.
nebulosus 117-515.
nitidulus 42-117.
obscurus 42-116 = *ater* Lec.
olivaceus 42-116. Erroneously stated
 to be = *punctatus* Lec., 117-515.
ovatus 42-117.
punctatus 42-116.

Physemus.

- minutus* 42-117.

PSEPHENIDÆ.**Psephenus**.

- Lecontei* 19-42, (*Eurypalpus*).

PARNIDÆ.**Lara**.

- avara* 19-42.

Throscinus.

- Crotchii* 100-52.

Lutrochus.

- lutens* 19-42.

Pelonomus.

- obscurus* 19-42.

Helichus.

- æqualis* 40-81 = *suturalis* Lec.
basalis 19-43 = *fastigiatus* Say.
foreatus 19-43 = *striatus* Lec.
gilensis 19-43 = *suturalis* Lec.
productus 19-43.
striatus 19-43.
suturalis 19-43.

ELMIDÆ.

Elmis.

- bicarinatus 19-44, (*Stenelmis*).
 bivittatus 19-44.
 cæsus 100-53.
 concolor 123-75.
 corpulentus 100-52.
 divergens 100-52.
 elegans 19-43, (*Limnius*).
 fastiditus 8-217, (*Limnius*).
 foveatus 100-53.
 latiusculus 87-380.
 nitidulus 87-380.
 ovalis 80-74, (*Limnius*).
 pusillus 19-44, (*Stenelmis*).
 seriatus 100-52.
 sinuatus 19-44, (*Stenelmis*).
vulneratus 100-53 = glaber *Horn*.

HETERO CERIDÆ.

Heterocerus.

- gnatho 80-74.
 labratus 79-35.
labiatus 85-75, err. typ. pro labratus *Lec*.
 luteolus 80-75.

HISTERIDÆ.

Hololepta.

- cacti 14-162.
 populnea 14-163.
 vicina 14-163.

Hister.

- æquus 80-61.
 basalis 72-343.
 instratus 68-7.
 nubilus 68-7.
 perplexus 80-61.
 perpunctatus 118-190.
 planipes 18-39, pro *Harrisii* *J. E. Lec*.
 pollutus 68-7.
 punctiger 72-343.
 remotus 65-70.
 sellatus 60-35.
 semisculptus 80-60.
 sexstriatus 14-163.
 subopacus 80-60.
 tornatus 118-190.
 venustus 14-163.

Epiurus.

- decipiens* 14-164 = planulus *Erich*.
vicinus 14-164 = regularis *Beauv*.

Peploglyptus.

- Belfragei* 118-189.

Hetærius.

- Blanchardi* 112-609.
morsus 65-70.

Paromalus.

- consors* 14-164.
corticalis 14-163, (*Hister*),
 = tenellus *Erich*.
debilis 117-515.
gilensis 14-164.
opuntiae 14-164.
teres 112-609.

Anapleus.

- marginatus* 29-292, (*Bacanius*).

Saprinus.

- alienus* 14-167.
bigemmeus 14-169.
ciliatus 14-168.
cærulescens 14-169.
discoidalis 14-167.
estriatus 60-36.
fimbriatus 14-169.
gaudens 14-165, (*Pachylopus*).
infaustus 18-40, pro *piceus* *J. E. Lec*.
insertus 14-167.
interceptus 14-166 = rotundatus *Say*.
interstitialis 14-166.
laridus 14-168.
lubricus 14-169.
lucidulus 14-170.
obductus 14-168 = insertus *Lec*.
obscurus 14-166.
pæminosus 14-166.
parumpunctatus 68-7.
pectoralis 14-166.
permixtus 111-401.
plenus 14-169.
pratensis 68-8 = plenus *Lec*.
scissus 14-168.
seminifens 80-61.
serrulatus 14-165, (*Pachylopus*).
spurcus 68-7 = distinguendus *Mars*.
vestitus 14-168.
vinctus 14-168 = insertus *Lec*.
vitiosus 14-169.

Teretrius.

- obliquulus* 60-36.

Plegaderus.

- Erichsoni* 79-28 = Barbelini *Mars*.

Bacanius.

- misellus 29-292.
 punctiformis 29-288, (*Abræus*).
 tantillus 29-291.

Acritus.

- analis 29-290.
 atomus 29-291.
conformis 29-289 = var. of *strigosus* *Lcc.*
 discus 29-289.
 maritimus 14-170, (*Abræus*).
 salinus 111-402.
 strigosus 29-289.

Abræus.

- Bolteri 118-190.

Æletes.

- basalis 14-170, (*Abræus*).
 politus 29-290, (*Abræus*).

LUCANIDÆ.**Lucanus.**

- mazama 72-345, (*Dorcus*).

Dorcus.

- costatus* 87-380 = var. of *parallelus* *Say.*

Platycerus.

- Agassii 72-345.
cærulescens 72-345 = *oregonensis* *Ww.*
 depressus 8-224.

Ceruchus.

- punctatus 94-377.
 striatus 65-85.

SCARABÆIDÆ.**Canthon.**

- abrasus* 68-11 = *probus* *Germ.*
 cyanellus 68-11.
 depressipennis 68-11.
 indigaceus 87-380.
 perplexus 4-85.
 praticola 68-10.
 puncticollis 87-380.
 simplex 60-41.
 vigilans 62-16.

Copris.

- mæchus 45-222.
 remotus 87-381.

Phanæus.

- difformis 4-86.
torrens 4-85 = *triangularis* *Say.*

Aphodius.

- angularis* 8-225 = *hamatus* *Say.*
 anthracinus 110-455.

- bidens 110-453.
 brevicollis 110-455.
 consentaneus 8-225.
 cribratus 110-455.
 cruentatus 110-456.
 dentiger 63-65.
 duplex 110-454.
 explanatus 110-457.
 humeralis 110-459.
 hyperboreus 8-225.
 marginatus 110-456.
 militaris 63-65.
 obtusus 110-454.
 opacus 122-193.
omissus 8-225, pro *concauus* † *Hald.*,
 (nec *Say*), = *hyperboreus* *Lec.*
 pardalis 60-41.
 pectoralis 60-41.
 phœopterus 110-456.
 rubidus 60-41.
 rudis 110-458.
 scabriceps 110-457.
 sparsus 110-458.
 subæneus 60-41.
 subtruncatus 110-457.

Dialytes.

- cribrosus* 8-225, (*Rhyssemus*),
 = *striatulus* *Say.*

Atænius.

- cognatus* 63-65, (*Euparia*),
 = *stercorator* *Fabr.*
 puncticollis 63-66, (*Euparia*).

Rhyssemus.

- crelatus 123-77.
 sonatus 123-77.

Psammodius.

- crelatus 60-42, (*Ægialia*).

Ægialia.

- crassa 60-42.
 lacustris 8-225.
 latispina 112-611.
 rufa 112-610.
 spissipes 112-611.

Ochodæus.

- biarmatus 91-51.
complex 91-51 = *frontalis* *Lec.*
 duplex 91-51.
 frontalis 80-76.
opacus 91-51 = *musculus* *Say.*
 pectoralis 91-51.

Ochodæus (continued).

simplex 45-222.

sparsus 91-51.

striatus 45-222.

Hybosorus.*carolinus* 4-84 = Illigeri *Reiche*.**Pachyplectrus.***lævis* 100-54.**Bradycinetus.***serratus* 40-80, (*Athyrcus*).**Odontæus.***obesus* 66-282.**Geotrupes.***chalybæus* 111-402.*retusus* 87-382.**Pleocoma.***Behrensii* 101-83.*Edwardsii* 101-83.*fimbriata* 55-24.**Nicagus.***obscurus* 4-86, (*Ochodæus*).**Trox.***alternans* || 44-211 = sonore *Lec.**asper* 44-215, (*Omorgus*).*atrox* 44-214.*erinaceus* 44-212.*fascifer* 44-213.*integer* 44-216, (*Omorgus*),= punctatus *Germ.**laticollis* 44-213.*morsus* 44-216, (*Omorgus*),= punctatus *Germ.**punctatus* † (nec *Germ.*), 44-215,(*Omorgus*), = suberosus *Fabr.**pustulatus* 44-215, (*Omorgus*),= monachus *Herbst.**sonore* 44-211.*sordidus* 44-211.*suturalis* 44-214, (*Omorgus*),= scutellaris *Say.**tesselatus* 44-216, (*Omorgus*),= punctatus *Germ.**texanus* 44-314, (*Omorgus*),= scutellaris *Say.**umbonatus* 44-214, (*Omorgus*),= scutellaris *Say.***Amphicoma.***lupina* 51-288, (*Lichnanthe*).*Rathvoni* 80-76, (*Dasydera*).*ursina* 72-345, (*Dasydera*).**Podolasia.***ferruginea* 51-283, (*Lasiopus*).**Oncerus.***floralis* 51-284.**Hoplia.***callipyge* 51-285.*convexula* 51-285 = pubicollis *Lec.**debilis* || 51-285 = trivialis *Harold.**dispar* 118-192.*equina* 118-193.*hirta* 118-193.*irrorata* || 60-40 = pubicollis *Lec.**laticollis* 51-284.*limbata* 51-286.*oregona* 51-284 = pubicollis *Lec.**pubicollis* 51-285.*Sackeni* 118-192.**Dichelonycha.***fulgida* 51-280 & 60-39.*fuscula* 51-281.*pallens* 66-283.*pusilla* 51-282.*subvittata* 51-279.*sulcata* 51-281.*truncata* 51-281.*valida* 51-281 & 60-38.**Cænonycha.***rotundata* 51-281, (*Dichelonycha*).**Serica.***alternata* 51-276.*anthracina* 51-276 & 60-40.*atrátula* 51-274.*curvata* 51-276.*fimbriata* 51-275.*frontalis* 51-276.*mixta* 51-276.*robusta* || 51-276 = valida *Hur.**serotina* 51-275 & 60-40.*texana* 51-274.*tristis* 8-226.**Macroductylus.***setulosus* 51-277 = angustatus *Beauv.***Hypotrichia.***spissipes* 73-137.**Plectrodes.***Carpenteri* 107-516.**Orsonyx.***anxius* 51-266.**Diazus.***rudis* 68-10.

Diplotaxis.

- angularis 51-268.
 atratula 51-270.
 bidentata 51-271.
 brevicollis 51-267 & 60-38.
 brevidens 51-272.
 carbonata 51-270.
 consors 51-269.
 corvina 51-272.
 cribulosa 51-270.
 dubia 51-269.
 excavata 51-267.
 frontalis 51-268.
 Haydeni 51-272.
 innoxia 51-273.
 insignis 72-346.
 languida 111-403.
 mœrens 51-268.
 morula 51-270.
 obscura 68-9.
 pacata 51-272.
 puberula 80-76.
 punctata 51-270.
 punctipennis 51-270.
 subangulata 51-271 & 60-38.
 tenuis 51-271.
 texana 51-268.
 truncatula 51-269.

Alobus.

- fulvus 51-273.

Lachnosterna.

- æqualis 33-440, (*Tostegoptera*).
 affinis 51-252.
 anxius 8-226 = var. of fusca Fröhl.
 Burmeisteri 51-242.
 calceata 51-250.
 cephalica 51-245.
 cerasina 51-241.
 ciliata 51-253.
 congrua 51-243.
 consimilis 8-226 = var. of fusca Fröhl.
 corrosa 51-249.
 cribrosa 27-231, (*Tostegoptera*).
 debilis 51-262, (*Gynnis*).
 decidua 51-246.
 errans 66-283.
 fareta 51-238.
 frontalis 51-239.
 futilis 8-226.
 glabricula 51-260.

- glabripennis 51-260.
 hirticeps 51-255.
 inana 51-242.
 integra 51-258.
 latifrons 51-241.
 lugubris 51-248.
 lutescens 51-249.
 maculicollis 80-76.
 marginalis 51-250.
 nitida 51-256.
 nitidula 80-77.
 obesa 51-251 = crassissima Blanch.
 parvidens 51-259.
 prunina 51-251.
 robusta 51-257 = crassissima Blanch.
 rubiginosa 51-259.
 rufiola 51-256.
 semieribrata 51-247.
 serricornis 51-247.
 sororia 51-246 = rufiola Lcc.
 submucida 51-260.
 subtonsa 51-254.
 torta 51-239.
 ventricosa 33-440, (*Tostegoptera*).
 vilifrons 51-255.
 vulvula 51-235, (*Endrosa*).

Listrochelus.

- densicollis 80-77.
 falsus 51-264.
 fimbripes 51-264.
 mucoreus 51-263.
 obtusus 51-264.
 puberulus 80-78.
 scoparius 51-264.
 texanus 51-263 = mucoreus Lcc.

Polyphylla.

- cavifrons 45-222.
 erinita 51-230.
 Hammondi 51-228.
 subvittata 51-229 = Hammondi Lcc.

Thyce.

- squamicollis 51-232.

Phobetus.

- comatus 51-227 & 60-38.
 testaceus 72-346 = comatus Lcc.

Anomala.

- centralis 80-78.
 luteipennis 40-80.
 marginella 40-81 = var. of binotata Gyl.
 semilivida 111-403.

Rhombonyx.cavifrons 91-52, (*Anomala*).**Pelidnota.**

luæ 80-78.

lugubris 100-54.

Plusiotis.

gloriosa 45-221.

Cotalpa.

puncticollis 80-78. *

Polymæchus.

brevipes 55-24.

Cyclocephala.

hirta 72-346.

longula 80-79.

manca 87-382.

puberula 80-80.

robusta 80-79 = nigricollis *Burm.*

seditiosa 80-79.

Chalepus.

obsoletus 45-222.

Ligyus.morio 4-87, (*Bothynus*), } = vars. ofneglectus 4-87, (*Bothynus*), } gibbosusobsoletus 4-87, (*Bothynus*), } De Geer.

rugiceps 55-21.

ruginasus 55-20.

Aphonus.

clunalis 55-23.

frater 55-22 = tridentatus *Say.*

hydropicus 55-22.

pyriformis 4-88, (*Bothynus*).variolosus † 4-88, (*Bothynus*),= hydropicus *Lec.***Strategus.**

cessus 87-382.

Megasoma.

thersites 71-336.

Phileurus.

cribrosus 40-80.

illatus 40-80.

vitulus 80-80 = illatus *Lec.***Gymnetis.**

cretacea 80-80.

Glyciphana.californica 80-80, (*Euryomia*),= argyrosticta *Burm.* †**Euryomia.***Clarkii* 33-441, (*Eriirhipis*), = var. of
Kernii *Hald.*

fascifera 71-366.

Schottii 33-441, (*Eriirhipis*).**Cremastochilus.**

angularis 60-37.

erinitus 100-55.

Knochii 27-231.

nitens 27-232.

planatus 80-81.

retractus 100-54.

saucius 62-16.

Schaumii 27-231.

squamulosus 62-17.

Wheeleri 107-516.**BUPRESTIDÆ.****Hippomelas.**celatus 63-67, (*Chalcophora*). ‡obliteratus 63-66, (*Chalcophora*). ‡planicostatus 63-66, (*Chalcophora*). ‡sphenicus 40-83, (*Buprestis*). ‡**Chalcophora.**angulicollis 60-44, (*Buprestis*).

fortis 67-191.

georgiana 58-7, (*Buprestis*).

lacustris 67-190 = var. of virginiensis

*Drury.***Psiloptera.**valens 63-66 = *Woodhousei* *Lec.**Webbii* 63-66 = var. of *Drummondi* *Lap.**Woodhousei* 21-68, (*Dicerca*).**Dicerca.**asperata † (nec *L. & G.*), 67-199= *spretæ* *L. & G.**bifoveata* 67-202 = *tenebrosa* *Kirby.**caudata* 67-195 = var. of *divaricata* *Say.**crassicollis* 60-45 = *tenebrosa* *Kirby.**hilaris* 67-200 = *tuberculata* *L. & G.**lacustris* 67-202 = *lugubris* *Lec.**lepida* 58-7, (*Buprestis*).*lugubris* 67-200.*manca* 67-201 = *tuberculata* *L. & G.**mutica* 67-196.*pectorosa* 60-45.*prolongata* 67-194.*soror* 67-197 = *obscura* *Fabr.**spretæ* † (nec *L. & G.*), 67-198= *asperata* *L. & G.***Pæcilonota.**

debilis 67-204.

† An East Indian species.

‡ Subsequently placed in *Gyascutus*.

Buprestis.

- adicta* 36-17, (*Ancylochira*).
alternans 67-207, (*Ancylochira*),
 = Nuttalli Kirby.
Gibbsii 60-42, (*Ancylochira*).
laeviventris 60-43, (*Ancylochira*).
lauta 36-17, (*Ancylochira*),
 = aurulenta Linn.
radians 36-17, (*Ancylochira*),
 = aurulenta Linn.
6-plagiata 67-205, (*Ancylochira*),
 = ♂ fasciata Fabr.
subornata 67-208, (*Ancylochira*),
 = var. of maculiventris Say.
sulcicollis 67-209, (*Ancylochira*).
villosa 96-331, (*Ancylochira*). ♀

Xenorhipis.

- Brendeli* 87-384.

Melanophila.

- consputa* 60-44.
gentilis 79-42, pro *prasina* || *Lec.*
miranda 40-83, (*Phænops*).
opaca 67-213 = var. of *notata* L. & G.
prasina || 67-254 = *gentilis* *Lec.*

Anthaxia.

- deleta* 110-459.
expansa 60-44
foveicollis 67-215
imperfecta 67-215
retifera 67-215
strigata 65-71 & 67-45
subcenea 67-216 = *viridifrons* L. & G.
- } = *æneogaster*
L. & G.

Chrysobothris.

- aeuminata* 67-237.
æneola 67-239.
analisi 67-238 = 6-signata Say.
atريفasciata 96-332, pro *nigrofasciata* †
Lec., (nec L. & G.).
azurea 58-8.
basalis 63-68 = *atabalipa* L. & G.
californica 67-255.
carinipennis 110-459.
concinula 67-238
 = *chlorocephala* L. & G.
contigna 67-255.
cuprascens 67-234.
debilis 67-236.
deleta 67-255.

- disjuncta* 67-236 = var. of *debilis* *Lec.*
exesa 63-68.
gemmata 63-67.
misella 67-233 = *Lesueuri* L. & G.
nigrofasciata † (nec L. & G.), 67-240
 = *atروفasciata* *Lec.*
obscura 67-232 = var. of *femorata* *Fabr.*
octocola 63-67.
quadrilineata 67-233.
semisculpta 67-254 } = var. of *femo-*
soror 67-232 } *rata* *Fabr.*
texana 67-234.
Ulkei 67-240. * *
vulcanica 72-346.

Actenodes.

- bellu* 67-240 = *auronotata* L. & G.

Schizopus.

- laetus* 63-71.

Dystaxia.

- Murrayi* 87-385.

Thrincopyge.

- alacris* 62-17.
ambiens 40-83, (*Buprestis*).

Polycesta.

- californica* 60-45.
cavata 63-68 = var. of *californica* *Lec.*
elata 63-68 = var. of *californica* *Lec.*
obtusa 63-68 = *velasco* L. & G.

Acmæodera.

- acuta* 67-224.
amplicollis 87-383.
comata 63-70.
connexa 65-71.
croconata † 79-43, (nec L. & G.),
 = *flavostieta* *Horn.*
decipiens 87-383.
gibbula 63-69.
guttifera 65-72.
hæmorrhœa 63-69 = *stellaris* *Chevr.*
Hepburnii 67-254.
mixta 67-227
 = var. of *pulchella* *Herbst.*
opacula 63-69.
retifera 65-72 = *acuta* *Lec.*
semivittata 63-69 = *mima* L. & G.
subbalteata 80-82.
texana 67-234.
variegata 21-67.

Ptosima.

Walshii 80-81.

Chrysophana.placida 36-17 & 67-220, (*Ancylochira*).**Mastogenius.**subcyaneus 67-254, (*Haplostethus*).**Rhæboscelis.**

tenuis 80-82.

Agrilus.*cephalicus* 67-249= var. of *egenus* L. & G.*Couesii* 87-384.*cuneus* 87-384.*cupreolus* 67-248 = *politus* Say.*defectus* 67-244= var. of *otiosus* Say.*desertus* || 67-249= *solitarius* G. & H.*fulgens* 67-243.*gravis* 67-247 = *torpidus* Lec.*interruptus* 67-246.*lacustris* 67-250.*macer* 63-70.*muticus* 63-70.*obliquus* 67-243 = var. of *fulgens* Lec.*obolinus* 67-248.*plumbeus* 67-247.*puncticeps* 67-249= var. of *egenus* L. & G.*subfasciatus* || 67-245= *Lecontei* Saund.*torpidus* 67-247.*torquatus* 67-243.**Taphrocerus.***laevicollis* 111-403.**Brachys.***carbonata* 67-252.*laevicauda* 67-252= var. of *ornata* Weber.*lugubris* 67-251 = *tessellata* Fabr.**THROSCIDÆ.****Throscus.***parvulus* 79-44.*sericeus* 92-63.*validus* 92-63.**Pactopus.***Hornii* 92-64.**Drapetes.***rubricollis* 80-82.**ELATERIDÆ.****Cerophytum.***convexicolle* 87-388.**Stethon.***pectorosus* 87-386.**Dromæolus.***basalis* 87-387, (*Fornax*).*striatus* 20-47, (*Fornax*).**Fornax.***spretus* 20-48, (*Isarthrus*),= *calceatus* Say.**Entomophthalmus.***rufiolus* 87-387, (*Microrhagus*).**Microrhagus.***imperfectus* 20-48.*pectinatus* 87-387.*subsiniuatus* 20-48.**Nematodes.***penetrans* 20-47, (*Emathion*).*punctatus* 111-404.**Hypocælus.***canaliculatus* 20-46, (*Epiphanis*),= *frontosus* Say.*terminalis* 87-387.**Epiphanis.***cristatus* 20-46 = *cornutus* Esch.**Schizophilus.***simplex* 87-388, (*Nematodes*), **= *subrufus* Randall.**Anelastes.***Latreillei* 20-47 = var. of *Drurii* Kby.**Perothops.***Witticki* 60-45.**Agrypnus.***Sallei* 35-491.*Schottii* 35-492.**Adelocera.***brevicornis* 35-491.*cavicolitis* 65-86 = *profusa* Candz.*maculata* 87-389.*pyrsolepis* 87-389. ***rorulenta* 66-283.**Lacon.***curtus* 35-491, (*Adelocera*).*mucorea* 35-491, (*Adelocera*),= *murinus* Linn. European.**Chalcolepidius.***rubripennis* 71-336.*smaragdinus* 45-223.*Webbii* 45-223.

Alaus.

- gorgops* 62-35 = *fuscus* Hope.
melanops 80-83.

Cardiophorus.

- convexus* 35-498.
Dejeanii 35-497 = var. of *cardisee* Say.
erythropus † (nec Erich.), 35-497
 = *amicus* Melsh.
fenestratus 65-86.
fulvipes 65-73.
longior 72-347.
longulus 94-377, cr. typ. pro *longior* Lec.
obscurus 35-498.
robustus 35-499.
saturninus 35-497 = *erythropus* Erich.
tenebrosus 35-498.
tunidicollis 35-498.

Horistonotus.

- densus* 80-83.
inanus 35-499, (*Cardiophorus*).
simplex 80-83.
sufflatus 35-499, (*Cardiophorus*).
transfugus 35-500, (*Cardiophorus*).

Cryptohypnus.

- futilis* 35-488.
gentilis 87-389.
grandicollis 80-83.
inops 35-488 = *pectoralis* Say.
lacustris 35-486 = *bicolor* Esch.
ornatus 35-487.
picescens 35-486 = *bicolor* Esch.
planatus 80-84.
squalidus 35-487.
striatulus 35-488.
tumescens 35-486.

Oedostethus.

- femoralis* 35-489.

Drasterius.

- amabilis* 35-485, (*Monocrepidius*).
cornis 35-484, (*Monocrepidius*).
livens 35-484, (*Monocrepidius*).

Blauta.

- cauta* 35-473 = *cribraria* Germ.

Elater.

- anthracinus* 94-378.
cordifer 65-72.
deletus 35-469 = *mixtus* Herbst.
dimidiatus 72-347.
fuscus 35-468 = *mixtus* Herbst.
lacustris 35-468 = *pullus* Germ.

- læsus* 35-465.
luctuosus 35-466.
luteolus 35-471 = *pusio* Candz.
miniipennis 35-469.
mœrens 72-347.
molestus 35-467 = *luctuosus* Lec.
palans 35-469 = *collaris* Say.
protervus 35-471.
rhodopus 60-47.
Sayi 35-465 = *militaris* Harris.
socer 35-467.
vitiosus 35-465.

Megapenthes.

- angularis* 87-390.
caprellus 60-47, (*Elater*),
 = *stigmaeus* Lec.
stigmaeus 35-472, (*Elater*).
turbulentus 35-463, (*Elater*).

Anchastus.

- asper* 111-404.
bicarinatus 35-461, (*Brachycrepis*).
bicolor 87-390. * *
digitatus 35-459.
longulus 111-404 = ♂ *digitatus* Lec.
recedens 35-460 = *cinereipennis* Mann.

Monocrepidius.

- athodes* 80-84.
aversus 35-482.
blandulus 35-483.
debilis 111-405, (*Athous*).
lepidus 35-485.
sordidus 35-482.
suturalis 35-482.

Ischiodontus.

- ferrens* 35-462, (*Dicrepidius*).
fuscus 111-404, (*Anchastus*).
simplex 35-462, (*Dicrepidius*).

Ludius.

- tartareus* 65-85, (*Elater*).

Crignus.

- texanus* 35-454.

Agriotes.

- avulsus* 35-457, (*Dolopius*).
collaris 35-456, (*Dolop.*), = *fuscus* Lec.
ferrugineipennis 72-348, (*Dolopius*).
fuscus 35-456, (*Dolopius*).
limosus 35-457, (*Dolopius*).
opaeulus 65-85, (*Dolopius*).
sordidus 35-457, (*Dolopius*).
stabilis 35-457, (*Dolopius*).

Dolopius.

- macer 60-47, (*Agriotes*).
pauper 35-458 } = vars. of *lateralis*
subustus 35-458 } *Esch.*

Melanotus.

- cribulosus 35-479, (*Cratonychus*).
cuncatus 35-473, (*Cratonychus*),
 = *decumanus Erich.*
dubius 35-479, (*Cratonychus*).
emissus 35-478, (*Cratonychus*).
exuberans 35-477, (*Cratonychus*).
gradatus 87-390. * *
inæqualis 35-476, (*Cratonychus*),
 = *castanipes Payk.*
incertus 35-474, (*Cratonychus*),
 = *decumanus Erich.*
infaustus 35-478, (*Cratonychus*).
Leonardi 35-475, (*Cratonychus*).
longulus 35-473, (*Cratonychus*).
longulus 35-480, (*Cratonychus*).
 = *morosus Candz.*
macer 35-473, (*Cratonychus*).
opacicollis 87-390.
oregonensis 35-480, (*Cratonychus*).
sagittarius 35-480, (*Cratonychus*).
serobicollis 35-476, (*Cratonychus*).
secretus 35-474, (*Cratonychus*).
taenicollis 35-475, (*Cratonychus*).
trapezoideus 35-475, (*Cratonychus*).
variolatus 72-347.
verberans 35-478, (*Cratonychus*).

Limonius.

- æger 35-431.
anescens 35-431 = *confusus Lec.*
anceps 35-433.
aurifer 35-429.
canus 35-433.
confusus 35-430.
discoideus 72-348.
hispidus 35-432 = *californicus Mann.*
infernus 35-434 = *nimbatus Say.*
mirus 35-429.
nitidicollis 94-378 = *consimilis Walker.*
ornatipennis 80-84.
ornatulus 60-46.
pectoralis 87-391.
pilosus 35-432.
pubicollis 35-429 = *auripilis Say.*
semicneus 35-432 = *basillaris Say.*
subauratus 35-432.

Pityobius.

- anguinus 35-428.
Murrayi 72-347.

Athous

- bicolor 35-428.
 cribratus 107-516.
 equestris 35-426, (*Pedctes*).
 fossularis 35-426, (*Pedctes*).
 limbatus 87-391.
maculicollis 80-85 = *acanthus Say.*
 montanus 87-391.
reflexus 35-427 = *rufifrons Randall.*
 scissus 60-46.
 simplex 107-516.
 vittiger 35-427.

Paranomus.

- estriatus 35-434, (*Limonius*).
maculipennis 80-85, (*Eanus*),
 = *pictus Candz.*
vagus 35-434, (*Limonius*),
 = *costalis Payk.*

Nothodes.

- dubitans 35-433, (*Limonius*).

Sericosomus.

- debilis 65-72.
fusiformis 35-454, (*Atractopterus*),
 = *honestus Randall.*
incongruus 35-454, (*Atractopterus*).
umbraticus 35-505, (*Atractopterus*).

Corymbites.

- angularis 35-449.
 anthrax 72-349.
 aratus 35-438.
 carbo 35-439.
 colossus 72-348.
coniungens 35-440.
 crassus 35-440.
 cribratus 35-443.
cuprascens 35-444 = *tesselatus Linn.*
 divaricatus 35-446.
 falsificus 35-448.
festivus 60-46 = *cruciatus Linn.*
 fraternus 94-379.
furcifer 35-438 = *propola Lec.*
 furtivus 35-442.
fuseulus 79-48, pro *angustulus* || *Motsch.*
gracilior 79-49, pro *nubilipennis* || *Lcc.*,
 = var. of *umbripennis Lec.*
iaculus 35-447.
 insidiosus 35-448.

Corymbites (continued).

- lateralis* 35-439 = var. of *carbo* *Lec.*
maurus 35-444.
mendax 35-448.
mirificus 8-228 = *appressus* *Randall.*
morens 87-392.
morulus 80-85.
nitidulus 35-438 = *metallicus* *Payk.*
nubilipennis || 35-441
 = *umbripennis* *Lec.*
nubilus 35-438 = *propola* *Lec.*
obscurus 35-442.
ochreipennis 80-85.
opaeculus 87-392.
planulus 110-460.
propola 35-437.
protractus 65-85.
pulcher 35-440 = *cruciatus* *Linn.*
rubidipennis 35-437 = *medianus* *Germ.*
semiluteus 35-445 = *fallax* *Say.*
spinosus 35-447.
Suckleyi 60-46.
telum 35-445 = *caricinus* *Esch.*
teres 87-392.
trapezium 87-392.
trivittatus 35-443.
umbripennis 60-17.
vulneratus 80-86.

Asaphes.

- carbonatus* 69-320.
consentaneus 35-452 = *bilobatus* *Say.*
indistinctus 35-451.
morio 35-450.
oregonus 72-348.
planatus 35-453 = *bilobatus* *Say.*
soccifer 107-516.
tener 35-452 = *bilobatus* *Say.*
tumescens 72-348.

Melanactes.

- consors* 35-495.
densus 35-494.
procerus 35-493.
puncticollis 21-68, (*Pristilophus*).

Aphricus.

- californicus* 35-501.

Aplastus.

- convexicollis* 87-393. (*Anamesus*),
 = ♀ *optatus* *Lec.*
optatus 72-349.
speratus 65-73.

Plastocerus.

- frater* 65-73 & 87-393 = ♀ *Schaumii* *Lec.*
Schaumii 35-502.

Euthysanius.

- lautus* 35-503.
pretiosus 80-86.

Cebrio.

- confusus* 35-504 = *bicolor* *Fabr.*
mandibularis 80-87, (*Anachilus*).
simplex 35-503 = *bicolor* *Fabr.*

Scaptolenus.

- estriatus* 100-55.
femoralis ‡ (nec *Chevr.*), 35-504,
 = *Lecontei* *Sallé.*

RHIPICERIDÆ.**Zenoa.**

- vulnerata* 4-89 = *picea* *Beauv.*

Sandalus.

- californicus* 72-349.
porosus 91-52.

DASCYLLIDÆ.**Macropogon.**

- piceus* 72-349.

Stenocolus.

- scutellaris* 27-229.

Dascyllus.

- Davidsoni* 66-283.

Anorus.

- piceus* 65-87.

Aræopus.

- monachus* 100-57.

Brachypsectra.

- fulva* 100-56.

Eucinetus.

- infumatus* 31-356.
morio 31-357.
oviformis 80-88.
punctulatus 106-172.
strigosus 106-171.
terminalis 79-50. Described without
 name in 31-357.
testaceus 80-88.

Ectopria.

- tarsalis* 31-352 = *nervosa* *Mclsh.*
tibialis 31-352 = *nervosa* *Mclsh.*

Prionocyphon.

- limbatus* 80-87.

Microcara.

- explanata* 80-87, (*Hclodes*).

Scirtes.

- lateralis* 31-356 = *orbiculatus* Fabr.
ruficollis 91-53 = var. of *orbiculatus* Fabr.

Helodes.

- apicalis* 80-87.

Cyphon.

- bicolor* 31-355 (*Helodes*) = *collaris* Guér.
brevicollis 80-88, (*Helodes*).
concinus 31-353, (*Helodes*).
impessus 111-415.
modestus 31-355, (*Hel.*), } = *variabilis*
nebulosus 31-355, (*Hel.*), } Thunb.
pallipes 31-354, (*Hel.*) = *obscurus* Guér.
piceus 31-354, (*Helodes*), } = *variabilis*
punctatus 31-354, (*Hel.*), } Thunb.
pusillus 31-355, (*Hel.*), = *padi* Linn.
robustus 106-171.

