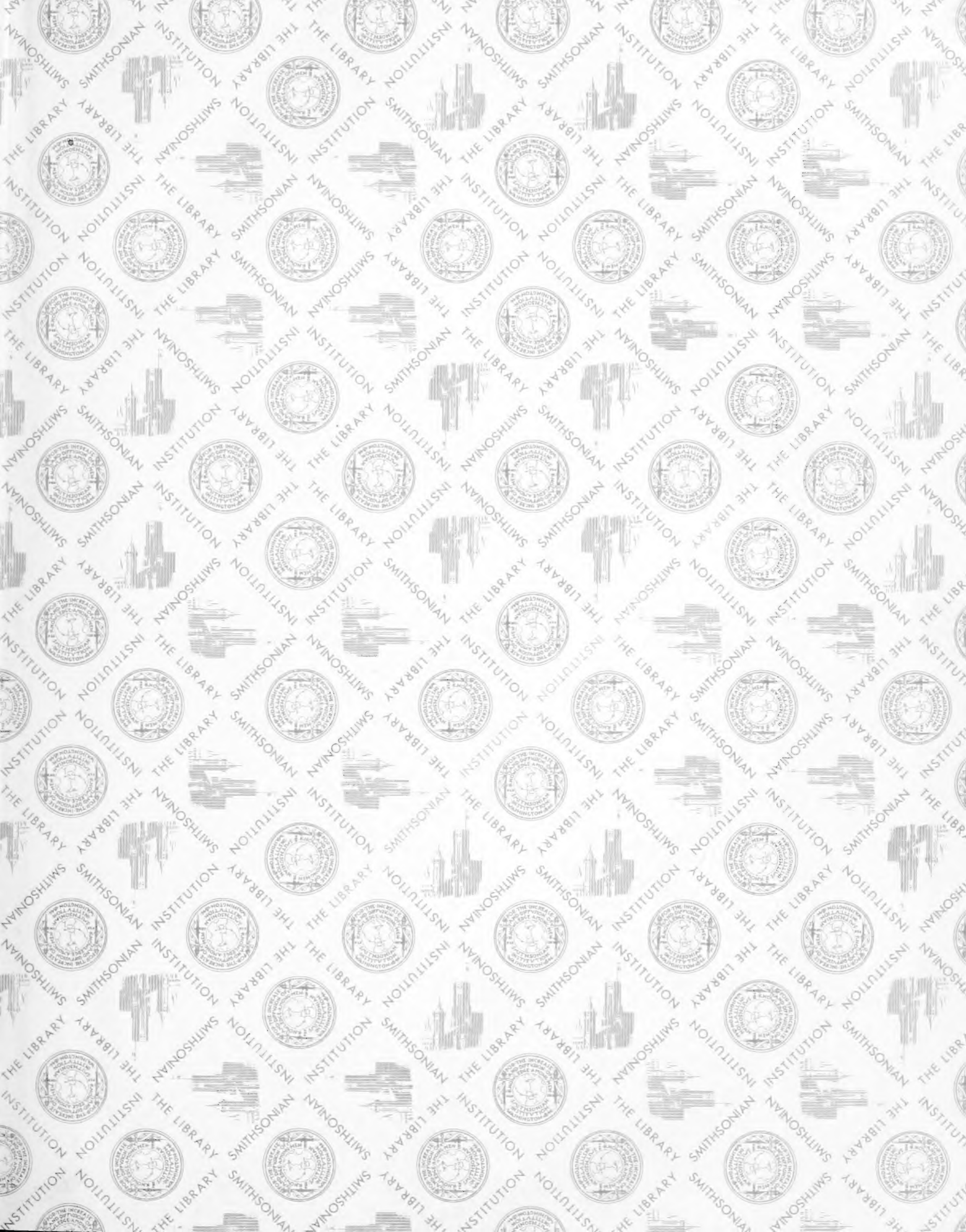


REVISION...CICINDELAE
OF THE U. S.

REVISION...ELATERIDAE
OF THE U. S.

SYNOPSIS MELOLONTHIDAE
OF THE U. S.





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REVISION

OF

THE CICINDELÆ

OF THE

UNITED STATES.

Lawrence
BY

JOHN L. LE CONTE, M. D.

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REVISION

OF

THE CICINDELÆ OF THE UNITED STATES.

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The genus *Cicindela*, a favourite with all entomologists, contains a very large number of species which are mostly distinguished by brilliant colours, and conspicuous markings. Although easily recognised by direct comparison, the structure of these numerous species is varied upon such uniform types, that much difficulty is found in identifying an unknown one by description, and the descriptions given by authors are frequently either obscure from their brevity, or tedious from their length. This necessarily results from the want of success in dividing the genus into small groups defined by easily recognised characters; and it is much to be regretted that some of the entomologists of Europe, with large collections at hand, have not made an effort to produce a monograph of this beautiful genus.

The species found in the United States have been increased since the publication of Say's monograph, in the first volume of this work, from 13 to 65; the descriptions of these have become so scattered as to be rather troublesome to the student, and as I have fortunately obtained specimens of all those previously described, excepting three made known by Say after the publication of the monograph mentioned, it appeared to me to be a work not altogether without profit to science, to attempt to bring together such notes upon these species as would enable subsequent investigations to be carried on with less labour than has been previously required.

Before proceeding to the description of the species, I have attempted to group them in such manner as to divide the characters common to several, from those which are peculiar and diagnostic, and I have presented the result in a synoptic table. In making

these comparisons I have availed myself of the copious collection of foreign species belonging to the Academy of Natural Sciences, and but recently presented to that institution by Mr. John A. Guex. As many groups of foreign species are not represented in our fauna, I have indicated such as could be conveniently placed in the table following; these are marked by brackets, and I have also occasionally added the name of a foreign species, also within brackets, where the American representatives of the group were not likely to be extensively known. The table thus has assumed the form of a general, but very imperfect, arrangement of the contents of the genus.

While examining the foreign species, my attention was directed to the impossibility of reconciling the system of marking of the East Indian *C. 4-lineata* Fabr. with that seen in any of the groups of genuine Cicindelæ; but on closer inspection I found that accompanying the two yellow stripes on each elytron, was a remarkable character that seems to have escaped previous observers. It is the presence of a longitudinal dorsal suture each side of the thorax: the pronotum, or tergum, is in fact narrowed, while the mass of the prothorax is subjected to no diminution; the lateral sutures separating the pronotum from the lateral pieces of the prothorax, which in all other species are seen on the under surface, in this instance become dorsal. This peculiarity seems to necessitate the formation of a new genus, for which the name *Hypætha* may be adopted.

The system of colouration is called normal in the following pages when the under surface and legs are of a more or less metallic colour; the abnormal variations are few, and consist in the abdomen being red, or the legs in part or in whole pale or red, without metallic lustre.

The spots of the elytra are normal, when they are of the following type, more or less reduced by deficiency; a humeral narrow curved spot, called lunule; a middle band more or less bent, and descending internally; and an apical curved line usually bent inwards at its anterior part: these spots are sometimes confluent on the margin, and sometimes separate: they are sometimes entire, and sometimes interrupted, and occasionally reduced to merely marginal spots.

Abnormal variations occur; 1, by additional spots at the base or near the suture (groups XI., XII., XIII.); 2, by the deficiency of the terminal part of the apical lunule, while its anterior part is well marked, (groups II., III., XVII.); 3, by the inner portion of the middle band being lost, while the external marks become confluent, forming a broad white margin, only slightly lobed internally (groups XX., XXI., XXII.): 4, by the marks being removed more or less from the margin of the elytron (group X.; and still more in XXIII.)

The form is called normal when the humeral angles are distinct, and the elytra moderately convex and oval, when the head and eyes are moderately large, but not excessive, and when the thorax is quadrate, trapezoidal, or subcylindrical, with well-marked impres-

sions. Abnormal variations occur by the elytra becoming narrowed anteriorly, without humeral angles, (group XXIV. ;) by the thorax being narrow and cylindrical, with only faint impressions (group XXIV. ;) by the eyes being excessively large, (groups XI., XII., XIII., XIX., XXI., XXII., XXIV. ;) and by the elytra being subcylindrical, instead of moderately convex and oval, (groups XII., XXI., XXII., XXIII.)

A. Abnormal cylindrical Cicindelæ, with sericeous surface, and with the labrum variegated or black, frequently 5-toothed, with prominent exterior angles; the elytra are marked with narrow vittæ, and small sutural dots, or else with normal spots, the apical portion of the apical lunule being always wanting. The head is large, with moderate, but occasionally prominent eyes. The palpi are pale with dark tips. The legs and abdomen are always of the colour of the body, which is not very pubescent. The tarsi are glabrous above, and the anterior of the male are moderately dilated. (All foreign.)

a. Elytra with vittiform markings, and subsutural dots. *C. lugubris*, *fatidica*, &c.

b. Elytra with marginal spots, and frequently with slightly bent medial band. *C. chinensis*, &c.

B. Normal, frequently flattened, Cicindelæ, with the labrum frequently large; sub-5-dentate in some species, (of the first group,) with the outer angles not prominent; usually white, rarely black, usually tridentate, but sometimes only unidentate. Front broad, eyes moderate, sometimes prominent. Elytra usually sericeous, rarely polished, sometimes punctured; apical spot usually wanting; tips never serrate; sutural spine completely wanting. Thorax flattened, almost margined, narrowed behind. Under surface normal in colour; legs never very long. Tarsi of male more broadly dilated than usual.

I. Surface sericeous, elytra only punctured towards the base, (spots usually wanting.) Sp. 1-3. *C. prasina*, *obsoleta*, *vulturina*.

II. Front flat, labrum tridentate. Elytra foveate and punctured. Sp. 4. *C. unipunctata*.

III. Front excavated, labrum unidentate. Elytra foveate and punctured. Sp. 5. *C. longilabris*.

IV. Labrum very short, tridentate; elytra with shallow punctures and subsutural foveæ; thorax hardly rugous. Sp. 6-10. *C. pulchra*, *Lecontei*, *rugifrons*, *scutellaris*, *nigrocœrulea*.

(Here comes in a group of elongate species of normal form, but with very large head, small eyes, and long, trapezoidal, somewhat flattened thorax: *e. g.*, *C. luctuosa Dej.*)

C. Normal, usually convex Cicindelæ, with the labrum white, tridentate or unidentate, with the outer angles not prominent, and only moderate in size. Front broad, eyes prominent, but moderate in size. Elytra punctured, sometimes granulate, rarely polished; sutural spine distinct; tips alike in both sexes, usually serrate, but sometimes smooth; elytra with normal markings, the apical portion of the posterior lunule never wanting, unless the whole lunule is wanting. Under surface and legs normal in colour, the latter never very long. Tarsi of males rather broadly dilated. Thorax trapezoidal or quadrate, never cylindrical; posterior angles usually a little elevated.

V. Thorax convex, rugous; front glabrous; elytra finely serrulate, punctured. Body only slightly hairy beneath. Palpi of both sexes black.

a. Labrum tridentate. Sp. 11, 12. *C. sexguttata*, *patruela*.

{β. Labrum unidentate. *C. tricolor.*}

VI. Thorax short, flat, trapezoidal, rugous; front hairy; elytra with elevated punctures, not serrate; humeral lunule interrupted; palpi of both sexes black.

{γ. Elytra equably punctured. *C. campestris*, *desertorum*, &c.}

δ. Elytra less punctured towards the margin. Sp. 13, 14. *C. splendida*, *purpurea*.

Thorax rugous and granulate, usually convex; elytra punctured obsolete serrate; humeral lunule prolonged.

{ Front glabrous. *C. distans*, *Zwickii*. }

VII. Front, thorax and body very hairy. Sp. 15-21. *C. Anceisconensis*, *venusta*, *generosa*, *formosa*, *latesignata*, *vulgaris*, *fulgida*.

VIII. Thorax rugous and granulate, usually short or quadrate, flattened; elytra punctured, with elevated granules intermixed, distinctly serrate. Sp. 22-26. *C. oregona*, *guttifera*, *12-guttata*, *baltimorensis*, *hirticollis*.

IX. Thorax sub-cylindrical, hardly granulate, finely rugous; elytra punctured, serrate. Sp. 27. *C. tenuisignata*, { *dignoscenda*. }

X. Head and thorax finely granulate, the former with curved striæ on the vertex; elytra punctured, not serrate, marks remote from the margin. Sp. 28-31. *C. imperfecta*, *pusilla*, *circumcincta*, *cyarella*.

D. An entirely anomalous group, with large prominent eyes; the thorax is quadrate or sub-cylindrical, (wider posteriorly in some females;) the posterior impression is deeper externally, but does not reach the sides of the thorax; posterior angles elevated, sometimes prolonged; elytra sometimes white, usually with white basal spots, (except in *C. sperata*;) legs very long, with the claws larger than usual; body beneath normal in colour; trochanters in many of the native species red.

{ a. Front slightly pubescent; thorax with posterior angles prolonged. *C. capensis*. }

XI. β. Front glabrous, elytra white, trochanters purple.

{ Right mandible of male not toothed inferiorly. *C. nivea*. }

Right mandible of male with an inferior tooth near the tip. Sp. 32-34. *C. dorsalis*, *media*, *Sauleyi*.