Placonycha.

- Edwardsii* 100-57, (*Dicranopselaphus*).

LAMPYRIDÆ.

Lycus.

- eruentus* 71-336.

Lycostomus.

- fulvellus* 119-18. *

Calopteron.

- affine* 4-75, (*Dig.*), } = var. of *reticu-*
apicale 4-75, (*Dig.*), } *latum* Fabr.
megalopteron 72-349.
reticulatum ‡ (nec Fabr.), 4-76,
 (*Digrapha*), = *terminale* Say.
retiferum 119-20.
tricarinatum 119-21.

Cænia

- amplicornis* 119-22.

Celetes.

- basalis* 4-76.
mystacina 4-77 = *basalis* Lec.
tabida 4-77 = *basalis* Lec.

Eros

- investos* 4-78 = *humeralis* Fabr.
oblitus ‡ (nec Newm.), 4-78,
 = *humeralis* Fabr.

Plateros.

- æger* 4-80, (*Eros*), = *canaliculatus* Say.
luscivus 4-83, (*Eros*), = *sollicitus* Lec.
minutus 4-82, (*Eros*), = *floralis* Melsh.
mollis 4-81, (*Eros*), = *lietor* Newm.
socius 4-81, (*Eros*), = *canaliculatus* Say.
sollicitus 4-83, (*Eros*).

timidus 4-80, (*Eros*).

vilis 4-83, (*Eros*), = *lietor* Newm.

Lygistorus.

rubripennis 105-172, (*Dictyoptera*).

Calochromus.

- dimidiatus* 105-172, (*Dictyoptera*).
fervens 119-28. *
ruficollis 105-172, (*Dictyoptera*).
substriatus 4-74, (*Dictyoptera*),
 = *perfacetus* Say.

Matheteus.

Theveneti 100-59.

Lucidota.

- punctata* 13-333.
tarda 13-332 = var. of *atra* Fabr.

Ellychnia.

- facula* 36-17 & 60-48 = *californica* Mots.
flavicollis 91-53, (*Photinus*).
lacustris 13-334 = var. of *corrusca* Fabr.

Pyropyga.

- indicta* 119-32.
luteicollis 111-405, (*Lucidota*).
minuta 13-333, (*Ellychnia*).

Pyractomena.

- angustata* 13-336 (*Phot.*) = *lucifera* Mels.
ecostata 111-406, (*Photinus*).
flavocincta 13-336.
linearis 13-336, (*Phot.*) = *lucifera* Mels.
nitidiventris 111-406, (*Photinus*),
 = *ecostata* Lec.
punctiventris 111-407, (*Photinus*),
 = *lucifera* Melsh.

Photinus.

- ardens* 13-334.
benignus 119-35.
castus 13-335 = *marginellus* Lec.
collustrans 111-407.
consanguineus 13-335.
dimissus 119-35.
lineellus 13-335.
marginellus 13-335.
obscurellus 13-335 = *ardens* Lec.
punctulatus 13-335.
umbratus 111-407.
vittigera 13-336 = *consanguineus* Lec.

Phausis.

inaccensa 112-611.

Microphotus.

- angustus* 100-58.
dilatatus 80-90.

Pleotomus.

- Davisii* 119-37.
pallens 80-88.

Photuris.

- congener* 13-338 = *divisa* *Lec.*
divisa 13-337.
frontalis 13-337.

Pterotus.

- obscuripennis* 65-86.

Phengodes.

- frontalis* 119-39.
fusciceps 73-186.
laticollis 119-39. *
Sallei 119-39.

Zarhipis.

- integripennis* 100-59, (*Phengodes*).
piciventris 119-39.
ruficollis 119-39.

Mastinocerus.

- texanus* 100-59.

Cenophengus.

- debilis* 119-41.

Chauliognathus.

- basalis* 68-13.
discus 27-230.
fasciatus 119-44.
Hentzi 13-338 = var. of *marginatus*
Fabr.
limbicollis 63-71.
opacus 80-90.
profundus 63-71.
scutellaris 27-231.

Omethes.

- marginatus* 80-90. †

Podabrus.

- binotatus* 119-47.
Bolteri 119-49.
brevipennis 110-466.
cavicollis 13-345.
einetipennis 80-91.
comes 13-344.
corneus 72-350.
discoideus 13-344 = *basilaris* *Say.*
extremus 119-48.
Fayi 80-91 = *protensus* *Lec.*
fissus 119-46.

flavicollis 13-343 = *basilaris* *Say.*
frater 13-344.

gradatus 69-320 = *comes* *Lec.*

lateralis 107-517.

limbellus 119-47.

lutosus 119-48.

macer 72-350.

marginellus 8-229 = *puncticollis* *Kirby.*

mellifluus 72-350 = *latimanus* *Motsch.*

mellitus 119-49.

nothoides 119-46.

Pattoni 87-394.

poricollis 20-49 = *brunnicollis* *Fabr.*

protensus 80-91.

pruinus 13-344 = *tomentosus* *Say.*

puberulus 8-229.

punctatus 8-229.

puncticollis † 13-345

= *brunnicollis* *Fabr.* ‡

quadratus 119-46.

rugulosus 8-229.

scaber 72-350.

tejonius 65-74.

torquatus 72-350 = *comes* *Lec.*

xanthoderus 119-48.

Telephorus.

alticola 119-54.

brevicollis 13-341 = *tuberculatus* *Lec.*

cinctellus 13-341 = *luteicollis* *Germ.*

collaris 13-340 = *tuberculatus* *Lec.*

consors 13-340.

cruralis 13-342.

dentiger 13-341.

dichrous 13-341, doubtfully distinct
 from *flavipes* *Lec.*

divisus 13-340.

excavatus 13-342.

fidelis 13-340.

flavipes 13-341.

grandicollis 13-340.

imbecillus 13-342 = *scitulus* *Say.*

impar 119-53.

impressus 13-340 = *tuberculatus* *Lec.*

ingenuus 119-55.

larvalis 60-48 = *notatus* *Mann.*

lautus 13-340.

† I leave this here where it was originally placed. Dr. LeConte says (119-42),
 "it is not a *Lampyride*, but where it may be suitably placed I do not know."
 ‡ *P. punctulatus*, a list name in 68-44, is the same as *basilaris* *Say.*

Telephorus (continued).

- longulus 13-343.
marginellus 13-342.
marginellus || 119-51
= var. of excavatus *Lec.*
nanulus 119-52.
nigriceps 8-230 = scitulus *Say.*
nigrita 8-229 = fraxini *Say.*
nigritulus 119-52.
ochropus 119-54.
oregonus 80-92.
oriflavus 98-273 = rectus *Melsh.*
pusillus 13-343 = rectus *Melsh.*
pusio || 119-51 = tantillus *Lec.*
ruficollis 119-53.
Sayi 13-342 = lineola *Lec.*
scopus 80-92 = oregonus *Lec.*
tantillus 119-69, pro *pusio* || *Lec.*
tibialis || 13-340 = consors *Lec.*
tuberculatus 13-341.
vilis 13-343.
Walshii 119-51.

Polemius.

- incisus 13-339 = laticornis *Say.*
limbatus 13-339.
planicollis || 62-17, (*Telephorus*),
= platyderus *Gemm.*
repandus 119-55 = undulatus *Lec.*
undulatus 13-341, (*Telephorus*).

Silis.

- cava 100-61.
curtus 8-231, (*Podab.*), = percomis *Say.*
difficilis 8-230.
filigera 100-62.
flavida 100-61.
longicornis 8-230 = percomis *Say.*
lutea 26-78, pro *pallens* || *Lec.* ‡
munita 119-56.
pallens || 13-339 = lutea *Lec.*
perforata 119-57.
spathulata 119-57.
spinigera 100-61.
vulnerata 100-61.

Ditemnus.

- fossiger 119-58.
obtusus 100-62.

Lobetus.

- abdominalis 13-347, (*Malthinus*).

Malthinus.

- atripennis 119-60.
difficilis 13-345 = occipitalis *Lec.*
occipitalis 13-345.
Malthodes.
nalis 119-62.
arcifer 119-62.
captiosus 119-61.
conceavus 13-346, (*Malthinus*).
congruus 119-62.
curvatus 119-61.
fragilis 13-346, (*Malthinus*).
fuliginosus 80-93.
furcifer 119-62.
fuscus 13-346, (*Malthinus*).
laticollis 79-53.
niger 13-346, (*Malthinus*).
parvulus 13-346, (*Malthinus*).
quadricollis 119-63.
rectus 119-61.
spado 80-93.
transversus 13-346, (*Malthinus*),
= fragilis *Lec.*
transversus 72-351 = laticollis *Lec.*

MALACHIDÆ.**Collops.**

- balteatus 27-230.
confluens 25-164.
cribrosus 25-164.
hirtellus 107-517.
insulatus 80-94.
limbatus || 80-94 = limbellus *G. & H.*
marginellus 25-164.
marginicollis 25-164.
punctatus 25-164.
punctulatus 25-165.
reflexus 107-517.

Endeodes.

- abdominalis 25-168, (*Atelestus*).
basalis 25-168, (*Atelestus*).
collaris 25-168, (*Atelestus*).

Chætocœlus.

- setosus 118-194.

Malachius.

- auritus 25-165.
mirandus 65-75, (*Hapalorhinus*).
montanus 107-517.

‡ The reference Journ. Acad. Nat. Sci. Phila. 2d, vol. 5, p. 333, is erroneous.

Tanaops.

- abdominalis 65-74.
 laticeps 25-168, (*Microlipus*).
 longiceps 25-165, (*Malachius*).
 mœrens 66-283, (*Charopus*).

Anthocomus.

- Erichsoni 25-165.
 lateralis 25-165 = Erichsoni *Lec.*
 rufifrons 25-165.

Pseudebæus.

- bicolor 25-167, (*Ebæus*).
 oblitus 25-167, (*Ebæus*).
 obscurus 117-515.

Attalus.

- basalis 25-166, (*Anthocomus*).
 cinctus 25-166, (*Anthocomus*).
 difficilis 25-166, (*Anthocomus*).
 humeralis 80-94.
 lobatus || 25-166, (*Anthocomus*),
 = lobulatus *Lec.*
 lobulatus 79-154, pro *lobatus* || *Lec.*
 morulus 25-167, (*Ebæus*).
 nigrellus 25-167, (*Acletus*).
 submarginatus 25-167, (*Ebæus*).
 Genus doubtful.

Pristoscelis.

- ænescens 25-170, (*Dasytes*).
 atricornis 86-352.
 brevicornis 25-169, (*Dasytes*).
 brevipilosus 86-353.
 comatus 123-77.
 conformis 25-169, (*Dasytes*).
 convergens 86-352.
 cruralis 86-355.
 erythropus 25-171, (*Dasytes*).
 fuscus 25-169, (*Dasytes*).
 grandiceps 86-355.
 griseus | 25-169, (*Dasytes*),
 = antennatus *Motsch.*
 hirtellus 86-353.
 oregonensis 86-351.
 pedalis 86-355.
 punctipennis 86-355.
 quadricollis 65-75, (*Dasytes*).
 rufipennis 63-71, (*Dasytes*).
 serricollis 86-356.
 serrulatus 86-356.
 sordidus 25-169, (*Dasytes*).
 squalidus 25-169, (*Dasytes*).
 suturalis 25-169, (*Dasytes*).

- tejonicus 86-354.
 texanus 86-355.
 umbratus 86-352.

Listrus.

- canescens ‡ (nec Mann.), 25-170,
 (*Dasytes*), = *Motschulskii Lec.*
 difficilis 25-170, (*Dasytes*).
 interruptus 86-357.
 luteipes 25-170, (*Dasytes*).
Motschulskii 86-357.
 obscurellus 25-170, (*Dasytes*).
 rotundicollis 25-170, (*Dasytes*).
 senilis 25-170, (*Dasytes*).

Eschatocrepis.

- constrictus 25-170, (*Dasytes*).

Allonyx.

- plumbeus 86-359.
 sculptilis 65-75, (*Dasytes*).

Dasytes.

- hudsonicus 86-360.
 pusillus 25-170.
 seminudus 86-360.

Melyris.

- atra 110-461.
 basalis 25-171, (*Dasytes*).
 cribrata 25-171, (*Dasytes*).
 flavipes 110-461.

Rhadalus.

- testaceus 14-212.

CLERIDÆ.**Cymatodera.**

- balteata* 40-81 = *undulata Say*.
cancellata 40-81 = *brunnea Mels.*
fascifera 80-95.
fuscula 14-212.
longicornis 7-16.
morosa 63-71.
ovipennis 65-76.
pilosella 80-95 = *ovipennis Lec.*
punctata 14-212.
tencra 7-14 = *inornata Say*.
usta 63-71 = *cylindricollis Chev.*

Trichodes.

- bibalteatus 62-18.
 bimaculatus 100-63.
tenellus 63-72 = var. of *ornatus Say*.

Clerus.

- abruptus 63-72.
affiliatus 63-72 = *quadrisignatus Say*.

Clerus (continued).

- analis 7-20.
angustus 7-21 = *rosmarus Say.*
cordifer 7-21.
incertus 79-55 = *nigripes Say.*
latecinctus 63-72 = *quadrisingnatus Say.*
nigriventris 72-351, (*Thanasimus*).
ornaticollis 118-191, (*Cleronomus*),
 = *thoracicus Oliv.*
rubriventris 72-351, (*Thanasimus*),
 = var. of *dubius Fabr.*
rufescens 14-212 = *quadrisingnatus Say.*
Spinolæ 27-230.
tantillus 80-96.
truncatus 7-23 = *mæstus Klug.*

Hydnocera.

- bicolor* 14-213.
cyanescens 7-28) = var. of *humeralis*
difficilis 7-27) *Say.*
discoidea 14-213.
hamata 107-517.
pedalis 80-97.
pubescens 7-28.
scabra 14-213.
Schusteri 80-97.
subfasciata 80-97.
tabida 7-29.
tricondyle 7-26.

Chariessa.

- dichroa* 60-48, (*Enoplium*).

Cregya.

- fasciata* 14-214, (*Enoplium*).
mixta 80-98 = *oculata Say.*

Enoplium.

- scabripenne* 80-98.

Lebasiella.

- discoidea* 123-77.
janthina 80-99.
maculicollis 100-63.
nigripennis 80-99 = *pallipes Klug.*

Laricobius.

- rubidus* 80-99.

LYMEXYLIDÆ.**Micromalthus.**

- debilis* 112-613.

CUPESIDÆ.**Priacma.**

- serrata* 72-351, (*Cupes*).

Cupes.

- lobiceps* 102-88.

PTINIDÆ.**Trigonogenius.**

- faretus* 80-100.

Niptus.

- ventriculus* 68-13.

Ptinus.

- interruptus* 60-48.
verticalis 65-76.

Hedobia.

- granosa* 102-63.

Ernobius.

- alutaceus* 72-352, (*Philoxylon*).
debilis 84-225.
filicornis 117-517.
gracilis 117-516.
granulatus 84-225.
luteipennis 117-516.
marginicollis 65-87, (*Anobium*).
punctulatus 66-284, (*Anobium*).
tenuicornis 84-225.
tristis 117-516.

Ozognathus.

- cornutus* 65-87, (*Anobium*).
floridanus 111-408.
misellus 84-226.

Xestobium.

- affine* 100-63.
squalidum 100-64.

Gastrallus.

- marginipennis* 117-517.

Oligomerus.

- alternans* 84-228.
obtusus 84-228.
thoracicus 73-205 = *sericans Melsh.*

Ctenobium.

- antennatum* 84-230.

Ptinodes.

- setifer* 63-73, (*Anobium*).

Hadrobregmus.

- gibbicollis* 66-284, (*Anobium*).
linearis 84-232.
pumilus 84-232.

Anobium.

- quadrulum* 65-87.

Trypoptys.

- punctatus* 68-13.

Theca.

- profunda* 84-235.

Eupactus.

- nitidus* 84-236.
punctulatus 84-236.

Xyletinus.

- fucatus 84-238.
 lugubris 112-612.
 mucoreus 84-237.
 pallidus 84-238.
 pubescens 112-613.

Vrilletta.

- convexa 100-65.
 expansa 100-64.
 Murrayi 100-64.

Lasioderma.

- dermestinum 84-238.

Catorama.

- frontalis 111-410.
 holosericea 111-409.
 minuta 111-409.
 obsoleta 111-410.
 punctulata 111-409.
 sectans 111-410.
 simplex 84-239.

Hemiptychus.

- abbreviatus 111-408.
 auctus 111-409.
 borealis 84-240.
 debilis 111-408.
 gravis 63-72, (*Dorcatoma*).
 nigrutilus 84-241.
 obsoletus 84-240.
 punctatus 84-240.
 pusillus 63-72, (*Dorcatoma*).
 similis 111-408.
 ventralis 84-240.

Protheca.

- hispida 84-241.
 puberula 84-241.

Dorcatoma.

- granum 111-411.
 incomptum 84-243.
 pallicornis 98-274.
 setulosum 84-242.
 tristriatum 111-411.

Byrrhodes.

- setosus 111-413.

Cænocara.

- californica 111-412.
 intermedia 111-411.

- lateralis 111-411.
 scymnoides 84-244.

Ptilinus.

- basalis 63-73.

Euceratocerus.

- Hornii 100-65.

Sinoxylon.

- asperum* 63-73 = *sericans Lec.*
 declive 60-48.
 quadrispinosum 80-100.
 sericans 63-73.
 sextuberculatum 63-73.

Bostrichus.

- armiger 80-100.
 truncaticollis 80-101.

Amphicerus.

- fortis 80-101.
 punctipennis 63-73, (*Apate*).

Dinoderus.

- eribratus 80-102.
 densus 80-102.
 porcatus 80-101.

Polycaon.

- confertus 80-103.
 exesus 63-74, (*Exops*).
incisus 92-64, (*Exopioides*),
 = *confertus Lec.*
 obliquus 100-66.
ovicollis 60-49, (*Exops*), = *Stoutii Lec.*
 plicatus 100-65.
pubescens 80-102 = *punctatus Lec.*
 punctatus 80-102.
 Stoutii 27-233, (*Allæocnemis*).

Psoa.

- maculata 14-213, (*Acrepis*).

SPONDYLIDÆ.**Spondylis.**

- laticeps* 8-233 = *upiformis Mann.*

Scaphinus.

- sphæricollis 4-93, (*Spondylis*).

CERAMBYCIDÆ.**Ergates.**

- spiculatus 15-110, (*Trichocnemis*).

Malloodon.

- costulata 15-111. ♀

♂ *M. angularis*, Crotch Check List p. 83, is a manuscript name and is *Stenodontes damicornis Linn.*

M. dentiger, idem. p. 82, was substituted for *gnatho Lec.*, and is *mandibularis Har.*

Malloodon (continued).

gnatho || 63-81 = *mandibularis* Harold.
serrulatus 40-82.

Derobrachus.

geminatus 27-233.
sulcicornis 15-110. Mexican.

Prionus.

crassicornis 15-108
 = *californicus* Motsch.
curticornis 15-109 = *pocularis* Dalm.
curvatus 68-19
 = var. of *californicus* Motsch.
obliquicornis 15-108 = *pocularis* Dalm.

Homæsthesis.

innocua 74-43. (*Prionus*),
 = ♀ *emarginata* Say.
integra 15-107, (*Prionus*).

Tragosoma.

Harrisii 15-107 = ? *depsarium* Fabr.

Aseum.

nitidum 97-169.

Nothorhina.

aspera 36-18, (*Aseum*).

Criocephalus.

asperatus 68-19.
australis 11-35, (*Aseum*).
montanus 97-170.
nubilus 11-36.
obscurus 11-36 = *obsoletus* Randall.
productus 11-36.

Tetropium.

velutinum 94-382.

Dicentrus.

Blüthneri 118-195.

Hylotrupes.

amethystinus 27-234, (*Physocnemum*).

Phymatodes.

æneus 36-18.
blandus 65-79, (*Callidium*).
decussatus 60-61, (*Callidium*).
infuscatus 66-285, (*Callidium*).
maculicollis 112-614.
Mannerheimi 60-60, (*Callidium*),
 = *dimidiatus* Kirby.
nitidus 100-66.
obscurus 65-79.
vulneratus 60-60, (*Callidium*).

Callidium.

hirtellum 97-172.
vile 97-172.

Xylocrius.

Agassii 72-357, (*Callidium*).
cribratus 97-172.

Gonocallus.

lepidus 11-34, (*Phymatodes*),
 = *collaris* Kirby.

Ganimus.

vittatus 97-174.

Oeme.

costata 97-174.
gracilis 120-27.

Eurossus.

villicornis 97-175.

Haplidus.

testaceus 97-176.

Achryson.

concolor 97-176.

Gracilia.

fasciata 97-171.
manca 11-24.

Axestinus.

obscurus 97-177.

Brothylus.

conspersus 66-285.
gemmulatus 65-80.

Osmidus.

guttatus 97-178.

Eburia.

Haldemani 15-102.
manca 62-24.
mutica 27-233.
ovicollis 97-180.
perforata 97-180.
tumida 97-181.

Elaphidion.

aculeatum 97-184.
alienum 106-173.
cinerascens 11-15.
debile 33-442 = *truncatum* Hald.
imbelle 120-27.
mæstum 33-442.
neglectum 11-13 = *incertum* Newm.
oblitum 11-14 = *parallellum* Newm.
procerum 65-88.
punctatum 97-185.
rusticum 11-14.
spurcum 33-442.
subpubescens 74-41.
tæniatum 40-81.
tectum 111-413.

Aneflus.

- linearis 65-80, (*Elaphidion*).
 proluxus 97-203.
 protensus 63-82, (*Elaphidion*).
 tenuis 40-81, (*Elaphidion*).
 volitans 97-186.

Eustroma.

- validum 63-82, (*Elaphidion*).

Zamodes.

- obscurus 97-188.

Compsa.

- puncticollis 97-188.
 quadriplagiata 97-189.

Heterachthes.

- nobilis 74-41.

Callimus.

- chalybæus 97-189.

Eumichthus.

- œdipus 97-190.

Phyton.

- discoideum 97-190.

Obrium.

- rubidum 11-21.

Hybodera.

- debilis 100-66.
 tuberculata 97-191.

Pilema.

- cyanipenne 97-192.
 ruficollis 97-192.

Megobrium.

- Edwardsii 97-193. *

Callimoxys.

- fuscipennis 72-356, (*Stenopterus*).

Molorchus.

- corni 11-21, (*Heliomanes*),
 = bimaclatus *Say*.
 longicollis 97-193.
 obscurus 11-21, (*Heliomanes*),
 = bimaclatus *Say*.

Rhopalophorus.

- lævicollis 97-193.
 rugicollis 63-83.

Pteroplatus.

- floridanus 74-42.

Holopleura.

- Helena 97-194.
 marginata 97-194 = Helena *Lec*.

Callichroma.

- cobaltinum 97-195.
 plicatum 27-233.

- splendidum 11-37.

Stenaspis.

- splendus 33-441.

Tragidion.

- annulatum 63-83.
 armatum 62-25.

Purpuricenus.

- magnificus 106-173.

Mannophorus.

- lætus 33-442.

Amannus.

- pectoralis 62-25.
 vittiger 62-24.

Batyle.

- ruber 63-82, (*Eriphus*), = suturalis *Say*.
 rutilans 11-18, (*Arhopalus*),
 = suturalis *Say*.

Oxoplus.

- corallinus 74-42.
 cruentus ♂ 74-42 = marginatus ♀ *Lec*.
 marginatus 74-42.

Schizax.

- senex 97-196.

Tylosis.

- maculata 11-9.
 oculata 11-9.
 sellata 62-25 = maculata *Lec*.

Crossidius.

- Allgewahri 110-461.
 ater 72-356.
 hirtipes 36-18.
 humeralis 62-25.
 pulchellus 72-356.
 punctatus 97-197.
 suturalis 63-83. Mexican.
 testaceus 15-102.

Sphenothecus.

- suturalis 62-25.

Perarthrus.

- vittatus 15-102.

Stenosphenus.

- lugens 74-41.

Cyllene.

- brevipennis 97-197 = decorus *Oliv*.
 eurystethus 63-82, (*Arhopalus*),
 = antennatus *White*.
 infaustus 11-17, (*Arhopalus*),
 = decorus *Oliv*.
 lutosus 72-356, (*Arhopalus*),
 = var. of decorus *Oliv*.

Clytus.

lanifer 97-198.

Xylotrechus.*agrestis* 11-28, (*Clytus*), = *colonus* *Fab.**convergens* 97-198.*insignis* 97-199.*mormonus* 72-357, (*Clytus*).*obliteratus* 97-199.*planifrons* 100-67.**Neoclytus.***approximatus* 74-42, (*Clytus*).*ascendens* 110-462.*balteatus* 97-201.*conjunctus* 60-61, (*Clytus*).*horridus* 74-42, (*Clytus*),= *muricatus* *Kirby*.*interruptus* 97-201.*irroratus* 62-26, (*Clytus*).*torquatus* 97-200.**Cyrtophorus.***gibbulus* 8-234, (*Clytus*).*niger* 11-29 = *gibbulus* *Lec.***Euderes.***parallelus* 97-202.*Reichei* 97-202.**Zagymnus.***clerinus* 97-203.**Atimia.***dorsalis* 94-385.**Ulochætes.***leoninus* 40-82.**Necydalis.***cavipennis* 97-204.*lævicollis* 94-383.**Pyrotrichus.***vitticollis* 74-41.**Leptalia.***fuscicollis* 60-65, (*Leptura*),= *macilentata* *Mann.***Centrodera.***nevadica* 97-205.*sublineata* 74-40.**Xylosteus.***ornatus* 97-205.**Toxotus.***flavolineatus* 36-18.*nubifer* 65-80.*obtusus* 97-206. **Schaumii* 10-320.*virgatus* 100-67.**Pachyta.***armata* 97-207.*nitens* 8-235 (*Argaleus*) = *litturata* *Kirby*.*rugipennis* 97-207.*spurea* 60-63, (*Toxotus*).**Anthophilax.***tenebrosus* 97-208.*viridis* 8-236.**Piodes.***coriacea* 10-311.**Acmaeops.***ater* 10-323.*basalis* 97-211.*californica* 15-101 = var. of *tumida* *Lec.**dorsalis* 68-21 = *subpilosa* *Lec.**falsa* 65-80.*fusca* 60-62 = var. of *tumida* *Lec.**fusciceps* 10-324 = *bivittata* *Say.**gibbula* 72-356 = var. of *proteus* *Kirby*.*ligata* 97-211.*lugens* 60-62 = var. of *tumida* *Lec.**lupina* 69-321 = *subpilosa* *Lec.* ♀*militaris* 10-322.*mollipilosa* 69-321 = var. of *tumida* *Lec.**nigripennis* 10-323 = *bivittata* *Say.**pinguis* 97-210. **strigilata* 8-235.*subienea* 15-101.*subcyanea* 60-63 = var. of *tumida* *Lec.**subpilosa* 10-322.*tumida* 60-63.*varians* 10-324 = *bivittata* *Say.**vineta* 72-356.*viola* 69-321.**Strangalia.***delicata* 100-68.*virilis* 97-212.**Typocerus.***brunnicornis* 97-214.*sparsus* 112-614.**Leptura.***amabilis* 60-64.*anthracina* 106-174.*aspera* 97-228.

♀ *A. marginalis*, mentioned in 60-23 and synonymous with *longicornis* *Kirby*, is a manuscript name.

Leptura (continued).

- atrata 10-339.
auripilis 10-339 = *chrysocoma* Kirby.
Behrensii 97-227.
brevicornis 97-226.
carbonata 72-355.
coccinea 97-226.
connexa 10-332. (*Strangalia*).
 = var. of *instabilis* Hald.
crassicornis 97-227.
crassipes 60-65.
cribripennis 68-21
 = var. of *canadensis* Fabr.
cubitalis 72-355. †
dehiscens 65-89.
deleta 10-328. (*Strangalia*).
dolorosa 72-355.
fasciventris 72-355 = *crassipes* Lec.
gigas 97-223.
gnathoides 97-228.
grossa 97-225.
hirtella 97-226.
impura 60-64.
læta 60-64.
lætifica 65-89.
lateralis 10-330 (*Stran.*) = *lineola* Say.
lugens ♂ 65-89 = *lætifica* ♀ Lec.
Matthewsii 94-384.
molybdica 15-101. (*Strangalia*).
pedalis 72-355.
plagifera 97-224.
quadrata 97-225.
quadrillum 65-88.
rhodopus 100-68.
rubida 97-224.
rufibasis 74-40 = *similis* Kirby.
ruficeps 74-40.
sanguinea 65-89.
sauucia 74-40.
scripta 94-384.
sexspilota 65-80.
soror 97-223.
spuria 97-228.
tibialis 8-236.
tribalteata 97-224.
valida 60-64.

- vitiosa* 36-18. (*Strangalia*).
 = *obliterata* Hald.
xanthogaster 65-88 = *crassipes* Lec.

Plectura.

- producta* 36-19 = *spinicauda* Mann.

Ipochnus.

- fasciatus* 16-167.

Monilema.

- appressum* 16-168.
armatum 27-234.
crassum 27-234.
forte 97-230.
gigas 97-230.
obtusum 97-230.
semipunctatum 16-167.

Michthysoma.

- heterodoxum* 11-30.

Monohammus.

- clamator* 16-149. ‡
fautor 16-149 = *marmoratus* Rand.
minor 97-231 = *carolinensis* Oliv.
mutator 8-235 = *marmoratus* Rand.
oregonensis 97-231
 = var. of *scutellatus* Say.

Cacoplia.

- pruinosa* 16-149 = *pullata* Hald.

Goes.

- debilis* 16-150.
oculatus 74-40. (*Monohammus*).

Plectrodera.

- Bellii* 2-201 & 3-209. (*Lamia*).
 = *scalator* Fabr.

Cænopæus.

- Palmeri* 97-233. (*Leptostylus*).

Leptostylus.

- albidus* 16-168.
areuatus 111-414.
binustus 16-168.
parvus 97-234.
planidorsus 97-233.

Liopus.

- cinereus* 16-173.
erassulus 97-235. (*Sternidius*).
Haldemani 16-173.
misellus 16-173 } = alpha Say.
rusticus 16-173 }

† *L. cyanella*, mentioned in Crotch's Check List p. 89, and a variety of *chalybea* Hald., is undescribed.

‡ *M. acutus*, synonymous with *marmoratus* Randall, is a manuscript name.

Mecotetartus.

asper 97-236, (*Eutessus*),
= antennatus *Bates*.

Dectes.

texanus 74-39 = spinosus *Say*.

Lepturges.

angulatus 16-172, (*Liopus*),
= var. of symmetricus *Hald*.
pictus 16-172, (*Liopus*).
= var. of symmetricus *Hald*.
regularis 74-39, (*Liopus*).
signatus 16-171, (*Liopus*).

Urographis.

despectus 8-234, (*Aedilis*),
= fasciatus *De Geer*.
pusillus ‡ (nec *Kirby*), 16-175
= fasciatus *De Geer*.

Graphisurus.

biguttatus 16-172, (*Liopus*),
= pusillus *Kirby*.

Acanthocinus.

obliquus 74-39, (*Aedilis*).
spectabilis 40-82, (*Aedilis*).

Hoplosia.

nubila 74-39, (*Pogonocherus*).

Pogonocherus.

erinitus 97-237.
oregonus 72-354.
parvulus 16-160 = mixtus *Hald*.
penicellatus 8-234.
simplex 97-237 = mixtus *Hald*.
volitans 97-232, (*Lophopæum*).

Estola.

sordida 97-237, (*Pogonocherus*).

Zaplous.

Hubbardi 111-415.

Ecyrus.

exiguus 16-161.

Eupogonius.

pauper 16-159 = var. of vestitus *Say*.
subarmatus 68-22 & 72-354,
(*Amphionycha*).

Lypsimena.

fuscata 16-155.

Oncideres.

pustulatus 40-82.

Saperda.

adspersa 8-234 = var. of calcarata *Say*.

concolor 16-163.

mæsta 8-234.

Mecas.

gentilis 16-154 (*Steno*) = pergrata *Say*.
marginella 97-239.
saturnina 68-21, (*Stenostola*),
= inornata *Say*.

Oberea.

basalis 16-153
= var. of binaeulata *Oliv*. ‡
femoralis 16-153 = tibialis *Hald*.
quadricollata 100-68.
Schaumii 16-153.

Tetrops.

canescens 16-156.
juvunda 74-40.

Tetraopes.

annulatus 4-93 = canescens *Lec*.
basalis 16-157 = femoratus *Lec*.
canescens 16-157.
discoideus 62-26.
femoratus 4-93.
mancus 65-81 = femoratus *Lec*.
oregonensis 36-19
= var. of femoratus *Lec*.
umbonatus 16-156.

Amphionycha.

ardens 68-22 = flammata *Newm*.

Styloxus.

lucanus 97-240.

Dysphaga.

levis 97-240.

Methia.

punctata 97-240. West Indian.

BRUCHIDÆ.**Bruchus.**

desertorum 63-78.
paupereulus 60-52.
prosopis 63-77.
uniformis 63-77.

CHRYSOMELIDÆ.**Donacia.**

alutacea 12-311 = piseatrix *Lec*.
aurifer 12-313 = cuprea *Kirby*.
californica 72-357 = proxima *Kirby*.
confusa 12-313.
congener 12-310 = piseatrix *Lec*.

‡ *O. discoidea*, mentioned in Crotch's Check List p. 93, is a manuscript name.

Donacia (continued)

- distincta* 12-313.
dives 12-314 = *cuprea Kirby*.
fulgens 12-312 = *subtilis Kunze*.
gentilis 12-314 = *metallicus Ahrens*.
Harrisii 12-316.
jucunda 12-315.
magnifica 12-310.
pubescens 91-55.
pulchella 12-312 = *lucida Lec*.
pyritosa 60-66.
rugosa 111-415.
torosa 12-313.

Zeugophora.

- abnormis* 8-237, (*Taraxis*).

Syneta.

- albida* 60-66.
seriata 65-90 = *albida Lec*.
simplex 60-66.
suturalis 60-89 = var. of *albida Lec*.

Lema.

- trivirgata* 68-22 = var. of *trilineata Oliv*.

Anomæa.

- militaris* 63-83, (*Clythra*).

Babia.

- tetraspilota* 63-83
 = var. of *4-guttata Oliv*.

Saxinis.

- saucia* 60-66.

Euryscopa.

- vittata* 62-26.

Coscinoptera.

- reneipennis* 62-26, (*Euryscopa*).
axillaris 91-56.
franciscana 68-22 = *dominicana Fabr*.
mucorea 63-83, (*Megalostomis*).
subfasciata 91-56.
vittigera 72-357.

Chlamys.

- cribripennis* 112-614.

Diachus.

- teruginosus* 118-197. †
erasus 118-197.

Triachus.

- cerinus* 118-197.
postremus 118-197.
vacuus 118-197.

Cryptocephalus.

- carinatus* 118-202.
castaneus 118-200.
cribripennis 118-200.
croceipennis 118-199.
defectus 118-201.
fulguratus 118-203.
mucoreus 68-23.
spureus 63-84.
striatulus 118-204.
tinctus 118-203. ‡

Griburius.

- speciosus* 91-56 = *montezumæ Suffr*.

Pachybrachys.

- analis* 72-357.
brevicollis 118-208.
celatus 63-84.
cruentus 118-206.
dubiosus 118-206.
livens 63-84.
lustrans 118-208.
renidens 118-208.
striatus 118-205.
subvittatus 118-208.
virgatus 118-205.

Scelodonta.

- nebulosa* 68-23, (*Heteraspis*).
smaragdula 68-24, (*Heteraspis*).

Glyptoscelis.

- albidus* 65-81.
cuprascens 63-85, (*Eumolpus*).
longior 110-462.
smaragdulus 60-67, (*Eumolpus*).

Myochrous.

- longulus* 63-86.
squamosus 68-24.

Chrysochus.

- cobaltinus* 60-67.

Paria.

- opacicollis* 68-23 = var. of *aterrima Oliv*.
pumila 68-23.
quadriguttata 63-86
 = var. of *6-notata Say*.

Metachroma.

- puncticollis* 63-85 = *quercata Fabr*.
suturale 63-85.
ustum 63-85.

† *D. aneolus*, a manuscript name, is synonymous with *auratus Fabr*.

‡ *C. vitticollis*, synonymous with *leucomelas Suffr*., is undescribed.

Colaspis.*humeralis* 63-85 = *tristis* Oliv.**Chrysomela.***continua* 91-57.*montivagans* 110-463.*Rogersii* 62-26, (*Doryphora*),= *clivicollis* Kirby.*sigmoidea* 66-285.*subseriata* 69-321 = *basilaris* Say.**Prasocuris.***obliquata* 121-9.*varipes* 121-9.**Plagiodera.***oviformis* 72-357, (*Chrysomela*).*prasinella* 72-358, (*Chrysomela*).**Phyllobrotica.***luperina* 83-207.*viridipennis* 65-81, (*Diabrotica*).**Phyllochthrus.***gentilis* 83-208.*nigripennis* 91-58 = var. of *gentilis* Lec.**Luperus.***bivittatus* 65-81, (*Phyllobrotica*).*cyanellus* 83-209.*flavicollis* 65-81, (*Phyllobrotica*).*longulus* 60-69.*luteicollis* 91-57.*morulus* 83-210.*nigrocyaneus* 117-517.*rufipes* || 68-27 = *Lecontei* Crotch.*smaragdinus* 66-286.*varicornis* 91-57.*varipes* 60-69.**Metacycla.***insolita* 71-338, (*Diabrotica*).**Diabrotica.***balteata* 83-213.*blandula* 91-58.*connexa* 83-212.*fossata* 63-88 = var. of *atripennis* Say.*lemniscata* 91-58.*soror* 83-212.*tenella* 63-88 = var. of *12-punctata* Oliv.*vineta* 111-416.*virgifera* 91-59.**Galeruca.***carbo* 72-358.*cavicollis* 83-216.*conferta* 83-215.*cribrata* 83-215 = var. *americana* Fab.*hematica* 83-216 = *cavicollis* Lec.*integra* 83-218.*maritima* 83-218.*morosa* 60-70.*rudis* 60-69 = *externa* Say.*sexvittata* 83-215.**Monoxia.***angularis* 65-90, (*Galeruca*),= var. of *guttulata* Lec.*conspuata* 60-70, (*Galeruca*).*debilis* 83-222 = *guttulata* Lec.*guttulata* 60-70, (*Galeruca*).*obtusa* 83-222 = *guttulata* Lec.*sordida* 63-88, (*Galeruca*).**Trirhabda.***brevicollis* 83-221.*convergens* 83-220.*luteocincta* 63-88, (*Galeruca*),= var. of *flavolimbata* Mann.*nitidicollis* 83-219.*virgata* 83-220= var. of *tomentosa* Linn.**Oedionychis.***indigoptera* 111-416.*lobata* 68-24 = var. of *scalaris* Melsh.*lugens* 68-24.*violascens* 65-81.**Disonycha.***cervicalis* 68-25, (*Haltica*),= var. of *collaris* Fabr.*fumata* 63-86, (*Haltica*),= *alternata* Illig.*limbicollis* 60-67, (*Haltica*).*pluriligata* 62-27 & 68-25, (*Haltica*),= *alternata* Illig.*puncticollis* 60-67, (*Haltica*).= *alternata* Illig.*punctigera* 68-24, (*Haltica*).*pura* 63-86, (*Haltica*), = *alternata* Illig.*semicarbonata* 68-25, (*Haltica*),= var. of *collaris* Fabr.**Graptozona.***aeruginosa* 66-286, (*Haltica*).*ambiens* 68-25, (*Haltica*),= *bimarginata* Say.*evicta* 66-286, (*Haltica*).*foliacea* 63-86, (*Haltica*).*inærata* 69-317, (*Haltica*).*lazulina* 60-67, (*Haltica*).*obliterata* 68-26, (*Haltica*).

Graptodera (continued).

- obolina 60-67, (*Haltica*).
prasina 60-67, (*Haltica*),
 = bimarginata *Say*.
punctipennis 68-25, (*Haltica*).
subplicata 68-25, (*Haltica*),
 = bimarginata *Say*.
tineta 66-286, (*Haltica*).
torquata 62-27 & 68-26, (*Haltica*).

Longitarsus.

- apterus* 63-87 = ♀ *maneus Lec*.
livens 63-87.
maneus 63-87.
nigripalpis 68-26.
repandus 63-87.
rubidus 68-26.
subrufus 68-26.

Batophila.

- cerina* 60-68, (*Haltica*).
lissotorques 68-27, (*Glyptina*).
 = var. of *spuria Lec*.
spuria 68-26, (*Glyptina*).

Orchestris.

- albionica* 60-68, (*Haltica*).
lepidula 60-68, (*Haltica*).
robusta 112-614, (*Phyllotreta*).

Argopistes.

- scyrtoides* 111-416.

Sphæroderma.

- opima* 111-417.

Dibolia.

- ovata* 66-286 = var. of *ærea Melsh*.

Systema.

- biteniata* 68-26, (*Haltica*),
 = var. of *blanda Melsh*.
ligata 60-68, (*Haltica*),
 = var. of *mitis Lec*.
mitis 63-87, (*Haltica*).
ochracea 63-87, (*Haltica*),
 = var. of *mitis Lec*.
subænea 60-68, (*Haltica*).

Orthaltica.

- recticollis* 72-358, (*Haltica*).

Lyperaltica.

- fuseula* 83-206, (*Malacosoma*).
tineta 83-206, (*Malaco*), = *senilis Say*.

Crepidodera.

- æreola* 60-68, (*Halt.*) = *Helxines Linn*.
mancula 72-358, (*Haltica*),
 = var. of *Modeeri Linn*.

- opulenta* 63-86 (*Halt.*) = *Helxines Lin*.
robusta 98-274.

Epitrix.

- seminulum* 72-358, (*Haltica*),
 = *cucumeris Harris*.
suberinita 60-68, (*Haltica*).

Chætocnema.

- æneola* 117-518.
cribrata 111-419.
cribrifrons 117-517.
cylindrica 111-417. In the table in
 111-419, this is given by a misprint
 as *subcylindrica Lec*.
decipiens 111-418.
flavicornis 111-418.
irregularis 60-69.
obesula 111-418.
opacula 111-418.
pinguis 111-417.
protensa 111-417.
rudis 112-615.
subviridis 68-27.

Psylliodes.

- convexior* 60-69 = *interstitialis Lec*.
interstitialis 63-87.
parvicollis 60-69 = *punctulata Melsh*.

Microrhopala.

- latula* 68-27 = var. of *vittata Fab*.
signaticollis 65-82
 = var. of *rubrolineata Mann*.

Cassida.

- atriplex* 68-28 } = *nigripes Oliv*.
ellipsis 68-28 }

TENEBRIONIDÆ.**Edrotos.**

- ventricosus* 14-141.

Craniotus.

- pubescens* 14-142.

Triorophus.

- lævis* 14-141.
nodiceps 33-446.
punctatus 14-142.
rugiceps 14-142 = *lævis Lec*.

Triphalus.

- perforatus* 80-104.

Trimytis.

- pruinosa* 14-141.

Auchmobius.

- sublævis* 14-140.

Epitragus.

- acutus 80-108.
 arundinis 80-108.
 plumbeus 80-109.
 submetallicus 45-224.
 tomentosus 80-109.

Schœnicus.

- puberulus 80-110.

Eurymetopon.

- abnorme* 14-138 = *rufipes* Esch.
convexicollis 14-139.
inflatus 14-140, (*Cryptadius*).
punctulatum 80-105.
serratum 80-106.

Emmenastus.

- ater 14-139, (*Eurymetopon*).
convexus 80-107 = *obesus* Lec.
longulus 14-139, (*Eurymetopon*).
obesus 14-139, (*Eurymetopon*).
obtusus 80-107.
pinguis 80-107.
punctatus 80-106.
texanus 80-108.

Batulius.

- rotundicollis 14-148.
 setosus 14-148.

Zopherus.

- concolor 14-130.
 pectoralis 14-130. Mexican.
 tristis 14-130.

Phlœodes.

- diabolicus 14-130, (*Nosoderma*).
pustulosus 65-77, (*Nosoderma*),
 = *diabolicus* Lec.

Noserus.

- plicatus 65-77, (*Nosoderma*).

Phellopsis.

- porcata 27-235, (*Nosoderma*).
 = *obeordata* Kirby.

Aræoschizus.

- costipennis 14-138.

Dacoderus.

- striaticiceps 63-75.

Anepsius.

- delicatulus 14-148.

Nyctoporis.

- carinata 14-138.
galeata 60-49 = *cristata* Esch.

Centrioptera.

- infausta 40-84, (*Asbolus*).

muricata 14-142.

seriata 71-337, (*Cryptoglossa*).

spiculifera 71-337

= *caraboides* Mann.

Cryptoglossa.

lævis 14-130, (*Asbolus*).

verrucosa 14-129, (*Asbolus*).

Microschatia.

inæqualis 14-129.

puncticollis 14-129

= var. of *inæqualis* Lec.

sulcipennis 62-18.

Asida.

ægra 62-19, (*Pelecyphorus*).

= var. of *sordida* Lec.

ægrota 71-337, (*Pelecyphorus*).

angulata 14-127, (*Pelecyphorus*).

bifurca 71-337, (*Pelecyphorus*).

carinata 14-128, (*Pelecyphorus*).

confluens 14-128, (*Pelecyphorus*).

connivens 80-110, (*Pelecyphorus*).

convexa 68-14, (*Euschides*).

convexicollis 45-224, (*Euschides*).

costipennis 62-20, (*Pelecyphorus*),

= var. of *sordida* Lec.

costipennis || 65-76, (*Pelecyphorus*),

= *Lecontei* Horn.

difformis 45-223, (*Pelecyphorus*),

= var. of *elata* Lec.

elata 33-445, (*Pelecyphorus*).

hirsuta 14-127, (*Pelecyphorus*).

hispidula 14-127, (*Pelecyphorus*).

irregularis 62-19, (*Pelecyphorus*),

= var. of *sordida* Lec.

lirata 45-223, (*Euschides*).

marginata 14-128, (*Pelecyphorus*).

morbillosa 63-74, (*Pelecyphorus*).

muricatula 14-129, (*Pelecyphorus*).

obovata 14-127, (*Stenomorpha*).

obsoleta 14-128, (*Pelecyphorus*).

parallela 14-128, (*Pelecyphorus*).

puncticollis 80-111, (*Euschides*).

rimata 45-223, (*Pelecyphorus*),

= var. of *marginata* Lec.

sexcostata 71-337, (*Pelecyphorus*).

sordida 33-445, (*Pelecyphorus*).

subcostata 33-446, (*Pelecyphorus*),

= *sordida* Lec.

Astrotus.

contortus 33-446, (*Microschatia*).

Branchus.

- floridanus 80-111.
Woodii 80-111. Bahamas.

Cœlus.

- globosus 14-133.

Eusattus.

- convexus* 14-132 = *difficilis* Lec.
difficilis 14-132.
dilatatus 14-132.
dubius 14-132.
lævis 80-113.
muricatus 14-132.
productus 62-20.
puberulus 40-84.
robustus 80-112.

Coniontis.

- abdominalis* 65-77.
affinis 14-130.
lata 80-113.
obesa 14-131.
ovalis 14-131.
puncticollis 14-131.
subpubescens 14-131.

Eleodes.

- aeuticauda* 14-135.
avata 64-182 = *sulcipennis* Mann.
armata 14-134.
asperata 64-183 = *pedinoides* Lec.
aspera 80-115 = *granulata* Lec.
caudifera 64-184.
consobrina 14-135.
constricta 64-187 = *parvicollis* Esch.
convexa 60-49 = *hispilabris* Say.
debilis 64-185 = var. of *carbonaria* Say.
deleta 64-182 } = var. of *obscura*
dispersa 64-182 } Say.
femorata 14-134.
fusiformis 64-184.
gentilis 64-187.
gracilis 64-184.
granosa 80-116.
granulata 60-50.
Haydeni 64-186
= var. of *longicollis* Lec.
hirsuta 72-352.
humeralis 60-50.
immunis 64-186
= var. of *carbonaria* Say.

inculta 72-352

- = var. of *scabripennis* Lec.
innocens 80-114.
laticollis 14-135
= var. of *aeuticauda* Lec.
longicollis 14-134.
lucæ 80-114.
nigrina 64-186.
nitidipennis 14-133.
nypta 64-183 = var. of *hispilabris* Say.
obtusa 72-352 = var. of *granulata* Lec.
omissa 64-186
= var. of *quadrucollis* Esch.
pedinoides 64-183.
planipennis 80-116.
robusta 64-183 = race of *tricostata* Say.
rotundipennis 60-50
= var. of *cordata* Esch.
scabripennis 65-77.
seriata 64-185.
soror 64-185 = var. of *carbonaria* Say.
sponsa 64-184.
stricta 60-50 = var. of *cordata* Esch.
striolata 64-185.
subaspera || 80-115 = *Lecontei* Horn.
subligata 60-50 = *pimelioides* Mann.
subnitens 14-134.
sulcata || 21-67 = *hispilabris* Say.
texana 64-182 = var. of *suturalis* Say.
ventricosa 64-186.
Veseyi 64-187 = *consobrinus* Lec.
viator 64-188
= var. of *pimelioides* Mann.
vicina 14-133 = *quadrucollis* Esch.

Discogenia.

- scabricula* 64-87, (*Eleodes*).

Embaphion.

- concavum* 33-446
= var. of *muricatum* Say.
contusum 62-20.
depressum 14-136, (*Eleodes*).

Eulabis.

- grossa* 80-118.
obscura 14-144, (*Epantius*).
pubescens 14-144.

Argoporis.

- bicolor* 14-143, (*Cerenopus*).
costipennis 14-143, (*Cerenopus*). ‡

‡ By a clerical error this is printed *sulcipennis* in Dr. Horn's Revision of the Tenebrionideæ.

- Cerenopus.**
 concolor 14-143.
 cribratus 71-337.
- Cratidus.**
 osculans 14-136, (*Amphidora*).
- Amphidora.**
 nigripilosa 14-136.
- Stenotrichus.**
 rufipes 14-136, (*Amphidora*).
- Polypleurus.**
 nitidus 80-118.
- Iphthimus.**
 opacus 80-121.
- Cœloconemis.**
 magna 14-150.
 obesa 14-150.
 punctata 45-225.
- Haplendus.**
 ater 80-127, (*Metaclisa*).
 concolor 80-121.
- Centronopus.**
 parallelus 65-88, (*Scotobænus*).
- Cibdelis.**
 Bachei 72-353.
- Glyptotus.**
 cribratus 63-75.
- Rhinandrus.**
 gracilis 80-120.
- Trogloderus.**
 costatus 114-3.
- Scotobates.**
 opacus 68-15, (*Centronopus*).
- Xylopinus.**
 senescens 80-120.
- Bius.**
 estriatus 14-149, (*Tenebrio*).
- Sitophagus.**
 plana || 14-149, (*Adelina*),
 = *Lecontei* Horn.
- Opatrinus.**
 aciculatus 63-75.
- Mecysmus.**
 angustus 14-147, (*Blapstinus*).
- Conibius.**
 parallelus 14-146.
 seriatus 14-146.
- Blapstinus.**
 brevicollis 14-147.
 dilatatus 14-146.
 estriatus 111-420.
 fortis 111-420.
 latifrons 100-70.
 longulus 14-147.
 opacus 111-420.
 pratensis 68-15.
pubescens || 14-147 = *Lecontei* Muls.
 sordidus 14-146.
 sulcatus 14-147.
 vestitus 68-15.
- Notibius.**
 granulatus 14-145.
 opacus 80-118.
 puberulus 14-145.
 puncticollis 14-145.
 sulcatus 14-145.
- Ulus.**
 crassus 14-146, (*Blapstinus*).
 obliquus 80-117, (*Blapstinus*).
- Ammodonus.**
 fossor 4-92, (*Opatrum*).
- Ephalus.**
 latinus 4-92, (*Heliophilus*).
- Diædus.**
 punctatus 80-131.
- Evoplus.**
 ferrugineus 80-123.
- Ulosonia.**
 marginata 14-149, (*Uloma*).
- Aphanotus.**
 brevicornis 65-78, (*Eulabis*).
- Cynæus.**
 angustus 14-149, (*Platydemus*).
- Tharsus.**
 seditiosus 80-122.
- Uloma.**
 cava 80-124 = ♂ punctulata *Lec.*
 imberbis 80-123.
 longula 72-353.
 punctulata 80-124.
- Eutochia.**
 crenata 80-130, (*Delopygus*).
- Anædus.**
 rotundicollis 14-150.
- Dignamptus.**
 langurinus 111-421.
 stenochinus 111-421.
- Paratenetus.**
 fuscus 8-223.
- Pratæus.**
 fuscus 80-131.

Phaleria.

- debilis 80-126.
 globosa 60-51.
 longula 80-125.
 pilifera 80-125.
 punctipes 111-421.
 rotundata 14-148.

Platydema.

- crenatum 111-422.
 oregonense 60-51.

Scaphidema.

- æneolum 8-232, (*Nelites*).

Hypophlæus.

- cavus 80-129.
 glaber 111-422.
 opaculus 111-423.
piliger 111-422
 = var. of *thoracicus* *Melsh.*
 substriatus 111-423.
 tenuis 111-424.

Pentaphyllus.

- pallidus 80-126.

Apocrypha.

- dyschirioides 14-137.

Helops.

- angustus 65-77.
 attenuatus 14-137, (*Amphidora*).
 Bachei 72-353.
 convexulus 72-353.
 discretus 80-134.
 faretus 63-74.
 impolitus 80-132.
 lætus 60-50.
montanus 117-518 = *convexulus* *Lec.*
 opacus 66-284.
 pernitus 72-353.
punctipennis || 80-133
 = *punctatus* *Gemm.*
 rugicollis 80-133.
 rugulosus 14-151.
 sulcipennis 80-133.
 tumescens 80-134. * *
 undulatus 80-132.

Strongylium.

- simplicicolle 111-424.

CISTELIDÆ.**Stenochidus.**

- cyanescens 65-78, (*Prionychus*).
 gracilis 14-150, (*Stenochia*).

Allecula.

- socia* 40-84 = *punctulata* *Melsh.*

Hymenorus.

- communis 80-135.
 confertus 80-136.
 densus 80-138.
 humeralis 80-135.
 punctatissimus 80-138.
 punctulatus 65-78, (*Allecula*).

Cistela.

- opaca 65-78, (*Xystropus*).
 pinguis 68-16, (*Xystropus*).

Isomira.

- velutina 80-139.

Mycetochares.

- analisis 112-618.
 foveatus 80-140.
 gracilis 112-615.
 Haldemani 80-140.
 laticollis 112-617.
 longula 112-618.
 lugubris 112-618.
 marginata 112-617.
 pubipennis 112-617.
 tenuis 80-140.

Androchirus.

- luteipes* 79-64 = *erythropus* *Kirby.*

Cteniopus.

- Murrayi 80-141.

OTHNIIDÆ.**Othnius.**

- guttulatus 73-103.
 umbrosus 73-103.

LAGRIIDÆ.**Statira.**

- subnitida 80-141.

MONOMMIDÆ.**Hyporhagus.**

- opaculus 80-142.

PYROCHROIDÆ.**Ischalia.**

- costata 80-142, (*Eupleurida*).

Pyrochroa.

- femoralis 46-274.

Dendroides.

- testacea 46-275.

ANTHICIDÆ.

Nematoplus.

collaris 46-275.

Eurygenius.

campanulatus 100-69.

constrictus 14-151.

Wildii 46-270.

Stereopalpus.

badiipennis 46-271.

guttatus 46-271.

pruinosis 100-69.

Bactrocerus.

concolor 80-143.

Corphyra.

canaliculata 80-143.

infumata † (nec Hentz), 4-83,
(*Pedilus*), = collaris *Say*.

Newmani 46-274, pro *lugubris* || *Newm.*

pulchra 4-84, (*Pedilus*).

punctulata 14-151, (*Pedilus*).

Macratia.

confusa 46-272.

Notoxus.

apicalis 22-93.

bifasciatus 4-89, (*Monocerus*).

cavicornis 14-152.

conformis 14-152.

digitatus 107-518.

marginatus 22-93.

monodon † (nec Fabr.), 4-93
= apicalis *Lec.*

serratus 4-90, (*Monocerus*).

sparsus 66-284.

subtilis 22-93.

Mecynotarsus.

candidus 106-175.

elegans 106-175.

Formicomus.

mundus 14-152, (*Formicilla*).

scitulus 22-94, (*Anthicus*).

Anthicus.

annectens 14-153.

bellulus 14-156.

biguttulus 14-155.

confinis 14-153.

confusus 22-99.

coracinus 22-103.

corticalis 14-154.

cribratus 14-154 & 22-98.

difficilis 8-230.

flavicans 22-99.

granularis 8-231.

Haldemani 22-100,

pro *quadriguttatus* || *Hald.*

horridus 14-154.

latebrans 22-101.

luteolus 14-154.

maritimus 14-156.

nanus 14-156.

nigritulus 14-153.

nitidulus 14-153.

obscurellus 14-155.

pallens 8-231.

punctulatus 14-155.

rejectus 22-97.

rufulus 14-155.

scabriceps 8-230.

spretus 22-101.

tenuis 14-153.

terminalis 8-230 = *cervinus Laferté*.

Tanarthrus.

alutaceus 14-155, (*Anthicus*).

salicola 106-174.

salinus 14-156.

Xylophilus.

ater 106-175.

basalis 46-276.

brunnipennis 106-176.

impessus 106-175.

Melshimeri 46-276.

nebulosus 106-175.

notatus 46-276.

nubifer 111-425.

piceus 46-276.

subfasciatus 106-176.

ventricosus 106-176.

MELANDRYIDÆ.

Canifa.

pallipennis 112-619.

Tetratoma.

concolor 117-518.

truncorum 80-145.

Osphya.

varians 80-145, (*Nothus*).

Phryganophilus.

collaris 65-88.

Emmesa.

maculata 8-232, (*Melandrya*),

= *connectens Newm.*

Prothalia.

undata 80-145.

Amblyctis.

præses 114-4.

Carebara.

longula 80-148.

Scotochroa.

atra 98-274.

basalis 98-275.

Zilora.

hispidula 80-148.

Marolia.fulminans 66-284, (*Hypulus*).**Dircæa.**

concolor 80-149.

fusca 112-619.

litrata 68-66.

prona 111-426.

Anisoxya.

glaucula 80-150.

Hallomenus.*debilis* 80-152=var. of *scapularis* *Mels.**punctulatus* 80-152.*serricornis* 112-619.**Eustrophus.***confinis* 80-152.*impressicollis* 100-69.*indistinctus* 14-151.**Microscapha.***clavicornis* 80-153.**MORDELLIDÆ.****Diclidia.***lætula* 63-76, (*Anaspis*).**Pentaria.***fuscata* 75-44.*nubila* 65-78, (*Anaspis*).**Anaspis.***atra* 14-157.*collaris* 14-157.*filiformis* 8-231 = ♂ *rufa* *Say.**luteipennis* 14-157.*nigriceps* 65-88.*pusio* 63-76.**Tomoxia.***inclusa* 75-45.*lineella* 75-45.**Mordella.***angulata* 111-427.*borealis* 75-46.*fascifera* 111-427.*inflammata* 75-46.*insulata* 68-16.*irrorata* 75-46.*jovialis* 111-428.*obliqua* 111-428.**Glipodes.***helva* 75-48.**Mordellistena.***æmula* 68-16.*ambusta* 75-50.*amica* 75-49.*ancilla* 75-50.*andree* 75-50.*angusta* 75-51.*arida* 75-48.*bicinctella* 75-48.*cervicalis* 75-49.*comata* 63-75, (*Mordella*).*convicta* 75-50.*decorella* 75-49.*divisa* 68-17.*grammica* 75-50.*hebraica* 75-51.*impatiens* 75-50.*infima* 75-49.*lepidula* 75-48.*leporina* 75-51.*militaris* 75-49.*morula* 75-50.*nubila* 63-76, (*Mordella*).*pectoralis* 8-231, (*Mordella*).*picicornis* 75-49.*pityptera* 75-51.*ruficeps* 75-50.*semiusta* 75-50.*tosta* 75-49.*unicolor* 75-50.*ustulata* 75-50.*vapida* 75-49.*varians* 75-50.*vilis* 63-76, (*Mordella*).*vittigera* 75-51.**Toposcopus.***Wrightii* 91-54.**Rhipiphorus.***abdominalis* 80-154, (*Macrosiagon*),= ♂ *flavipennis* *Lec.**flavipennis* 80-153, (*Macrosiagon*).*linearis* 80-154.

Rhipiphorus (continued).

- marginalis* 80-154, (*Macrosiagon*),
= *dimidiatus* Fabr.
puncticeps 62-20
= var. of *8-maculatus* Gerst.
rufus 45-225 = var. of *eruentus* Germ.
Sayi 62-21 = var. of *8-maculatus* Gerst.

Myodites.

- californicus* 118-211.
luteipennis 81-97.
nevadicus 118-211.
Popenoi 118-210.
scaber 21-67, (*Myodes*).
Schwarzi 118-211 = ♀ *Zeschii* Lec
semiflavus 81-97.
Walshii 81-97.
*Zeschii** 118-211 & 120-28.

MELOIDÆ.**Meloe.**

- angusticollis* † (nec Say), 30-328
= *americanus* Lcarh.
barbarus 72-354.
carbonaceus 80-155.
mœrens 30-328.
montanus 80-155.
opacus 72-354.
perplexus 30-329.
rugipennis 30-328 = *angusticollis* Say.
sublævis 40-84.
tinctus 80-155.

Megetra.

- cancellata* † (nec Bran. & Erich.) 45-224
(*Cysteodemus*), = *vittata* Lec.
vittata 30-330, (*Cysteodemus*).

Cysteodemus.

- armatus* 14-158.
Wislizeni 14-158.

Tricrania.

- Murrayi* 69-320.

Macrobasis.

- atriventris* 45-224, (*Lytta*).
debilis 30-344, (*Lytta*), } = unicolor
Fabricii 30-343, (*Lytta*), } Kirby.
fulvescens 33-447, (*Lytta*),
= *immaculata* Say.
linearis 62-23, (*Lytta*).
longicollis 30-343, (*Lytta*).
luteicornis 40-84, (*Lytta*), = *albida* Say.
murina 30-344 (*Lytta*), = unicolor Kby.

- ochrea* 30-342, (*Lytta*).
sublineata 33-447, (*Lytta*).
tenella 62-23, (*Lytta*).
tenuis 30-343, (*Lytta*).
torsa 30-343, (*Lytta*).
valida 62-39 (*Lytta*) = *segmentata* Say.
virgulata 80-156.

Pleuropompha.

- costata* 40-84, (*Lytta*).

Epicauta.

- callosa* 80-158.
conspersa 30-340, (*Lytta*),
= var. of *maculata* Say.
corvina 62-21, (*Lytta*).
fissilabris 8-232.
maura 14-162.
morio 33-447, (*Lytta*).
= *pennsylvanica* De Geer.
nigritarsis 30-340.
oblita 14-162.
pardalis 80-157.
pedalis 80-157.
pruinosa 80-158.
sanguinicollis 30-344, (*Lytta*).
sericans 80-158.
Stuarti 91-54.

Pyrota.

- discoidea* 30-338, (*Lytta*).
Engelmanni 4-91.
insulata 62-22, (*Lytta*).
limbalis 80-160.
postica 80-160.
terminata 80-159.
vittigera 62-22, (*Lytta*).

Pomphopœa.

- femorals* 30-336, (*Lytta*), = *polita* Say.
filiformis 4-91, (*Cantharis*), } = *œnea*
nigricornis 4-90, (*Cantharis*), } Say.
Sayi 30-336, (*Lytta*).
texana 80-161.
unguicularis 80-160.

Cantharis.

- œneipennis* 14-160.
biguttata 30-332, (*Lytta*).
chalybea 14-160 = *sphericollis* Say.
Childii 60-52, (*Lytta*).
convexa 30-336, (*Lytta*).
Cooperi 36-18, (*Lytta*),
= var. of *vulnerata* Lec.
cibrata 33-347, (*Lytta*).

Cantharis (continued).

- cyanipennis 14-160.
 dichroa 30-332, (*Lytta*).
dolosa 72-354, (*Lytta*), = *stygica* *Lec.*
fulgifera 4-90 = var. of *Nuttalli* *Say.*
fulvipennis 30-331, (*Lytta*),
 = *cardinalis* *Chevr.*
lugens 14-161.
mekena 63-76, (*Lytta*).
mœrens 14-216.
nitidicollis 14-160.
puberula 80-162, (*Lytta*).
Rathvoni 30-335, (*Lytta*).
salicis 30-333, (*Lytta*),
 = *cyanipennis* *Lec.*
smaragdula 14-160 & 30-334
 = var. of *stygica* *Lec.*
stygica 14-161.
tenebrosa 14-160.
viridana 80-162, (*Lytta*).
vulnerata 14-159.
- Calospasta.**
elegans 14-161, (*Epicauta*).
- Tegrodera.**
erosa 14-159.
- Eupompha.**
fissiceps 62-21.
- Phodaga.**
alticeps 63-77.
- Tetraonyx.**
fulva 30-344.
- Zonitis.**
flavida 30-349.
rufa 40-85.
- Nemognatha.**
apicalis 30-345.
bicolor 30-345.
cribraria 30-348.
cribricollis 30-348.
decipiens 30-347.
dichroa 30-346.
discolor 63-77.
dubia 30-346.
fuscipennis 30-349 = *cribricollis* *Lec.*
lurida 30-345.
lutea 30-346.
nigripennis 30-347.
pallens 30-346.
palliata 30-346.
porosa 30-349 = *cribricollis* *Lec.*

- punctipennis* 118-214.
punctulata 30-347.
scutellaris 30-347.
sparsa 91-53.
texana 30-347 = *piezata* *Fabr.*
vittigera 30-348.

Gnathium.

- flavicolle* 62-23, (*Nemognatha*),
 = *Francilloni* *Kirby.*
longicolle 63-77, (*Nemognatha*).

CEPHALOIDÆ.**Cephaloon.**

- tenuicorne* 98-275.
ungulare 98-275.

CEDEMERIDÆ.**Calopus.**

- angustus* 14-158.
aspersus 80-163.

Microtonus.

- sericans* 80-163.

Ditylus.