XII. γ. Front pubescent, (body cylindrical,) trochanters red.

Right mandible of male with inferior tooth. Sp. 35, 36. *C. lacerata* and *marginata*.

Right mandible of male not toothed inferiorly. Sp. 37-40. *C. cuprascens*, *blanda*, *macra*, *sperata*.

{ δ. Front with a few hairs behind the eyes, trochanters purple. *C. Candei*, &c. }

XIII. E. A broad, flattened species, having the elytra white, even to the suture; head densely pubescent; eyes very large; thorax cylindrical; legs pale. Sp. 41. *C. lepida*.

F. Species of regular form and normal colouring, with the head and thorax finely granulate, the elytra punctured, with a subsutural row of foveæ, finely serrate; thorax sub-cylindrical, narrowed behind; labrum unidentate.

XIV. Middle band tortuous. Sp. 42-45. *C. ascendens*, *serpens*, *sigmoidea*, *tortuosa*.

XV. Middle band interrupted, (rectangularly bent.) Sp. 46. *C. punctulata*.

XVI. Spots wanting; head and thorax hardly granulate. Sp. 47. *C. corvina*.

G. Species of regular form, with sericeous surface; thorax quadrate or sub-cylindrical, not rugous or granulate; eyes moderate or large, but never excessive in size; elytra serrate.

XVII. Apical part of terminal lunule wanting. Sp. 48. *C. decostigma*.

XVIII. Terminal lunule complete, abdomen red. Sp. 49-53. *C. hemorrhagica*, *Hentzii*, *16-punctata*, *rufiventris*, *cumatilis*.

XIX. H. A small black species with red abdomen, and edentate rounded labrum; eyes very large. Sp. 54. *C. abdominalis*.

XX. I. An elongate species of obscure colour, with moderate eyes; thorax cylindrical; elytra not serrate margined with white; abdomen with the sides and tip red. Sp. 55. *C. marginipennis*.

K. Cylindrical species with the eyes very large; the elytra punctured and finely serrate; legs and abdomen normal in colour; anus usually pale.

XXI. Abdomen glabrous in the middle.

- α. Head strongly striate, glabrous; elytral spots marginal. Sp. 56. *C. severa*.
- β. Head finely striate, glabrous; elytra with white margin. Sp. 57, 58. *C. circumpecta*,
prætextata, { *Ruppellii*, boops, and *biramosa*. }
- γ. Head pubescent; elytra with very broad white margin. Sp. 59. *C. togata*.

XXII. Abdomen entirely pubescent. Sp. 60. *C. gratiosa*.

XXIII. L. A cylindrical species with red legs and strongly punctured elytra, marked with a discoidal vitta.
Sp. 61. *C. lemniscata*.

M. Small species having the eyes very large, the thorax cylindrical and elongate, and the elytra narrowed in front, without humeral angles; wings imperfect.

{ α. Elytra glabrous. *C. dromicoides*. }

XXIV. β. Elytra sparsely pubescent. Sp. 62, 63. *C. celeripes*, *cursitans*.

GROUP I.

This group contains species of an elongate not convex form, and dull sericeous black or green colour. The labrum is moderately large, with five anterior teeth, in the males the exterior one of these teeth each side is reduced to a slight sinuosity so that the labrum appears tridentate; the lateral angles are rounded. The palpi of the female are usually entirely black; the labial palpi of the male are pale, with the last joint black. The front is rather flat, glabrous, with only a few very fine striæ each side. The thorax is trapezoidal, not very convex, with the transverse impressions well defined. The elytra are slightly convex, indistinctly punctured except at the base, where the punctures are large and scattered: the apex is not serrate, broadly and conjointly rounded in both sexes, sutural spine very small: the usual white spots are very small or entirely wanting; the pattern, when most complete, is a humeral spot, an obtusely bent medial band, and an apical lunule. The legs, under part of the thorax, pleuræ, and sides of the abdomen are clothed not densely with white hair; a few hairs are also seen above on each side of the thorax. The three joints of the anterior tarsi of the male are equal in width, and moderately dilated.

1. *C. prasina*, obscure nigro-prasina, sericea, thorace trapezoideo, latitudine sesqui brevior, planiusculo, lateribus parum rotundatis parce pilosis, angulis posticis rotundatis prominulis, subtus nigro-viridis, thoracis pleuris abdominisque lateribus modice albo-pilosis; labro albo, breviusculo, antice haud rotundato, breviter tridentato. Long. .77.

C. obsoleta † var. Lec. Ann. Lyc. Nat. Hist. 4, 178.

One male found by me on the Arkansas River below Bent's Fort. Closely allied to the next, and not differing in sculpture; the form of the thorax is however so different, that it cannot be considered as a variety: the posterior angles are in the same manner rounded, and separated from the base by a slight margin, which causes them to appear prominent: the labrum is shorter, and the elytra wider than in *C. obsoleta*.

2. *C. obsoleta*, nigra, sericea, thorace subquadrato, latitudine vix brevior, planiusculo, lateribus fere rectis parce pilosis, angulis posticis rotundatis prominulis, subtus nigra, lateribus albo-pilosis; elytris puncto albo marginali sæpius obsolete ad medium notatis; labro albo, antice subrotundato, 5-dentato, (dentibus externis maris fere obsolete). Long. 68—80.

Say, Journ. Acad. Nat. Sc. 3143. Lec. Ann. Lyc. Nat. Hist. 4, 178, tab. 13, fig. 4.

Abundant on the arid table lands east of the Rocky Mountains, about the upper parts of the Platte and Arkansas Rivers. Flight active and vigorous.

3. *C. vulturina*, nigra, sericea, thorace trapezoideo, latitudine vix brevior, paulo convexo, lateribus modice rotundatis parce pilosis, angulis posticis haud prominulis; elytris gutta humerali, fascia angusta obtuse angulata ad medium lunulaque apicali albis, sæpe obsolete; subtus cyanea lateribus albo-pilosis; labro antice infusato rotundato, (feminæ) sub-5-dentato. Long. 61—67.

Lec. Proc. Acad. Nat. Sc. 6, 439.

Eagle Pass, Rio Grande, Texas: collected by Mr. Schott of the Boundary Commission. Nearly related to the preceding, but the thorax is more convex, and more rounded on the sides, and the posterior angles fall into the base instead of being prominent. The middle band of the elytra is about as sinuous as in the well-known *C. limbalis*, (a race of *C. splendida*) but is narrower and frequently obsolete.

GROUP II.

The group contains one species of a somewhat flattened form, and dull brownish colour, above almost without metallic reflections. The labrum is large, prominent in the middle, with three distinct teeth; the outer angles are very obtuse. The palpi of both sexes are entirely black. The front is flattened, finely wrinkled, and striate towards the eyes, entirely bald; the surface of the head and thorax is distinctly granulate. Thorax flattened, trapezoidal. Elytra not serrate at tips, which are separately acutely rounded, without any sutural spine: the punctures are large and shallow, the markings marginal, frequently wanting. Body beneath glabrous. Eyes rather small, but prominent.

4. *C. unipunctata*, æneo-fusca, opaca, sericea, labro albo tridentato, fronte tota striolata, thorace trapezoideo planiusculo, latitudine haud brevior, confertim rugoso ad latera vix rotundata parce albo-piloso; elytris pone humeros latioribus, distinctius marginatis planiusculis, æqualiter punctatis foveisque sparsis præcipue versus suturam notatis, punctis omnibus cyaneis, apice singulatim rotundatis, macula marginali intus obsolete prolongata ad medium alba; subtus nigro-purpurea glabra. Long. 58—68.

Fabr. Ent. Syst. 1, 174; Syst. El. 1, 238. Oliv. 33, No. 22; tab. 3, 27. Herbst, Käfer, 10, 190; tab. 173, 1: Say, Trans. Am. Phil. Soc. 1, 412; tab. 13, fig. 3.

Pennsylvania, Missouri, Georgia; found in paths in shady, hilly woods in May or June, according to the latitude of the locality: the merit of discovering a locality in the immediate neighbourhood of Philadelphia is due to Mr. Schafhirt. Varieties are mentioned by Mr. Say in which there is a supplemental spot half way between the medial one and

the apex; such have not occurred to me; immaculate varieties are mentioned, but they are only greasy specimens, in which vestiges of the spot can always be traced.

GROUP III.

Species having the upper surface sericeous, the body rather flattened, and the thorax trapezoidal, usually short, and almost margined. The head is glabrous, the vertex is broadly excavated, the front is suddenly declivous anteriorly, and finely striate. The labrum is large, prominent, sometimes black (in foreign species,) and one-toothed. The markings of the elytra are variable, but the terminal part of the apical lunule is always wanting, the apex is not serrate and but slightly separately rounded. The palpi are black in both sexes: the second and third joints of the anterior tarsi of the male are slightly oblique. The body is hairy beneath on the sides; in other respects this group agrees with the preceding.

The species, which with one exception are foreign, may be divided as follows:

Labrum black, carinated, elytra punctured and foveate. *C. fasciato-punctata*, &c.

Labrum white, subcarinate.

Black, elytra more densely punctured, hardly margined. *C. longilabris*.

Green, elytra flattened, margined. *C. ismenia*, rotundicollis.

5. *C. longilabris*, purpureo-nigra, supra æneo tincta, labro albo magno, antice rotundato, obtuse dentato, lateribus sinuato, thorace latitudine fere duplo brevior, trapezoideo, confertim rugoso, impressionibus profundis, elytris confertim minus profunde punctatis versus suturam vage seriatim foveatis, gutta humerali, altera ad quadrantem, fascia media sinuata obtuse deflexa, guttaque ad dodrantem albis; subtus cyanea, lateribus parce albo-pilosis. Long. 55—64.

Variat elytrorum maculis plus minusve deficientibus.

a. Supra, nigra immaculata, (thorace postice minus angustato.)

Say, Long's Expedition to St. Peter's River, 2, 268. Lec. Ann. Lyc. Nat. Hist. 4, 178.

C. albilabris Kirby, Fauna Bor. Am. 4, 12; tab. 1, fig. 1.

New Hampshire, Canada, Mackinaw, Lake Superior; inhabits paths through grassy and bushy places, and takes refuge in the herbage when disturbed. The form (*a*) is a female from the North shore of Lake Superior, of a pure black colour above, and broader form than usual; the thorax is less narrowed posteriorly.

GROUP IV.

Robust species with convex elytra and thorax, the latter (not much wider than its length, rounded on the sides, hardly rugose, not granulate; front deeply striate sparsely setose, or sparsely finely striate and glabrous. Labrum short, 3-toothed. Palpi of both sexes entirely black. Elytra indistinctly punctured, with a row of small shallow foveæ near the suture, conjointly broadly rounded at tip, not serrate, spots always marginal, usually small and disconnected, (except in some varieties of *C. Lecontei*,) and frequently

wanting. Pectus and legs sparsely clothed with white erect hairs: outer side of middle tibiæ densely pubescent. Tarsi of male moderately broad.

Species of sandy and bushy places, of active and vigorous flight, appearing only when the sun is shining.

C. pulchra seems related to *C. severa*, but that species is elongate and has the base of the palpi pale: the tips of the elytra are in it finely serrate and somewhat obliquely narrowed, the body is much more hairy beneath; and finally the middle tooth of the mandibles is smaller than the others, while in *C. pulchra* as in the others of this group they are nearly equal in size.

The species, which so far as known to me are North American, may be divided as follows.

Front hairy, elytra polished, margin of a different colour. Sp. 6.

Front hairy, elytra not polished. Sp. 7-9.

Front glabrous, finely striate each side; elytra not polished. Sp. 10.

6. *C. pulchra*, capite purpureo cupreoque variegato, fronte punctata pilosa utrinque parce striata, thorace convexo cupreo lævigato, marginibus omnibus cyaneis, elytris cupreis politis antice punctatis, sutura margineque cyaneis, gutta humerali, alteraque submarginali ad medium albis, sæpe deficientibus; subtus cyanea, vel viridis, lateribus longe albo-pilosis. Long. .73.

Say, Journ. Acad. Nat. Sc. 3, 142: Dej. Sp. Gen. 2, 421: Lcc. Ann. Lyc. Nat. Hist. 4, 175: tab. 13, fig. 1.

Found on the arid table lands adjacent to the Rocky Mountains from the Platte River to the Rio Grande. A species of strong and vigorous flight, not common and very difficult to capture.

7. *C. Lecontei*, supra cupreo-purpurea, haud nitida, fronte fortiter striata parce punctata et pilosa, thorace convexo, vage at distincte rugoso, elytris brevibus convexis obsolete punctatis versus suturam seriatim vage foveatis, maculis marginalibus sæpe cohærentibus albis, subtus obscure cyanea ad latera pilosa; labro sexus utriusque albo tridentato. Long. .5.

Haldeman, Proceedings of the Academy of Nat. Sc. of Philad. 6, 361.

Wisconsin, near Green Bay, Mr. Guex: near Racine, Messrs. Hoy and Barry; Fort Gratiot, Dr. Kirtland. Very closely allied to the next, and not differing in form, in any respect: the labrum is however white in both sexes, and the thorax is sparsely but distinctly rugous. The humeral lunule is frequently entire, the medial spot is triangular and large, very often connected with the humeral and apical lunules: the latter recedes anteriorly from the margin, and is prolonged forwards. Sometimes the humeral lunule is reduced to a post humeral marginal dot. Varieties will doubtless occur in which the spots are small, or even entirely wanting.

8. *C. rugifrons*, cyaneo-viridis vel nigra, fronte fortiter striata parce punctata et pilosa, thorace convexo, haud vel vix rugoso, elytris brevibus convexis obsolete punctatis, versus suturam seriatim obsolete foveatis, gutta post-humerali, macula triangulari media, lunulaque apicali sæpe cohærentibus, sæpe autem deficientibus albis; subtus ad latera pilosa; labro tridentato maris albo, femina nigro-piceo. Long. .43—5.

Dej. Sp. Gen. 1, 51; 5, 209: Gould, Bost. Journ. Nat. Hist. 1, 46.

C. denticulata Hentz, Trans. Am. Phil. Soc. 3, 254, tab. 2, fig. 1: Harris, New Engl. Farmer, 7, 90.

C. obscura || Say, Trans. Am. Phil. Soc. 1, 418, (nec Fabr.) (gens nigra.)

C. modesta Dej. Sp. Gen. 1, 52: Lec. Ann. Lyc. Nat. Hist. 4, 175, (gens nigra.)

α . Elytris brevioribus et paulo convexioribus, præcipue immaculatis, vel lunula apicali obsoleta notatis.

C. unicolor Dej. Sp. Gen. 1, 52: 5, 210.

Found in sandy places, in various parts of the Eastern, Middle and Southern States. The black race does not occur at the same localities with the green one, but on close comparison, nothing of specific character can be found to separate them. The form α is found in Georgia, Alabama and Florida, and is usually of a more obscure green than the type.

9. *C. scutellaris*, viridi-cyanea, capite thoraceque haud nitidis, fronte fortiter striata, parce punctata et pilosa, thorace convexo, confertim subtiliter rugoso, elytris flavescente-cupreis versus scutellum virescentibus, haud nitidis, brevibus convexis obsolete punctatis, versus suturam obsolete foveatis, puncto marginali ad medium lunulaque apicali sæpissime deficientibus albis: subtus ad latera pilosa; labro tridentato, maris albo, feminae piceo. Long. .45.

Say, Journ. Acad. Nat. Sc. 3, 140: Lec. Ann. Lyc. Nat. Hist. 4, 176; tab. 13, fig. 2.

Valley of Platte River, on sand hills in June; not abundant. The colour of the head and thorax varies from full green to blue: the sides of the latter are less rounded in the male than in the female. The colour of the elytra also varies from coppery to brassy.

10. *C. nigrocœrulea*, nigro-purpurascens, sericeo-micans, fronte glabra subtiliter rugosa, utrinque striata, thorace modice convexo, latitudine brevior, parce rugoso ad latera pilis parvis depressis albis, elytris minus convexis obsolete punctatis, versus suturam seriatim foveis cyaneis impressis, lunula apicali obsoleta alba; subtus ad latera parce haud erecte albo-pilosa; labro sexus utriusque albo, maris obsolete, feminae distincte tridentato; palpis labialibus maris basi pallidis. Long. .5—57.

Leconte, Annals of the Lyc. of Nat. Hist. of New York, 4, 181, tab. 14, fig. 9.

One pair found near Bent's Fort on the Arkansas River. The elytra of this species are more elongated than in the others of this group, and the sexual characters are different; yet by the indistinct punctures of the elytra, as well as by the absence of serrature and sutural spine, it seems to be here properly appended. It is a stouter species than *C. punctulata*, which it at first sight seems to resemble.

GROUP V.

Labrum moderate, advanced in the middle, strongly tridentate. Head and thorax glabrous, finely rugose, the former finely striate between the eyes, the latter convex and strongly impressed. Palpi entirely black. Elytra strongly punctured, broadly rounded, and but very obsoletely serrate at tip, sutural spine distinct: spots small, the anterior ones in one species hardly ever visible. Body beneath very sparsely pilose.

Differs from the next group by the bald front, and slightly serrate tips of the elytra.

11. *C. guttata*, viridis, vel cyanea haud nitida, fronte striata glabra, postice rugosa, thorace latitudine brevior, convexo postice angustato, minus subtiliter rugoso, elytris valde punctatis, gutta ad medium (sæpe intus paulo oblique prolongata) lunulaque apicali interrupta albis, maculis his sæpe deficientibus; subtus vix parce albo-pilosa; labro sexus utriusque albo, medio paulo porrecto, fortiter tridentato. Long. 4—53.

Fabr. Ent. Syst. 1, 176; Syst. El. 1, 241; Oliv. 33, No. 27; tab. 2, 21; Herbst, Archiv. tab. 27, 17; Käfer, 10, 171, tab. 171, 6; Say, Trans. Am. Phil. Soc. 1, 414; table 13, fig. 4; Dej. Sp. Gen. 1, 53; Gould, Boston Journ. Nat. Hist. 1; 45.

VAR. *C. violacea* Fabr. Syst. El. 1, 232; Herbst, 10, 198.

Newfoundland, Pennsylvania, Louisiana, Wisconsin, and Nebraska. Lives usually in roads running through shady places, and is easily captured. Exhales a fragrant odour. Nearly related to the Siberian *C. coerulea*.

12. *C. patruela*, viridis, olivaceo-brunnea, vel cyaneo-nigra, haud nitida, fronte subtilius striata glabra, capite postice rugoso, thorace latitudine brevior convexo, postice angustato, dense rugoso, elytris punctatis, subgranulatis, lunula humerali apicalique interruptis, fascia media obliqua vix sinuata albis; subtus lateribus parce albo-pilosis; labro sexus utriusque albo, medio paulo porrecto, tridentato. Long. 5—58.

Dej. Sp. Gen. 1, 62; Gould, Bost. Journ. Nat. Hist. 1, 44; tab. 3, fig. 4; Lec. Ann. Lyc. Nat. Hist. 4, 178.

C. consentanea Dej. Sp. Gen. 1, 63. (var. obscurior.)

Middle States, in shady paths on hills. The middle band consists of a large lateral triangular spot connected with a small discoidal one, by a slightly oblique narrow line.

GROUP VI.

This group contains closely allied, and in fact undistinguishable species, having the labrum moderate, slightly advanced and 3-dentate in the middle: palpi black in both sexes: eyes moderate, not prominent: head and thorax granulate and rugose, the front striate and pilose with erect hair; the latter not very convex, obliquely narrowed behind, with the impressions very deep. Elytra moderately punctured, punctures almost always elevated, broadly rounded and not serrate at the tips; spots always disconnected, anterior ones frequently wanting; under surface with long white hair, which is sparse on the abdomen, but more dense on the breast. Legs not elongated, hairy; tarsi of the male with moderately dilated joints.

The foreign species of this group (*C. campestris* &c.) have the elytra equably punctured, while in ours the punctures near the lateral margin are less distinct.

13. *C. splendida*, supra varicolor, thorace marginibus viridibus, capite discoque sæpius cupreis valde rugosis, elytris elevato-punctatis sutura sæpissime viridi, puncto humerali, altera posthumerali sæpe deficiente, fascia sinuata perpendiculariter oriente, gutta anteapicali, lunulaque terminali albis, margine late viridi vel cyaneo, minus distincte punctato. Long. 4—56.

a. Brevior, supra purpurea, thorace lateribus magis rotundatis, elytris antrorsum paulo angustatis, convexioribus, fascia media completa, guttis marginalibus sæpe obsoletis; subtus cyanea.

C. limbata var. Lec. Ann. Lyc. Nat. Hist. 4, 177.

β . Longior, præcipue cuprea, thorace lateribus parum rotundatis, elytris planioribus antrorsum haud angustatis maculis completis.

- a. Nigra. *C. spreta* Lec. Ann. Lyc. 4, 177; tab. 13, fig. 7.
- b. Cuprea. (♂ ♀) *C. limbalis* Klug. Jahrb. Ent. 1, 29. *C. marginalis* var. Dej. Sp. Gen. 5, 210.
- c. Cuprea, fascia media introrsum attenuata, puncto humerali deficiente. (♀)
- d. Cuprea, fascia media extrorsum subobliqua. (♀)
- e. Læte cuprea, fascia media minus subito sinuata. (♀) *C. amœna* Lec. Ann. Lyc. 4, 177; tab. 13, f. 3.
- f. Capite thoraceque totis viridibus. (♂)
- g. Cuprea, elytris fascia media intus abbreviata, guttis marginalibus minutis.

γ . Latior, præcipue læte cuprea, capite thoraceque viridibus, elytris planioribus guttis marginalibus nullis, fascia, media intus valde abbreviata, lunula apicali parva.

- a. Capite thorace elytrisque margine latiore viridibus. *C. splendida* Hentz, Trans. Am. Phil. Soc. 3, 254; tab. 2, fig. 3: Lec. Ann. Lyc. Nat. Hist. 4, 176. *C. sexguttata* var. Fabr. Syst. El. 1, 241.
- b. Capitis thoracisque disco cupreo. (♀) *C. splendida* var. Klug, Jahrb. 1, 23.
- c. Purpureo-cyanea, elytrorum disco obscure viridi. (♀)

Extensively diffused, yet not with the races intermingled: the localities of the specimens observed are as follows: α . New York and New Jersey, on wooded hills: β —a. Eastport, Maine, Dr. Harris: β —b. Rockport, Ohio, and Fort Gratiot, Dr. Kirtland, also in Missouri, Dr. Hoy; β — γ . New York; γ —a and b. Southern and Western states; γ —c. Arkansas, Dr. Schaum. Very closely allied to the next, and in fact the only difference that can be perceived is the direction of the origin of the middle band which is perpendicular in the present, and oblique in the next: yet the specimen β —d would invalidate even this character. The head and thorax of the next are proportionally a little larger, and the thorax seems more narrowed behind, and less tubulated in front by the anterior constriction, but these differences are not very obvious.

14. *C. purpurea*, supra varicolor, thorace marginibus (exemplis nigris exceptis) viridibus, capiteque disco sæpius purpureo-cupreis, valde rugosis, elytris elevato-punctatis, sutura sæpissime virescente, fascia paulo sinuata subobliqua ad medium, lunulaque apicali sæpius interrupta albis, limbo laterali (exemplis nigris exceptis) late viridi minus distincte punctato, margine extimo cuprascente. Long. .5—6.

- a. Capite thoracis elytrorumque disco purpureo-cupreis. *C. purpurea* Oliv. Ins. 33, No. 11, tab. 3, fig. 34: Herbst, Käfer, 10, 195; tab. 173, fig. 7: Say, Trans. Am. Phil. Soc. 1, 419, tab. 13, fig. 8: Gould, Bost. Journ. Nat. Hist. 1, 44. *C. marginalis* Fabr. Syst. El. 1, 240: Herbst, Käfer, 10, 175; tab. 171, 10: Dej. Sp. Gen. 1, 55; 5, 210.
- b. Capite thoracisque disco æneo-cupreis, elytris olivaceis.
- c. Nigra, labro maculisque solitis albis. *C. Audubonii* Lec. Bost. Journ. Nat. Hist. 5, 207; tab. 18, fig. 7; Ann. Lyc. Nat. Hist. 4, 176.

Variety a. is extensively diffused through the middle and Western States: varieties b. and c. occur only at the West. I have them from Lake Superior, Wisconsin, and Nebraska: in the last mentioned region the type did not occur. A specimen with dull green elytra and coppery reflections, which seems intermediate between a and b, occurred at New York.

GROUP VII.

Contains species of robust form, and mostly of large size; above of the usual metallic brown colour, but sometimes of a fine copper or purple colour. The labrum is moderately large, three toothed, almost always prominent in the middle; with the lateral angles obtuse. The labial palpi of the male are pale, with the last joint black. The head and thorax are finely granulate, the former is finely striate at the sides, with scattered white erect hairs on the front: the latter is usually convex, narrowed behind, with erect hairs towards the sides. The elytra are punctured, very finely, sometimes hardly perceptibly serrate towards the tips, which are conjointly rounded in both sexes, with a small sutural spine. The markings are usually broad; the humeral lunule is always entire and prolonged; the middle band almost rectangularly bent; the apical lunule entire: sometimes the whole outer margin is white. The under surface is with the exception sometimes of the middle of the pectus and abdomen, clothed with long coarse white hair: the anterior tarsi of the male are moderately broadly dilated.

Species inhabiting sandy places, and seen only when the sun is brightly shining. This group seems closely related to group VIII., but in that the labrum is almost truncate anteriorly, and the thorax is quadrate and less convex, and the elytra are more strongly serrate. Three principal forms.

1. Elytra dull, middle band dilated on the margin: (labrum 3-toothed, prominent.) *C. Ancocisconensis*, *venusta*, *generosa*, *formosa*, *latesignata*.

2. Elytra dull, spots not connected at the margin: (labrum 3-toothed, subtruncate.) *C. vulgaris*.

3. Elytra shining, spots not connected: (labrum prominent, obsoletely toothed.) *C. fulgida*.

C. Ancocisconensis affiliates by its markings with *C. baltimorensis*; while *C. vulgaris* is evidently by the labrum and form of body allied to *C. purpurea*, which differs by the entirely black palpi, the interrupted humeral lunule, and the not serrate elytra.