- consors* 79-70 = *quadricollis* *Lec.*
gracilis 36-18.
obscurus 37-21, (*Asclera*).
quadricollis 14-157.
vestitus 60-52 = *gracilis* *Lec.*

Xanthochroa.

- trinotata* 80-164.

Oxaxis.

- bicolor* 14-158, (*Asclera*).
cana 45-225, (*Asclera*).
fuliginosa 80-166.
granulata 80-166.
pallida 45-224, (*Asclera*).
teniata 37-21, (*Asclera*).

Probosca.

- lucana* 80-167.
pleuralis 80-166.

Asclera.

- discolor* 100-70.
excavata 14-158.
nigra 94-379.

MYCTERIDÆ.**Mycterus.**

- concolor* 27-235.

Lacnnotus.

- punctatus* 80-167.

PYTHIDÆ.

Pytho.

strictus 80-168.

Crymodes.

discicollis 8-233.

Cononotus.

punctatus 14-138.

sericans 14-137.

Salpingus.

alternatus 66-285.

tibialis 80-168.

virescens 8-232, (*Sphæriestes*).**Rhinosimus.**

nitens 80-168.

RHINOMACERIDÆ.

Rhinomacer.

bombifrons 108-412.

comptus 108-2.

elongatus 108-2.

pilosus 108-2.

Diodyrhynchus.

byturoides 118-215.

RHYNCHITIDÆ.

Auletes.

ater 108-4.

cassandræ 108-5.

nasalis 108-412.

subcæruleus 108-4.

Eugnamptus.

puncticeps 108-6.

striatus 108-5.

Rhynchites.

aureus 108-8.

cyanellus 108-8.

eximius 108-413.

fossifrons 108-8.

glastinus 60-52.

planifrons 108-8.

velatus 118-216.

ATTELABIDÆ.

Attelabus.

genalis 108-11.

BYRSOPIDÆ.

Thecosternus.

affinis 54-18, (*Lithod.*), } = humeralis
erosus 54-18, (*Lithod.*), } Say.
longior 54-19 (*Lithod.*), }

morbillosus 54-19, (*Lithodus*),

= humeralis Say.

rectus 54-18 (*Lithodus*), } = humeralis*rudis* 54-18, (*Lithodus*), } Say.

OTIORHYNCHIDÆ.

Ophryastes.

latirostris 33-443.

ligatus 33-443 = sulcirostris Say.

porosus 45-225.

tuberosus 33-443.

validus 45-225 = latirostris Lec.**Eupagoderes.**argentatus 33-444, (*Ophryastes*).decepiens 33-445, (*Ophryastes*).sordidus 33-445, (*Ophryastes*).speciosus 33-444, (*Ophryastes*).varius 33-444, (*Ophryastes*).**Rhigopsis.**

effracta 103-459.

Dyslobus.segnis 60-56, (*Otiorynchus*).**Amnesia.**decorata 94-381, (*Dyslobus*).granicollis 94-380, (*Dyslobus*).**Phymatinus.**gemmatus 60-56, (*Tyloderes*).**Nocheles.**torpidus 60-55, (*Hylobius*).**Mylacus.**saccatus 60-56, (*Ptochus*).**Peritelopsis.**globiventris 60-56, (*Ptochus*).**Cyphus.**lautus 40-85, (*Tanymericus*).**Evotus.**naso 60-56, (*Otiorynchus*).**Coleocerus.**dispar 103-462, (*Bathyris*).

CURCULIONIDÆ.

Sitones.

sordidus 60-54.

vittatus 60-54.

Triglyphus.

ater 108-117.

Plinthodes.tæniatus 60-55, (*Hylobius*?).**Acmægenius.**

hylobinus 108-118.

Trichalophus.

- constrictus 60-54, (*Alophus*).
 didymus 36-20, (*Alophus*).
 planirostris 108-413.
 simplex 108-119.

Phytonomus.

- castor 108-126.
 eximius 108-414.
 opimus 108-124 = punctatus *Fabr.*
 pubicollis 108-125.
 quadricollis 108-126.
 setigerus 108-125.

Listronotus.

- americanus 108-131.
 callosus 108-130.
 cribricollis 108-134.
 frontalis 108-133.
 gracilis 108-135.
 impressifrons 108-134.
 nebulosus 108-133.
 nevadicus 108-135.
 obliquus 108-129.
 oregonensis 60-55, (*Listroderes*).
 punctiger 108-135.
 rotundicollis 108-132.
 setosus 108-134.
 sulkirostris 108-132.
 teretirostris 60-55, (*Listroderes*).
 tuberosus 108-130.

Hypomolyx.

- heros 8-233, (*Hylobius*),
 = pinicola *Couper*.

Pissodes.

- fasciatus 108-143.
 rotundatus 108-143.

Centrocleonus.

- angularis 68-18, (*Cleonus*).
 molitor 63-78, (*Cleonus*).
 pilosus 108-145.
 porosus 108-146.

Stephanocleonus.

- eristatus 108-147.
 obliquus † (nec *Fabr.*) 8-233, (*Cleonus*),
 = plumbeus *Lec.*
 plumbeus 108-146.
 pulvereus 68-18.

Cleonus.

- canescens 108-151.
 carinicollis 108-152.
 collaris 108-149.

- frontalis 108-150.
 inornatus 108-149.
 puberulus 108-151.
 sparsus 108-152.
 virgatus 108-150.

Cleonaspis.

- lutulentus 68-18, (*Cleonus*).

Lixus.

- asper 108-156.
 auctus 60-57.
 caudifer 108-156.
 fossus 108-416.
 læsicollis 63-78.
 macer 108-160.
 mixtus 108-416.
 mucidus 108-158.
 parcus 108-157.
 perforatus 108-159.
 placidus 108-159.
 pleuralis 63-78.
 punctinatus 108-157.
 rectus 108-158.
 terminalis 108-157.
 texanus 108-155.

Erycus.

- puncticollis 108-163.

Dorytomus.

- brevicollis 108-165.
 hirtus 108-166.
 hispidus 108-167.
 laticollis 108-164.
 longulus 108-166.
 squamosus 108-166.

Desmoris.

- scapalis 108-168.

Pachytychius.

- discoideus 108-169.

Smicronyx.

- corpulentus 108-170.
 flavicans 108-171.
 fulvus 108-172.
 griseus 108-171.
 obtectus 108-171.
 ovipennis 108-170.
 pusio 108-171.
 seriatus 108-172.
 sordidus 108-173.
 squamulatus 108-173.
 tychoides 108-171.
 vestitus 108-172.

Phyllotrox.

- ferrugineus 108-174.
nubifer 108-174.

Endalus.

- æratu8 108-176.
cribricollis 108-177.
ovalis 108-177.
punctatus 108-177.
setosus 108-176.

Onychylis.

- alternans 108-179.
longulus 108-179.

Anchodemus.

- angustus 108-181.
Hubbardi 108-181.
Schwarzi 108-182.

Lixellus.

- filiformis 108-182.

Bagous.

- americanus 108-185.
bituberosus 108-188.
californicus 108-187.
cavifrons 108-186.
magister 108-186.
nebulosus 108-186.
obliquus 108-185.
planatus 108-185.
pusillus 108-187.
restrictus 108-187.
sellatus 108-184.
transversus 108-188.

Pnigodes.

- setosus 108-189.

Phycocætes.

- testaceus 108-189.

Otidocephalus.

- dichrous 108-191.

Magdalis.

- ænescens 108-192.
alutacea 110-463 = var. of *gentilis* Lec.
gentilis 108-418.
gracilis 60-57.
hispidoides 108-418.
imbellis 60-57.
subtinctus 108-417 = var. *gracilis* Lec.

Coccotorus.

- scutellaris 63-79, (*Anthonomus*).

Anthonomus.

- affinis 108-207.
ater 108-198.

- canus 108-207.
corvulus 108-201.
decipiens 108-206.
disjunctus 108-204.
elegans 108-202.
elongatus 108-204.
fulvus 63-79.
gularis 108-197.
hirtus 108-203.
mixtus 108-206.
morulus 108-201.
nanus 108-207.
nebulosus 108-197.
nubilus 108-205.
paupereculus 108-204.
profundus 108-198.
pusillus 108-202.
robustulus 108-205.
rubidus 108-199.
rufipennis 108-200.
rufipes 108-204.
squamosus 108-202.
subfasciatus 108-205.
subvittatus 108-203.
suleifrons 108-201.
tectus 108-203.
ungularis 108-206.

Orchestes.

- parvicollis* 108-208 = niger Horn.
rufipes 108-208.

Macrorhoptus.

- estriatus 108-209.

Piazorhinus.

- pietus 108-211.

Proctorus.

- armatus 108-212.
decipiens 108-213, (*Encalus*).

Plocetes.

- ulmi 108-213.

Thysanocnemis.

- fraxini 108-214.
helvolus 108-214.

Tylopterus.

- pallidus 108-215.
varius 108-215.

Tychius.

- hirtellus 108-218.
lineellus 108-217.
semisquamosus 108-217.
setosus 108-218.

- Tychius** (continued).
 sordidus 108-217.
 tectus 108-217.
- Sibynes**.
 fulvus 108-219.
- Paragoges**.
 maculatus 108-219.
- Miarus**.
 hispidulus 108-221.
- Notolomus**.
 basalis 108-222.
 bicolor 108-222.
 myricæ 108-418.
- Conotrachelus**.
 adpersus 108-230.
 albicinctus 108-226.
 Belfragei 108-419.
 cognatus 111-429.
 coronatus 111-430.
 erinaceus 108-235.
 fissunguis 108-234.
 hispidus 108-235.
 juglandis 108-226.
 naso 108-231.
 nivosus 108-229.
plagiatus 108-233 = *nivosus Lec.*
 pusillus 111-429.
 seniculus 108-227.
 tuberosus 108-233.
 ventralis 111-428.
- Micralecinus**.
 cribratus 108-236.
- Zaglyptus**.
 striatus 108-237.
 sulcatus 108-237.
- Microhyus**.
 setiger 108-238.
- Acamptus**.
 rigidus 108-239.
- Acalles**.
 basalis 108-241.
 carinatus 108-242.
 clathratus 108-242.
 crassulus 108-244.
 granosus 108-243.
 Hubbardi 118-216.
 longulus 108-244.
 nobilis 108-241.
 nuchalis 108-244.
 pectoralis 108-245.
 porosus 108-242.
 sordidus 108-243.
 subhispidus 111-431.
 turbidus 108-242.
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- Eurhoptus**.
 pyriformis 108-245.
- Pseudomus**.
 truncatus 108-246.
- Tyloderma**.
 baridium 108-249.
 longum 108-248.
 morbillosum 60-58, (*Analcis*).
- Phyrdenus**.
 undatus 108-249.
- Cryptorhynchus**.
 fallax 108-253.
 fuscatus 108-251.
 helvus 111-431.
 minutissimus 108-254.
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- Cratosomus**.
 gemmatus 63-79. Mexican.
- Zascelis**.
 irrorata 108-257.
 serripes 108-257.
 squamigera 108-257.
- Cælosternus**.
 hispidulus 108-258.
- Baropsis**.
 cribratus 108-259.
- Piazurus**.
 californicus 108-260.
 subfasciatus 108-260.
- Copturus**.
 adpersus 108-262.
 binotatus 108-263.
 longulus 108-263.
 lunatus 108-263.
 mammillatus 108-262.
 nanulus 108-261.
- Acoptus**.
 suturalis 108-264.
- Tachygonus**.
 centralis 91-55.
 fulvipes 108-266.
 tardipes 108-266.
- Cæliodes**.
 asper 108-270.

Cæliodes (continued).

cruralis 108-270.

nasalis 108-271.

nebulosus 108-271.

tenuipes 108-270.

Acalloides.

ventricosus 108-272.

Ceutorhynchus.

angulatus 108-277.

convexicollis 108-276.

decipiens 108-275.

medialis 108-279.

obliquus 108-278.

puberulus 108-279.

pusillus 108-276.

rudis 108-275.

semirufus 108-278.

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Pelenomus.

cavifrons 108-282.

squamosus 108-281.

Cælogaster.

obscurus 108-283.

Rhinoncus.

longulus 108-284.

Orthoris.

Crotchii 108-286.

Rhoptobaris.

canescens 108-287.

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 ? convexa 108-422.
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Barilepton.

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- echidna 108-320.

Plocamus.

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Hormops.

- abducens 108-321.

Balaninus.

- uniformis 60-57.

CALANDRIDÆ.**Scyphophorus**.

- asperulus* 60-58, (*Rhyncophorus*),
 = *acupunctatus* Gyll.

Sphenophorus.

- apicalis 111-432.
 gentilis 60-58.
 oblitus 108-425.
 ochreus 63-80.
 pictus 63-80.
 simplex 65-79.
variolosus 108-424 = *Ulkei* Horn.
 velutinus 108-424.
 vomerinus 63-81.

Trichischius.

- crenatus 108-426.

Cactophagus.

- procerus* 63-80, (*Sphenophorus*),
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validus 63-80, (*Sphenophorus*).

Yuccaborus.

- frontalis 100-70, (*Rhina*).

Gononotus.

- lutosus 108-337.

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- conicum 118-218.
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Cossonus.

- scrobiculatus* 66-285 = *piniphilus* Boh.

Macrancylus.

- linearis 108-339.

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- angularis 63-81.
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- cavum* 93-153 (*Cryph.*) = *scutellare* Lec.
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Pityophthorus.

- annectens 112-622.
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cariniceps 108-353.
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hamatus 100-72, (*Xyleborus*),
 = *carinulatus* Lec.
hirticeps 112-623.
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plagiatus 93-161, (*Xyleborus*).
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sulcatus 93-155, (*Cryphalus*),
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Hypothenemus

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Xyloterus.

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- biographus* 93-160.
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vicinus 100-72 = *caelatus* *Zimm.*

Dryocætes.

- granicolis* 93-162, (*Xyleborus*).

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- aspericollis* 108-380.
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nebulosus 66-285 = *sericans* *Mann.*
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- cristatus* 93-170, (*Hylesinus*).
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Chætrophlæus.

- hystrix* 63-81, (*Hylesinus*).

Carphoborus.

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- brevicomis* 108-386.
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Blastophagus.

- analogus* 93-172, (*Hylurgus*),
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protensum 60-53.

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—o—

The following were accidentally omitted:—

Cicindela.*Kirbyi* 87-362, pro *obliquata* || *Kirby*.= *vulgaris* *Say*.**Colon.***dentatum* 28-282.**Aglyptus.***lævis* 28-284, (*Colenis*).**Synaphæta.***Guexi* 16-166, (*Mesosa*).**Eupogonius***pubescens* 97-236.**ERRATA.**Page 202, for *Hypodaene* read *Hypodacne* = *Pleosoma* *Woll*.Page 203, for *Microstemma* read *Microstemma* = *Eumicrus* *Lac*.Page 209, for *Blechrus linearis* read *linearis* = *nigrinus* *Mann*.Page 209, for *Blechrus lucidus* read *lucidus* and *dele* = *nigrinus* *Mann*.Page 209, for *Callida cyanoptera* read *cyanoptera* = *decora* *Fabr*.Page 209, for *Teenophilus nigricollis* read *nigricollis* = var. of *croceicollis* *Mén*.Page 211, for *Amara crassipina* read *crassispina*.Page 227, for *Hypodaene* read *Pleosoma* and insert the former after *punctata*.Page 236, for *Anthaxia strigata* 67-45 read 67-215.Page 241, after *Lucidota punctata* and *tarda* insert (*Lucernuta*).Page 244, for *Attalus lobulatus* 79-154 read 79-54.Page 250, for *Plectura* read *Plectrura*.Page 252, for *Syneta suturalis* 60-89 read 65-89.Page 259, for *Anthicus nigrifolius* 14-153 read 14-154.**SUMMARY OF GENERA.**

Number of genera described.....	514
Number which retain the name given.....	400
Number which are considered synonyms.....	114

SUMMARY OF SPECIES.

Number of names proposed.....	4734
Number which retain the name given.....	3682
Number which are considered varieties.....	174
Number which are considered races.....	14
Number which are considered synonyms.....	864
Number of names pre-occupied 	69
Number of names incorrectly cited †	60
Number of types not in Dr. LeConte's collection.....	20

APPENDIX.

Coleoptera described by J. E. LeConte.

List of Places of Publication.

1. Ann. Lyc. Nat. Hist. N. Y., 1824, vol. i, p. 169-173.
2. Proc. Bost. Soc. Nat. Hist., 1844, vol. i, p. 185-187.
3. Bost. Journ. Nat. Hist., 1845, vol. v, p. 32-86.
4. Proc. Acad. Nat. Sci. Phila. 1859, p. 310-317.

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 = *exiguus* *Erich.*
finetarius 2-187 & 3-84, (*Abræus*).
obliquus 2-187 & 3-84, (*Abræus*),
 = *exiguus* *Erich.*

Aeletes.

- simplex* 2-187 & 3-84, (*Abræus*).

CERAMBYCIDÆ.**Curius.**

- dentatus* 1-172, (*Obrium*).

Molorchus.

- affinis* 1-172 = *bimaculatus* *Say.*

BRUCHIDÆ.**Bruchus.**

- lividus* 1-170. Lives in Hibiscus seeds, and is probably identical with *florida* Horn.

CHRYSOMELIDÆ.**Pachybrachys.**

- subfasciatus* 1-173, (*Cryptocephalus*).

Paria.

- infuscata* 1-173, (*Colaspis*),
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Chrysomela.

- scalaris* || 1-173 = *multiguttis* *Stal.* †

Graptodera.

- janthina* 1-173, (*Galeruca*).

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CISTELIDÆ.**Mycetochares.**

- rufipes* 1-170, (*Mycetophila*).

ANTHICIDÆ.**Notoxus.**

- murinipennis* 1-170, (*Anthicus*),
 = *bicolor* *Say.*

ATTELABIDÆ.**Attelabus.**

- nigripes* 1-171.

CURCULIONIDÆ.**Hilipus.**

- squamosus* 1-171, (*Pissodes*).

Anthonomus.

- suturalis* 1-171.

Macramerus.

- mœstus* 1-171, (*Cryptorhynchus*). ‡

Copturus.

- minutus* 1-171, (*Eccoptus*).

ANTHRIBIDÆ.**Piezocorynus.**

- mœstus* 1-172, (*Anthribus*).

SUMMARY OF SPECIES.

Number of species described.....	86
Number which retain the name given.....	61
Number which are considered varieties.....	2
Number which are considered synonyms.....	23
Number of names pre-occupied 	3
Number of names incorrectly cited †	2

† *C. pretiosa* (= *lunata* *Fab.*), and *C. (P.) discicollis* (= *lapponica* *Linn.*), mentioned in Dejean's Catalogue, are manuscript names.

‡ The generic reference is taken from Dejean's Catalogue. The insect is not represented in any of our collections, *Lec.*

Descriptions of species belonging to the genus NYSSON inhabiting North America.

BY E. T. CRESSON.

Our species may be divided into three subgenera, as follows :

Wings with three submarginal cells.

Posterior tibiæ serrate; lateral margin of scutellums strongly reflexed, post-scutellum bilobed; apex of ♂ abdomen generally with four teeth.

PARANYSSON.

Posterior tibiæ not serrate; lateral margin of scutellums not reflexed, post-scutellum narrow, not bilobed; apex of ♂ abdomen with not more than two teeth.....**NYSSON.**

Wings with two submarginal cells.....**HYPONYSSON.**

PARANYSSON Guér.

Legs ferruginous.

Apex of ♂ abdomen armed with two teeth..... **armatus** Cress.

Apex of ♂ abdomen armed with four teeth.....**texasus** Cress.

Legs black; apex of ♂ abdomen armed with four teeth.

Abdomen subsericeous with pale ochraceous pile.....**fuscipes** n. sp.

Abdomen sericeous with dense bright golden-yellow pile...**mexicanus** n. sp.

Paranysson armatus Cress., (*Nysson*), Proc. Ent. Soc. Phila. iv, p. 145.—

♀.—Black, opaque, clothed with a very short, more or less dense golden-yellow pubescence, silvery on face and clypeus; mesothorax deeply and coarsely punctured, lateral angles of prothorax prominent and subacute; posterior margin of prothorax, the central impressed line of mesothorax, its lateral and posterior margins, the tubercles, mesopleura and sides of metathorax above densely clothed with golden pubescence; scutellum rugose, golden at base; mesopleura with a short subacute tooth beneath tegule; metathorax coarsely rugose, the long, stout, acute, strongly divergent lateral spine broadly tipped with yellowish, the basal middle irregularly channelled down the middle; tegule and legs ferruginous, thinly clothed with golden pubescence, coxæ black at base, silvery; wings subhyaline, darker in marginal cell and on apical margin, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen rather closely punctured, coarser at base and becoming finer and indistinct towards the apex, the extreme base silvery sericeous and the apical margin of the segments above bright golden; on each side of the three basal segments above a rather large, transverse pale yellowish spot, larger and ovate on basal segment and smaller on the third; venter deeply punctured, shining and somewhat silvery. Length .30 inch.

♂.—Very much like the ♀; the fourth segment of abdomen above has a small obscure pale spot on each side behind, and the apical segment is carinate on the sides and armed at tip with two small, distant, obtuse flattened teeth. Length .35 inch.

Hab.—Cuba. Two specimens.

Paranysson texasus Cress., (*Nysson*), Trans. Am. Ent. Soc. iv, p. 223.—

♀.—Black, opaque, clothed with a more or less dense, very short golden-ochraceous pubescence, silvery on thorax beneath and coxæ; head closely and deeply punctured.

tured, mandibles white at base, the tips more or less, and apex of scape beneath, ferruginous; thorax closely, deeply and rather coarsely punctured; posterior margin of prothorax continued around the tubercles, a band at base of scutellum, lateral angles of metathorax and a spot beneath tegulæ immediately above and in front of a small but prominent tubercle, bright golden; mesothorax with a well impressed central longitudinal line not extending beyond the disk; scutellum rugose; lateral spine of metathorax long and subacute, tipped with pale yellow; tegulæ and legs ferruginous, clothed with pale sericeous pile, coxæ and trochanters black; wings smoky, darker in marginal cell and at extreme tip, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen pale golden sericeous, not densely punctured, a broad band of dense golden pile near base of first segment above, a transverse ovate spot on each side at apex of first segment above, a short narrow line on each side at apex of second and third segments and narrow apical margin of all the segments except the last, pale yellow, sometimes dull yellow. Length .35 - .45 inch.

♂.—Very much like the ♀; sides of face and clypeus bright silvery; the coxæ, trochanters and femora except tips sometimes blackish; the fourth and sometimes the sixth abdominal segments above have a lateral apical pale yellow spot; apical segment armed with four teeth, the lateral ones very short. Length .35—.40 inch.

Hab.—Texas, (Belgrave); Montana, (Morrison). Ten specimens. This is very closely allied to *armatus*, which, however, is more densely pubescent, and the ♂ abdomen armed at tip with only two teeth.

Paranysson fuscipes n. sp.—♀.—Black, opaque, clothed with a very short, more or less dense, pale ochraceous pubescence, coarsely and confluent punctured; face with a prominent acute longitudinal ridge just above insertion of antennæ; labrum, mandibles and palpi ferruginous; posterior margin of prothorax, tubercles, short longitudinal line on middle of mesothorax, base of scutellum, postscutellum and metathorax above, covered with a dense golden ochraceous pile; mesopleura coarsely rugose, with a short acute tooth beneath tegulæ; metathorax coarsely reticulated, the basal middle with a few coarse longitudinal rugæ, the strongly divergent prominent lateral spine acute and tipped with yellowish; tegulæ dull ferruginous; wings hyaline, dusky at extreme tips, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; legs black or fuscous, extreme tips of femora, and the four anterior tibiæ in front, more or less dull ferruginous; abdomen deeply punctured, more closely so on apical segments and more coarsely on base and sides of first segment; a yellow band, narrowed and more or less interrupted in middle, on apex of segments 1—5 above, the extreme posterior margin of the segments narrowly golden; venter and thorax beneath silvery sericeous. Length .45 inch.

♂.—Much like the ♀, with the abdomen more strongly punctured; face and clypeus bright silvery, the upper anterior orbits sometimes golden; sixth segment of abdomen above generally with a small pale spot on each side; apical segment carinate laterally and armed at tip with four teeth, the middle ones the longest. Length .40 inch.

Hab.—Washington Territory, Oregon, (Morrison). Four specimens. This species is more coarsely punctured than the others, and easily distinguished from the preceding by the black legs.

Paranysson mexicanus n. sp.—♀.—Black, opaque, clothed with a very short dense silvery-ochraceous pubescence, most dense and sometimes golden on face, clypeus, cheeks, posterior margin of prothorax, tubercles and sides of metathorax above; head deeply punctured, mandibles rufo-piceous; mesothorax deeply and coarsely punctured, with a well impressed central longitudinal line; scutellum and mesopleura coarsely confluent punctured, the latter with a short subacute tooth beneath tegulæ; basal middle of metathorax above covered with appressed ochraceous pubescence, the very prominent, strongly divergent, acute lateral spines tipped with yellow; tegulæ, tips of four anterior femora and their tibiæ in front, dull rufo-testaceous; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; all the tarsi and posterior tibiæ more or less rufo-fuscous; abdomen sparsely and rather strongly punctured, covered with a dense golden-yellow pile, that on base of first segment above ochraceous; posterior margin of segments 1—5 above narrowly yellowish, slightly dilated on the sides, the sixth segment with a large yellowish spot covering nearly the whole upper surface; apical margin of all the segments, except the last, with a narrow fringe of dense golden-yellow pubescence; venter with silvery-ochraceous pubescence, the second segment deeply punctured. Length .40 inch.

♂.—Like the ♀, except that the clypeus and thorax beneath are densely silvery; the sixth abdominal segment above has a rather broad golden-yellow band at tip, and the seventh segment fulvous, except base, carinate laterally and terminated by four teeth, the two middle ones longer and slightly divergent. Length .40 inch.

Hab.—Mexico, (Sumichrast). Nine specimens.

NYSSON Latr.

Mesothorax more or less deeply and coarsely punctured.

Space between ocelli not raised.

Legs ferruginous.

First abdominal segment with a large dilated yellow or fulvous spot on each side; wings fuscous; size large..... **plagiatus** n. sp.

First abdominal segment with a rather broad yellowish band on posterior margin, interrupted medially, but not dilated laterally; wings fuscous; size medium or small..... { ? **aurinotus** Say.
? **æqualis** Patton.

Legs black, with the four posterior femora more or less ferruginous; abdomen with narrow interrupted white bands; wings clear: size rather small, form robust..... **compactus** n. sp.

Legs mostly black; (all the remaining species of small size).

Tibiæ with a white line above..... **albomarginatus** n. sp.

Tibiæ entirely black..... **aztecus** n. sp.

Space between ocelli more or less protuberant at the sides.

Abdomen black, with transverse yellow or white bands.

Legs ferruginous.

Basal middle of metathorax with evenly spaced longitudinal carinæ; abdomen deeply and coarsely pitted..... **mellipes** n. sp.

Basal middle of metathorax coarsely reticulated; abdomen less deeply punctured..... **opulentus** Gerts.

Legs black.

Thorax with yellow lines and spots; abdomen with entire yellow bands. **zapotecus** n. sp.

Thorax black, immaculate; abdomen with widely interrupted white bands.....**mœstus** n. sp.

Abdomen black, more or less ferruginous at base.

Scutellum with transverse yellow line at base; posterior margin of prothorax and of first abdominal segment distinctly yellow; body strongly silvery-sericeous; wings clear.....**bellus** n. sp.

Scutellum immaculate; body scarcely sericeous; wings smoky.

basilaris n. sp.

Mesothorax finely punctured or granulated.

Abdomen above with narrow interrupted white bands.

Clypeus and scape beneath of ♂ yellow.

Tarsi black, anterior tibiæ with white spot at base above**tristis** n. sp.

Tarsi testaceous, anterior tibiæ entirely white above..... **fidelis** n. sp.

Clypeus and scape beneath of ♂ entirely black.....**lateralis** Pack.

Abdomen more or less ferruginous at base.

Legs mostly black; abdomen with interrupted yellow bands or spots.

Abdomen sparsely punctured.....**rusticus** n. sp.

Abdomen very densely punctured.....**rufiventris** n. sp.

Legs black, tibiæ and tarsi yellow; abdomen with entire yellow bands.

pumilus n. sp.

Nysson plagiatus n. sp. = *aurinotus* Packard (*nec* Say), Proc. Ent. Soc.

Phila. vi, p. 440.—♀.—Black, opaque, covered more or less with a pale sericeous pile; face, clypeus and sides of metathorax above clothed with a short dense golden-yellow pubescence; head deeply not closely punctured, the space within ocelli not raised; mandibles except tips, palpi, two or three basal joints of antennæ, tegulæ and most of legs, fulvo-ferruginous; mesothorax, scutellum and mesopleura with large, deep, coarse punctures, confluent on mesopleura; post-scutellum elevated into a transverse ridge; tubercles, uneven line on posterior margin of prothorax confluent on each side with the tubercles, large transverse spot on scutellum, the prominent obtuse spines of metathorax, spot or line on all the coxæ, a large dilated subtriangular spot on sides of first abdominal segment above, sometimes notched on inner side and almost confluent on posterior middle of the segment, a line on each side at tip of second and third segments and generally a small more or less obscure spot on each side at tip of fourth segment, lemon or fulvous-yellow, sometimes fulvo-ferruginous; metathorax above coarsely reticulated, the basal middle with longitudinal rugæ; wings fuscous or fuliginous, more or less violaceous, the third submarginal cell, in all the specimens examined, narrowed to a point on the marginal, sometimes shortly petiolated, in the posterior wings the anal and discoidal cells are separated by a short transverse nervure; coxæ at base and femora above black or fuscous, sometimes all the femora except extreme base and tip are fuscous and the posterior tibiæ yellowish above at tip; abdomen rather deeply but not closely punctured except on apical segments; segments 2—5 above and beneath have a very narrow pale sericeous border, the second segment beneath is more or less ferruginous. Length .50—.55 inch.

♂.—Closely resembles the ♀, but more densely sericeous; apical joint of antennæ narrower and longer than the preceding joint, obtuse at tip and excavated beneath; apical segment of abdomen above subquadrate, depressed and densely fringed at tip with curved yellow hair, the sides terminating in a stout obtuse tooth. Length .45—.50 inch.

Hab.—Illinois, Nebraska, Texas, Washington Territory. Six ♂ ♀

specimens. A large robust species, easily recognized by the two large yellow spots on the first abdominal segment above, each spot occupying nearly the entire lateral surface, and sometimes almost meeting on the posterior middle.

Nysson aurinotus Say, Bost. Journ. Nat. Hist. i, p. 368.—“Body black, punctured; head before with a slight yellowish sericeous reflection; mandibles piceous; collar with an obscure golden margin, terminating in a spot; metathorax with a golden spine each side, in a golden spot; wings dusky; tergum on the posterior edges reflecting whitish; at base of the first segment obscure golden sericeous; posterior margins of the first, second and third segments each with a yellow band widely interrupted in the middle, the anterior one largest; feet honey-yellow, thighs black at base. Length three-tenths of an inch.

“Inhabits Indiana.”

Not identified. The description given above seems to refer to a much smaller species than the preceding (*plagiatus*). In some respects it agrees with small specimens of *Paranysson texanus*, but not sufficiently well to render their identity certain, as that species has several prominent characters which Say would scarcely have overlooked.

Two ♀ specimens from Illinois, closely related to *plagiatus*, but smaller (.40 inch), and with a yellowish band at apex of the three basal segments of the abdomen above, rather widely interrupted in the middle, that on the first segment much broader than the others, but not dilated laterally, may belong to this species, or else to *æqualis* Patton, should that prove to be distinct from *aurinotus*.

Nysson æqualis Patton, Can. Ent. xi, p. 212.—“♂.—Length 8.5 mm. Black; mandibles, scape, first joint of flagellum beneath and spot on second joint, testaceous; tips of mandibles and spot on scape above, piceous; spot on scape beneath, uneven line on collar connected on each side with tubercles and interrupted in middle, tubercles excepting a piceous dot, transverse spot on anterior portion of scutellum, spines of metathorax, spots on anterior and posterior coxæ and at tip of four anterior femora beneath, and interrupted bands on four basal segments of abdomen, on fourth segment very narrow and that on first segment broadest and none of the bands dilated at sides, yellow; legs fulvous, coxæ and a spot on femora within black. Body clothed with a very fine pubescence, that upon face, sides of dorsal face of metathorax and margins of abdominal segments longer and distinct, apex of abdomen with a fringe of curved bristles. Wings brown; third submarginal cell with a short side upon the marginal, submedian cell of posterior wings extending beyond the median cell upon the externo-medial nervure. Body strongly punctured, the punctures somewhat confluent upon pleura of mesothorax and upon the two apical segments of abdomen and more sparse upon the other abdominal segments. A slight depression on each side of disk of mesothorax and an impressed median line extending upon the disk from the prothorax. Posterior portion of scutellum, the postscutellum and base of metathorax longitudinally rugose, the rugæ slightly connected by transverse rugæ; postscutellum elevated into a transverse ridge; sides of metathorax coarsely re-

ticulated, the reticulations radiating from the prominent spine; posterior face of metathorax divided into coarse reticulations by transverse ridges, median area flat and finely reticulated. Twelfth joint of antennæ thickest; thirteenth joint almost equalling the scape in length, excavated beneath. Seventh segment of abdomen terminating in an obtuse angle, its upper face having a sharp ridge on each side, the ridges terminating in stout spines.