15. *C. Ancocisconensis* supra æneo-brunnea, capite granulato, fronte albosetosa, utrinque subtiliter striata, thorace convexo, latitudine paulo brevior, postice subangustato, granulato, lateribus parce albo-setosis, elytris punctatis, ad apicem rotundatis obsolete serratis, lunula curvata humerali, altera apicali superne inflexa fascia angusta media obtuse refracta lineæ marginali adjuncta albis; subtus viridi-ænea lateribus minus dense albo-setosis; labro sexus utriusque longiuseculo, albo, tridentato. Long. .6.

Mas palpis labialibus articulo penultimo pallido.

Harris, Family Visitor, (Cleveland, Ohio,) 2, No. 39. Haldeman, Proc. Acad. Nat. Sc. 6, 361.

Found about the White Mountains, New Hampshire, by Dr. T. W. Harris, to whom I owe a fine series of specimens: a specimen was previously given me by Mr. Schafhirt, who found it in one of the public squares of Philadelphia. This species is very distinct from all other native species: the markings of the elytra resemble nearly in form those of *C. repanda*. Haldeman has stated that the maxillary palpi of the male are pale at base: this is undoubtedly an error of writing, as the labial palpi are meant.

16. *C. venusta*, cuprea, opaca, capite thoraceque granulato-rugosis, viridi variegatis, fronte albo-setosa, utrinque striata, thorace convexo, latitudine brevior, postice subangustato, lateribus longe albo-setosis, elytris punctatis versus basin parce granulatis, ad apicem subtiliter serrulatis, lunula humerali oblique prolongata, fascia media perpendiculariter refracta, lunulaque apicali latis ad marginem coherentibus albis, limbo extimo epipleurisque æneo-viridibus; subtus viridi-ænea longe albo-pilosa, pectore medio glabro: labro sexus utriusque albo maiusculo, prominulo subtiliter tridentato. Long. .55—60.

Mas palpis labialibus articulo penultimo pallido.

Leconte, Ann. Lyc. Nat. Hist. of New York, 4, 179; tab. 13, fig. 6.

On sandy places near the Forks of Platte River. More slender and more convex than *C. generosa*, and distinguished by the larger and more prominent labrum.

17. *C. generosa*, crassiuscula, supra fusco-ænea, vel nigro-purpurea, opaca, capite granulato-rugoso, fronte striata albo-setosa, thorace latitudine brevior, granulato-rugoso postice subangustato, lateribus albo-setosis, elytris punctatis parce granulatis, ad apicem subtilissime serratis, lunula humerali oblique prolongata, fascia media perpendiculariter refracta, lunulaque apicali antice inflexa latis, albis ad marginem coherentibus, limbo extimo epipleurisque æneis; subtus viridi-ænea, longe albo-pilosa, pectoris abdominisque medio glabro, pleuris purpureo-variegatis; labro sexus utriusque albo medio prolongato, tridentato. Long. .6—7.

Mas thorace convexo, postice subangustato, palpis labialibus articulo penultimo pallido.

Femina thorace minus convexo postice vix angustato, palpis labialibus articulo penultimo piceo.

Dej. Sp. Gen. 5, 231: Gould, Bost. Journ. Nat. Hist. 1, 42; tab. 3, fig. 2.

C. obliquata † Kirby, Fauna Bor. Am. 4, 10.

Variat maculis albis latioribus, ita ut lunulæ humeralis margo posticus marginem perpendiculariter ferit; lunula postica quoque lobata haud inflexa apparet.

Middle and Western States, (Connecticut, Pennsylvania, Wisconsin, Minnesota.) The variety is rare: but at a locality on the Mississippi above the Falls of St. Anthony I found them quite abundant: in one specimen the markings are fully as dilated as in *C. formosa*, from which it differs only by the middle band being rectangularly bent.

18. *C. formosa*, crassiuscula, supra cuprea, vel cupreo-purpurea, opaca, capite granulato-rugoso, fronte striata albo-setosa, thorace latitudine brevior granulato-rugoso, postice subangustato, lateribus albo-setosis, elytris punctatis parce granulatis ad apicem vix serrulatis, lunula humerali, fascia media obtuse sinuata lunulaque apicali dilatatis albis ad marginem late coherentibus, limbo externo epipleurisque æneis; subtus viridi-ænea albo-pilosa, pectoris abdominisque medio glabro; labro sexus utriusque albo, medio paulo prolongato tridentato. Long. .64—7.

Sexus differentia sicut in *C. generosa*.

Say, Journ. Acad. Nat. Sc. 1, 19; Am. Ent. tab. 18; Dej. Sp. Gen. 2, 424; Lec. Ann. Lyc. 4, 180.

Valley of the Nebraska River, near sand hills. The marks of the elytra are always very broad, and the humeral lunule, though obliquely prolonged, is so dilated that its posterior outline is perpendicular to the sides: the only satisfactory difference between it and *C. generosa* is found in the middle band being only obtusely bent, and much less deflexed than in the last named species.

19. *C. latesignata*, supra fusco-nigra opaca, capite thoraceque granulatis rugosis æneo-tinctis, fronte subtilius striata albo-setosa, thorace latitudine brevior, postice vix angustato, parum convexo, lateribus albo-setosis, elytris

fortius punctatis, ad apicem rotundatis vix serrulatis, lunula humerali oblique prolongata, apicali antice inflexa fasciaque media rectangulariter refracta, ad marginem expansa, latis albis; subtus viridi-ænea, longe pilosa, pectore medio glabro: labro sexus utriusque breviusculo, medio tridentato parum prominulo. Long. .5.

Mas palpis labialibus articulo penultimo pallido.

Femina palpis concoloribus, (thorace elytrisque adhuc minus convexis.)

Leconte, Ann. Lyc. Nat. Hist. of New York, 5, 172. Chaud. Bull. Mosc. 1854.

Variat maculis elytrorum latissimis confluentibus.

San Diego, California, on the sea shore, and in salt marsh. Though allied to *C. generosa*, the form is less convex, the elytra are more strongly punctured, and the labrum is shorter. Baron Chaudoir states that it closely resembles the Asiatic *C. lateralis*.

20. *C. vulgaris*, æneo-fusca opaca, fronte striata albo-setosa, capite thoraceque granulatis rugosis, hoc latitudine plus sesqui brevior, parum convexo, trapezoideo, fortiter transversim impresso, lateribus parce albo-pilosis, elytris punctatis, parce granulatis, parum convexis, ad apicem obsolete serrulatis, lunula humerali oblique prolongata, apicali antice inflexa, fasciaque media rectangulariter refracta angustis albis; subtus viridi-ænea longe minus dense albo-setosa, pleuris cupreis; labro sexus utriusque albo breviusculo tridentato. Long. .52—65.

Mas palpis labialibus articulo penultimo pallido; labro minus acute dentato.

Say, Trans. Am. Phil. Soc. 1, 409; tab. 13, fig. 1. Kirby, Fauna Bor. Am. 4, 10: Gould, Bost. Journ. Nat. Hist. 1, 43.

C. obliquata Dej. Sp. Gen. 1, 72.

Variat. a. Lunula humerali fere obsoleta.

b. Viridis, macula humerali interrupta. Lec. Ann. Lyc. 4, 179.

Apparently found in almost every part of the United States. New York, Georgia, Wisconsin, Missouri. The green specimen was found by Dr. Townsend on his journey to the Pacific, through the Rocky Mountains, and was given me by Mr. Willcox. The variety with indistinct humeral lunule was taken on the banks of the Ohio River, below Louisville. In form this species entirely resembles *C. purpurea*, and bears but a remote resemblance (except in the forms of the markings) to *C. generosa*. The description given by Kirby of *C. obliquata* can however be referred to no other species but *C. generosa*, from which he separates the present by a number of characters of little value, neglecting the obvious differences.

21. *C. fulgida*, purpureo-cuprea, capite thoraceque rugosis, fronte striata albo-setosa, antice viridi, thorace convexo, latitudine parum brevior postice subangustato, lateribus albo-setosis, elytris valde punctatis nitidis, ad apicem subtilissime serrulatis, lunula humerali oblique prolongata, fascia media rectangulariter flexa, lunulaque apicali antice inflexa latis albis; subtus viridi-ænea ad latera longe albobilosa; labro breviusculo, medio prominulo subtilius tridentato. Long. .5.

Mas palpis labialibus articulo penultimo pallido; labro vix obsolete dentato.

Say, Journ. Acad. Nat. Sc. 3, 141: Lec. Ann. Lyc. Nat. Hist. of New York, 4, 179; tab. 13, fig. 5.

Platte river valley on sandy places. In one specimen the middle band of the elytra is slightly dilated along the margin (as may be occasionally seen in *C. vulgaris*) but it would never become united with either of the lunules. The form of this species is more slender than that of *C. generosa* &c.

GROUP VIII.

Contains several species of a not slender form, with the thorax subquadrate and more flattened in the females than the males: the elytra are strongly punctured with intermixed granules, they are rounded and finely serrate at tip; in the females they are more or less dilated on the sides; the spots are normal, sometimes interrupted, sometimes connected on the margin, the medial band is perpendicularly bent. The head and thorax are finely rugous and granulate, the front is finely striate near the eyes, and is pilose in our native species; the labrum is moderately short, the middle tooth being acute and prominent, while the others are indistinct, and frequently wanting. The labial palpi at least of the male are pale at base. Sides of the thorax and body beneath hairy.

The species may be divided into three principal forms:

1. Lunules interrupted, middle band not dilated on the margin. *C. oregona* and *guttifera*.
2. Middle band dilated on the margin, humeral lunule curved, sometimes interrupted. *C. 12-guttata* and *baltimorensis*.
3. Middle band dilated on the margin, humeral lunule perpendicularly bent. *C. hirticollis*.

22. *C. oregona*, fusco-ænea, vel cyanea, fronte parce pilosa, utrinque subtiliter striata, thorace latitudine brevior, subquadrato, postice vix angustato, elytris pone humeros obtusos sensim latioribus, postice fortiter serratis, spina suturali prominula, punctatis granulatis, lunulis late interruptis, fascia media rectangulariter refracta ad marginem haud latiore albis; subtus cyaneo-ænea, pleuris albo-pilosis; labro albo unidentato. Long. 4—55.

Mas palpis labialibus articulo penultimo pallido. Femina elytris magis dilatatis, palpis concoloribus nigris.

C. duodecimguttata † Ménétrés, Bull. Soc. Imp. St. Petersb. 2, 52; et auctorum aliorum, (sine descriptione.)

Oregon Territory and Northern California, as far as San Francisco. Of the same form as *C. 12-guttata*, but having the elytra of the female more dilated, and the apical serratures and the sutural spine much more distinct.

The white spots of the elytra are large and conspicuous, but show no tendency to unite along the margin; they are thus placed: a humeral spot; a middle fascia bent at a right angle, and then curved towards the suture, terminating in a round spot: an apical spot, and two round submarginal spots, one midway between the humerus and middle band, the other between the band and the tip, but rather nearer the latter. The specimens from Oregon were collected by Dr. J. G. Cooper, they are all blue, or of a dull olive green above: the specimen found by me at Benicia is above of a fuscous bronze colour varied with coppery and brassy, as in our common *C. baltimorensis*.

22'. *C.* —, capite omnino sicut in præcedente, thorace—? elytris fortius punctatis, ad apicem serratis, spina suturali prominula, lunulis humerali apicalique interruptis, fascia media oblique oriente, obtuse refracta.

Here seems the proper place to refer some fragments of a specimen collected by Dr. Cooper at Prairie Pass, Oregon. The head is not in the least respect different from that of the preceding, but the elytra are less dilated and less strongly serrate: the surface is more strongly punctured, and the middle band does not arise perpendicularly (as in all

the other species of this group) but is oblique, and only obtusely bent, terminating, however, as in the preceding, in a round spot. The body beneath is bluish green. I have already indicated this species (Proc. Acad. Nat. Sc. 7, 16) as perhaps allied to *C. longilabris*, but on farther examination it appears to have no relation to that species.

23. *C. guttifera*, fusco-ænea, fronte parce pilosa, utrinque subtiliter striata, thorace latitudine brevior subquadrato, postice vix angustato, elytris pone humeros obtusos sensim latioribus, postice rotundatis subtilius serratis, spina suturali parva haud prominula, punctatis granulatis, lunulis late interruptis, fascia media rectangulariter refracta, ad marginem haud latiore albis, subtus viridi-ænea, pleuris omnibus cupreis albo pilosis; labro albo unidentato. Long. .5.

Mas latet.

Santa Fe, New Mexico, collected by Mr. Fendler. Resembles precisely in its form and markings *C. oregona*, but differs in having the tip of the elytra less serrate, and the sutural spine not prominent. The copper pleuræ afford also a good character for its separation: these are, however, found in *C. 12-guttata*, from which the present differs by the middle band being not at all dilated on the margin, and by the completely isolated spots into which the lunules are divided.

24. *C. duodecim-guttata*, supra nigra, fusco-ænea, vel etiam cuprascens et cyanea, fronte parce pilosa, utrinque subtiliter striata, thorace latitudine brevior subquadrato, postice subangustato, lateribus albo-pilosis, elytris pone humeros sensim latioribus, postice rotundatis subtilius serratis, spina suturali haud prominula, granulatis punctatis, (punctis sæpe vix distinctis,) lunula humerali curvata apicalique sæpe interruptis, fasciaque media rectangulariter refracta, in striga marginali oriente albis; subtus viridi, vel cyaneo-ænea, lateribus albo-pilosis, pleuris cuprascensibus, labro albo unidentato. Long. .47—54.