“Easthampton, Mass., July 24th. The form of the apex of the abdomen will at once distinguish this from the species which it resembles.”

Not identified. This may prove to be identical with *aurinotus* Say.

Nysson compactus n. sp.—♀.—Short, broad, robust, black, opaque; head and thorax coarsely, somewhat confluent punctured, clothed with a very short, subappressed, pale pubescence, that on vertex and thorax above yellowish, that on face, clypeus and sides of metathorax more dense and silvery; space between ocelli not raised; two spots on posterior margin of prothorax, sometimes a dot on tubercles, spot on basal middle of scutellum, generally a short line on apex of anterior femora beneath, and a line on each side at apex of abdominal segments 1—4 above, long and almost meeting on middle of first segment, those on the other segments becoming gradually shorter, white; metathorax coarsely reticulated, the spines prominent and subacute; tegule generally rufo-testaceous; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a short thick transverse, in one specimen longitudinal, nervure; apex of anterior femora more or less, the intermediate and posterior pairs except base, and their tibiæ beneath, ferruginous; abdomen short ovate, convex, shining, finely and sparsely punctured, more closely so on apical segments, the second ventral segment more deeply punctured. Length .30—.35 inch.

♂.—Face and clypeus more densely silvery; antennæ thickened towards tips, the apical joint truncate at tip and subemarginate beneath; legs black, with apical half of posterior femora only, ferruginous; abdomen more closely punctured, the apical segment above truncate at tip, with the sides obtusely produced and tufted with short pale pubescence. Length .32 inch.

Hab.—Washington Territory, (Morrison). Three specimens. This has an unusually robust form.

Nysson albomarginatus n. sp.—♀.—Black, opaque; head and thorax closely and somewhat confluent punctured; space between ocelli not raised; mandibles ferruginous near tips; posterior margin of prothorax, tubercles, an arcuate line on base of scutellum, spot on sides of coxæ, line at tip of four anterior femora beneath, line on all the tibiæ above, two transversely ovate spots near base of first segment above, and the posterior margin of segments 1—5 above, more or less dilated at extreme sides, and a spot on disk of apical segment, all white; mesopleura rugose; basal middle of metathorax above with coarse longitudinal rugæ, the lateral spine prominent and acute; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a longitudinal nervure; abdomen subsericeous, finely and rather sparsely punctured, beneath the second segment is more deeply punctured. Length .30 inch.

♂.—Clypeus with dense silvery pubescence; antennæ shaped much as in ♀, the scape with a white line beneath; the white spots on base of abdomen much reduced, and the bands on apical margin of the segments not dilated laterally, those on segments 2—5 slightly interrupted medially, the two apical segments

immaculate, the seventh above truncate at tip with a prominent tooth on each side. Length .26 inch.

Hab.—Nevada, (Morrison). Two specimens.

Nysson aztecus n. sp.—♀.—Black, opaque; head sparsely punctured, and together with the thorax clothed with a short appressed yellowish pubescence; space within the ocelli not raised; mandibles, tegulæ, anterior femora beneath and most of their tibiæ and tarsi, fulvous; posterior margin of prothorax, spot on tubercles, transverse line on base of scutellum, broad band on apical margin of first abdominal segment, notched on anterior middle, and a narrower band at apex of second segment, interrupted medially, yellow; mesothorax and scutellum with deep, tolerably close punctures, the mesopleura more finely punctured; basal middle of metathorax with several ill defined longitudinal carinæ, the central one most prominent, a patch of dense pale sericeous pubescence on each side above the prominent obtuse spine; wings pale fusco-hyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen somewhat shining, strongly and sparsely punctured, more closely so on apical segments. Length .30 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Nysson mellipes n. sp.—♀.—Black, opaque, coarsely punctured, clothed with a very short sericeous pubescence, which is pale brownish above and whitish or silvery beneath and on face, clypeus and cheeks; mandibles except base testaceous; posterior margin of prothorax, tubercles, arcuate line at base of scutellum, tip of metathoracic spines, short line on tip of four anterior femora beneath and a lateral transverse line on apical margin of abdominal segments 1—4 above, long and almost meeting on middle of first segment, short and widely separated on the fourth, yellowish-white; posterior ocelli separated by two longitudinal, smooth, shining subreniform tubercles; mesothorax and scutellum coarsely pitted; base of metathorax above with eight or ten evenly spaced longitudinal rugæ, the sides, above the prominent obtuse spine, with a large patch of golden pubescence, posterior face coarsely reticulated; tegulæ, tips of four anterior femora, the posterior pair entirely, and all the tibiæ and tarsi, fulvo-ferruginous; wings subhyaline, smoky at tips, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen deeply and rather closely punctured, the apical margin of the segments with a fringe of short golden pubescence; beneath, the second segment is coarsely and deeply punctured, sericeous with glittering pile; apical segments piceous. Length .30 inch.

♂.—Rather more coarsely and deeply punctured; sides of face and clypeus densely clothed with silvery-white pubescence; apical joint of antennæ truncated at tip, but not emarginate beneath; legs, except coxæ and trochanters, entirely fulvo-testaceous; bands on abdomen above scarcely interrupted on basal segment, slightly so on second and widely on third and fourth, while the fifth has a small yellow spot on each side; apex of last segment truncate, with a short acute fulvo-testaceous tooth on each side. Length .28 inch.

Hab.—Colorado, Dakota, Montana, (Morrison). Three specimens.

Nysson opulentus Gertstäcker, Abhandl. d. Naturf. Gesellsch. zu Halle x, 114, ♂.—♀.—Black, opaque, covered with a silvery-grey sericeous pile, silvery on face and clypeus; head deeply and closely punctured, a longitudinal tubercle on inner side of each posterior ocellus; mandibles except base ferruginous;

antennæ rufo-piceous at base: mesothorax deeply pitted, scutellum and mesopleura coarsely rugose; metathorax coarsely reticulated, a patch of dense silvery-grey pubescence on each side above the short acute spine; posterior margin of prothorax, tubercles, and arcuate line at base of scutellum, yellow; tegulæ dull testaceous, pale in front; wings pale fusco-hyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; legs ferruginous, coxæ, trochanters, extreme base of femora, line on posterior tibiæ within, their tips more or less, and all the tibial spurs, fuscous or black; abdomen rather deeply punctured, closely so on apical segments, first and second segments above each with a narrow yellow apical band, slightly interrupted on the middle of the first and broadly so on the second, the third and fourth each with a transverse lateral yellow spot. Length .28 inch.

♂.—“Head with occiput and clypeus silvery-white; antennæ blackish-brown; mandibles, three basal joints of antennæ, hind angles of mesothorax, and the tegulæ, rust-red; sides of metathorax above with dense yellowish-white pubescence; of the golden-yellow bands on abdomen above, that on the first segment only feebly narrowed at middle, shortly interrupted on the second, and the three following interrupted into spots, the seventh segment terminates in two slender rust-red tails. Length 8 mm.”

Hab.—New York. One ♀ specimen; ♂ not seen.

Nysson zapotecus n. sp.—♀.—Black, opaque, covered with a silvery-grey sericeous pile; clypeus clothed with silvery pubescence; head strongly punctured, a short longitudinal ridge on inner side of each posterior ocellus; mesothorax, scutellum and mesopleura deeply and coarsely punctured; basal middle of metathorax above with short longitudinal rugæ, the posterior face shining, with four longitudinal carinæ converging to apex, a patch of dense silvery pubescence on each side above the short subacute spine; a line on posterior margin of prothorax, connected with a spot on tubercles, spot on tegulæ, a transverse line on base of scutellum, and a rather broad apical band on abdominal segments 1—5 above, subinterrupted on middle of four and five, yellow; wings hyaline, dusky at tips, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen shining, sparsely punctured, more closely so at base and apex. Length .26 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Nysson maestus n. sp.—♂.—Black, opaque, clothed with a pale sericeous pile, silvery on sides of face and clypeus; head and thorax coarsely pitted; the space on inner side of posterior ocelli slightly protuberant; metathorax coarsely reticulated, the spines prominent and subacute; wings fusco-hyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; extreme tips of femora, and the tarsi more or less, testaceous; abdomen sparsely and rather finely punctured, more closely and deeply so on apical segments, the last segment above with two short teeth; a narrow band on apical margin of first segment above, interrupted medially, a short line on each side at apex of second segment, and a spot on each side of the third, pale yellow; venter shining, sparsely punctured. Length .25 inch.

Hab.—Washington Territory, (Morrison). One specimen.

Nysson bellus n. sp.—♀.—Black, opaque, clothed with a silvery-sericeous pile, most dense on face, clypeus and sides of metathorax; head closely punctured.

tured, the space within ocelli protuberant: apex of scape, mandibles and palpi ferruginous: thorax rather deeply and coarsely punctured, confluent so on mesopleura; posterior margin of prothorax, tubercles, arcuate line at base of scutellum, and posterior margin of abdominal segments 1—4 above, more or less interrupted medially on 2—4, and spot on sides of segment five, white; sometimes the line on sides of segment four is reduced to a spot; basal middle of metathorax with short longitudinal rugæ, the spines acute; tegulæ, legs and basal segment of abdomen, and sometimes the extreme sides of the second segment above and beneath, ferruginous; the coxæ and tarsi are more or less fuscous; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen rather sparsely and deeply punctured on basal segments and more densely and coarsely so on the apical segments. Length .25—.27 inch.

Hab.—Montana, (Morrison); Texas, (Belgrave). Six specimens.

Nysson basilaris n. sp.—♀.—Black, opaque; head and thorax deeply, coarsely and somewhat confluent punctured; face and clypeus clothed with silvery pubescence; on inner side of each posterior ocellus a prominent, shining, longitudinal, subreniform tubercle; scape tinged with ferruginous; scutellum and base of metathorax above longitudinally rugose; tubercles, tegulæ, legs except coxæ, and basal segment of abdomen, ferruginous; wings fusco-hyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; coxæ and posterior tarsi black; abdomen robust, strongly punctured, closely so on apical segments; a rather narrow yellowish-ferruginous band on posterior margin of segments 1—4 above, that on the first slightly interrupted medially, and widely so on the third and fourth; apical margin of the segments with a narrow fringe of yellowish pubescence. Length .25 inch.

Hab.—Georgia, (Ridings). One specimen.

Nysson tristis n. sp.—♂.—Black, opaque, head and thorax above densely and finely punctured: sides of face, clypeus, spot between base of antennæ, cheeks, sides of thorax and venter, clothed with a fine silvery-sericeous pubescence; clypeus except apical margin, spot on mandibles, scape more or less in front, interrupted line or median spot on posterior margin of prothorax, sometimes a spot on tubercles, a spot or line at base of four anterior femora behind, a spot or short line at base of four anterior tibiae, sometimes much reduced, and a transverse spot on lateral apical margin of segments 1—4 of abdomen above, those on first segment largest and more or less emarginate anteriorly, those on fourth segment small, all yellowish-white; upper anterior orbits sometimes golden: anterior tibiae and base of their tarsi sometimes testaceous; tubercle between insertion of antennæ unusually prominent; scape large, more than twice longer than broad, flagellum thickened to tip, the terminal joint as long as the two preceding together, deeply emarginate beneath; space between ocelli not raised; mesopleura rugose; base of metathorax above with about ten tolerably evenly spaced coarse longitudinal rugæ, the interstices smooth and shining, spines prominent and subacute; wings subhyaline, the apical margin smoky; in the posterior wings the anal and discoidal cells are separated by a short transverse nervure; legs with a silvery sericeous pile especially at base; abdomen above finely and rather sparsely punctured, the apex of seventh segment truncate, with a short tooth on each side. Length .28—.30 inch.

Hab.—Washington Territory, (Morrison). Four specimens.

Nysson fidelis n. sp.—♀.—Black, opaque; head finely and densely punctured, space within ocelli not raised; line on posterior margin of prothorax, tubercles, a transverse line or spot on each side at apex of abdominal segments 1—4 above, those on first segment more or less notched anteriorly, white; tegulæ and all the tarsi more or less, dull testaceous; mesothorax and scutellum, finely and very densely punctured, subgranulated; apex of scutellum and the post-scutellum finely longitudinally rugose; mesopleura rugose; basal middle of metathorax above with coarse longitudinal ridges, the sides above the prominent subacute spine with silvery pile; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a very short, thickened transverse or longitudinal nervure; abdomen feebly and sparsely punctured. Length .27 inch.

♂.—Clothed with a very short silvery sericeous pile, most dense on face, clypeus, mesopleura, sides of metathorax above and coxæ; clypeus, mandibles except tips, scape beneath, subinterrupted line on posterior margin of prothorax, tubercles, anterior coxæ beneath, spot on outer side of four posterior coxæ, anterior tibiæ and tarsi in front, spot at tip of anterior tibiæ, a narrow band on posterior margin of abdominal segments 1—6 above, more or less interrupted in middle, all white; tips of mandibles, tegulæ, and all the tarsi more or less, dull testaceous; antennæ thickened apically, the terminal joint as long as the two preceding taken together, obtuse at tip and emarginate beneath; the white band on sides of first abdominal segment above is slightly notched anteriorly, and the seventh segment above has two short teeth at tip. Length .28 inch.

Hab.—Montana, Colorado, (Morrison). Four ♀, one ♂ specimens. Closely allied to *lateralis*, but the punctures of the head and thorax are finer and more dense, and those of the abdomen above much more feeble and sparse.

Nysson lateralis Packard, Proc. Ent. Soc. Phil. vi, p. 440, ♂.—♀.—Black, opaque; head finely and closely punctured; sides of face, clypeus and cheeks clothed with a short, white pubescence; clypeus shining, sparsely punctured; tips of mandibles rufo-piceous; space within the ocelli not raised; mesothorax strongly and closely punctured; mesopleura and scutellum coarsely and confluent punctured; metathorax coarsely reticulated, the basal middle above with longitudinal elevated lines, the lateral spines short and acute; three approximated dots on middle of posterior margin of prothorax, tubercles, and transverse spot on lateral posterior margin of abdominal segments 1—3 above, yellowish-white; wings smoky hyaline, in the posterior pair the anal and discoidal cells are separated by a very short thickened transverse nervure; abdomen shining, strongly and rather sparsely punctured, more closely so on apical segments, second ventral segment strongly and sparsely punctured. Length .26 inch.

♂.—More slender than ♀ and more closely and strongly punctured, the face, clypeus, sides of thorax and coxæ silvery; antennæ thickened at tip, the apical joint as long as the two preceding joints together, truncate at tip and broadly emarginate beneath; tarsi fuscous; apical segment of abdomen above truncate at tip, with a rather long acute tooth on each side. Length .26 inch.

Hab.—New Hampshire, Virginia. Two specimens.

Nysson rusticus n. sp.—♀.—Black, opaque, sericeous with pale pile; head and thorax very finely and densely punctured; space between the ocelli not raised; one specimen has the tubercles and two distant spots on posterior

margin of prothorax yellow; scutellum with sparse shallow punctures; basal middle of metathorax above with about ten short longitudinal carinæ, a patch of dense grey pubescence on each side above the short subacute spine; wings subhyaline, dusky at tips, in the posterior pair the anal and discoidal cells are separated by a short transverse nervure; abdomen shining, sparsely and feebly punctured, more distinctly at apex; first segment entirely and the second beneath and at base and sides above, ferruginous, the second, third and fourth segments above have sometimes a yellow apical spot on each side of the middle. Length .20—.25 inch.

♂.—More densely clothed with sericeous pubescence, that on the head and thorax above tinged with brown; clypeus, spot on mandibles, scape beneath, a line dilated medially, or two spots on posterior margin of prothorax, tubercles, dot on tegulæ, sometimes a spot on four anterior coxæ beneath, extreme tips of their femora, their tibiæ in front, and a transverse line on each side at apex of abdominal segments 1—5 above, yellowish-white: face, clypeus, cheeks, mesopleura and coxæ silvery: scape large, robust, flagellum thickened at tips, the last joint longer than the two preceding together, obtuse at tip and broadly emarginate beneath; sometimes the ferruginous color of the abdomen is confined to the first segment, and the lateral yellow lines on apical margin of the segments reduced to transverse spots; the apical segment above has a stout tooth on each side at tip. Length .23—.25 inch.

Hab.—Washington Territory, (Morrison). Twelve specimens.

Nysson rufiventris n. sp.—♀.—Small, black, opaque, finely and densely punctured, subsericeous; head and thorax immaculate; space between ocelli not raised; basal middle of metathorax above with longitudinal rugæ, a patch of dense silvery-grey pubescence on each side above the rather long acute spine; anterior tibiæ and tarsi more or less ferruginous; wings hyaline, tips dusky, in the posterior pair the anal and discoidal cells are separated by a short transverse nervure; abdomen very densely and finely punctured, ferruginous, with the two apical segments more or less blackish; a yellowish-white spot on each side at apex of segments 1—4 above, sometimes obscure. Length .20 inch.

Hab.—Montana, Colorado, (Morrison). Three ♀ specimens. Differs from *rusticus* chiefly by the densely punctured abdomen.

Nysson pumilus n. sp.—♂.—Black, opaque, finely and densely punctured; clypeus, mandibles except tips, base of antennæ beneath, short line on posterior margin of prothorax, tubercles, spot on tegulæ, tips of four anterior femora beneath, all the tibiæ and tarsi, and a narrow band on posterior margin of all the abdominal segments above except the last, yellow; apex of flagellum thickened, testaceous, the terminal joint truncate at tip and emarginate beneath; space between ocelli not raised; basal middle of metathorax above with fine radiating longitudinal carinæ, the lateral spines short and subacute; wings subhyaline, in the posterior pair the anal and discoidal cells are separated by a prolonged longitudinal nervure; the two basal segments of abdomen, except discal spot above, ferruginous; the narrow yellow bands are slightly interrupted medially, the apical segments above broadly triangular and terminated by two short approximated teeth. Length .17 inch.

Hab.—Nevada, (Morrison). One specimen.

Nysson quinquespinosus Say, West. Quar. Rep. ii, p. 78.—“Body black: antennæ whitish beneath; clypeus white, with a longitudinal black line; mandibles black; margin of collar, tuberculi, (Kirby), an oblique interrupted line above the wings, scutellar line and tips of the metathoracic spines, whitish: spines about five, the superior ones largest, the intermediate one of the inferior series obtuse, sometimes obsolete: tibia, anterior pairs white before; anterior tarsi with elongated setæ before, (as in many species of *Gorytes*); abdomen with the posterior margins of the segments glaucous, above somewhat iridescent. Length less than two-fifths of an inch.

“Inhabits Arkansa.”

Not seen. This probably does not belong to the genus *Nysson*.

HYPONYSSON Cresson.

Hyponysson bicolor n. sp.—♀.—Small, black, opaque, densely and finely punctured, sides of face and clypeus clothed with silvery pubescence; mandibles ferruginous; space between ocelli not raised; mesothorax with a well impressed central longitudinal line; prothorax rather coarsely punctured; mesopleura rugose; postscutellum not raised; metathorax coarsely reticulated, the basal middle with longitudinal rugæ, the lateral spine short and acute; tubercles white; wings subhyaline, apex and marginal cell smoky; marginal cell long and pointed at tip, the first submarginal as long as the marginal, the second submarginal small, triangular, petiolated, receiving both recurrent nervures, one near base and the other near apex, the petiole nearly as long as the cell is high; in posterior wings the anal and discoidal cells are separated by a prolonged longitudinal nervure; abdomen shining, finely and rather closely punctured, entirely rufo-ferruginous. Length .25 inch.

Hab.—Washington Territory, (Morrison). One specimen. This seems to differ from *Nysson* only by the absence of the third submarginal cell.

PROCEEDINGS
OF THE
MONTHLY MEETINGS
OF THE
ENTOMOLOGICAL SECTION
OF THE
ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA.

JANUARY 14. 1881.

Vice-Director Dr. HORN in the chair.

The Publication Committee reported favorably the following papers presented at the last meeting for publication in the Transactions of the American Entomological Society:—

“Descriptions of new species of Diurnal Lepidoptera found within the United States.” by Wm. H. Edwards.

“Notes on the species of Callidryas found within the United States.” by Wm. H. Edwards.

The following additions to the Library of the American Entomological Society were announced:—

American Entomologist, vol. iii. No. 12. From the Editor.

Proceedings of the Boston Society of Natural History, vol. xx, sig. 25 and 26. From the Society.

Canadian Entomologist, vol. xii. No. 12. From the Editor.

Psyche, vol. iii. No. 77, September, 1880. From the Editors.

Entomologist's Monthly Magazine, Nos. 199 and 200. From the Conductors.

Le Naturaliste Canadien, vol. xii, No. 139. From the Editor.

Journal of the Royal Microscopical Society, vol. iii, Nos. 6 and 6 a. From the Society.

A review of the species of Anisodaetylus and critical notes on the species of Selenophorus, inhabiting the United States, by George H. Horn, M. D. From the Author.

Report of the Entomologist of the U. S. Department of Agriculture, for the year 1879, by J. Henry Comstock. From the Author.

Report of the Curator of the Museum of the Southern Illinois Normal University, by G. H. French. From the Author.

FEBRUARY 11, 1881.

Vice-Director Dr. HORN in the chair.

The following additions to the Library of the American Entomological Society were announced:—

Transactions of the American Entomological Society, vol. viii, Nos. 3 and 4. From the Publication Committee.

Entomologist's Monthly Magazine, No. 201. From the Conductors.

Entomologisk Tidskrift af Jacob Spangberg, vol. i, Parts 3 and 4. From the Author.

Bulletino della Societa Entomologica Italiana, vol. iv. From the Society.

Canadian Entomologist, vol. xiii, No. 1. From the Editor.

MARCH 11, 1881.

Vice-Director Dr. HORN in the chair.

The Publication Committee reported favorably the following papers presented at the last meeting for publication in the Transactions of the American Entomological Society:—

“Descriptions of new species of Tortricidæ of North America,” by Prof. C. H. Fernald.

“Catalogue of the Tortricidæ of North America.” by Prof. C. H. Fernald.

The Publication Committee laid upon the table signatures 1 and 2 (pages 1—16) of volume ix. of the Transactions of the American Entomological Society, printed since the last meeting.

Dr. LeConte desired to record the following notes on the habits of Coleoptera, as communicated by Mr. J. J. Rivers, of the University of Cal., Berkeley; Mr. J. B. McChesney, High School, Oakland, Cal.; Mr. Siewers, Newport, Ky., and others.

Californian species.

Cucujus puniceus, Mt. Shasta, under pine bark, (McC.).

Culitys scabra, form *serrata*, Mt. Shasta, under fir bark, (McC.).

Carpophilus discoideus, Berkeley, under oak bark, (Rivers).

Scymnus marginicollis, Berkeley, under oak bark, (Rivers).

——— *nebulosus*, Berkeley, under oak bark, (Rivers).

Teretrius placitus, Berkeley, in burrows of *Ptilinus basalis*, in Oreodaphne (Laurel); variety with black elytra, (Rivers).

Clerus eximius, in Oreodaphne, (Rivers). The larva spins a cocoon.

Hadrobregmus gibbicollis, in Oreodaphne, (Rivers).

Vrilletta convexa, bores in oak, (Rivers).

Holopleura Helena, in *Oreodaphne*. (Rivers), a very variable species in color; *H. marginata* is an extreme variety, with the black surface much developed.

Atlantic species.

Synchita granulata, under bark of honey locust.

Rhizophagus bipunctatus, under beech bark, (Siewers).

Nemosoma cylindricum, in *Rhus radicans*. (Reinecke).

Crynocharis 4-lineata, under beech bark. (Siewers).

Creggia vetusta, on *Rhus radicans*. (Reinecke).

Elaphidion (*Psyrassa*) *unicolor*, in *Cercis*; (Judas tree).

Glyptoscelis barbata, on hickory leaves. (Siewers).

Zaglyptus sulcatus, upper branches of dead beech trees, (Siewers).

Microhyus setiger, upper branches of dead beech trees, (Siewers).

Dendroctonus punctatus, under bark of black spruce. (Hagen).

Mr. E. T. Cresson presented the following descriptions of new Hymenoptera in the collection of the American Entomological Society:

Liris brunneipes.—♀.—Black, smooth and shining; mandibles except tips, and the palpi, testaceous; scape brown; mandibles with inferior margin entire; metathorax above finely coriaceous, opaque, sides finely striated, the truncated apex rugulose, with a small deep shining fovea on upper middle; tegulae dull testaceous; wings subhyaline, a dark streak at tip of marginal cell, nervures and stigma piceous; marginal cell short and broad, the tips broadly truncate; first submarginal cell longer than the second and third together, *receiving the first recurrent nervure near the tip*; second submarginal triangular, receiving the second recurrent nervure slightly beyond the middle; third submarginal cell narrow, rounded below and narrowed above towards the marginal; legs piceous, tibiae and tarsi brownish-testaceous, tibiae spinose, the intermediate pair with two spurs at tip; abdomen smooth and polished, impunctured. Length .25 inch.

Var. ♀.—Middle of clypeus, mandibles except tips, palpi, antennae, most of prothorax, tegulae, tubercles, and most of four anterior legs, testaceous; abdomen piceous. Length .25 inch.

♂.—Resembles the ♀; sides of face, clypeus, mandibles except tips, scape beneath and tubercles, white; flagellum brown above, testaceous beneath; tegulae piceous; metathorax with a deep depression at tip above; wings pale fusco-hyaline, the posterior pair paler, with a fuscous spot at tip. Length .23 inch.

Hab.—Colorado; Nevada; (Morrison). This may not belong to the genus in which it is placed, as the first submarginal cell receives a recurrent nervure. The eyes in the ♂ do not meet on the vertex, but are as widely separated as in the ♀.

Astata occidentalis.—♂.—Entirely black, clothed with glittering whitish pubescence, quite dense on sides of the face, cheeks and apex of metathorax; front punctured, with a smooth shining depression before anterior ocellus; mesothorax closely punctured and depressed anteriorly, sparsely punctured and shining on the disk and posteriorly; scutellum sparsely punctured and shining the apex densely punctured; pleura at sides and beneath densely punctured and opaque;

tegulae polished; metathorax above with fine dense longitudinal suboblique striations: the apical middle on the verge of the truncation somewhat smooth and slightly produced, the truncation closely punctured, with a deep shining fovea on upper middle, sides of metathorax rugulose: wings hyaline, with a fuscous cloud covering the marginal and submarginal cells and faintly the discoidal cells, nervures and stigma black, apex of marginal cell obliquely truncate, the appendiculate nerve short, not reaching the margin of the wing; legs black with griseous pubescence; abdomen shining, first segment finely punctured, thickly clothed, especially at sides, with rather long pale pubescence, second segment at base very minutely punctured; venter shining, sparsely clothed with a blackish pubescence. Length .45—.55 inch.

Hab.—Washington Territory; (Morrison). Closely allied to ♂ *unicolor* Say, which however has the metathorax coarsely reticulated above and the wings hyaline.

Astata nigropilosa.—♀.—Deep black, shining, clothed with black pubescence; face finely and rather closely punctured: mesothorax and scutellum smooth and polished, with a few scattered punctures, the former clothed with black pubescence on anterior margin and with a shallow depressed line over the tegulae; metathorax above rather finely reticulated, more coarsely so on the sides, apex rugose, with a deep shining fovea on upper middle; pleura finely punctured, pubescent: tegulae rufo-piceous; wings uniformly fuscous, with a darker streak at tip of marginal cell, nervures and stigma black, marginal cell broadly and obliquely truncate at tip, the appendiculate nervure very short, third submarginal cell slightly narrowed towards the marginal, posterior wings much paler than the anterior; tarsi more or less brown at tips; abdomen smooth and polished, impunctured. Length .35—.45 inch.

Var. ♀.—Wings subhyaline, the anterior pair broadly fuliginous at tip; the first dorsal segment of abdomen except base, the second entirely, above and beneath, and the lateral and apical margin of the third, ferruginous. Length .35 inch.

♂.—Mesothorax finely punctured, the anterior middle depressed; apex of metathorax above depressed and somewhat produced; tegulae black; anterior wings hyaline at base; abdomen rather less shining and more pubescent. Length .45—.50 inch.

Hab.—Colorado; Nevada; (Morrison).

Astata caerulea.—♂.—Steel-blue, shining, clothed with black pubescence; face finely punctured: mandibles and antennae black, tips of the former reddish; mesothorax sparsely, feebly punctured, somewhat depressed anteriorly and with a finely impressed longitudinal line on each side over tegulae; scutellum smooth and shining, with a medial impression; metathorax opaque, coriaceous, the apex above somewhat produced and with a broad rather deep depression: the sides and apical truncation finely rugulose; pleura finely punctured; tegulae piceous; anterior wings fuscous, the nervures and stigma black, marginal cell short and broad, the apex broadly truncate, the appendiculate nervure indistinct, but continued to the margin of the wing, third submarginal narrow, rounded beneath and narrowed above towards marginal, the first submarginal longer than the second and third together, posterior wings hyaline; legs black, the coxae and femora tinged with blue; abdomen shining, impunctured. Length .35 inch.

Hab.—Nevada; (Morrison). Readily distinguished by the steel-blue color.

Astata mexicana.—♂.—Black; clothed with a whitish pubescence, silvery in certain lights, long and dense on sides of face, cheeks and on metathorax; mesothorax closely and finely punctured, more sparsely so posteriorly; a short smooth longitudinal line on each side of anterior middle, ending in a small tubercle; scutellum smooth and polished on disk; pleura rather closely and finely punctured, shining; metathorax above covered with fine oblique striations, which are coarse at extreme base and somewhat reticulated, apical middle slightly depressed and produced, the truncation rugulose, with a deep shining fovea on upper middle, sides of metathorax closely punctured; tegulae piceous; wings hyaline, faintly stained with fuscous towards tips and especially in marginal and submarginal cells, nervures and stigma black, apex of marginal cell obliquely truncate, the appendiculate nerve distinct to edge of the wing, the third submarginal cell narrowed one-half towards the marginal; legs black, clothed with pale glittering pubescence, tarsi more or less tinged with reddish-brown; abdomen rufo-fulvous, shining, sparsely pubescent, the pubescence longer and more dense on basal segment, base of first segment above, most of first and disk of second ventral segments black. Length .40—.50 inch.

Hab.—Mexico; (Sumichrast).

Astata nevadica.—♀.—Deep black, polished, sparsely clothed with pale glittering pubescence, that on the face about base of antennae, mesothorax and legs, black; face with large sparse punctures; middle of mandibles tinged with red; mesothorax with a few scattered punctures; scutellum flattened, smooth, impunctured; metathorax above finely reticulated, opaque, sides obliquely striated, the truncated apex rugose, with a small pit on upper middle; pleura finely longitudinally striated on the sides, shining and sparsely punctured beneath; tegulae piceous; wings subhyaline, the apex broadly fuliginous, with a darker streak at tip of the marginal cell, which is broadly and rather obliquely truncate at tip, the appendiculate nervure very short; third submarginal cell slightly narrowed towards the marginal; tips of tarsi brownish; abdomen shining, dark ferruginous, extreme base above and beneath, black. Length .37 inch.

Hab.—Nevada; (Morrison). Resembles *bicolor* Say, ♀, but the sculpture of the metathorax is much finer, and the pubescence on the face, mesothorax and legs is black.

Astata montana.—♀.—Small, black, shining, sparsely clothed with black pubescence: front below ocelli with an impressed longitudinal line; mesothorax and scutellum smooth and polished, a feebly impressed longitudinal line on each side over tegulae; metathorax coriaceous, in one specimen granulated, opaque, the apex above with a more or less distinct medial impression, the sides feebly wrinkled; pleura opaque on the sides and shining beneath; tegulae piceous; wings smoky subhyaline, nervures black or brown, stigma honey-yellow or brown; marginal cell short and broad, the apex broadly truncate, the appendiculate nervure very fine and indistinct, but continued to margin of the wing; first submarginal cell longer than the second and third together, the second receiving the first recurrent nervure at or near its base and the second a little beyond the middle; the third submarginal narrowed towards the marginal; tarsi more or less brown; abdomen entirely ferruginous, shining, impunctured. Length .25—.30 inch.

Hab.—Colorado; Nevada; (Morrison).

Astata elegans.—♀.—Black, shining, sparsely clothed with short pale glittering pubescence; sides of face, about base of antennæ much depressed, making the middle of the clypeus prominent, apical middle the latter as well as the mandibles except tips reddish-brown; mesothorax and scutellum smooth and polished; metathorax coriaceous, opaque, the upper surface unevenly depressed, the sides finely longitudinally striated; tegulæ and two spots beneath, white; wings hyaline, slightly stained with yellowish towards apex, nervures brown, stigma honey-yellow; marginal cell short and broad, the tip broadly truncate, the appendiculate nervure very short at apex of the cell but continued indistinctly to margin of the wing; first submarginal cell much longer than the second and third together, second submarginal triangular, receiving the first recurrent nervure at the base and the second between the middle and apex, third submarginal cell narrow, oblique, slightly narrowed towards the marginal; the tarsi, and occasionally the tibiæ, more or less brown; abdomen smooth and shining, entirely ferruginous. Length .35 inch.

♂.—Colored like the ♀, but on the front immediately beneath the ocelli a transverse flattened, oblique, roof-like protuberance, divided in the middle and smooth, polished and white above; apical middle of clypeus with a stout, acute, porrect tooth; scape short, subglobose; anterior tibiæ brown, with a white spot or line at base anteriorly, tarsi brownish-testaceous; first segment of abdomen above sometimes with a narrow subapical yellowish-white band, sometimes subinterrupted: the two or three apical segments are occasionally black or fuscous. Length .30—.35 inch.