Mas palpis labialibus articulo penultimo pallido: femina palpis concoloribus, elytris latioribus.

Dej. Sp. Gen. 1, 73; Gould, Bost. Journ. Nat. Hist. 1, 51; tab. 3, fig. 3.

C. Proteus Kirby, Fauna Bor. Am. 4, 9.

Lake Superior, New York, near water, usually on causeways over marshes, or on the shores of lakes. Varies considerably, not only in the spots, which are sometimes entire, and sometimes interrupted, or even obsolete, but also in colour, as mentioned in the diagnosis: the sculpture too varies, because in the specimens of a black colour, the punctures vanish, and the elytra seem only sparsely granulate. When the colour is bronzed olive or coppery, the punctures are blue, and are very distinct.

Perfectly marked specimens, as well as those of coppery and greenish colour, have been found by me, only at Lake Superior: but a remarkable specimen of a fine blue colour with very complete marks was taken by Dr. Kirtland at Fort Gratiot, and kindly presented to me. Those found near the Atlantic vary but little, being of a dull blackish bronze colour, with the marks interrupted: the marginal white line connected with the middle band disappears occasionally, but the markings of the middle band are then extremely small and imperfect, so that even such specimens could not be confounded with the two preceding species.

The most perfectly marked specimens greatly resemble the next species, but are readily known by the shorter and less convex thorax, and by the elytra of the female being only gradually dilated, behind the shoulders, and by the black maxillary palpi of the male.

25. *C. baltimorensis*, fusco-ænea, fronte utrinque subtiliter striata, parce pilosa, thorace subquadrato, convexiusculo, lateribus albo-pilosis, elytris pone humeros latioribus punctatis granulatis, ad apicem rotundatis serrulatis, spina suturali prominula, lunula humerali curvata, altera apicali antice inflexa, fasciaque media rectangulariter fracta in linea marginali oriente albis; subtus viridi-ænea, lateribus pilosis, pleuris cupreis; labro brevi unidentato; palpis labialibus sexus utriusque articulo penultimo pallido. Long. .47.

Mas palpis pallidis articulo ultimo nigricante, elytris subparallelis.

Femina palpis maxillaribus nigris, elytris pone humeros subito paulo latioribus.

Herbst, Käfer, 10, 180, tab. 172, fig. 3.

C. repanda Dej. Sp. Gen. 1, 74: Kirby, Fauna Bor. Am. 4, 9, tab. 3, fig. 1.

C. hirticollis† Gould, Bost. Journ. Nat. Hist. 1, 49.

Lake Superior, New York, Missouri, Georgia. Does not vary perceptibly in its characters; the marginal line of the elytra never reaches either of the lunules. One specimen occurred at New York having the middle fascia abbreviated at tip, so as to be less strongly bent than usual. I do not know how Herbst's description of this species has been overlooked, for it is quite satisfactory.

26. *C. hirticollis*, olivaceo-ænea cyaneo variegata, vel fusco-ænea, vel fusca vix ænescens, fronte albosetosa, utrinque striata, thorace quadrato postice haud angustato lateribus valde pilosis, elytris fortius punctatis (punctis sæpissime cyaneis,) ad apicem oblique rotundatis, serratis spina suturali prominula, lunula humerali perpendiculariter flexa et hamata, apicali antice inflexa, fascia media subito fere acute refracta in striga marginali lunulæ humerali adjuncta albis; subtus cyaneo-viridis, lateribus valde pilosis, pleuris cupreis; labro brevi medio prominulo unidentato; palpis omnibus sexus utriusque pallidis articulo ultimo æneo. Long. .45—62.

Mas elytris pone humeros vix latioribus.

Femina elytris pone humeros subito rotundatim paulo dilatatis.

Say, Journ. Acad. Nat. Sc. 1, 20. Trans. Am. Phil. Soc. 1, 411, tab. 13, fig. 2. Kirby, Fauna Bor. Am. 4, 8.

Le Conte, Ann. Lyc. Nat. Hist. 4, 180: Chaud. Bull. Soc. Imp. Nat. Mosc. 1854.

C. albohirta Dej. Sp. Gen. 2, 425: Gould, Bost. Soc. Nat. Hist. 1, 49, tab. 3, fig. 1.

C. gravida Lec. Ann. Lyc. Nat. Hist. 5, 170.

C. unita Kollar, Ann. Wien. Mus. 1, 330.

Variat maculis plus minusve oblitteratis; etiam linea marginali lunulam apicalem vel attingente, vel abbreviata.

Found abundantly on the shores of both of the Atlantic and Pacific oceans, and the Gulf of Mexico, along our whole coasts; also on Lakes Ontario, Erie, and Superior: specimens occur, though less abundantly, on the rivers of the central and western parts of the Continent; *e. g.* Platte, Arkansas and Gila. The synonym last named was made on specimens from California, and presented slight differences which with a larger series of specimens have disappeared.

The figure and description given by Say in the Trans. Am. Phil. Soc. represent perfectly this species, but the short description in the Journal of the Academy is very indefinite, and

with the false locality, (Pennsylvania,) has led several entomologists to suppose it intended for the preceding species: it is quite likely that Say at that time confounded them together, but the expressions, "thorax very hairy," and "band is divaricated on the margin, so as to join the anterior lunule," lead me to refer the description to the present species.

GROUP IX.

One species of a slender form, with the labrum moderate, with the middle tooth prominent: palpi pale with black tips: head bald, slightly striate each side: thorax subcylindrical, hairy at the side. Elytra punctured, with long slender markings, medial band slightly bent, oblique, connected with a marginal white line; tips rounded finely serrate: those of the female very slightly suddenly dilated. Body beneath with dense not erect white hair, middle of pectus and abdomen glabrous.

Affiliates with group XII., but the humeral lunule is not recurved, the trochanters are not red, and the head is not pubescent. Also with the next group—but the tips of the elytra are serrate, and the middle tooth of the mandibles is not smaller than the others.

This group has most of the essential characters of the preceding, and is distinguished from *C. baltimorensis* by its slender form, and very elongated and oblique medial band; it leads through the next to others hereafter treated of, and interrupts the passage to group XI., which should properly follow group VIII.

27. *C. tenuisignata*, elongata, fusco-ænea, capite glabro subtiliter granulato, prope oculos striato, thorace latitudine haud brevior, subcylindrico, vix canaliculato, subtiliter granulato, pilis haud erectis ad latera parce vestito, elytris punctatis, antice parce granulatis ad apicem rotundatis serratis, spina suturali prominula, lunula humerali curvata, apicali antice inflexa, linea media elongata obliqua obtuse angulata in striga marginali quæ lunulas haud attingit oriente, tenuibus albis; subtus viridi-ænea, lateribus pube depressa dense vestita, pleuris cuprascentibus; labro brevi albo unidentato, palpis sexus utriusque pallidis articulo ultimo æneo. Long. 43—47.

Leconte, Ann. Lyc. Nat. Hist. of New York, 5, 171, (1852.)

? *C. californica* Ménériés, Bull. Soc. Imp. St. Petersb. 2, 52, (1843.)

New River, Colorado Desert, California: found also in Texas on the Rio Grande by Mr. Schott, of the Boundary Commission, and by Dr. Berlandière. The description given by Mr. Ménériés of *C. californica* applies to this species so far as it goes, but it is extremely imperfect, and I do not feel authorized in suppressing the name given by me. I may add that Mr. Motschulsky, who possesses a specimen of *C. californica*, failed to recognise the species in my collection. In order, however, to save a reference to a rare work, I copy the original description.

'*C. californica*, parallela, obscure ferruginea subtus albo-pilosa; elytris lunula humerali, apicalique integris, fascia media extus dilatata (lunulam humeralem fere attingente) intus hamulo oblique descendente albis; pedibus gracilioribus longissimis.

'Cette espèce a quelque ressemblance avec la *C. spinigera* Eschsch. de son Atlas zoologique, mais elle est

beaucoup plus étroite, plus parallèle et la lunule du milieu se dilate sur le bord externe, de manière à rejoindre presque la lunule humérale et descend extérieurement aussi bas que la branche antérieure de la lunule apicale; de plus la lunule du milieu, partout d'égale largeur, descend obliquement jusqu' au deux tiers de la largeur de l'élytre; les jambes sont très longues et grêles. Le dessous du corps est couvert de poils blancs très serrés.'

GROUP X.

Moderate-sized, subcylindrical, but somewhat robust species, with sericeous surface rarely with any metallic gloss. Head glabrous, striate each side. Labrum short with one prominent, and two obsolete teeth. Palpi pale with darker tips in the male or in both sexes. Thorax quadrate, rounded, or subcylindrical, hairy on the sides. Elytra not serrate, conjointly rounded in the male, with the suture slightly retracted in the female. The medial band is oblique, and long: the humeral lunule is also prolonged: these markings are frequently connected by a broad white marginal band, but the white is separated from the outer edge by a stripe of black, which is quite conspicuous. From this it results, that in the varieties with obsolete markings the medial band does not reach the margin as usual. The under surface is metallic green, slightly hairy on the sides; the anus is black: the tibiæ are usually testaceous at base.

The middle tooth of the mandibles is smaller than the others, though not so conspicuously so as in group XXI.

28. *C. imperfecta*, supra fusco-atra opaca sericea, ænescens, capite utrinque striolato, thorace quadrato, postice subangustato, lateribus parce pilosis, elytris viridi-punctatis, lunula humerali oblique valde prolongata, apicali antice inflexa, fasciaque media elongata obliqua sinuata extrorsum abbreviata albis, subtus viridi-ænea, lateribus subtilius pilosis; labro brevi albo unidentato, palpis maxillaribus (feminæ) nigro æneis, labialibus pallidis articulo ultimo æneo. Long. .45.

Leconte, Ann. Lyc. Nat. Hist. 5, 171.

One female from Sacramento. The maxillary palpi of the male are undoubtedly pale with dark tip as in the other species of this group.

29. *C. pusilla*, atra opaca, haud ænescens, capite utrinque striato, thorace latitudine vix brevior, lateribus rotundatis pilosis, postice angustato, elytris pone humeros sensim latioribus, parce punctatis, lunula humerali curvata, apicali antice inflexa, strigaque media obliqua extrorsum dilatata tenuibus albis, subtus ad latera parce pilosa; tibiis ad basin pallidis; labro albo tridentato, palpis sexus utriusque pallidis apice nigricantibus. Long. .45.

Say, Journ. Acad. Nat. Hist. 1, 31. Trans. Am. Phil. Soc. 1, 424; tab. 13. Dej. Sp. Gen. 2, 432: Lec. An. Lyc. Nat. Hist. 4, 183. Variat elytris nigris immaculatis

Platte River valley, on moist mud.

30. *C. cinetipennis*, supra olivacea, vel fusco-ænea, vel atra, sericea, capite utrinque striato, thorace latitudine vix brevior, lateribus rotundatis albo-pilosis, postice angustato, elytris subparallelis, fortius punctatis, lunula humerali curvata, apicali antice inflexa, fasciaque media obliqua sinuata extrorsum in linea submarginali oriente albis; subtus viridi-ænea lateribus parcius albo-pilosis, tibiis ad basin testaceis; labro brevi albo tridentato; palpis sexus utriusque pallidis articulo ultimo nigro. Long. .45.

Leconte, Ann. Lyc. Nat. Hist. 4, 182.

Variat maculis elytrorum late confluentibus, ita ut vitta lata submarginalis efformatur ramo antico obliquo, altero ad medium sinuato, loboque antepicali rotundato prædita. Loc. cit. tab. 14, fig. 12.

Platte and Arkansas River on muddy plains. Nearly allied to the preceding, from which the more strongly punctured and more parallel elytra, and the complete white markings distinguish it. The trochanters are usually dark testaceous.

31. *C. cyanella*, gracilis, obscure cyanea, sericea, capite utrinque striato, thorace latitudine fere longiore, lateribus subrotundatis albo-pilosis, postice subangustato, elytris fuscis pone humeros sensim latioribus, fortius cyaneo-punctatis, lunula humerali curvata, apicali antice inflexa, guttaque ad medium brevi submarginali intus prominula albis; subtus ad latera albo-pilosa, tibiis medio obsolete testaceis; labro albo brevi subtridentato, palpis (maris) pallidis articulo ultimo nigro, maxillaribus basi picis. Long. .36.

One specimen collected at the Yellowstone River, Upper Missouri, by Dr. Hayden. Related to the two preceding, but distinguished by its smaller size, and more slender form. From *C. cinctipennis* it differs in having the elytra with the form and markings of *C. pusilla*, and from the latter by the deep and large punctures. The maxillary palpi are brownish at the base, but this may be an individual variation: the anus and trochanters are testaceous.

GROUP XI.

Maritime species having broad depressed white elytra, which are angulated laterally in the female: the suture and oblique lines are dark metallic green. The thorax of the female is dilated posteriorly: the front is glabrous, finely striate; in our species the right mandible of the male is inferiorly dilated into an obtuse tooth near the tip, but in the South American *C. nivea*, this is not observed. The palpi are pale with dark tips. The body beneath is densely clothed with white hair, only the middle of the pectus and abdomen is glabrous. Legs very long; first joint of anterior tarsi of males hardly dilated, 3rd joint very perceptibly oblique; claws larger than usual. The tips of the elytra are obliquely narrowed, and separately rounded in the female, but in the male they are conjointly rounded. The change in pattern of the elytral markings is owing to the presence of a basal spot; the ordinary markings are broad, and the humeral lunule is prolonged along the suture till it reaches the much deflexed and somewhat tortuous medial band.

32. *C. dorsalis*, capite thoraceque olivaceo-æneis, subtiliter rugosis, illo glabro fronte vage bisulcata utrinque striolata, thorace albo-pubescente, latitudine brevior lateribus late rotundatis, elytris punctatis ad apicem serrulatis, albidis, sutura lineisque tribus viridi-æneis (antere semper cum sutura conflente;) subtus ænea dense albo-pubescentis, pectore medio abdomineque glabris, hoc purpurascente ano testaceo: labro amplo albo unidentato, palpis pallidis apice nigro-æneis. Long. .55—.6.

Mas mandibulo dextro subtus longe dentato; thorace postice vix ampliato; elytris lateribus late rotundatis.

Femina thorace postice ampliato, angulis productis; elytris pone humeros distincte angulatis, margine paulo explanato.

Say, Journ. Acad. Nat. Hist. 1, 20; Trans. Am. Phil. Soc. 1, 415; tab. 13, fig. 5: Gould, Bost. Journ. Nat. Hist. 1, 47.

C. signata Dej. Sp. Gen. 1, 124.

Variat elytris albidis sutura sola viridi-ænea, (mas.)

Atlantic coast of Middle and Northern States; very abundant on the open sandy sea-shore.

33. *C. media*, olivaceo-ænea, capite glabro, fronte vage bisulcata utrinque striolata, thorace latitudine haud brevior, albopubescente lateribus parum rotundatis, elytris punctatis albidis, sutura lineisque obliquis tribus (antere cum sutura confluyente) viridi-æneis, ad apicem serrulatis, subtus viridi-ænea dense albo-pubescent, pectore abdomineque medio glabris, ano testaceo, labro amplo albo unidentato, palpis pallidis ad apicem nigro-æneis. Long. 48—53.

Mas thorace postice haud latiore, elytris lateribus rotundatis; mandibulo dextro subtus longe dentato.

Femina thorace postice paulo ampliato, angulis productis; elytris pone humeros angulatis, margine parum explanato.

Sea coast of Georgia, and South Carolina. Very similar to the preceding, but always smaller: the narrower and less rounded thorax and the narrower elytra induce me to consider it as a separate species. The sexual characters are precisely as in *C. dorsalis*. The posterior one of the three oblique lines of the elytra is frequently connected with the suture.

34. *C. Sauleyi*, olivaceo-ænea, capite glabro, fronte vage bisulcata, utrinque striolata, thorace latitudine haud brevior, albopubescente lateribus rotundatis, elytris punctatis albidis, sutura lineisque tribus obliquis (sæpe cum sutura coniunctis) viridi-æneis, ad apicem serrulatis, subtus viridi-ænea dense albopubescent, pectore abdominisque medio glabris, ano testaceo, labro amplo albo unidentato, palpis pallidis ad apicem nigro-æneis.

Mas thorace postice vix ampliato, elytris lateribus late rotundatis; mandibulo dextro subtus breviter obtuse dentato. Long. 36—41.

Femina thorace postice valde ampliato, angulis paulo productis, elytris pone humeros obtuse angulatis vix explanatis. Long. 37—43.

Guérin, Rev. Zool. 1840, p. 37; 1841, 96.

C. venusta Ferté, Rev. Zool. 1841, 37.

Variat elytris albidis sutura sola ænea; femina.

Sea shore of the Gulf of Mexico (Texas, Louisiana, Florida:) the variety was found at Key West, by Dr. W. L. Jones. This species is also very closely related to the two preceding, and except by the difference in size and in the form of the inferior tooth of the right mandible of the male, is hardly separated from *C. dorsalis*. The elytra are however narrower in both sexes, and the thorax is somewhat longer and less rounded on the sides. The bronze markings of the elytra are usually much broader, and the posterior one is frequently lobed.

GROUP XII.

Maritime, salt marsh, or fluviatile species, having the right mandible of the male sometimes toothed near the tip, as in the preceding group, but sometimes, (form 2,) normal.

The thorax has more or less elevated posterior angles, and in the female is sometimes wider towards the base. The form is nearly cylindrical, the front is hairy, finely striate each side. The elytra of the female are somewhat wider than those of the male. The markings are either narrow or wide; the humeral lunule is recurved posteriorly, the middle band is long and fimbriate, sometimes tortuous; the whole lateral margin is white, the apical lunule is lost in the white margin, but is slightly dilated at the suture and at the anterior extremity; they are also marked, except in *C. sperata*, with a large basal spot: the tips are feebly serrate. The body beneath is densely clothed with white hair, with the middle of the pectus and the abdomen glabrous. The legs are long, and the trochanters are red. The labrum is three-toothed, but the middle tooth is more prominent; the palpi are pale with dark tips.

Two principal forms may be distinguished:

1. Salt water species having the elytra rounded on the sides, with the suture of the female retracted, and the tips separately rounded. *C. lacerata* and *marginata*.

2. Fluvial species with cylindrical elytra, which in the female are obliquely sinuate and armed with an external tooth near the tip. *C. cuprascens*, *blanda*, *macra*, *sperata*.

35. *C. lacerata*, olivaceo-ænea, capite thoraceque subtiliter albo-pubescentibus, hoc quadrato, latitudine sublongiore, elytris latiusculis confertim punctatis, macula basali, margine lato lobato, ramo humerali subobliquo hamato, fascia media refracta elongata fimbriata, lunulaque apicali utrinque inflexa albis, ad apicem serrulatis singulatim rotundatis, spina suturali distincta; subtus dense albo-pubescentibus, medio glabra, pedibus longissimis, trochanteribus rufis; labro albo unidentato. Long. 42—45.

Mas thorace lateribus vix rotundatis, mandibulo dextro dente inferiore obtuso armato; elytris sutura modice retracta.

Femina thorace lateribus paulo rotundatis; elytris sutura valde retracta
Chaudoir, Bull. Soc. Imp. Moscow, 1854.

Louisiana and Florida, on the coast of the gulf of Mexico. Quite distinct from the following by the broader elytra of the female not being deflexed at tip, and by the inferior tooth of the right mandible of the male being obtuse, and by the difference in the apical angles of the elytra.

36. *C. marginata*, olivaceo-ænea, capite thoraceque subtilius albo-pubescentibus, hoc quadrato, elytris confertim punctatis ad apicem serrulatis, macula basali, margine lato lobato, ramo subhumerali subobliquo hamato, fascia media longa refracta fimbriata, lunulaque apicali utrinque inflexa albis; subtus dense albo-pubescentibus, medio glabra, trochanteribus rufis, pedibus elongatis; labro albo unidentato. Long. 43—55.

Mas thorace postice haud latiore, mandibulo dextro dente elongato inferiore armato, elytris spina suturali prominula.

Femina thorace postice subampliato, elytris sutura valde retracta ad apicem deflexis.

Fabr. Syst. El. 1, 241: Herbst, Käfer, 10, 206: Say, Trans. Am. Phil. Soc. 1, 417; tab. 13, f. 6: Gould, Bost. Journ. Nat. Hist. 1, 48.

C. variegata Dej. Sp. Gen. 1, 84.

Variat maculis obsoletis, margine lato, maculaque basali utrinque relictis.

On salt marsh in Massachusetts and New York: on the ocean beach of South Carolina and Georgia. The specimens from the latter localities are more perfectly marked, and the lobe representing the anterior extremity of the apical lunule is directed more obliquely inwards than in specimens from New York; but after a close comparison I have failed to find any specific differences.

37. *C. cuprascens*, modice elongata, cylindrica, cuprea, vel olivaceo-ænea, subnitida, capite thoraceque albo-pubescentibus, hoc latitudine haud longiore, lateribus rotundatis, elytris valde punctatis ad apicem serrulatis, macula basali, margine lobato, ramo subhumerali subobliquo hamato, fascia media fere tortuosa fimbriata, lunulaque apicali utrinque inflexa latis albis; subtus viridi-ænea dense albo-pubescentibus, medio glabra, trochanteribus rufis, pedibus longissimis; labro brevi unidentato. Long. 48—52.

Mas elytris ad apicem oblique subsinuatis, sutura haud retracta.

Femina elytris ad apicem oblique sinuatis, angulo externo acuto prominulo, sutura paulo retracta.

Lec. Proc. Acad. Nat. Sc. 6, 65.

C. blanda † (var. β .) Lec. Ann. Lyc. Nat. Hist. 4, 180: Chaud. Bull. Mosc. 1854.

Missouri and Kansas: the anterior tibiae are more or less testaceous. Baron Chaudoir regards this species as a variety of *C. blanda*; from the imperfections of Dejean's description such an inference might be readily made: it is however very different from the two allied species next described by its stouter form and more rounded thorax, by the more shining surface, by the coarser punctures of the elytra, and by the acute tooth at the external angle of the oblique sinuosity of the elytra of the female. It is quite possible, as many Coleoptera from the Western States have been sent to Europe, that this species has become extensively distributed as the veritable *C. blanda Dej.*

38. *C. blanda*, elongata subcylindrica, fusco-ænea, haud nitida, capite thoraceque albo-pubescentibus, hoc latitudine paulo longiore lateribus parum rotundatis, elytris subtilius punctatis, ad apicem oblique angustatis serrulatis, maculis albis sicut in priore, at valde dilatatis, (sutura ramisque quatuor obscuris relictis;) subtus dense albo-pubescentibus, medio glabra, trochanteribus rufis, pedibus longissimis, tibiis tarsisque fere testaceis; palpis pallidis apice obscuris, labro brevi unidentato. Long. 48.

Mas elytris oblique subsinuatis angustatis sutura prominula. Femina latet.

Dej. Sp. Gen. 5, 238: (var. γ .) Lec. Ann. Lyc. Nat. Hist. 4, 138.

C. tarsalis Lec. Proc. Acad. Nat. Sc. 6, 66.

Georgia and North Carolina, on the banks of rivers. On account of the comparison made between *C. blanda* and *C. variegata* (marginata) by Dejean, his description is somewhat obscure; and though possessing the female, he has not noticed the form of the apical sinuosity. Nevertheless I think that the one here described must be regarded as his species, for the following reasons: 1, because a similar specimen was sent to Dr. Harris by my father when the species was first discovered by him; 2nd, because the specimen now in my possession, although from another locality, came from the old collection of my father; and 3, because Dejean states that the white lateral margin of the elytra is wider posteriorly with the lunule obliterated, and that the elytra are less deeply punctured; nei-

ther of which characters is found in *C. cuprascens* or *macra*. The white markings are of the same form as in the preceding, but wider, so that the elytra appear white, with the suture as far as the middle and four branches dark-coloured: the first and second branches are oblique forwards and hooked, the third is small, straight and oblique backwards, while the fourth is oblique forwards, thickened at each end, and angulated near the suture.

39. *C. macra*, valde elongata, cylindrica fusco-ænea, capite thoraceque albo-pubescentibus, hoc latitudine fere longiore lateribus vix rotundatis, elytris confertim punctatis, ad apicem oblique angustatis serrulatis, macula basali, margine lobato, ramo subhumerali obliquo hamato, fascia media tortuosa fimbriata lunulaque apicali utrinque inflexa albis; subtus viridi-ænea, dense albo-pubescentibus, medio glabra, trochanteribus rufis, pedibus longissimis; palpis sexus utriusque pallidis ad apicem æneis, labro brevi unidentato. Long. 48—53.

Mas elytris subsinuatum oblique angustatis, sutura prominula.

Femina elytris magis sinuatum oblique angustatis, angulo externo obtuso haud rotundato, sutura haud prominula.

C. blanda † Lec. Ann. Lyc. 4, 190.

Wisconsin and Minnesota. More slender than *C. cuprascens*, and readily known by the elytra being more than twice as long as wide, less strongly punctured and not shining: the markings are of the same form, but narrower, and the external angle of the obliquely sinuate elytra of the female is obtuse, or at most rectangular.

40. *C. sperata*, elongata cylindrica, supra fusco-cuprascens haud nitida, capite thoraceque albobubescentibus, hoc latitudine fere longiore, lateribus parum rotundatis, elytris confertim punctatis, ad apicem oblique angustatis serrulatis, spina suturali prominula, margine, ramo subhumerali obliquo hamato, fascia elongata subtortuosa saepe fimbriata, lunulaque apicali utrinque inflexa albis; subtus viridi-ænea, dense albo-pubescentibus medio glabra, pleuris cupreis; pedibus longissimis trochanteribus rufis; palpis et labro ut in prioribus. Long. 46—5.

Mas elytris oblique vix sinuatum angustatis: thorace postice haud ampliato.

Femina elytris sinuatum oblique angustatis, angulo externo obtuso haud rotundato; thorace postice perparum ampliato.

Rio Grande, at various places: collected by Messrs. Schott and Clark of the United States and Mexican Boundary Commission. Slightly more elongated than *C. cuprascens*, and easily distinguished from that as from the other species of this group by the absence of a basal white spot on the elytra. I incorrectly mentioned (Proc. Acad. 6, 439,) this species as *C. curvata Chev.*; in that species, however, the humeral branch is prolonged backwards parallel with the suture, and is not hamate.