Hab.—Washington Terr.; Vancouver's Island; Nevada; Colorado; (Morrison). The specimens from the last three localities are smaller and have no pale band on first abdominal segment, and the white spots beneath the tegulæ are smaller.

Astata bella.—♂.—Black, thinly clothed with fine pale pubescence; face finely punctured, with an impressed longitudinal line beneath the ocelli; clypeus with a stout obtuse tubercle on apical middle; mandibles fulvo-testaceous, with a whitish spot on upper middle; two nearly confluent spots immediately below anterior ocellus, tegulæ and spot beneath, white; antennæ brownish beneath, especially at base; mesothorax and scutellum shining, very feebly punctured; metathorax finely coriaceous, subopaque, a rather deep subtriangular depression on apex above, a large deep fovea beneath on the truncation from which proceed on each side a deep longitudinal groove, extending nearly to the base of the metathorax; pleura piceous, smooth and shining; wings hyaline, with a faint dusky cloud covering the marginal and second and third submarginal cells, nervures and stigma pale brown, base of stigma and the nervures at base of the wings pale yellow; marginal cell short and broad, the apex broadly truncate, the appendiculate nervure short, faintly traced to the anterior margin of the wing, first submarginal cell much longer than the second and third together; second submarginal triangular, receiving the first recurrent nervure at base, and the second recurrent at about the middle; third submarginal narrowed one-half towards the marginal; legs pale castaneous, tips of femora, the tibiæ and the tarsi yellowish-testaceous or honey-yellow, the anterior tibiæ in front and the intermediate pair at base, yellow; abdomen pale honey-yellow, shining, impunctured. Length .26 inch.

Hab.—San Diego, California; (Crotch). A pretty little species, resembling *elegans* ♂, but has not the frontal protuberance.

Dr. Horn suggested a modification of the table of *CLIVINA* which was originally published by Dr. LeConte in Proc. Acad. 1857, p. 81, and since somewhat changed by the author in Bull. Brooklyn Ent. Soc. ii, p. 32.

Lateral margin of thorax attaining the basal margin.

Middle tibiæ with a spur on outer side near the tip.....Species 1-8.

Middle tibiæ without spur.....Species 9-15.

Lateral margin of thorax not attaining the base but forming an ante-basal ridge.

Middle tibiæ without spur.....Species 16-21.

Species 1-15 have many dorsal punctures, 16-21 two or none.

Dr. Horn also called attention to the fact that the characters used in the separation of the genera of the group *Clivinæ* seemed to have very little value, and those based on the ligula not strictly true. An important difference between *Clivina* and *Dyschirius* seemed to have been entirely overlooked. In the former genus the terminal joint of the maxillary palpi does not differ materially in the sexes, while in the latter that of the male is much more dilated and on the under surface is excavated, the concavity which is sharply defined is membranous and probably sensitive. The two genera are thus distinctly separable, while the ligula and paraglossæ do not differ materially in all the genera of *Clivinæ*.

The group *Scarites* is separated from the *Clivinæ* not only by the form of the antennæ and mentum, but also in the occurrence of but one supra-orbital setigerous puncture in the former group and two in the latter. A fuller discussion of the genera of both these groups, illustrated with drawings of dissections of the mouth parts, were promised in a more extended paper which would soon be presented for publication.

Dr. Horn also exhibited two new species of *DESMOCERUS* which he briefly characterized as follows:

D. californicus n. sp.—Black opaque, elytra bluish- or greenish-black, narrowly margined at base and sides with orange-red. Head and thorax densely and moderately coarsely punctured, the latter with the surface regular, and with a slight tinge of bluish-green. Elytra densely punctured, the punctures near the base coarse and deep, becoming gradually finer and denser toward the apex, surface black opaque and with a bluish, violaceous or greenish tinge, the lateral and basal margins narrowly orange-red, scutellum and a small spot each side black. Body beneath and legs densely and rather finely punctured, the metasternum very finely pubescent. Length .64 ♂ —.80 ♀ inch; 16—20 mm.

The male is smaller and more slender than the female, and the elytra gradually narrower to apex; the five basal joints of the antennæ are also stouter and more serrate.

Collected by Mr. H. K. Morrison during the past year, in the southern part of California.

D. cribripennis n. sp.—Black, moderately shining, elytra bluish or greenish more or less metallic, narrowly margined with orange-yellow. Head coarsely and deeply, more or less confluent punctured. Thorax coarsely transversely plicate by the confluence of the punctures, surface irregular, bronzed. Elytra very coarsely and deeply punctured, the punctures near the apex very little smaller. Scutellum and a small spot each side black. Body beneath and legs finely and moderately densely punctured, the abdomen less densely at middle. Length .48 ♂—.72 ♀ inch; 12—18 mm.

The sexual characters are as in the preceding species but less marked.

Collected by Mr. Morrison in Washington Territory.

Dr. Horn stated that some time ago he exhibited females of these and supposed them merely instances of dimorphism. He was glad to be able to correct his own mistake and place the species in their proper light.

Desmocerus now contains four species, three of which belong to the Pacific fauna, they are as follows :

Elytra at basal half yellow, apex blue, disc finely tricostate, (*elongatus* Bl.).

palliatus Forst.

Elytra either entirely yellow or margined with yellow, not costate.

Male elytra orange-yellow, female with discal blue space, punctuation moderately coarse, a little finer near apex..... **aureipennis** Chev.

Elytra similarly colored in the sexes, both narrowly margined with yellow at sides and base.

Thorax irregularly plicate, elytra coarsely and deeply punctured from base to apex..... **cribripennis** Horn.

Thorax densely punctured, regularly convex. elytra moderately coarsely punctured at base, more finely and densely at apex..... **californicus** Horn.

The last three are the Pacific species and all are found on the flowers of Elder (*Sambucus*).

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Zoological Society of London, 1880. Part 3. From the Society.

Journal of the Linnean Society of London, Nos. 80—83. From the Society.

Entomologist's Monthly Magazine, No. 202. From the Conductors.

Canadian Entomologist, vol. xiii, No. 2. From the Editor.

American Naturalist, vol. xv, Nos. 1 and 2. From the Editors.

Journal of the Royal Microscopical Society, Series ii, vol. i. Part 1. From the Society.

Psyche, vol. iii, No. 78. From the Editors.

Orange Insects; a treatise on the Injurious and Beneficial Insects found on Orange Trees of Florida, by W. H. Ashmead. From the Author.

Bulletino della Societa Entomologica Italiana, 1879 and 1880. From the Society.

Note sur le genre *Macroderes* Westwood, par A. Preudhomme de Borre. From the Author.

Quelques mots sur l'organisation et l'histoire naturelle des Animaux Articulés, par A. Preudhomme de Borre. From the Author.

Note on a new Northern Cutting Ant, *Atta septentrionalis*.—Notes on the Architecture and Habits of the American Slave-making Ant, *Polyergus lucidus*, by Rev. H. C. McCook. From the Author.

APRIL 8, 1881.

Vice-Director Dr. HORN in the chair.

The Publication Committee laid upon the table signatures 3 and 4 (pages 17—32) of volume ix, of the Transactions of the American Entomological Society, and signature 1 (pages 1—8) of the Proceedings of the Section, printed since the last meeting.

The Publication Committee reported that the Printing Press belonging to the American Entomological Society, had broken down after a use extending over 19 years, and in such a manner as to render it of no further use. The printing will not, however, be delayed but for a short time, as the Committee expect soon to be in possession of a new press of an improved kind.

In behalf of Mr. W. H. Ashmead, Dr. Horn presented the following paper, entitled

On the CYNIPIDOUS GALLS of Florida.

BY WILLIAM H. ASHMEAD.

Jacksonville, Florida.

[PAPER No. 1.]

Having been engaged during the past winter on a study of the cynipidous galls of Florida, I propose to give the results of my investigations in some short papers.

As comparatively little of importance has been published respecting the galls of the live oak *Quercus virens*, I make that the subject of my first contribution:

THE GALLS OF THE LIVE OAK, *Quercus virens*.

Of the many curious galls affecting this tree, the first to which I wish to call attention is one which may be designated by the popular name of

The Live Oak: Pea Gall.

Baron Osten Sacken was the first to give an account of it twenty years ago in his paper entitled, "On the Cynipidæ of the North American

Oaks and their Galls," p. 57, published in the Proc. Entom. Soc. Phila. 1861. He says:

"*Quercus virens*, Live Oak.—Small, globular galls on the under side of the leaf. Diam. 0.15 to .2." Pale brownish when ripe; filled inside with a spongy, cellular mass, which is more dense than that of the preceding (*C. confluentis*), and not unlike the pith of a reed in texture. Single kernel in the centre.

"I am indebted for these pretty galls to Dr. Foreman, who brought them from Georgia, and although I do not know the fly, I have no doubt, from the structure of the gall that it is the produce of a *Cynips*."

In this supposition my researches prove him to be correct. Early this winter, I procured specimens of this gall from a tree, the leaves of which were literally covered with them, and from which I have bred the gall-fly and its parasites, the latter will be described in a future paper.

***Cynips q. virens* n. sp.**

Galls.—Small, globular, the size of a pea or slightly larger; from two to ten, attached to the under side of the leaf; pale brownish in color, filled inside with a dense, yellowish-brown, spongy, cellular mass. A single kernel in the centre. Diameter 0.15 to 0.25 inch.

Gall-Fly.—♀.—Length .15 inch. Head reddish-brown, finely punctate, pubescent; mandibles black; antennæ 13-jointed, reddish-brown, first two joints somewhat fulvous, nearly connate, third longest, about five times as long as second, following joints gradually decreasing in size, excepting thirteenth which is slightly longer than twelfth and infuscated; thorax brown, coarsely punctate, pubescent; parapsidal grooves distinct, two longitudinal grooves on præscutellum blackish; scutellum round very finely rugoso-punctate, pubescent; wings hyaline and remarkably long, veins brownish and thick, radial area almost closed, areolet distinct, petiolated, abdomen dark reddish-brown, all segments visible, basal half of second light reddish; legs light reddish-brown, posterior femora slightly infuscated.

Described from one bred specimen. Although I have nearly two hundred specimens of the galls in boxes, I have raised but a single *Cynips*, and that issued from the gall early in February.

The Live Oak Potato Gall.

By the above name I designate a gall which is found quite abundantly on the twigs and branches. It is evidently the same mentioned by Baron Osten Sacken (loc. cit. p. 259, 1862). He says:

"*Quercus virens*, Live Oak.—Woody swellings on the limb. The specimen communicated by Mr. Glover is a fragment of a branch about one and one-half inches long, with two such swellings; the one is rounded about 0.7 long and 0.5 broad; the other much smaller. I opened the latter and found on the inside a small hollow from the structure of which I have no doubt that the gall is the produce of a *Cynips*."

I obtained specimens of this gall early in January and February, and have succeeded in raising several of the flies. Many of these galls are picked by birds and gnawed by mice; both of which evidently highly esteem the rich, juicy morsel within.

Cynips q. batatoides n. sp.

Galls.—Abrupt, potato-like, irregular swellings of the twigs and branches, varying in size and form, from 0.4 to 0.7 and sometimes an inch long, and 0.3 to half an inch or more broad; the outer surface is rough of the same color as the bark; internally it is white and in consistency not unlike a potato. No kernels; each insect separated by a very thin, hardly perceptible parchment-like substance. In one of the galls I counted fifteen gall-flies.

Gall-Fly.—♀.—Length .12 inch. Head brownish-red, finely punctate, slightly pubescent, mandibles bidentate, tips black; palpi yellowish; antennæ 15-jointed, reddish-brown, joint third not quite thrice as long as first and second combined, joints four to eight subequal, nine to fifteen about equal, terminal joint smallest; thorax more coarsely punctate, brownish-red, covered with fine, short, whitish pubescence, parapsidal grooves indistinct, two longitudinal grooves; scutellum rugoso-punctate, slightly ridged, ridge more perceptible anteriorly and blackish; wings hyaline, veins black, radial area open, areolet distinct, petiolated; abdomen smooth and polished, of a uniform reddish-brown; legs yellowish or yellowish-red, thighs, coxæ and trochanters darker, feet black.

Described from numerous bred specimens all females.

The structural characters of this species indicate the possibility of its belonging to Giraud's genus *Drycosmus*, as defined by Baron Osten Sacken, (loc. cit. 4th article, p. 337).

The Bud-like Gall of the Live Oak.

This gall seems to have been entirely overlooked by all observers; it is difficult to see why, for although not nearly so plentiful as the previously described species, it is yet by no means rare and quite noticeable upon the ends of the twigs.

Cynips q. succinipes n. sp.

Galls.—Clusters of from five to twenty small galls crowded around a terminal twig or branch; globular or bud-like in form; externally yellowish-brown with a surface like buckskin, becoming black with age; internally hard and tough with a single kernel hard and smooth. Diameter from .10 to 0.2 inch.

Gall-Fly.—♀.—Length .14 to .15 inch. Brownish-red; head brown, finely granulated, face densely covered with rather long whitish or yellowish-white pubescence, more sparsely covered on vertex, ocelli black, smooth, shining; antennæ 13-jointed, reddish-brown, pubescent; third joint thrice as long as second, slightly infuscated, fourth joint nearly as long as third, seventh to twelfth about equal; thorax reddish-brown rather densely pubescent, two black subdorsal vittæ

extending from middle of mesothorax forward to collare in straight line with outer ocelli, parapsidal grooves distinct, brownish-black, two small grooves between these and just back of the black vittæ, converging towards scutellum not quite reaching hinder edge; the grooves are blackish and also the surface of the mesothorax a short distance along their edge; scutellum roundish, punctate and pubescent; wings hyaline, veins brownish all strongly defined, radial area nearly closed, areolet closed, the closing vein very pale; legs a clear amber pubescent; abdomen dark brown, smooth and shining basal part of the second segment reddish.

Described from one bred specimen.

The Leafy Gall of the Live Oak.

Another curious and by far the most interesting gall I have yet found in Florida, is that to which I have given the above name. Growing as it does in the bud axil of the leaf, and not unfrequently in close proximity to the others, the gall would naturally be taken by most observers for the blossom of the oak; indeed I never until lately suspected it to be the product of a *Cynips*.

On page 72, vol. 2, of "The American Entomologist," is figured a gall discovered by H. F. Bassett, so well known for his researches in this interesting branch of entomology, which will give one a fair idea of the species under consideration.

At first I was inclined to believe my species and his, which he calls *Cynips frondosa* identical; but on a careful study of his description of the gall, (he does not characterize the insect producing it), I have no hesitancy in describing it as new.

Mr. Bassett found his species at Waterbury, Conn., on the Chinquapin Oak, *Q. prinoides*, while Walsh found it on the Bur Oak and White Oak; vide Proc. Entom. Soc. Phil. p. 68, 1864.

He says: "When mature it often attains a diameter of two and a quarter inches, and the modified leaves of which it is composed are then much longer and proportionally much wider than at first, so that instead of being what the botanists term 'lanceolate,' they become oval with their tips usually acute."

Bassett says: "The cells containing the larva are smooth, shining, oval, about one-eighth of an inch long."

Walsh also says: "The larger ones enclose four or five cells and when the gall becomes mature, the cells are gradually disengaged from their leafy matrix and drop to the ground, where no doubt the larva will pass the winter more agreeably among the masses of dead leaves, which accumulate in such situations, than it would do if it were exposed aloft to the stormy blasts, and the cold driving sleet of the dead season of the year."

Now, the largest specimen I have ever found of the present gall, and I have collected hundreds, is never more than three-quarters of an inch in diameter, and instead of the leaves being oval, they are strictly lanceolate; the cells or kernels too, instead of being smooth, are pitted, somewhat like a peach stone. They likewise never drop to the ground, but remain cemented to their cup, and the fly escapes by perforating a hole in the top. I have found hundreds of the black dry galls containing cells so perforated, and have never seen more than *one cell to a gall*.

Cynips q. foliata n. sp.

Galls.—In outline urn-shaped, composed externally of numerous, lanceolate, leafy-like spines, developed from the axillary leaf bud; diameter one-half to three-quarters of an inch; internally consisting of a greyish acorn-like cup, with a single kernel imbedded half way; cup .20 inch in diameter. Kernel brownish .15 to .18 inch long by .07 to .10 wide, somewhat pointed at top and slightly contracted in the middle, irregularly pitted and grooved, somewhat like a peach stone only the grooves are not so deep.

Gall-Fly.—♀.—Length .12 of an inch. Head brown, face to mandibles covered with rather short, thick, white pubescence, a series of grooves or acielations converging towards mandibles, the latter black vertex rugoso-punctate, free from pubescence, palpi yellowish, terminal joint slightly infuscated at tip; antennæ 13-jointed, brownish-red, third joint twice as long as second, others to tenth subequal, tenth, eleventh and twelfth very short, about equal, thirteenth not quite twice as long as twelfth; mesothorax and scutellum reddish-brown, rugoso-punctate, covered with short whitish pubescence, parapsidal grooves distinct, brownish, two short subdorsal grooves starting from collare and extending backwards not quite to middle of thorax; abdomen smooth, bright, shining reddish-brown; legs yellowish-red, feet and coxæ brownish or blackish; wings hyaline, veins yellowish, radial area open, areolet none.

Described from numerous bred specimens.

The Live Oak Woolly Gall.

This unique and beautiful little species approaches nearest to the one described by Dr. Fitch, (see Ann. Report N. Y. State Agri. Soc. Fifth Report, p. 814), under the name of *C. q. luna*, readily distinguished from it, however, by size, coloration and in having but 14-jointed antennæ.

Cynips q. lanigera n. sp.

Gall.—Small, flattened, circular or irregular tufts of rather long whitish or ferruginous wool, on the under parts of the leaf; attached generally to the principal vein and covering from two to six small, irregular, smooth brownish seed-like kernels, .06 to .08 inch in diameter. Diameter of wooly covering .02 to .03 inch.

Gall-Fly.—♀.—Length .06 to .08 inch. Head, thorax and legs a beautiful bright yellow testaceous, finely granulate; ocelli and eyes bluish-black, a yellowish dot in centre of each, a few short, whitish hairs on face, antennæ 14-jointed, testaceous, infuscated from fourth joint, apical joint slightly longer than penultimate; thorax finely granulate; two deep smooth pits at base of scutellum and separated from mesothorax by a small narrow brownish ridge, also margined posteriorly with same; wings hyaline, hind ones slightly iridescent, veins brown, radial area open, the branch of subcostal not quite reaching costal edge, areolet none; abdomen yellowish brownish on dorsum, smooth and shining, sutures of segments somewhat darker giving it a banded appearance when fresh, fading out when dry.

Described from five bred specimens.

The Live Oak Fig Gall.

“*Quercus virens*, Live Oak.—Clusters of galls crowded together round a limb, not unlike *Cynips q. ficus*, Fitch in appearance, but much harder.”

The above gall, as described by Osten Sacken, is very abundant here and no doubt will prove identical with Dr. Fitch's *C. q. ficus*.

The following additions to the Library of the American Entomological Society were announced:—

Canadian Entomologist, vol. xiii, No. 3. From the Editor.

Psyche, vol. iii, No. 79. From the Editors.

Cistula Entomologica, Pars xxiv, February, 1881. By purchase.

Proceedings of the Academy of Natural Sciences, Part 3, 1880. From the Academy.

Species des Hyménoptères d'Europe and d'Algérie, par Ed. André, vol. i, Nos. 1—8. From the Author.

Proceedings of the Entomological Section of the Academy of Natural Sciences, 1881, pp. 1—8. From the Publication Committee.

MAY 13, 1881.

Director Dr. LeCONTE in the chair.

The Publication Committee laid upon the table (pages 33—48) of volume ix, of the Transactions of the American Entomological Society, printed since the last meeting.

The Publication Committee reported that work had been resumed on the Transactions and Proceedings. A new press of a much improved model had been procured, and while the impression consisted of but two pages the work can be more expeditiously and cheaply done than by the old press. The same standard of good presswork will be maintained and the reputation which our publications have attained as one of the best printed scientific serials, will still continue.

The old press is broken in such a manner as to render its repair more costly than the Committee at first realized and it was resolved to abandon it entirely. This old press has now been in use about nineteen years, doing all the work on five volumes of the Proceedings and eight of the Transactions and two of the Practical Entomologist, beside much other miscellaneous entomological printing.

It was the gift of Dr. Thomas B. Wilson, and with the full supply of type the Committee have been enabled to continue to the present year without either much repair to press or renewal of type. Our present volume (vol. ix), however, begins with an almost entirely new supply of type.

The Committee hope to complete a volume with the present year, with at least three hundred pages, and from the information in our possession the number of plates will be as great or greater than in any preceding volume.

In behalf of the author, Dr. Horn presented the following paper, entitled

On the CYNIPIDOUS GALLS of Florida.

BY WILLIAM H. ASHMEAD.

Jacksonville, Florida.

[PAPER No. 2.]

GALLS ON CATESBY'S OAK, *Quercus catesbæi*.

I have found two galls on this oak from only one of which have I been able to breed the flies. This, however, is quite an interesting little species.

Cynips *q. catesbæi* n. sp.

Galls.—Slight wavy swellings at the base of tender new shoots, hardly visible to the naked eye.

Gall-Fly.—♀.—Length .06 inch. Head and thorax black, opaque, finely rugoso-punctate, not pubescent; antennæ 15-jointed, yellowish-red; parapsidal grooves distinct, two longitudinal grooves converging towards scutellum, a slight longitudinal fovea in centre between parapsidal and longitudinal grooves, pleuræ aciculate; scutellum round, coarsely punctate and bifoveolate; abdomen black, smooth and shining, ventral valve long and projecting, ovipositor exerted; wings hyaline, radial area open, no areolet and no secondary veins, subcostal vein hardly yellowish at base and becoming almost hyaline; legs yellowish-red, hind tibiæ slightly infuscated.

♂.—Length .06 inch. Antennæ 16-jointed; veins of wings almost hyaline, areolet half closed; abdomen with a short peduncle, ovate, description otherwise as ♀.

Described from 3 ♀♀ and 1 ♂, bred April 28th, from galls as described above.

The only other *Cynips* with 16-jointed antennæ known to me, is

Cynips q. singularis Bassett, described in Proc. Entom. Soc. Phila. vol. 2, p. 326, from galls on the leaves of *Quercus rubra*.

THE GALLS OF THE WATER OAK, *Quercus aquatica*.

Three or four galls are found on this oak. The first may be known as

The Woolly Gall of the Water Oak.

***Cynips q. Turnerii* n. sp.**

Galls.—Globular, wooly galls, the size of an oxheart cherry, attached to the aments of *Quercus aquatica*. Externally covered with dense, fine, rather long wool, white at first, but becoming rusty with age; internally consisting of numerous, triangular seed-like kernels, each kernel containing two cells. Length of kernel .12 inch. Diameter of gall one-half inch.

Gall-Fly.—♀.—Length .07 inch. Head and abdomen reddish-brown; thorax darker brown. Head finely punctate, not pubescent, palpi pale yellowish, tips of mandibles black; antennæ 13-jointed, long filiform, third joint longest, others gradually decreasing in size, slightly infuscated towards tip; thorax finely punctate, slightly rugoso-punctate towards scutellum, parapsidal grooves distinct, two distinct longitudinal grooves converging slightly towards scutellum, pleure punctate, slightly aciculate basally; scutellum round, bifoveolate, rugoso-punctate and free from pubescence; abdomen large globose, light reddish-brown, smooth and shining, last ventral valve projecting but slightly; wings hyaline, no areolet and radial area, only subcostal and radial branch, other veins wanting; legs reddish-brown, coxæ, femora and tibiæ punctate, posterior femora and tibiæ darker.

Described from three bred specimens which issued from galls April 28th.

This interesting gall, I take pleasure in naming after my friend Dr. R. S. Turner of Fort George, Florida, who was the first to bring me specimens. I have, however, since found it quite abundantly on several trees in Jacksonville.

Two other globular wooly galls are known to me, *Cynips q. seminator* Harris, and *Cynips q. operator* Osten Sacken. My species may at once be distinguished from these by its smaller size and by having but 13-jointed antennæ in ♀. *C. q. operator* is ♀ 12-jointed antennæ, .12 to .13 inch. *C. q. seminator* ♀ 14-jointed antennæ, black, and .11 inch.

The Water Oak Plum Gall.

***Cynips q. aquaticæ* n. sp.**

Galls.—Globular, hollow, succulent galls, of a plum color, growing through the leafy expansion of the newly formed leaf, projecting about equally from the upper and on the under surface of the leaf, containing a yellowish, slightly elongated kernel, which rolls freely about. Diameter .35 to .40 inch.

Gall-Fly.—♀.—Length .10 of an inch. Head black, finely punctate, a slight depression at base of front ocelli, a few microscopical short whitish hairs on face, mandibles black, palpi whitish; antennæ 15-jointed, yellowish-red, infuscated from

fourth joint, joints regularly subequal, last joint being longer than penultimate; thorax black, smooth and shining, parapsidal grooves distinct, converging towards scutellum and separated from it by a slight ridge; scutellum punctate; abdomen longer and wider than thorax, black, smooth and shining; legs reddish-yellow, tibiæ to feet paler, basal half of coxæ black; wings hyaline, radial area open, areolet distinct, veins black.

♂.—Length .08 inch. Mouth parts brownish, scutellum coarsely rugoso-punctate, peduncle long; legs yellowish-brown, coxæ yellowish, feet black.

Described from numerous specimens raised in March.

THE GALLS OF THE WILLOW OAK, *Quercus laurifolia*.

This particular species of oak is classified by botanists as a variety of *Quercus phellos*, and from it I have obtained nine distinct species of galls.

The Cherry Stone Leaf Gall.

This popularly designates a unique gall that appears early in February and March, on the tender new leaves—frequently three on a leaf. It may possibly be the one referred to by Prof. Westwood as described by Bosc, from Georgia, vide Intro. Entom. vol. 2, p. 131, ed. 1840. He says:

“Another gall of the size of a pea, found on another species of oak has the outer surface very thin, and encloses in the interior a small ball the size of a grain of millet which rolls about, and within which the larva is lodged. M. Bosc opened hundreds of these galls without being able to learn the true nature of this production.”

Baron Osten Sacken, loc. cit. p. 62, discovered a similar gall *Cynips q. palustris* on *Quercus palustris*. My species is at once distinguished from it by having 14-jointed antennæ in ♀, in punctuation, coloration, by the veins of wings being black, and by the long bent peduncle in the ♂. It evidently belongs to Hartig's genus *Spathogaster*.

***Spathogaster q. laurifolia* n. sp.**

Galls.—Green, globular, hollow galls, growing through the leafy expansion of the newly formed leaf, projecting about equally from the upper and on the under surface of the leaf, the size of a cherry stone and when removed not unlike it in shape, containing a yellowish, slightly elongated kernel, which rolls freely about. Length .20 to .25 inch, .15 or more through.

Gall-Fly.—♀.—Length .10 inch. Black, head slightly but faintly punctured, mouth parts reddish, palpi yellowish; antennæ 14-jointed, joints one and two yellowish, others dark reddish-brown, pubescent, third joint nearly thrice as long as second; thorax smooth but appearing microscopically punctate with a high power, parapsidal grooves moderately distinct, longitudinal furrows distinct; scutellum deeply rugoso-punctate, opaque and slightly hairy; abdomen globose, smooth, black and highly polished; wings hyaline, veins black; legs yellowish-red, posterior coxæ excepting apex and feet black.

♂.—Length .08 inch. Antennæ 15-jointed; elevated and projecting posteriorly,

wings very long reaching way beyond tip of abdomen; abdomen small triangular, compressed, with a very long peduncle, slightly bent downwards before the middle; otherwise as in female.

Described from over one hundred specimens bred in March.

On a ♂ cynips, clinging to the long curved peduncle, I detected a curious gamasid mite but 0.2 mm. long. It was of a reddish-brown color, oval, coriaceous and pubescent; with eight remarkably long hairy legs, the posterior pair being longest, and the cephalothorax separated from the abdomen by a transverse suture and with the head rather pointed. It evidently belongs to the genus *Sejus* and may be known as *Sejus cynipidis*.

Another curious gall, constructed on the same principle as above but smaller and not projecting through the leaf, was detected the middle of April.

Cynips q. confusa n. sp.

Galls.—Small, globular, slightly elongate, greenish-yellow, succulent galls, attached to the principal vein on the under surface of the leaf, hollow inside with a pupa-like kernel; fly escaping by perforating a hole through the upper surface of the leaf. Diameter transversely .06; vertically .10 inch.

Gall-Fly.—♀.—Length .07 inch. Black, head finely and evenly punctate; antennæ reddish-yellow, 14-jointed, third joint longest, joints to eighth subequal, others short and equal, terminal twice as long as penultimate; thorax rugoso-punctate, parapsidal grooves distinct, two longitudinal grooves converging posteriorly; scutellum deeply rugoso-punctate, slightly elevated posteriorly and depressed and with a large deep fovea at base, not pubescent; pleuræ deeply aciculate; wings hyaline, veins reddish-brown, areolet nearly closed, radial area open; abdomen black and highly polished, last ventral valve projecting; legs reddish-yellow, coxæ black.

Described from 2 ♀ specimens bred the last of April.

Another gall found on the under surface of the leaves, produces a very roughly punctured cynips which may be known as

Cynips q. rugosa n. sp.

Galls.—Semispherical, greenish-yellow, smooth, hard galls, attached to the under surface of the leaf, slightly contracting the leaf on the upper surface, but not projecting, either flat or slightly concave; internally consisting of a hard fibrous substance in the centre of which the larva is transversely placed; fly escaping by perforating a hole through the upper surface of the leaf. Diameter transversely .20 inch; through or vertically .08 to .10.

Gall-Fly.—♀.—Length .14 inch. Head and thorax dark reddish-brown, very coarsely rugoso-punctate. Head, longitudinally narrow, ocelli almost in a straight line, vertex free from pubescence, face covered with short whitish pubescence.

a depression extending from base of each antennæ to mandibles, the latter black, pubescent back of eyes, palpi yellowish; antennæ 14-jointed, uniformly reddish-yellow, terminal joint longer than penultimate; thorax convex, rounded anteriorly almost free from pubescence, parapsidal grooves distinct, longitudinal furrows almost obsolete, mesothorax much broader than long, a ridge separating it from scutellum; pleuræ rugoso-punctate; scutellum round, bifoveolate, rugoso-punctate, thickly pubescent; wings hyaline, areolet distinct, petiolated, radial area open, costal and subcostal veins yellowish, becoming thick and brownish piceous at areolet; abdomen large, globose, bright shining reddish-yellow, peduncle short, it and second segment at base slightly pubescent; tips of ventral sheath yellowish, pubescent; legs reddish-yellow, coxæ brownish-black, punctate, pubescent, feet and claws black.

♂.—Length .10 inch. Head and thorax black, coarsely rugoso-punctate, vertex free from pubescence; antennæ reddish-brown, 15-jointed, filiform, joints subequal; thorax, parapsidal grooves distinct, longitudinal furrows obsolete; scutellum coarsely rugoso-punctate and almost free from pubescence; abdomen black, smooth and shining, peduncle short; wings hyaline, veins black, areolet almost closed, slightly clouded at base of areolet, radial area open; legs—middle and anterior pair yellowish, coxæ black, hind femora and tibiæ dark.

Described from 23 bred ♀♀ and 4 ♂, which issued between 25th and 30th of April.

THE GALLS OF THE UPLAND WILLOW OAK, *Quercus cinerea*.

There are several galls found on this tree, but by far the most important is a large spherical gall, which may popularly be termed

The Upland Willow Oak Apple Gall.

Cynips q. cinerea n. sp.

Galls.—Large, perfectly spherical galls attached to the twigs and limbs, of a dark crimson color mottled with small spots of a lighter color. A single kernel in the centre held in place by dense, brownish, spongy filaments. Diameter one and one-fourth to one and one-half inch.

Gall-Fly.—♀.—Length .20 inch. Robust .07 inch across the mesothorax, length of wing .20 inch. Head and thorax brown, deeply, very coarsely rugoso-punctate. Head small, on vertex slightly pubescent, thicker back of the eyes, almost free on face; eyes dark brown; mandibles black; antennæ 13-jointed, short not reaching to back of scutellum; thorax broad, robust, convex, parapsidal grooves almost obsolete, longitudinal furrows wide apart and almost parallel, indicated by coarse punctures, a deep transverse furrow dividing mesothorax from scutellum, a few microscopical whitish pubescence towards head, disk free; scutellum round, elevated, deeply irregularly rugoso-punctate, free from pubescence, excepting a few microscopical whitish hairs more perceptible at posterior margin, two deep round foveæ not quite separated by the pointed process of the scutellum, which does not reach the margin, pleuræ rugoso-punctate, pubescent, as well as the triangular piece beneath the wing and the metathorax; abdomen bright, smooth, reddish-brown, globular and regularly rounded posteriorly, a high ridge at base of second segment, slightly pubescent, more noticeable at sides and beneath, a high power show the segments are finely punctate, ventral sheath not projecting, venter hairy

the whole length; wings hyaline, rather hairy, veins reddish, areolet closed, radial area open, a large brown blotch occupying basal half of radial area and apical third of areolet, also extending slightly along the cubitus; basal vein thick and clouded with brown; anal vein brown from opposite tip of areolet; tip of radial vein pale, subcostal vein becomes brown as it approaches basal vein and becomes pale again just before joining the large brown blotch; legs reddish-brown, pubescent.