One female specimen varies in having the lateral white margin of the elytra broader, so that the lobes of the apical lunule become wider and rounded.

GROUP XIII.

A small species with large prominent eyes, densely pubescent head and thorax, and pale legs: the elytra are flat, broad and white, with a few sinuous dark lines, the tip is

not at all serrate. Labrum short with one prominent tooth. Palpi of both sexes pale with dusky tips. Body beneath very densely clothed with white hair; middle of pectus and abdomen more thinly pubescent; anus testaceous.

This is the only species known to me having the sutural margin pale.

41. *C. lepida*, viridi-ænea, capite thoraceque dense albo-pubescentibus, hoc latitudine vix brevior lateribus parum rotundatis, elytris latiusculis minus convexis disperse punctatis, albis lineis utrinque duabus punctisque versus basin fuscis notatis, ad apicem haud serratis, spina suturali haud prominula, subtus dense pubescens, medio glabra, ano testaceo; pedibus antennis palpisque pallidis, his apice fuscis; labro albo unidentato. Long. 42—47.

Mas elytris oblique vix sinuatim angustatis.

Femina elytris sinuatim oblique angustatis, angulo externo obtuso haud rotundato apice ipso fere truncato: thorace quam in mare paulo latiore.

Dej. Sp. Gen. 5, 255: Lec. Ann. Lyc. Nat. Hist. 4, 181; tab. 13, f. 8.

Variat elytrorum lineis viridi-æneis.

Coney Island, near New York: Trenton, New Jersey: the variety was found in Missouri, and kindly given to me by Prof. Agassiz, and by Dr. Hoy. This species is found on very white sand, such as is seen forming sand-hills near the ocean.

GROUP XIV.

Maritime or salt marsh species of the ordinary form; the head is glabrous, slightly striate near the eyes, which are very large: labrum one-toothed, short: palpi of both sexes pale with black tips. Thorax very finely granulate, very sparsely hairy. Elytra with narrow markings hardly connected at the margin: middle band very tortuous; margin with a supplementary spot before the apical lunule. Under surface moderately hairy at the sides. Legs moderately long, slender; tarsi of the male as usual.

42. *C. ascendens*, supra fusco-ænea, thorace distincte subtiliter granulato, elytris disperse profunde viridi-punctatis, lunula humerali inflexa apice hamata, fascia media tortuosa cum linea brevi marginali coniuncta, macula laterali parva lunulaque apicali antice inflexa oblique prolongata vix hamata albis, ad apicem oblique rotundatis serrulatis. Long. 43.

Leconte, Ann. Lyc. Nat. Hist. 5, 172.

Georgia and West Indies. It is perhaps only a variety of the next, from which it differs only in having the anterior inflexed portion of the apical lunule obliquely prolonged, instead of being bent into a rounded hook.

43. *C. serpens*, supra fusco-ænea, thorace distincte subtiliter granulato, elytris disperse profunde viridi-punctatis, lunula humerali inflexa subhamata, fascia media tortuosa cum linea marginali coniuncta, macula laterali parva lunulaque apicali antice inflexa et hamata albis, ad apicem serrulatis. Long. 43—47.

Mas elytris subparallelis ad apicem oblique rotundatis.

Femina elytris pone medium latioribus ad apicem magis rotundatis.

Leconte, Ann. Lyc. Nat. Hist. 5, 173.

Key West, Florida, Dr. Jones. Differs from *C. sigmoidea* by the less dense punctures

of the elytra, and from *C. tortuosa* by the distinctly granulate thorax. Should it be necessary to unite the preceding with this species, let *C. serpens* be the name retained.

44. *C. sigmoidea*, supra fusco-enea, thorace distincte subtiliter granulato, elytris confertim profunde viridipunctatis, lunula humerali inflexa subhamata, fascia media tortuosa, linea marginali cum fascia et macula laterali coniuncta, lunulaque apicali antice inflexa subhamata albis, ad apicem serrulatis. Long. 44—47.

Leconte, Ann. Lyc. Nat. Hist. 5, 172.

C. trifasciata var. Chaud. Bull. Mosc. 1854, 5, 172.

San Diego, California, on the sea-shore. Baron Chaudoir, to whom I sent specimens of this species, regards it as merely a variety of *C. tortuosa*, which varies somewhat in the width of the elytral markings. The great difference in the punctuation of the elytra, a character found in all the specimens collected, induces me to separate it from *C. serpens*, while the distinct granulation of the thorax prevents it being joined to the next species.

45. *C. tortuosa*, supra fusco-atra, thorace subtilissime granulato, elytris disperse viridipunctatis lunula humerali inflexa, fascia media tortuosa, linea marginali sæpe oblitterata, macula marginali lunulaque apicali antice inflexa subhamata tenuissimis albis, ad apicem serrulatis. Long. 43—48.

Mas elytris subparallelis.

Femina elytris pone medium latioribus.

Dej. Sp. Gen. 1, 87.

'*C. trifasciata* Fabr.' Klug, Jahrb. 1, 21: Chaud. Bull. Mosc. 1854: Lec. Ann. Lyc. 4, 181; tab. 14, fig. 10.

Georgia and Louisiana, on the mud of rice fields. Besides the finer and almost indistinct granulation of the thorax, the punctures of the elytra are smaller and less deep than in the other species of the group. The white markings are very narrow and frequently interrupted.

The '*C. trifasciata* Fabr.' figured by Olivier and Herbst, does not at all resemble this species, nor, as observed by Dr. Harris in a letter to me, can the original words of the Fabrician description '*striga secunda flexuosa*' be applied to it, since the same expression is used in the descriptions of *C. flexuosa* and *lurida*, in which the middle band is rectangularly bent, as in our *C. vulgaris* and many others. Moreover, the remark '*Habitat Italia paullo minor*,' (Ent. Syst. 1, 177) must be allowed to have some weight in the determination, and if the name be not applied to some West Indian species resembling one found in Europe, it should be entirely dropped, as tending to confusion.

GROUP XV.

A species of normal form; the head and thorax are very finely granulate, the former is glabrous and finely striate near the eyes; the latter is subcylindrical, convex and slightly rounded on the sides, which are sparingly pilose. Labrum one-toothed, labial palpi pale with the last joint dark; eyes large. Elytra finely serrate, with the tip rounded in both sexes, with a small sutural spine; densely punctured, with a row of unusually large foveæ near the suture: markings interrupted; the medial band from the position of the spots,

which are its relics, appears perpendicularly refracted, the apical lunule is inflexed anteriorly, and between it and the band is a marginal spot, which is sometimes prolonged anteriorly to the medial band. Under surface moderately hairy at the sides, legs long and slender. Anterior tarsi of the male narrowly dilated.

46. *C. punctulata*, supra fusco-atra, capite thoraceque ænescentibus, hoc latitudine vix brevior, subtilius granulato-rugoso, lateribus rotundatis, albo-pilosis, elytris oblongis ad apicem rotundatis subtiliter serratis, punctis albis sæpe obsoletis (quarum 4 marginalibus duabusque discoidalibus) lunulaque apicali tenui antice inflexa albis, fortius punctatis, foveisque cœruleis serie versus suturam impressis; subtus cyanea lateribus albo-pilosis; labro albo unidentato, palpis maxillaribus nigro-æneis, labialibus pallidis articulo ultimo æneo. Long. 44—55.

Oliv. 33, tab. 2, fig. 18: Fabr. Syst. El. 1, 241: Herbst, Käfer, 10, 173; tab. 171, f. 8: Dej. Sp. Gen. 1, 101: Gould, Bost. Journ. Nat. Hist. 1, 54: Lec. Ann. Lyc. Nat. Hist. 4, 182: Say, Trans. Am. Phil. Soc. 1, 420; tab. 13, f. 2.

C. micans Fabr. Ent. Syst. Suppl. 61: Herbst, 10, 180, tab. 172, 2. (var. magis ænescens.)

α. Supra læte viridis, vel cyaneo-viridis, capite thoraceque sæpe obscure cupreo-æneis.

From Maine to Texas, and as far west as Santa Fe: abundant on dry roads, and frequently seen in the streets of our largest cities. The form α is found in Kansas and New Mexico, with the ordinary variety. The punctures are more distant in the vicinity of the row of blue foveæ, wherefore, greasy specimens sometimes appear to have a nearly smooth longitudinal spot on each elytron. It would perhaps be more in accordance with scientific law to replace the name *micans* to this species, but it is so well known by the later name given by the same author, that it seems more proper not to make the change.

GROUP XVI.

A single species of a dull black colour above, with sericeous surface, but no metallic lustre except in the impressions; the head is glabrous, finely granulate behind, somewhat coarsely striate between the eyes, which are moderate in size; the labrum is yellowish white, rather large, broadly prominent and rounded in the middle, with a small middle tooth. Palpi piceous, with the last joint black: labial palpi of the male pale with the last joint black. Thorax cylindrical, finely alutaceous, not perceptibly granulate, and with only a few very fine rugæ. Elytra oblong, rounded behind and finely serrate, with distinct sutural spine: not deeply but distinctly punctured, with a row of shallow foveæ towards the suture.

Body beneath blackish blue, with fine but not dense white hair toward the sides.

Resembles in many of the characters *C. obsoleta*, but by the form and sculpture it is plainly allied to *C. punctulata*.

47. *C. corvina* nigra, opaca, sericea, fronte striolata, thorace quadrato, cylindrico, vix rugoso, ad latera parce piloso, elytris immaculatis minus profunde cœruleo-punctatis, foveis cœrulescentibus versus suturam serie impressis; subtus nigro-cyanea, lateribus subtilius albo-pilosis. Long. 48.

Northern Mexico, near the Rio Grande, Lieut. Haldeman. Though not known yet as

an inhabitant of our territory, I do not hesitate to introduce this species into our fauna, believing that its range will be found to extend north of the Rio Grande.

GROUP XVII.

A group containing species of rather flat form, brown metallic colour and sericeous surface, but specially remarkable for having the posterior lunule of the elytra represented by a large submarginal spot, while the terminal part, or lunule proper, is entirely wanting. The eyes are moderate, the head glabrous, finely granulate, striate near the eyes: labrum one-toothed: maxillary palpi green-bronzed; labial of both sexes pale with the last joint bronzed. Thorax quadrate, hardly rounded on the sides, deeply impressed, more flat in the female than in the male, alutaceous, not rugose or granulate. Elytra serrate at tip, broadly rounded, with sutural spine distinct, punctures not deep, subsutural foveæ not very distinct; with three marginal spots, one discoidal and one humeral round spot: beneath metallic blue, pubescent at the sides; abdomen of one species partly red. Two species of this group are known to me, both Mexican, of which one extends its range into Texas.

48. *C. decostigma*, *obscura*, *fusco-ænea*, *fronte utrinque striolata*, *thorace quadrato alutaceo*, *vix rugoso*, *lateribus haud rotundatis parce albo-pilosis*, *elytris punctatis ad apicem serratis*, *spina suturali parva*, *macula humerali*, *tribus submarginalibus*, *alteraque discoidali inter secundam et postremam versus suturam*, *omnibus rotundatis albis: subtus cyanea*, *versus latera albo-pilosa*, *pleuris cupreis*, *labro albo unidentato*; *palpis labialibus sexus utriusque pallidis articulo ultimo æneo*. Long. .5.

Chevr. Col. Mex. 1st cent. fasc. 3.

Fredericksburg, Texas, and Tampico, Mexico, Lieut. Haldeman, Rio Bravo: Dr. Berlandière. Very closely resembles *C. flavopunctata* *Chevr.*; but differs by its more dull colour, by the suture not being brilliant cupreous, and the last two joints of the abdomen being bluish black instead of testaceous.

GROUP XVIII.

Moderately elongate species with sericeous surface and red abdomen. The labrum is one-toothed; the labial palpi of both sexes are pale at the base, the maxillary are dark piceous at base. The head is glabrous striate each side. Thorax subquadrate, or subcylindrical, slightly hairy toward the sides. Elytra conjointly rounded at the apex in both sexes, and very obsoletely serrulate, moderately but not deeply punctured, with the normal markings divided into spots; the medial band short, sometimes not interrupted, usually (except in form 3,) in advance of its ordinary position; on the margin behind the medial band, and on the disc just before the apical lunule are additional spots. The legs are moderately long, and the dilated tarsi of the male moderate. The under surface is moderately hairy at the sides of the trunk and abdomen, very sparsely hairy about the thorax. There are three principal forms of which the second is found on rocky hills while the first is maritime. The habits of the third are unknown to me.

1. Thorax subquadrate; colour greenish black. *C. hemorrhagica*.
2. Thorax subcylindric; anterior spots of elytra large; colour blackish brown.
3. Thorax subcylindric; anterior spots of elytra wanting; colour blue. *C. cumatilis*.

49. *C. hemorrhagica*, cyaneo-nigra, sericea, capite thoraceque subtiliter granulatis, illo glabro versus oculos subtilissime striolato, hoc quadrato ad latera parce piloso, elytris haud profunde punctatis postice rotundatis subtiliter serrulatis, gutta humerali, altera sub-marginali antica, fascia oblique flexa ante medium, gutta marginali pone medium lunulaque apicali antice inflexa et cum macula discoidali connexa albidis, his omnibus sæpe oblitteratis; subtus virescente-nigra, ad latera parce pilosa, abdomine rufo. Long. 48—57.