This no doubt will prove to be related to the dimorphic group of *Cynips*—*spongifica*, *aciculata*, etc.

I noticed smaller galls on the trees during the winter, but all were empty and have produced nothing but Chalcid flies—*Callimeme*, *Pteromalus*, &c.

The summer galls will probably produce the two gendered form.

The following additions to the Library of the American Entomological Society were announced:—

Second Report of the U. S. Entomological Commission for the years 1878 and 1879, relating to the Rocky Mountain Locust and the Western Cricket. From the Commission.

Report on Insects injurious to Sugar Cane, by J. Henry Comstock. From the Author.

List of Orthoptera collected by Dr. A. S. Packard Jr., in the Western United States, in the summer of 1877, by S. H. Scudder. From the Author.

Notes on North American Microgasters, with descriptions of new species, by C. V. Riley. From the Author.

Canadian Entomologist, vol. xiii, No. 4. From the Editor.

Entomologist's Monthly Magazine, Nos. 203 and 204. From the Conductors.

Psyche, vol. iii, No. 80, December, 1880. From the Editors.

Annual Report of the Entomological Society of the Province of Ontario, for 1880. From the Society.

Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien, vol. xxx. From the Society.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, vol. vi, No. 3. From the Society.

Species des Hyménoptères d'Europe and d'Algerie, par Ed. Andre, vol. i, No. 9. From the Author.

Jahres-Bericht des Naturhistorischen Vereins von Wisconsin, for 1880—81. From the Society.

Sitzungs-Berichte der naturwissenschaftlichen Gesellschaft Isis in Dresden, von Carl Bley, 1880. From the Author.

JUNE 13, 1881.

Director Dr. LeConte in the chair.

The Publication Committee laid upon the table pages 49—64 of volume ix of the Transactions of the American Entomological Society, and also pages ix—xx of the Proceedings of the Section, printed since the last meeting.

Dr. LeConte desired to record the following notes of synonyms and habits of Coleoptera.

Cicindela Sommeri Mannh.—This common Mexican species was found by Mr. H. Edwards, at San Diego, Cal.

Carabus truncaticollis Eschsch.—Occurs in the higher parts of the Sierra Nevada, Cal., (H. Edwards).

Axinopalpus Lec.—Ann. Lyc. Nat. Hist. N. Y. v, 174, (1846), has priority over *Variopalpus* Sol., Gay, Chili, iv, 148, (1849). The confusion in this synonym has been produced by a typographical error in the Munich Catalogue, in which the date attributed to my genus is printed 1851 instead of 1846. The verbal expansion of the name to *Axinopselaphus* seems unnecessary and scholastic.

Patrobus rugicollis Randall.—Telluride, Ouray Co., Colo.; (Reinecke). The western extension of this species is quite unexpected.

Aggyrtes longulus Lec., has been found in Maryland by Mr. Ulke. Previously known only from the Pacific coast.

Platycerus Agassii.—I have seen quite a large number of specimens of this species, but have not observed any sexual characters worthy of note. Mr. Edwards has kindly given me a specimen, which by the greater length of the antennal lamellæ is evidently a ♂. The ninth and tenth joints of the antennæ are more than twice wider than long; the mandibles are slightly more prominent; the legs are longer and thinner; the tibiæ are less strongly toothed and the tarsi are as long as the tibiæ, while in the ♀ they are about one-third shorter. The prothorax is less dilated on the sides and less constricted at the base than in the ♀.

Gyascutus Lec., seems hardly sufficiently distinct from *Latipalpis* Sol., to be worthy of retention as a separate genus.

Pterotus obscuripennis Lec.—Flying at dusk. Berkeley, Cal.; (Rivers).

Cyllene picta.—An enormous number of individuals of this species were developed from a pile of hickory wood in the cellar of a friend in this city, in the latter part of April and beginning of May. The sawdust from the burrows in the wood might be measured by bushels, while the perfect insects invaded all parts of the house, becoming a great nuisance.

Luperus varipes Lec.—Berkeley, Cala. ; on Teucrium ; (Rivers).

Tychius lineellus Lec.—Berkeley, Cala. ; on Lupinus ; (Rivers).

Rhyncolus angularis Lec.—Berkeley, Cala. In decayed wood of buckeye, also on Teucrium ; (Rivers).

Micracis aculeatus Lec.—Washington, D. C. ; in willow twigs ; (Ulke).

Thysanœs n. sp.—Washington, D. C. ; in oak twigs ; (Ulke).

Dr. LeConte also mentioned an extraordinary change of color dependent on emotion or nervous excitement, which he had observed in some living specimens of *Coptocyclus aurichalcea*, which he had recently received from Dr. M. Goldsmith, Rutland, Vt., by whom they were found perforating holes in the leaves of *Ipomœa*. The specimens not only varied greatly in color, some having the elytral disc black with golden spots, while in others (var. *pallida*), the whole disc was golden, but when frightened, the gold color disappeared completely, and the insects assumed the same dull reddish-yellow which they have when preserved in collections. In recovering their metallic color they passed through various grades of bluish-pearl and violet, until they again became bright golden. This phenomenon, which so far as Dr. LeConte knew, had not been heretofore recorded, and to which his attention has been called by Dr. Goldsmith, is a very singular one, and deserves the careful observation of microscopists.

Dr. Goldsmith has also observed that the difference between these two reputed distinct species is sexual, the *guttata* form having a black disc with golden spots being the ♂, very similar to *C. guttata*.

He placed one of the spotted individuals under a glass with two of those having a uniformly disc. After a short time amatory relations were established between the former and one of the latter. What occurred subsequently is thus narrated :

“Mr. *spotted-back* forthwith became of a greenish-gold, and Mrs. *pallida* a yellowish-gold. The other Miss lost her beauty and became the dingy thing she is on wash days. I uncovered the vessel and somewhat rudely disturbed their beatitude, and immediately Mr. and Mrs. both assumed their ordinary wash day clothes. The fact is, gold and jet are the colors of the male when undisturbed, greenish-gold in copula, and dingy when disturbed. Both when recovering from fright become at first a beautiful glistening purplish mother-of-pearl, then the male gold and jet, and the female gold.”

These interesting observations may serve to diminish the very large number of nominal species in the books.

Dr. Horn exhibited the drawings which form the eight plates to accompany the paper presented for publication. Special attention was called to those figures which illustrate the definition of the families composing the Adepagous series of Coleoptera, a discussion of this matter being necessary before a consideration of the Carabidæ. This, Dr. Horn said, was necessary in consequence of the diverse opinions expressed by various authors concerning *Amphizoa*, *Pelobius* and *Haliphus*. By well defined structural characters not hitherto observed it was shown that these are really types of distinct families equivalent to the Carabidæ or Dytiscidæ. Dr. Sharp in a late paper had included *Amphizoa* and *Pelobius* in the Dytiscidæ while Chaudoir's latest opinion was in favor of retaining the former in the Carabidæ.

Dr. Horn stated that he regretted to differ so completely with such eminent authority, but the characters in which these genera differ from all others of the Adepagous series are of such an important nature that he insisted on maintaining the view originally expressed by Dr. Leconte of the position of *Amphizoa*.

Attention was also directed to two finished plates illustrating genera of the Serriicorn series, the text being nearly completed by our printer.

Dr. Horn announced the decease of Baron de Chaudoir, an eminent Coleopterist of Europe and a corresponding member of the American Entomological Society.

The following additions to the Library of the American Entomological Society were announced:—

Anniversary Memoirs of the Boston Society of Natural History published in celebration of the 50th Anniversary of the Society's foundation, 1830—1880. From the Society.

Transactions of the Kansas Academy of Sciences for 1879—80, vol. vii. From the Academy.

Proceedings of the Linnean Society of New South Wales, vol. v, parts 1, 2 and 4. From the Society.

Journal and Proceedings of the Royal Society of New South Wales, 1879, vol. xiii. From the Society.

Journal of the Royal Microscopical Society, April, 1881. From the Society.

Entomologist's Monthly Magazine, No. 205, June, 1881. From the Conductors.

Berliner Entomologische Zeitschrift herausgegeben von dem Entomologischen Verein in Berlin, 1881, No. 1. From the Society.

Deutsche Entomologische Zeitschrift herausgegeben von der Deutschen Entomologischen Gesellschaft, 1881, No. 1. From the Society.

Verhandlungen des naturforschenden Vereines in Brünn, vol. xviii, 1879. From the Society.

Bullettino della Società Entomologica Italiana, vol. xiii, No. 1. From the Society.

Entomologische Miscellen herausgegeben von dem Verein für schlesische Insektenkunde, Breslau, 1874. From the Society.

Zeitschrift für Entomologie herausgegeben vom Verein für schlesische Insektenkunde zu Breslau, Heft. iv, Sept., 1874. From the Society.

Papilio: organ of the New York Entomological Club, vol. i, Nos. 1—5. From the Club.

JULY 8, 1881.

Vice-Director Dr. HORN in the chair.

The Publication Committée reported favorably the following paper presented at the last meeting for publication in the Transactions of the American Entomological Society:—

“On the genera of Carabidæ with special reference to the fauna of Boreal America,” by George H. Horn, M. D.

The Publication Committee laid upon the table pages 65—88 of volume ix of the Transactions of the American Entomological Society printed since the last meeting.

In behalf of the author, Dr. Horn presented the following paper, entitled

On the CYNIPIDOUS GALLS of Florida.

BY WILLIAM H. ASHMEAD,

Jacksonville, Florida.

[PAPER No. 3.]

The Live Oak Root Gall.

This interesting gall was discovered the latter part of March. A workman ploughing around a live oak, *Quercus virens*, noticed some curious galls on the roots and called my attention to them. A careful search soon revealed great quantities, always on the small rootlets running along just beneath the surface. On pulling up these roots, I discovered a series of gall clusters every four or five inches apart, and have bred from them nearly two hundred specimens, ♂ and ♀ flies. These are the first authentic oak root galls discovered in the United States.

Biorrhiza niger, Fitch, discovered on snow probably produces galls on oak roots; but the galls have not yet been found.

As my species presents characters widely different from any cynipidous genera known, I propose to erect a new genus for its reception. Like *Biorrhiza niger*, it secretes, when handled, a strong waspy odor.

DRYORHIZOXENUS n. g.

Form slender; maxillary palpi 6-jointed, labial palpi 4-jointed, the third joint globular; mandibles tridentate, outer two teeth acute, inner one obtuse; areolet closed, radial area open, radial vein regularly curving upwards and thickening at tip.

♀.—Antennæ 14-jointed, filiform, pubescent, first joint stout, attached to the head by a short peduncle, second small, moniliform, third longest, slightly curved and excised, thickest at tip, the following subequal in length, uniform in thickness, terminal joint longer than penultimate, *all the joints from the fourth have a narrow bead-like annulus at tip*, quite noticeable in living, almost obsolete in dry specimens. Abdomen globose, smooth and shining, with a very short peduncle, second segment occupying half the portion of the surface; ovipositor exerted slightly beyond tip of abdomen; ventral valve well developed and projecting considerably, tip of abdomen deeply emarginate; tibiæ somewhat flattened, *armed with two large curved spines* (which are evidently used in digging), *and densely and strongly hirsute*; pleuræ smooth and shining, parapsidal grooves distinct; scutellum of moderate size, longer than wide, rugoso-punctate, depressed and bifoveolate at base, contracted in middle and elevated posteriorly, with the hinder margin round.

♂.—Antennæ 15-jointed, filiform, second joint small, slightly elongated, third longer than in ♀, excised, each joint widening and truncate at tip and without the bead-like annulus. Abdomen long-ovate, attached by a short peduncle, front tibiæ frequently unarmed; otherwise as ♀.

Dryorhizoxenus floridanus n. sp.

Galls.—Clusters of irregular somewhat wedge-shaped, soft, fleshy galls, of the consistency of a potato, surrounding the rootlets of *Quercus virens*, brittle and easily detached, varying in length from one-half to three-fourths of an inch; externally rough, irregular, and of a yellowish color; internally composed of numerous cells one above another, and separated by thick fleshy partitions.

Gall-Fly.—♀.—Length .20 inch. Slender; bright shining brownish-yellow; head finely punctate, eyes, tips of mandibles and ocelli black; antennæ brown, basal joint paler; thorax convex, smooth and shining, two deep longitudinal grooves converging towards scutellum, which is coarsely rugoso-punctate and slightly pubescent, posterior margin dark brown; abdomen smooth and shining; legs brownish-yellow, densely hirsute; wings hyaline, areolet closed, petiolate, radial area open, all the veins dark brown and bordered with brown, the brown border widening at tip of subcostal and radial veins, the blotch not quite reaching outer edge, the anal vein rather straight and thick, broken opposite middle of areolet, the brown border surrounding the broken part and extending along to near the tip of the vein.

♂.—Length .18 inch. Head finely punctate, a slight depression extending from outer ocelli over to eyes; mandibles reddish-brown; palpi paler, a few microscopical hairs on face; antennæ 15-jointed, entirely brown-black; tibiæ and

tarsi less densely hirsute, black and with the tibial spines less strongly developed than in ♀; abdomen elongate-ovate, smooth and shining, second segment occupying half the surface, other segments gradually decreasing in size; otherwise as in ♀.

Described from nearly two hundred bred specimens. The fleshy galls, when dry, are almost unrecognizable from the shrinkage in drying.

The Grape-producing Cynips.

This is a very remarkable *Cynips* producing galls on the under surface of the leaves of *Quercus laurifolia*, which very much resemble small white grapes. They make their appearance early in April, but the flies do not escape until the middle of May.

Cynips q. racemaria n. sp.

Galls.—Spherical, crisp, sour and succulent, attached to the under surface of the leaves, in size and color resembling a small white grape and in consistency not unlike a green gooseberry, with a single reddish kernel in the centre. Diameter .35 to .40 inch

Gall-Fly.—♀.—Length .16 to .17 inch. Black; head rather small, deeply rugoso-punctate, vertex free from pubescence, a tuft of long pubescence back of eyes, face very slightly pubescent; antennæ 14-jointed, black and short, only reaching to tip of scutellum, third joint longest, fourth to eighth subequal, the others equal, terminal slightly longer than penultimate; thorax deeply coarsely and irregularly punctate, almost free from pubescence, requiring a high power to detect any; pleuræ less deeply and coarsely punctate; abdomen large, black and shining, apical half of second segment, and all the other segments excepting at base, finely and densely punctate, a few hairs on second segment, ventral sheath very long; legs reddish-brown, pubescent, coxæ and trochanters black, apical spurs on all legs; wings smoky or brownish-black, apices slightly paler, veins black, areolet closed, radial area open, rather narrow.

Described from numerous bred specimens which hatched in May. No males.

The only other grape-like gall known to me is *Cynips q. sculptus* Bassett, described in Proc. Entom. Soc. Phila. 1863, p. 324. The present species is at once distinguished from it by its smaller size, short 14-jointed antennæ, the difference in shape of joints, color of legs and by the punctuation of abdomen.

Cynips q. sculptus is ♀ .20 inch, antennæ 13-jointed very long, legs honey yellow, abdomen entire surface microscopically punctate. It was found by Mr. Bassett on *Quercus rubra*.

The Spine-bearing Potato Gall.

Another potato gall, varying greatly in size, found on the terminal twigs of *Quercus laurifolia*. It very much resembles the live oak potato gall, *Cynips q. batatoides* nob.; but is easily distinguished from it and all others by the spiny, succulent tubes which issue from the

fleshy part of the gall. These often become quite large, but are generally eaten by birds, or become broken off by the swaying of the branch in the storms and winds. As they mature the galls become irregular, crack and turn black with age, ultimately killing the twig upon which they are situated. At this stage there is a small black ant that gnaws into and makes it the abode of her countless progeny.

Cynips q. clavigera n. sp.

Galls.—Abrupt, irregular, woody, tuber-like swellings, varying greatly in size, from a half to an inch and a quarter long by almost the same in width, attached to the terminal twigs and branches; externally (at the beginning of the season), it is smooth and resembles very much the gall of *Cynips q. batatoides*, but later in the season it becomes rough with deep fissures, through which issue spiny, succulent tubes, which secrete a sticky honey-like substance; internally, at first it is white and soft but becomes brown and hard with age; the tubes are thickened at base in the centre of which the larva resides.

Gall-Fly.—♀.—Length .08 inch. Reddish-brown; head and thorax very finely punctate, face slightly aciculate, converging towards mouth; antennæ long, 15-jointed, first joint as long or almost as long as third, second globular, slightly longer than wide, joints four to eight subequal, from nine to fourteen short, equal, apical smallest; thorax, parapsidal grooves distinct, two longitudinal furrows converging towards scutellum; pleuræ punctate; scutellum finely rugoso-punctate and bifoveolate; abdomen brownish-black on dorsum, reddish-brown beneath, smooth and shining and of a very peculiar shape; viewed from above it is as usual, but viewed sideways it is much deeper than long, with the ovipositor projecting at an angle of forty-five degrees; with a quarter inch glass the segments show that they are finely microscopically punctate; wings hyaline, veins yellowish, areolet closed, the closing vein being faint and nearly hyaline, radial vein and subcostal extend to costal edge but the subcostal does not extend along the margin to radial vein, hence is open; legs reddish-brown.

Described from one specimen taken from gall May 3d.

The Cone Gall.

A black or brownish-black conical gall, issuing from the bud axils of the larger branches of *Quercus laurifolia* and *Q. phellos*, was discovered early in April. They present a very anomalous appearance on the branch.

From numerous specimens gathered early in the season, I have bred many parasites, principally *Figites*, but no *Cynips*, and my description is made from a dried specimen obtained by opening one of the galls.

Cynips q. conifera n. sp.

Galls.—Hard, conical, black or brownish-black galls, less than half an inch or more long, by a quarter of an inch or more in diameter at

base, issuing from the bud axils on the larger branches. Some of the specimens are curved in a regular hook at tip.

Gall-Fly.—♀.—Length .10 inch. Brownish-yellow, finely punctate, pubescent back of eyes, face slightly pubescent; antennæ 15-jointed, third joint longest, four to ten subequal, the following equal, apical joint slightly longer than penultimate; thorax: parapsidal grooves distinct, two longitudinal furrows, pleuræ aciculate; scutellum roundish, elevated posteriorly, rugoso-punctate, bifoveolate with the basal and posterior margins dark brown; abdomen smooth and shining; ovipositor slightly exerted; wings hyaline, veins stout, brownish, areolet almost closed, radial area open; legs brownish-yellow.

The Lemon-like Gall of the Willow Oak.

By this popular name, I designate another gall on *Quercus phellos*, yellow in color and not unlike a lemon in shape.

***Cynips q. citriformis* n. sp.**

Galls.—Globular, smooth, shining yellowish galls, from seven-eighths to an inch in length, by three-eighths to half an inch in diameter, attenuated to a sharp point at tip and with a single kernel in the centre, held in place by a few thin, radiating, spiculate filaments.

Gall-Fly.—♀.—Length .20 inch. Robust, head and thorax brownish-black, deeply and coarsely rugoso-punctate, eyes black, cheeks and face pubescent, palpi brownish; antennæ 13-jointed, reddish-brown, first joint stout as long as fourth, second globular, third longest, fourth to eighth subequal, the following to thirteenth short, equal, thirteenth more than twice the length of penultimate, all joints pubescent; thorax slightly pubescent, parapsidal grooves indistinct, longitudinal furrows obsolete; scutellum almost round, bifoveolate, rugoso-punctate and slightly pubescent, pleuræ rugoso-punctate, pubescent; wings hyaline, veins yellowish, areolet closed, petiolated, radial area open, a dark brown spot extending across the base from tip of subcostal, basal vein thick, along costal for short distance dark brown; abdomen bright shining reddish-brown, microscopically punctate, a few short hairs at base of second segment; legs reddish-brown, pubescent, posterior pair a shade darker.

Described from three bred specimens which issued from galls during the first week in May. No males.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Boston Society of Natural History, vol. xx, pp. 417—448. From the Society.

Canadian Entomologist, vol. xiii, Nos. 5 and 6. From the Society.

Psyche, vol. iii, No. 81, January, 1881. From the Editors.

Le Naturaliste Canadien, vol. xii, No. 140, Mars—Avril 1881. From the Editor.

SEPTEMBER 9, 1881.

Director Dr. LeCONTE in the chair.

The Publication Committee announced the completion of the Transactions of the American Entomological Society to page 134.

Dr. Horn on behalf of the author presented the following paper, entitled

Studies on the North American CHALCIDIDÆ, with descriptions of New Species from Florida.

BY WILLIAM H. ASHMEAD.

Jacksonville, Florida.

[PAPER No. 1.]

The following is the beginning of a series of papers on our North American Chalcididæ—a large and extensive family of parasitic hymenopterous insects comprising the minute forms, which are, however, readily distinguished from all others by their elbowed antennæ and almost veinless wings.

Although they are among the most interesting and brilliantly colored of the order Hymenoptera; yet up to the present time, when we take into consideration the extent of our continent, comparatively few species have been described.

These studies are not intended to be exhaustive but merely preliminary—*i. e.*, an attempt to ascertain and group together all that has been written on the subject, and at the same time describe the new forms brought under my observation in Florida.

The species belonging to the genera *Leucospis*, *Smicra* and *Chalcis*, have been exhaustively treated by our well known Hymenopterist Mr. E. T. Cresson, in a memoir published in Vol. IV, Trans. Amer. Ent. Soc. 1872. I have, therefore, only to record the new species since its publication.

SMICRA Spinola.

Smicra gigantea Ashmead, Canadian Entomologist, vol. xiii, p. 90, 1881.

Smicra decem-punctata n. sp.—♀.—Length .23 inch. Head, thorax and the large posterior coxæ brown-black, punctate; eyes greenish, ocelli black, smooth, and shining; antennæ brown becoming reddish-brown towards tip, finely pubescent, scape short; thorax slightly convex, microscopically covered with whitish pubescence, collare very short, transverse, with two small red medio dots; parapsidal grooves distinct, an oblong red spot at anterior corners of præscutellum with smaller ones at posterior corners; two indistinct dots on piece in front of base of wings; scutellum somewhat pentagonal, lateral sides only margined with red which becomes slightly wider posteriorly; abdomen fusiform, attenuated to a sharp point, reddish-brown becoming black towards tip, peduncle moderate;

wings fusco-hyaline with a small black stigmal dot, and with the last two-thirds of the outer costal edge black, other veins brownish; legs yellowish, anterior and middle femora infuscated in middle, the thick oval posterior femora yellowish-brown, a broad dark medio band occupying one-third or more of the surface, the band is also extended over on to the tibiæ as may be seen when these are drawn up into the femoral groove, the latter armed with about eighteen small but regular teeth, tarsi pale yellowish, ungues black.

Captured on rose galls. I do not think it parasitic on the galls; it was probably attracted there by some larvæ.

EURYTOMA III.

Eurytoma bicolor Walsh, Amer. Entom. vol. ii, p. 298, 1869.

Eurytoma prunicola Walsh, loc. cit. fig. 1.

This species I have bred from the cynipidous oak gall *C. q. rugosa* Ashmead. It agrees very well with Walsh's description excepting its larger size and the whole abdomen being black. He says: "♀ with the long medial or fifth joint always rufous and the fourth generally piceous." I am therefore in doubt whether the determination is correct.

Var. *globulicola* Walsh, loc. cit.

Eurytoma auriceps Walsh, loc. cit. p. 299.

Var. *seminatrix* Walsh, loc. cit.

Eurytoma punctiventris Walsh, loc. cit.

Recognized here from one ♀ bred from the cynipidous oak gall *C. q. batatoides* Ashmead.

Eurytoma abnormicornis Walsh, loc. cit.

Eurytoma diastrophi Walsh, loc. cit.

Var. *Bolteri* Riley, First Mo. Report, p. 177, 1869, illustrates ♂ and ♀ antennæ: Walsh, Am. Entom. vol. ii, p. 299, 1869.

Eurytoma studiosa Say, Bost. Journ. Nat. Hist. vol. i, 1835; Say, Am. Entom. ed. LeConte, vol. ii, p. 720; Am. Entom. vol. ii, p. 299.

Eurytoma orbiculata Say, Bost. Journ. Nat. Hist. vol. i, 1835; Say, Am. Entom. ed. LeConte, vol. ii, p. 720; Am. Entom. vol. ii, p. 299, 1869.

Walsh was unable to identify this species and seemed to think the "laws of coloration forbid its existence." Neither Walsh's want of success in finding it, nor are the laws of coloration sufficiently demonstrated, to warrant its rejection.

Eurytoma gigantea Walsh, loc. cit. p. 300.

Eurytoma cretheis Walker, Ann. Soc. France, 2me, Serie i, 150.

Eurytoma Hecale Walker, Ann. Soc. Ent. France, 2me, Series i, 151.

Eurytoma lanulæ Fitch, Fifth Report on noxious and other Insects of New York State Agricul. Soc. p. 817. 1859.

Eurytoma phylloxeræ n. sp.—♀.—Length .10 inch. Black. Head and thorax coarsely punctate and sparsely covered with short whitish pubescence;

antennæ 7-jointed and of a uniform yellowish-brown, joints of flagellum excepting terminal joint moniliform, the latter clavate three times as long as penultimate and showing indications of two distinct suturès; abdomen black, smooth and shining, fourth segment unusually large; wings hyaline, veins almost hyaline. legs yellowish-brown, coxæ black, tibiæ and tarsi yellowish approaching white.

Described from one ♀ bred June 11th, from the hickory gall *Phylloxera caryæ-scissa* Riley.

This species is not parasitic on the phylloxera, but on an orange-colored dipterous larva, very common in these galls.

Eurytoma succinipedis n. sp.—♀.—Length .12 to .14 inch. Head and thorax brown-black, coarsely punctate and microscopically pubescent; antennæ 8-jointed, rufous, base of flagellum infuscated and with the ultimate twice as long as the penultimate joint; abdomen black, smooth and shining, lateral turfs of whitish pubescence on sixth segment; wings hyaline, veins brown; legs rufous, coxæ black, the rufous of tibiæ shading off towards tips and tarsi into yellowish.

♂.—Length .10 inch. Antennæ 7-jointed, black; thorax free from pubescence; abdomen small with peduncle very long, otherwise as in ♀.

Described from one ♂ and four ♀♀ bred from cynipidous oak gall *C. q. succinipes* Ashmead.

Eurytoma albipes n. sp.—♀.—Length .12 inch. Coal black. Head and thorax coarsely punctate and free from pubescence; eyes brown; antennæ entirely black; basal margin of præscutellum finely rugoso-punctate; disc of scutellum not so coarsely punctate as at sides; abdomen black, smooth and shining; fourth, fifth and sixth segments pubescent; wings hyaline, veins yellowish; legs black, joints and extreme tips of tibiæ yellowish, feet pure white.

♂.—Length .08 inch. Agrees with ♀ excepting as follows: Eyes are black; antennæ 7-jointed, nodules armed with long whitish hairs; head and thorax sparsely covered with whitish pubescence; abdomen and legs pitchy black; peduncle two-thirds as long as abdomen; feet only white.

This easily recognized species was captured at large.

DECATOMA Spin.

Decatoma varians Walsh, Am. Entom. vol. ii, p. 300, fig. 2. ♂ & ♀, 1869.

Var. *dubia* Walsh, loc. cit.

Decatoma nigriceps Walsh, loc. cit.

Var. *excrucians* Walsh, loc. cit.

Decatoma hyalipennis Walsh, loc. cit. p. 301.

Decatoma simplicistigma Walsh, loc. cit.

Decatoma nubilistigma Walsh, loc. cit.

Decatoma flava Ashmead, Can. Ent. vol. xiii, p. 134.

Decatoma quercus Ashmead, loc. cit. p. 135.

Decatoma lanæ Ashmead, loc. cit.

Decatoma phellos Ashmead, loc. cit. p. 136.

Decatoma foliatæ Ashmead, loc. cit.

Decatoma batatoides Ashmead, loc. cit.

Decatoma bicolor n. sp.—♀.—Length .10 to .12 inch. Head, thorax, antennæ and legs a dark brown; head and thorax coarsely punctate, sparsely microscopically pubescent; eyes dark; posterior tibiæ infuscated; abdomen black, smooth and shining; wings hyaline, a large smoky bottle-shaped blotch extending two-thirds across the wings.

An easily recognized species. Described from five specimens—four captured at large and one bred from cynipidous live oak root gall *Dryorhizoxenus floridanus* Ashmead.

Decatoma catesbæi n. sp.—♀.—Length .05 to .06 inch. Uniform honey-yellow. Head and thorax coarsely punctate and microscopically sparsely pubescent; ocelli and eyes dark; abdomen very slightly infuscated, wings hyaline, stigmal blotch very small; legs honey-yellow, tibiæ and feet pale.

Described from two ♀ bred May 13th, from cynipidous oak gall *C. q. catesbæi* Ashmead.

ISOSOMA Walker.

Isosoma hordei Harris: Walsh, Am. Ent. vol. ii, p. 329, fig. 3 ♀, fig. 4 ♂ and ♀.

Eurytoma hordei Harris; Fitch, 3d. N. Y. Rep. p. 159.

Eurytoma tritici Fitch, 3d. N. Y. Rep. p. 159.

Eurytoma secalis Fitch, 3d. N. Y. Rep. p. 159.

Eurytoma fulvipes Fitch, 3d. N. Y. Rep. p. 159.

Isosoma vitis Saunders, Can. Ent. vol. ii, p. 25; Riley, 2d. Mo. Rep. p. 92.

CALLIMOME Spinola.

Callimome ebria Osten Sacken. Trans. Am. Ent. Soc. vol. iii, p. 58, 1870.

Callimome dura Osten Sacken, loc. cit. p. 59.

Callimome advena Osten Sacken, loc. cit. p. 59.

Callimome tubicola Osten Sacken, loc. cit. p. 60.

Callimome flavioxa Osten Sacken, loc. cit. p. 61.

Callimome Sackenii Ashmead.

C. brevicauda Osten Sacken, loc. cit. p. 62.

This species I have changed to above as *brevicauda* was preoccupied in the genus by Walker *vide* Eng. Mag. i, 126.

Callimome magnifica Osten Sacken, loc. cit. p. 62.

Callimome chrysochlora Osten Sacken, loc. cit. p. 63.

Callimome solitaria Osten Sacken, loc. cit. p. 64.

Callimome splendidus Barnstone, mss. Walker, Ann. Nat. Hist. xiv, 14; Brit. Mus. List i, 20.

Callimome cecidomyæ Barnstone, loc. cit.

Callimome Theon Walker, Ann. Soc. Ent. France, 2me Serie.

Callimome Cissus Walker, loc. cit.

Callimome æa Walker, Ann. Nat. Hist. xii, 104.

Callimome cœrulea n. sp.—♀.—Length .20; ovip. .23 inch. Uniform brilliant blue; head transverse, very short, microscopically punctate; ocelli prominent, smooth and dark, eyes brown, face pubescent, cheeks slightly pubescent; thorax microscopically transversely punctate; scutellum bordered posteriorly by a small ridge; ovipositor long, black; wings hyaline, ligaments of wings and veins brownish; legs red-brown, tarsi paler, ungues brown.

♂.—Length .15 inch. The posterior femora are blue, the tibiæ are darker and the usual structural differences easily distinguish it from the ♀; otherwise I can see no difference.

Described from several specimens bred from cynipidous oak gall *C. q. cinerea* Ashmead.

Callimome recemareæ n. sp.—♀.—Length .18 to .20; ovip. .28 inch.

This species in color and markings resembles *C. cœrulea* very much and for a long time I was of the opinion that they were identical. A more careful examination soon dispelled the illusion. It may be easily distinguished by a more slender form, by punctation, being more coarsely punctured than *cœrulea*, by the face being covered by a dense silky pubescence, by the antennæ being brownish, scape reddish, by the much longer ovipositor, and by the yellowish-red pubescent legs. In *cœrulea* the legs are not pubescent.

The ♂ is .16 inch in length, and is difficult to distinguish from ♂ of *cœrulea*. It may be distinguished however by the scutellum being divided in the middle by a transverse suture, by all the femora being blue excepting at tips and by a darker abdomen.

Described from two specimens raised from cynipidous oak gall *C. q. recemaria* Ashmead.

Callimome ænea n. sp.—♀.—Length .10; ovip. .08 inch. Head and thorax greenish-golden, microscopically punctate; head transverse, pubescent; eyes brown; antennæ brown; scape reddish; thorax microscopically pubescent; abdomen gold bronze, ovipositor black; wings hyaline, veins brown; legs, coxæ and femora brown, posterior pair darkest, tibiæ lighter, tarsi pale, ungues brown.

♂.—Length .06 to .08 inch. Uniform bronze with coxæ black and tibiæ with a dusky blotch on middle of upper surface; coloration otherwise as in ♀.

Described from several specimens raised from cynipidous oak gall *C. q. virens* Ashmead.

Callimome brevissimicauda n. sp.—♀.—Length .12 inch; ovip. .04. some specimens hardly that. Head greenish-golden, microscopically scratched; ocelli prominent, dark; eyes brown; antennæ black, scape yellowish, mouth parts brown; thorax microscopically and slightly transversely punctate, pubescent and of a greenish-gold color, with a bluish or purplish tinging on collare, præscutellum and parapsides; scutellum greenish-golden, finely uniformly punctate; meta-thorax purplish or bluish, rugose; side pieces beneath the wings smooth, metallic-green; abdomen greenish-brassy, smooth and shining, dorsal base of first segment purplish or bluish, ovipositor dark brown or black; wings hyaline, tip of

costal vein and stigma brownish; legs and coxæ yellowish, posterior coxæ bluish, tarsi paler.

Described from numerous specimens bred from the cynipidous black-berry gall *Diastrophus nebulosus* Osten Sacken.

Callimome elegantissima n. sp.—♀.—Length .19; ovip. .20 inch. Head and thorax a brilliant gold; head transverse, very short, ocelli prominent, brown; eyes prominent bright red; mouth and surroundings black, face covered with short whitish pubescence with a few on cheeks; antennæ black; thorax very coarsely punctate; collare transverse, narrowed in front and not so coarsely punctate as mesothorax and sparsely covered with short whitish pubescence, parapsidal grooves distinct, triangular pieces at base of scutellum, and scutellum coarsely punctate and covered sparsely with whitish pubescence, the small pieces on either side of the triangular pieces situated at base of wings smooth and purplish; side pieces beneath the wing metallic-blue; abdomen ovate, compressed, smooth and shining, of a greenish-golden color, a large metallic-blue dorsal blotch, tip of abdomen and venter metallic-blue; wings hyaline, veins slightly yellowish; legs brown, tarsi paler, posterior femora metallic-blue and punctate, ungues dark brown.

Described from one ♀ bred from cynipidous oak gall *C. q. ficus* Fitch?. A very brilliant species.

Callimome virentis n. sp.—♀.—Length .14, ovip. .05 inch. Head and thorax bright metallic-green. Head transverse, finely shallowly punctate, with purplish and violet reflections; ocelli prominent, brown; eyes brown, face sparsely pubescent, mouth parts brown; antennæ dark brown, scape reddish or brown; thorax very finely punctate, with coarser punctures scattered over it; præscutellum violaceous, parapsides tinged with same; scutellum greenish-golden, punctate; metathorax purplish, beneath the wings smooth and purplish; abdomen smooth, shining, metallic-green, first segment above bluish-purple, ovipositor black, venter purplish; wings hyaline, veins yellowish; legs yellowish-red, tarsi yellowish, hind coxæ purplish, ungues brown.

Described from several specimens raised from the cynipidous oak gall *C. q. virens* Ashmead.

The following species does not belong to this group, but I insert it here, on account of the interest attached to it, being probably the first discovered in this country.

Chirocerus floridanus n. sp.—♀.—Length .10 inch. Black. Head and thorax microscopically confluent punctate; antennæ 12-jointed, long, filiform, rather widely apart, scape long, joints of flagellum short, a little longer than broad and finely pubescent, last joint longer than penultimate; collare not visible from above; parapsidal grooves distinct; præscutellum divided by a central longitudinal groove; scutellum oval, microscopically punctate; wings hyaline, iridescent, costal edge brown ending in a dark brown semicircular stigma, with a rather long slightly curved stigmal vein springing out from lower hinder margin, and extending to about half the distance to outer edge of wing; legs red-brown; abdomen long, ovate, black and highly polished, with a few whitish hairs converging around anus.

♂.—Length .08 inch. Head and thorax above brown-black somewhat shining and microscopically rugoso-punctate; eyes prominent, brown; antennæ 10-jointed,

7-branched, black and pubescent, each joint from second armed at tip with a long pilose branch, these gradually decrease in size towards tip, becoming obsolete on ninth joint; thorax stout, rounded in front, convex and narrowing posteriorly, pubescent; collare not visible, parapsidal grooves distinct, a distinct medio-longitudinal groove on præscutellum; scutellum moderately large, roundish; pleuræ margined around the edge with coarse punctures; abdomen small, fusiform, black, smooth and shining; with a distinct but short peduncle; wings hyaline, no subcostal vein, stigma same as in ♀, the stigmal branch not quite as long as in ♀; legs brown, posterior femora black, tibiæ yellowish.

This unique and interesting little species is the first of the genus discovered in America.

Described from one ♂ and one ♀ bred in March, from the pine aphid *Lachnus australi* Ashmead. This pine aphid suffers from the attacks of many internal foes; besides the above I have bred three other chalcids and two ichneumon flies, which will be described in some future paper.

OCTOBER 14, 1881.

Director Dr. LECONTE in the chair.

The Publication Committee announced the completion of the Transactions of the American Entomological Society to page 148.

In behalf of Mr. Ashmead, Dr. Horn presented types of nearly all the species described in the paper presented at the last meeting, for the cabinet of the American Entomological Society.

Dr. McCook exhibited some small Hymenoptera hatched from the nests of Mud-Wasps. He also placed before the meeting the nests and cocoons of some spiders, showing the means made use of for their protection and concealment.

Dr. Horn exhibited a new *Cychnus* from Washington Territory, belonging to the sub-genus *Sphæroderus*, this being the first known occurrence of the latter west of the Mississippi.

A female *Xenorhipis* was also shown. This has the antennæ not very different from *Melanophila* or *Agrilus* while the male antennæ are flabellate.

Dr. LeConte gave his views regarding the dispersion of Coleoptera in times following the glacial epoch. At the time when the present circumpolar regions were much warmer than now and the continents probably less separated or even joined, the fauna was perhaps the same in the entire region. The glacial invasion extended farther south in the Atlantic region than in the Pacific, obliterating in great part the Coleoptera of this side of the continent while the Pacific slope was less disturbed. Consequently the species of the latter region being the

descendants of the circumpolar fauna, a notable resemblance is observed with their descendants in the European fauna. Our Atlantic region was probably replenished by an invasion of species from the south.

Dr. McCook spoke of the effect of the cold of last winter in exterminating the spiders in various neighborhoods, notably near Washington.

Dr. LeConte read the following notes on the habits and localities of Coleoptera.

Cicindela pamphila.—Corpus Christi, Texas; (Mische).

Chlænius Chaudoiri.—Lee Co., Texas; (Mische).

Necrophilus Pettitii.—In fungi, dense woods of Burke Co., N. C.; (Morrison).

Polymæchus brevipes.—In oak stumps in a state of moist decay; Lancaster Co., Pa.; (G. W. Caffray).

Gyascutus sphenicus Lec.—Does not seem to differ from the Mexican *Latipalpis suginata* Mann.

Buprestis apricans.—Pine woods; North Carolina to Louisiana.

Chrysobothris acuminata.—Austin Co., Texas; (Mische).

Stethon pectorosus.—Dead hickory stump; Fort Madison, Iowa; (Myers).

Orthopleura damicornis.—Lives in dead oak.

Oberea Schaumi.—In Cotton wood.

Asida puncticollis.—Fresh specimens of this species recently obtained by Mr. Aug. Merkel are finely pubescent.

Boletophagus corticola.—In fungus growing on Locust tree.

Coleocerus dispar.—Austin Co., Texas; abundant; (Mische).

Phytonomus punctatus.—This common European species has been noted by Mr. Riley as depredating on clover, in Yates Co., N. Y. *P. opimus* Lec., founded on an old and somewhat rubbed specimen is referable to the same species, and shows that it is not a recent importation to this country. The specimen in question was given me by Dr. Melsheimer about twenty-five or thirty years ago and was then old. A similar specimen was not long afterwards sent to me from Canada. Some peculiar circumstances have probably in this, as in many other instances already recorded, favored the development of this insect in Yates Co. to such an extent as to make it injurious.

Lixus musculus.—From galls on Polygonum; (D. S. Kellicott).

Conotrachelus fissunguis.—Lives on Hibiscus in wet places in Maryland; (Lugger).

Sphenophorus pertinax.—From *Typha latifolia*; (D. S. Kellicott).

————— *costipennis*.—From *Scirpus lacustris*; (Kellicott).

The following additions to the Library of the American Entomological Society were announced:—

Entomologist's Monthly Magazine, Nos. 206 to 209. From the Conductors.

Canadian Entomologist, vol. xiii, Nos. 7 and 8. From the Editor.

Papilio, June, 1881. From the Editor.

Proceedings of the Boston Society of Natural History, sigs. 29 to 31. From the Society.

Transactions of the American Entomological Society, vol. ix, No. 1. From the Publication Committee.

Psyche, Nos. 82 and 83. From the Editors.

Proceedings of the Academy of Natural Sciences, 1881, part 1. From the Academy.

Bulletin of the Essex Institute, vol. xiii, Nos. 1—6. From the Institute.

Le Naturaliste Canadien, Nos. 141 and 142. From the Editor.

General Index and Supplement to the nine reports on the Insects of Missouri, by C. V. Riley. From the Author.

Further Notes on the Pollination of Yucca and on Pronuba and Prodoxus, by C. V. Riley. From the Author.

Transactions of the Royal Society of South Australia, vol. iii. From the Society.

Proceedings of the meetings of the Zoological Society of London, 1880, part 4; 1881, part 1. From the Society.

Journal of the Royal Microscopical Society, vol. i, parts 3 and 4. From the Society.

Annales de la Société Entomologique de Belgique, vols. xxiii and xxiv. From the Society.

Tijdschrift voor Entomologie, vol. xxiii, Nos. 1 and 2. From the Netherland Entomological Society.

Entomologisk Tidskrift, 1881, No. 1. From the Editor.

Annali del Museo Civico di Storia Naturali di Genova. From the Society.

Bullettino della Società Entomologica Italiana, 1881, No. 2. From the Society.

Étude sur les espèces de la Tribu des Féronides qui se rencontrent en Belgique, by A. Preudhomme de Borre. From the Author.

Hyménoptères Famille des Scoliidés Voyage au Turkestan, par H. de Saussure. From the Author.

NOVEMBER 11, 1881.

Director Dr. LECONTE in the chair.

The Publication Committee announced the completion of vol. ix of the Transactions of the American Entomological Society to page 196.

The Publication Committee reported favorably the following paper for publication in the Transactions:—

“Index to the Species of Coleoptera described by John L. LeConte, M. D.,” by Samuel Henshaw.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Zoological Society of London, 1881, part 2. From the Society.

Journal of the Royal Microscopical Society of London, October, 1881. From the Society.

Bulletin of the Essex Institute, vol. xiii, Nos. 7—9. From the Institute.

Entomologist's Monthly Magazine, No. 210. From the Conductors.

Canadian Entomologist, vol. xiii, No. 9. From the Editor.

Le Naturaliste Canadien, No. 143, vol. xii. From the Editor.

Psyche, vol. iii, No. 85. From the Editors.

Il Naturalista Siciliana, vol. i, No. 1. From the Publishers.

New Carboniferous Insects, by S. H. Scudder. From the Author.

DECEMBER 12, 1881.

Director Dr. LECONTE in the chair.

The Publication Committee announced the completion of vol. ix of the Transactions of the American Entomological Society to page 212.

Mr. E. T. Cresson presented the following descriptions of new Hymenoptera in the collection of the American Entomological Society:

Encerceris bicolor.—♀.—Fulvo-ferruginous; strongly, closely and more or less confluent punctured, the pubescence thin and pale except on apex of the abdomen where it is black; apex of mandibles, tip of clypeal spine, spot enclosing ocelli, most of thorax and the three apical segments of abdomen, black; head large, transversely quadrate; clypeus short and very broad, the apical margin broadly arched, with a short acute tooth beneath median lobe, and another more obtuse on either side just above the large tooth on mandibles, the median lobe produced into a triangular subacute spine; labrum broad and subtruncate at tip; mandibles with a large obtuse tooth within near base; thorax sometimes entirely black, sometimes ferruginous with the sides only black, generally the prothorax, scutellums and metathorax are more or less varied with ferruginous; the triangular enclosed space at base of metathorax transversely striated, the striations becoming

oblique on the sides, the disk with a well impressed longitudinal line; mesopleura with a prominent angle beneath; wings yellowish subhyaline, the apex with costal half fuliginous and subviolaceous. costal nerve and stigma fulvous; abdomen with large deep uneven punctures, sometimes more or less confluent, the transverse median depressions on the segments above more closely and finely punctured; sometimes the depressed disk of apical segment is varied with ferruginous. Length .60—.65 inch.

Hab.—Montana, (Morrison). The clypeus is formed much as in *fulviceps* Cress.

Mellinus abdominalis.—♀.—Black; head and thorax almost smooth, subopaque; short line on upper anterior orbits, flagellum beneath except at base, palpi, narrow line on posterior margin of prothorax, transversely quadrate spot on scutellum, a smaller one on postscutellum, upper margin of tubercles, sometimes a dot behind, spot on tegulæ, apical half of four anterior femora beneath, their tibiæ beneath and most of their tarsi, all lemon-yellow; apical middle of clypeus produced, truncate, with a short acute medial tooth, the lateral angles of the truncation more or less acute and dentiform; the enclosed raised space at base of metathorax above, smooth and shining, opaque and rugulose at base; wings hyaline, iridescent, nervures black; tips of posterior tarsi rufo-testaceous; abdomen shining, rufo-ferruginous, base of first, and the two or three apical segments more or less black: first segment clavate, but not protuberant at tip above. Length .40—.45 inch.

♂.—More slender than ♀, especially the abdomen; anterior orbits, clypeus more or less, most of mandibles, antennæ beneath except the two apical joints, the tenth and eleventh joints above, line on posterior margin of prothorax, spot on tegulæ, two beneath, another on scutellum and postscutellum, coxæ beneath, and sometimes a spot on each side of abdominal segments 3—5, white or yellowish-white; all the femora and tibiæ beneath lemon-yellow; tarsi fulvo-testaceous, except the posterior pair at base; the face, cheeks, thorax beneath and metathorax with a silvery sericeous pile; sides of clypeus generally stained with brown; first segment of abdomen beneath and the three or four apical segments above and beneath mostly black, apex beneath with a tuft of yellowish hair. Length .30—.40 inch.

Hab.—Montana, (Morrison). Easily recognized by the ferruginous abdomen, the first segment of which is not nodose at apex above as in *rufinodus*, which it much resembles in form and sculpture.

The following additions to the Library of the American Entomological Society were announced:—

Transactions of the American Entomological Society, vol. ix, Nos. 1 and 2. From the Publication Committee.

Proceedings of the Academy of Natural Sciences of Philadelphia, 1881, part 2. From the Academy.

Transactions of the Kansas Academy of Sciences, vol. vii. From the Academy.

Proceedings of the Boston Society of Natural History, 1881, sigs. 5—8. From the Society.

Bulletin of the Buffalo Society of Natural Sciences, vol. iv, No 1.
From the Society.

Canadian Entomologist, vol. xiii, Nos. 10 and 11. From the Editor.

Psyche, vol. iii, No. 85. From the Editors.

Papilio, vol. i, Nos. 6—10. From the Editors.

Le Naturaliste Canadien, No. 143, vol. xii. From the Editor.

Annales de la Société Entomologique de France, Sér. 5, vol. xvi.
From the Society.

Mittheilungen der Schweizerischen Entomologischen Gesellschaft, vol.
vi, No. 4. From the Society.

Il Naturalista Siciliana, vol. i, No. 2. From the publishers.

Entomologisk Tidskrift, 1881, No. 2. From the Editor.

Descriptions of new Tortricidæ, by C. V. Riley. From the Author.

The Tertiary Lake Basin of Florissant, Colorado, by S. H. Scudder.
From the Author.

General Index and Supplement to Nine Reports on Insects of Mis-
souri, by C. V. Riley. From the Author.

Species des Hyménoptères d'Europe and d'Algerie, par Ed. Andre,
October, 1881. From the Author.

Study of the Sphecidæ, Larradæ and Philanthinæ, by W. H. Patton.
From the Author.

The following Officers etc., were elected to serve for the year 1882:—

Director.—John L. LeConte, M. D.

Vice-Director.—George H. Horn, M. D.

Recorder.—James H. Ridings.

Treasurer.—E. T. Cresson.

Conservator.—Charles Wilt.

Publication Committee.—George H. Horn, M. D.

Samuel Lewis, M. D.

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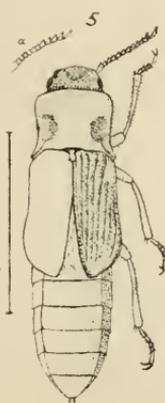
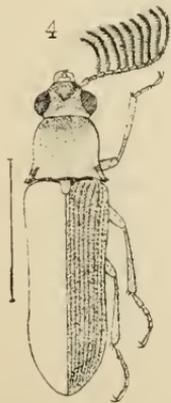
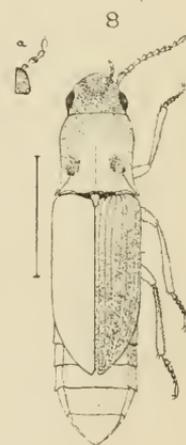
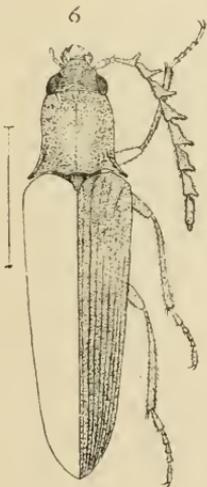
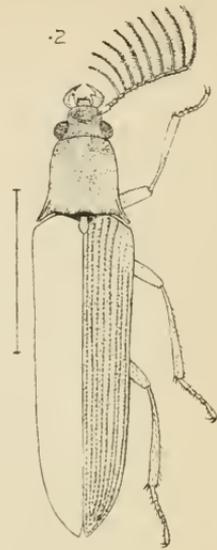
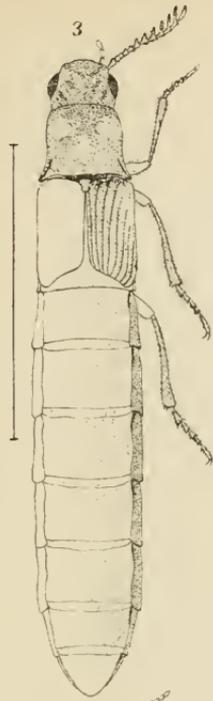
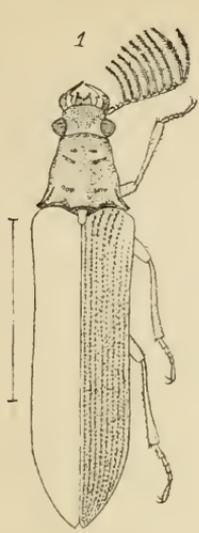
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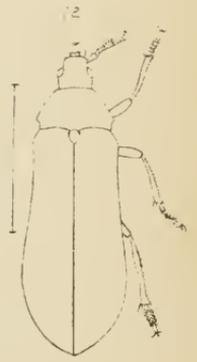
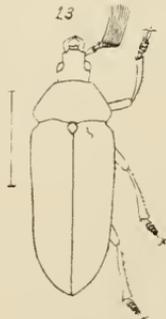
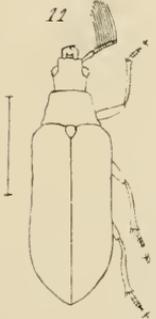
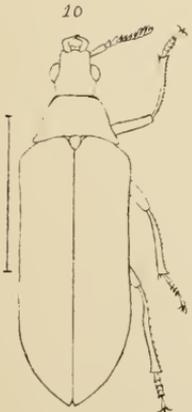
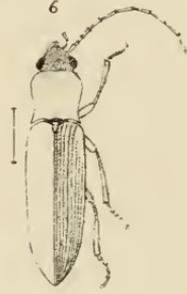
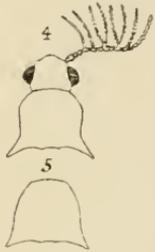
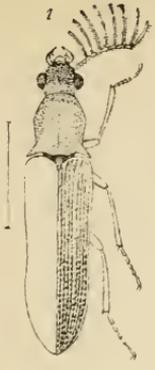
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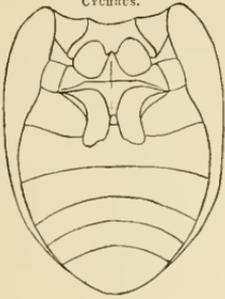
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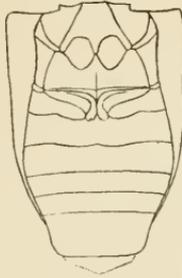
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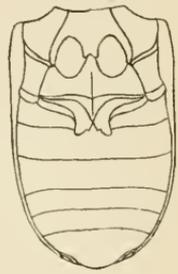
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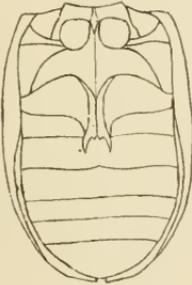
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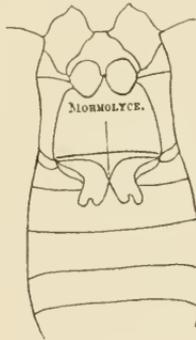
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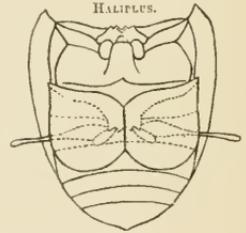
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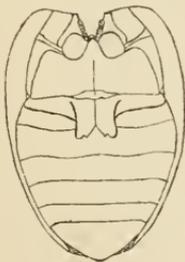
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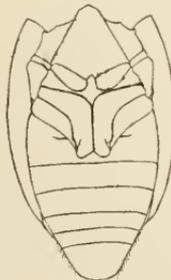
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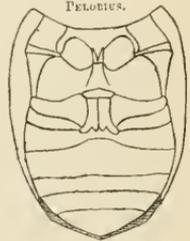
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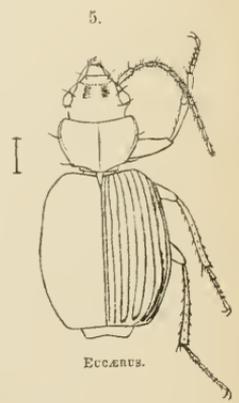
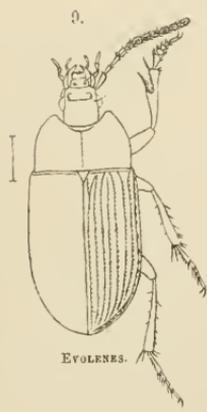
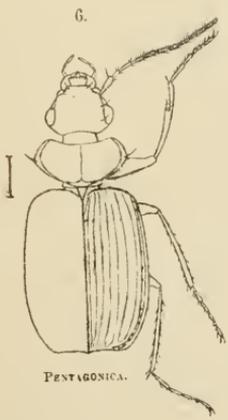
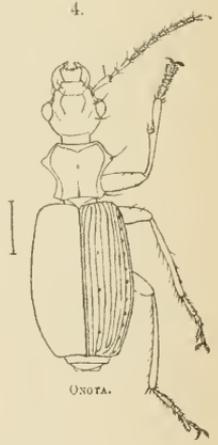
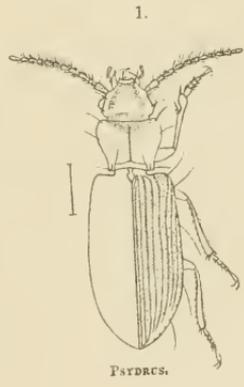
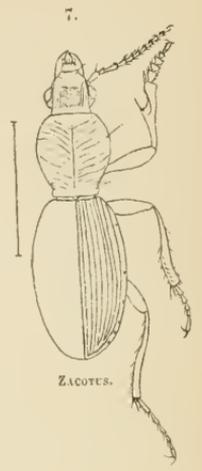
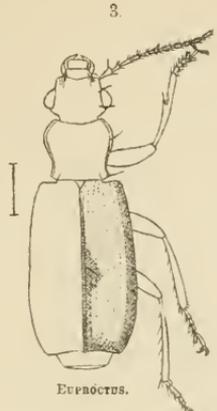
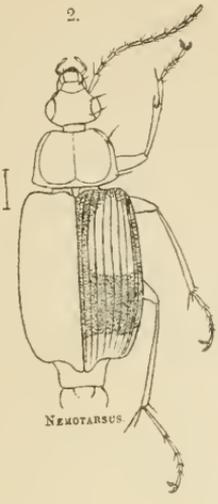
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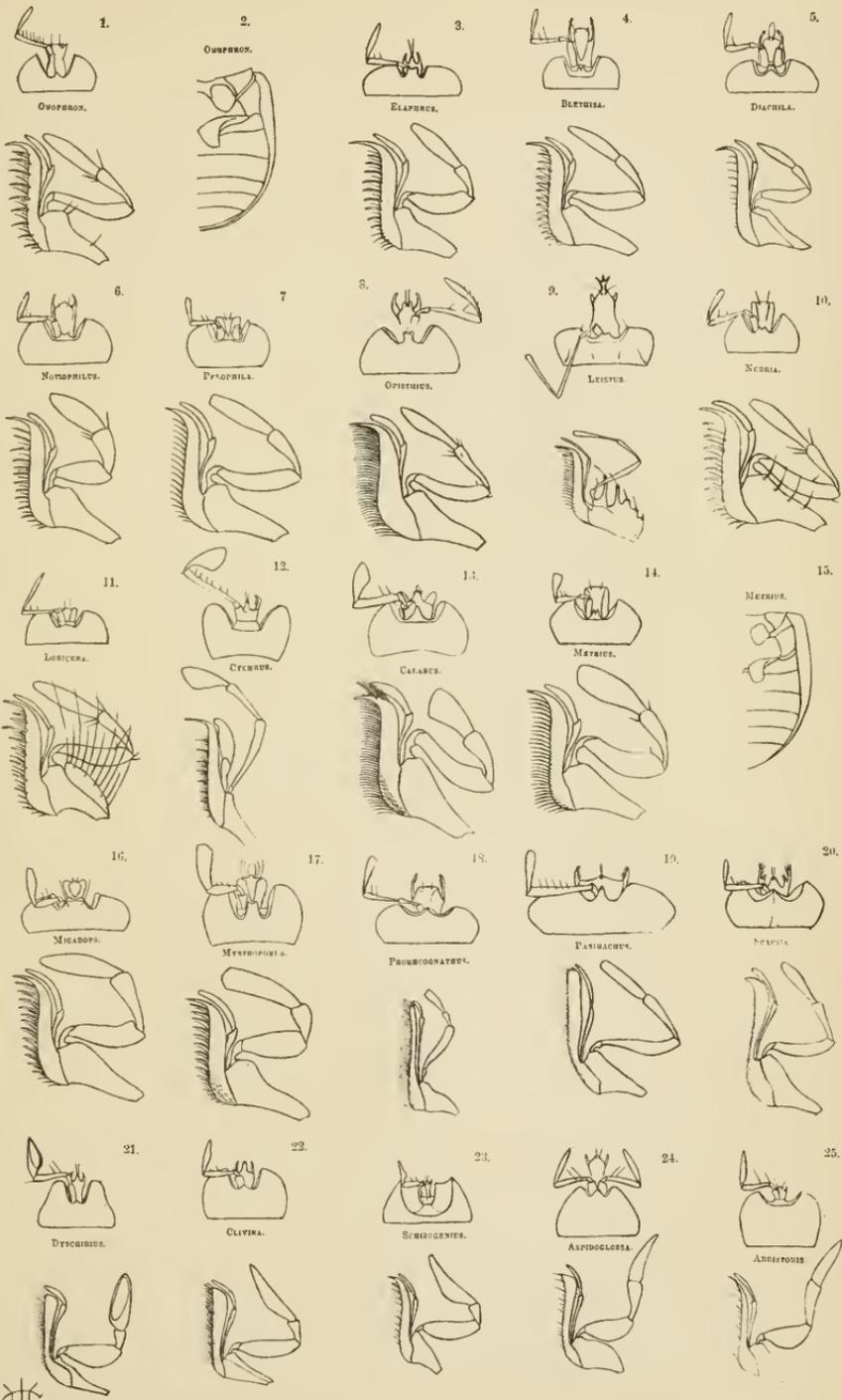
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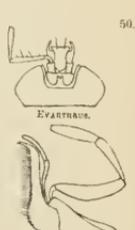
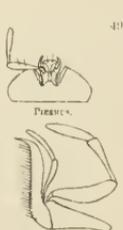
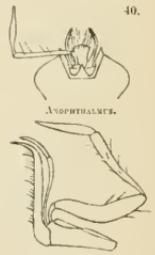
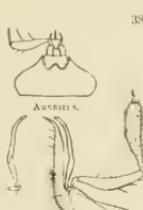
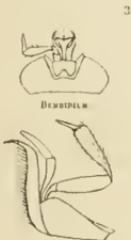
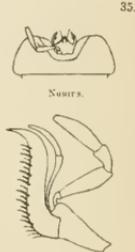
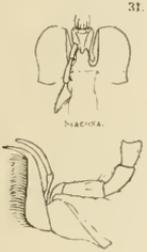
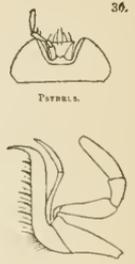
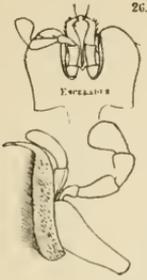
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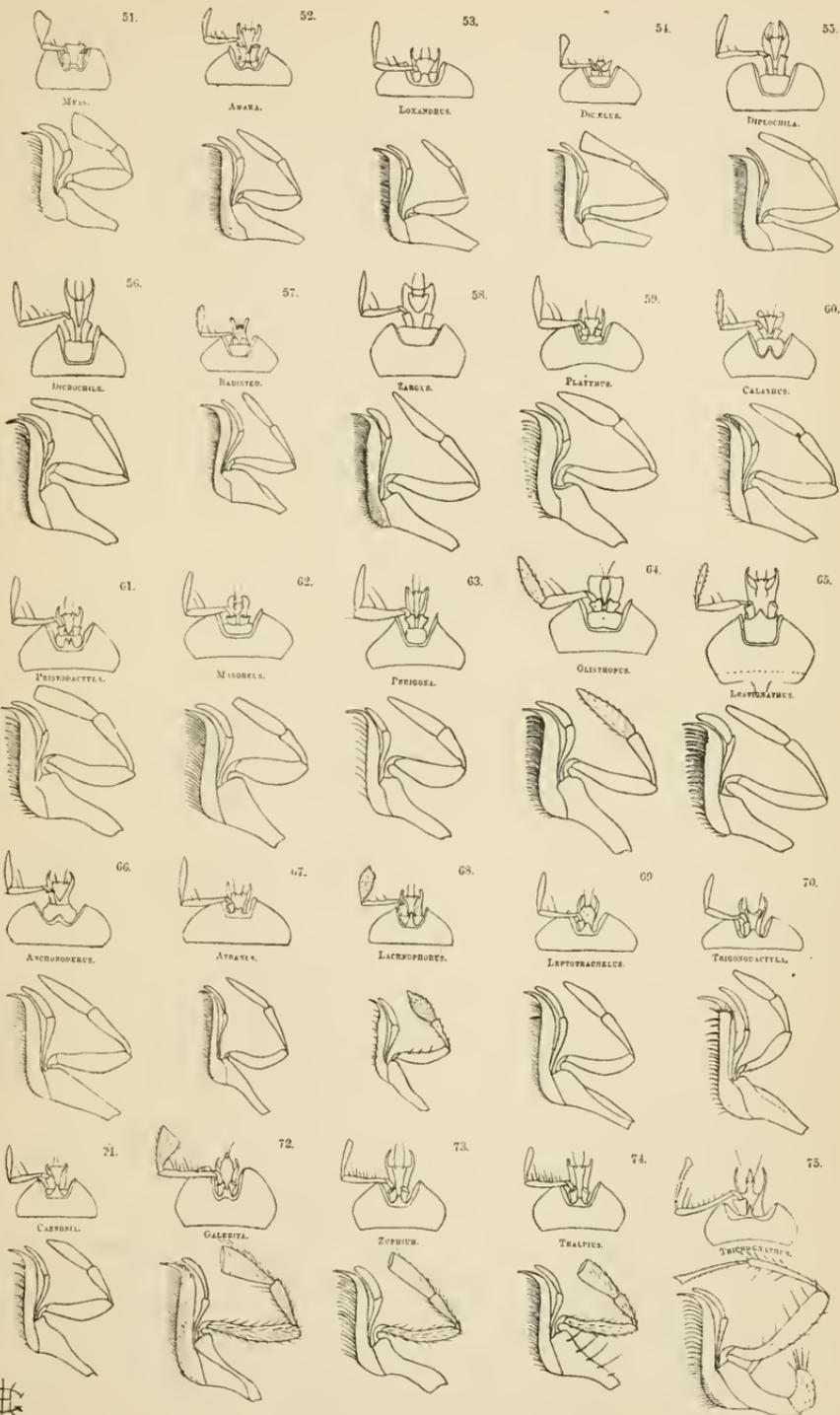




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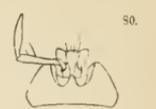
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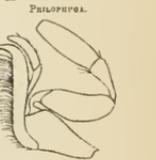
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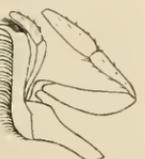
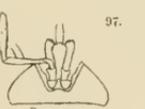
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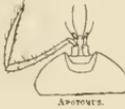
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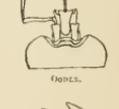
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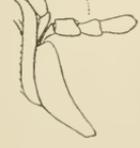
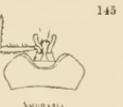
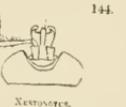
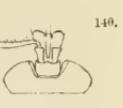
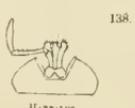
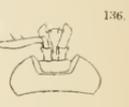


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