Mas elytris parallelis.

Femina thorace planiusculo, elytris postice paulo latioribus.

Lec. Ann. Lyc. Nat. Hist. 5, 171. Chaud. Bull. Mosc. 1854.

San Diego, on the open ocean shore, June; abundant. The variety with immaculate elytra is about as numerous as the type: the only intermediate form I have observed is a specimen in which the marginal spots and the terminal lunule are all small, while the middle band and posterior discoidal spot are of the normal size. Baron Chaudoir mentions that "in this species we find the Mexican type *C. decostigma Chev.* (*mexicana Klug*), and *flavopunctata Chev.*, from which it is very distinct; the former also inhabits California."

With this opinion of my learned correspondent, notwithstanding the resemblance in the form of the thorax, I cannot entirely agree. The arrangement of the spots of the elytra proves that the relations are rather with *C. rufiventris*, *Hentzii*, &c. than with *C. decostigma*: *C. flavopunctata* (which is really *C. mexicana Klug*), has one character of the present group, in the abdomen being partly red, but to produce a similarity of spots, we must obliterate the terminal lunule, replace the discoidal by a submarginal spot, and destroy the marginal spot behind the oblique medial fascia.

50. *C. Hentzii*, fusco atra, capite thoraceque vix æneo-variegatis subtiliter granulatis, illo utrinque striolato, hoc parum rugoso subcylindrico, lateribus paulo rotundatis, elytris punctatis, postice rotundatis, subtiliter serrulatis, lunula humerali sæpe interrupta, fascia obliqua ante medium extrorsum cum linea marginali brevi coherente, macula marginali pone medium, lunulaque apicali antice cum macula discoidali connexa albis; subtus cyaneo-viridis ad latera albo-pilosa, abdomine toto rufo. Long. 42—48.

Mas elytris fere parallelis; femina elytris postice paulo latioribus.

Dej. Sp. Gen. 5, 428 (*Hentzii*;) Lec. Ann. Lyc. Nat. Hist. 4, 182.

C. hæmorrhoidalis || *Hentz*, Trans. Am. Phil. Soc. 3, 254; tab. 2, fig. 2: *Harris*, New Engl. Farmer, 7, 91; *Gould*, Bost. Journ. Nat. Hist. 1, 52; tab. 2, fig. 5.

Massachusetts, *Dr. Harris*. Precisely similar in form and sculpture to the next two species, and indeed so closely connected with them that the three might properly be considered as races of one species. In this, however, the colour is almost black, the two dots of the humeral lunule are connected at the margin; the middle band reaches the margin and is dilated into a short line, which extends forwards; the marginal spot behind the me-

dial fascia is sometimes connected also with this line; finally, the under surface is blue and green, without any admixture of copper.

51. *C. 16-punctata*, fusco-ænea, capite thoraceque viridi cupreoque variegatis, elytris cyaneo-punctatis, lunula humerali interrupta, fascia obliqua ante medium extrorsum latiore, at marginem haud attingente, macula marginali pone medium, lunulaque apicali cum macula discoidali sæpe connexa albis, subtus ad latera albo-pilosa, antepectore cyaneo, postpectore pedibusque cupreis, abdomine toto rufo. Long. 45.

Klug, Jahrb. für Insectenkunde, 32.

C. rubriventris Chev. Col. Mex. 2nd cent.

New Mexico, collected at Frontera, on the Rio Grande by J. D. Clark, Esq., of the Mexican Boundary Commission: in every respect except colour, and in the form of the medial band of the elytra, which does not extend to the margin, it entirely agrees with *C. Hentzii*.

52. *C. rufiventris*, atro-fusca, capite thoraceque æneo-variegatis, elytris cyaneo-punctatis, punctis utrinque sex (sæpe obsoletis) lunulaque apicali tenui albis, subtus ad latera albo-pilosa, antepectore cyaneo, postpectore pedibusque viridi-æneis, abdomine toto rufo. Long. 4—45.

Dej. Sp. Gen. 1, 102.

Southern States, Maryland to Alabama, among the Alleghany Mountains. Only differs from the two preceding by the spots of the elytra being very small, and sometimes entirely wanting: the middle band is represented by two spots, the outer one being remote from the margin, and not larger than the inner one.

53. *C. cumatilis*, viridi-cyanea, capite subtiliter granulato, utrinque striolato, thorace subcylindrico, subtiliter rugoso, ad latera parce piloso, elytris confertim haud profunde cyaneo-punctatis, foveisque versus suturam serie impressis, ad apicem rotundatis serrulatis, spina suturali prominula, puncto humerali, fascia media interrupta oblique flexa marginem haud attingente, macula marginali pone medium, lunula apicali tenui, punctoque postico discoidali albis, (sæpe oblitteratis, lunula sola apicali relictâ;) subtus cyanea ad latera parce pilosa, abdomine toto rufo. Long. 43—46.

Lec. Ann. Lyc. Nat. Hist. 5, 173. (Jan. 1852.)

C. Guexiana Chev. Mag. et Revue de Zool. 1852, 424.

Shreveport, Louisiana, Mr. Guex: Creek Boundary, Dr. Woodhouse. Usually the middle band and posterior marginal and discoidal spots are represented by extremely small white dots: the apical lunule appears to be always present, but is not inflexed.

GROUP XIX.

A species, above of a shining black colour, almost destitute of metallic lustre. Eyes large and prominent; maxillary palpi piceous, but labial palpi pale at the base in both sexes. Front glabrous with a few striæ each side; labrum large, rounded, hardly toothed. Thorax cylindrical, hardly rugous or granulate. Elytra slightly narrowed in front, very faintly punctured, with a row of shallow foveæ near the suture; apex broadly rounded hardly serrate; the markings are a very narrow apical lunule and one or two dots about

the middle. Body beneath nearly glabrous, pubescent only on the coxæ, and sides of the postpectus and first and second joints of the abdomen; the latter is entirely red. The legs are long, with the tarsi considerably longer than the tibiæ; the anterior tarsi of the male are very slightly dilated.

54. *C. abdominalis*, atra, subnitida, vix æneo tineta, oculis magnis, capite utrinque parce striolato, thoracæ subcylindrico fere lævi, elytris convexis obsolete punctatis, foveisque cyaneis parum profundis serie impressis, ad apicem vix serrulatis, gutta submarginali ad medium, altera discoidali pone medium (sæpe obliterated) lunulaque tenui apicali albis; subtus cyanea, coxis, pleuris abdominisque basi ad latera pilosis, abdomine toto rufo; labro magno albo antice rotundato. Long. 35—4.

Fabr. Syst. El. 1, 237: Herbst, Käfer, 10, 202: Dej. Sp. Gen. 1, 140: Lec. Ann. Lyc. Nat. Hist. 4, 183; tab. 14, fig. 13.

Middle and Southern States (New Jersey, North Carolina, Georgia, Alabama;) on sand blackened by fire in pine forests.

GROUP XX.

An elongate species of an opaque greenish fuscous colour above, with little metallic lustre: head glabrous, distinctly granulate, front finely striate, eyes moderate; labrum short, almost truncate, one-toothed; palpi, maxillary piceous with the last joint black bronzed, labial pale, with the last joint also black bronzed. Thorax cylindrical, finely granulate and rugous: elytra rounded at the tip, but not serrate, punctured, with a white submarginal band reaching from the humerus to the tip, and slightly lobed internally, with two teeth representing the middle band and apical lunule. Beneath finely hairy on the sides, abdomen rufo-testaceous at the margin and tip.

55. *C. marginipennis*, olivaceo-fusca, opaca, capite cyaneo-variegato, antice subtiliter striolato, thoracæ latitudine longiore subcylindrico, ad latera parce piloso, elytris punctatis, haud serratis spina suturali parva, vitta submarginali integra intus lobata et breviter bidentata alba ornatis; subtus cupreo-ænea, lateribus pilosis, abdomine rufo-testaceo, segmentis primis duobus medio nigris; labro brevi unidentato, palpis articulo ultimo nigro-æneo, maxillaribus piceis, labialibus pallidis. Long. 46—53.

Dej. Sp. Gen. 5, 260: Lec. Ann. Lyc. Nat. Hist. 4, 182; tab. 14, fig. 11.

Found on the shores of the Susquehanna River, below the bridge at Harrisburg, Pennsylvania, in the month of June.

GROUP XXI.

Elongate species, sometimes of large size, having the eyes very large and prominent; the labrum is either one-toothed or three-toothed; the middle tooth of the mandibles is conspicuously smaller than the others; the palpi are pale with black tips in the male, and sometimes also in the female. The thorax is more or less rounded on the sides. The elytra are punctured, the markings are either marginal spots, or a broad slightly lobed margin, which is confluent with the edge, at least towards the apex. The apex is some-

what obliquely narrowed, and very finely serrate, the sutural spine is distinct, but in the females known to me the suture is more or less retracted, and the tips are separately rounded. Body beneath densely hairy on the sides, anus testaceous or piceous. Tarsi of the male very slightly dilated.

Of this group are known to me three principal forms, which might almost form distinct groups.

1. Front glabrous, deeply striate; elytra with a marginal spot and apical lunule. *C. severa*.
2. Front glabrous, finely striate; elytra with broad white margin. *C. circumpieta*, *prætextata*.
3. Front densely pubescent; elytra with broad white margin. *C. togata*.

56. *C. severa*, olivacea, vel viridi-nigra, subnitida, capite thoraceque fere politis, illo glabro utrinque valde striato, hoc parce rugoso, convexo lateribus rotundato, elytris ad apicem subtilissime serrulatis, antice fortiter, postice obsoletius punctatis, gutta marginali ad medium lunulaque apicali antice inflexa albis; subtus viridi-ænea, lateribus pilosis, ano vel obscuro vel testaceo; labro acute tridentato. Long. ·57—·7.

Mas elytris cylindricis, sutura prominula, palpis pallidis articulo ultimo nigro-æneo.

Femina elytris planiusculis, sutura parum retracta, palpis maxillaribus basi piceis.

La Ferté, Revue Zoologique, 1841, 41.

Texas and New Mexico: the male, although unique, was very liberally given me by Dr. Schaum: the female was found at Tampico by Lieut. Haldeman.

57. *C. circumpieta*, olivacea sub-nitida, capite vix rugoso-granulato, utrinque subtilius striato, thorace convexo, lateribus valde rotundatis, vix parce rugoso, elytris fortius punctatis, ad apicem subtilissime serrulatis, margine lato albo, intus lobato, et ad medium oblique unidentato; subtus obscure viridi-ænea, lateribus pube densa depressa vestitis, abdomine ad apicem nigro-piceo, labro tridentato. Long. ·55.

La Ferté, Revue Zoologique, 1841, 39; 193.

Texas: the only specimen I have seen was a male, which was most kindly sent to me by Prof. Lacordaire.

58. *C. prætextata*, fusco-ænea, vel cuprea, subtiliter granulata, haud nitida, capite utrinque subtiliter striato, thorace dorso minus convexo, lateribus paulo rotundatis, albo-pilosis, elytris punctatis ad apicem subtilissime serrulatis, margine lato albo intus valde lobato, ad medium ramo brevi obliquo lato emittente albis; subtus viridi-ænea pube densa alba vestita, pectore abdomineque medio glabris, ano testaceo; labro unidentato. Long. ·55.

Lec. Proc. Acad. Nat. Sc. 7, 220.

Mas sutura prominula, palpis pallidis articulo ultimo æneo.

Femina sutura valde retracta, palpis maxillaribus ad basin picco-testaceis.

Collected by Dr. Thos. H. Webb, of the Mexican Boundary Commission, and probably found in the valley of the Gila.

59. *C. togata*, fusco-cuprea, granulata, haud nitida, capite thoraceque albo-pubescentibus, hoc lateribus rotundatis, elytris valde punctatis margine latissime albo intus trilobato, ad apicem serrulatis; subtus viridi-ænea, pube densa alba vestita, pectore abdomineque medio glabris, ano testaceo, labro unidentato. Long. ·44.

La Ferté, Revue Zoologique, 1841, 40.

Texas, Dr. Schaum; Tampico, Lieut. Haldeman. The female is unknown to me.

GROUP XXII.

A very slender species, having the eyes very large and prominent, the head densely pubescent; the labrum short, slightly advanced in the middle and hardly perceptibly one-toothed; the palpi pale, with dark tips. The thorax is cylindrical, densely pubescent, with two subglabrous dorsal vittæ. The elytra are white, the suture (slightly dilated in three places) metallic: the apex is obliquely narrowed and slightly sinuate (in the male,) and very finely serrate. The whole under surface is densely clothed with depressed white hair: the legs are extremely long, the tarsi being one half longer than the tibiæ: the claws are very large; the anterior tarsi of the male, though densely hairy beneath, are very slightly dilated. Seems related to group XII., but abundantly distinct.

60. *C. gratiosa*, valde elongata, æneo-cuprea, capite thoraceque dense niveo-pilosis, hoc elongato, cylindrico vittis duabus dorsalibus subglabris, elytris ad apicem (maris) oblique subsinuatis, subtilissime serrulatis, niveis, vitta suturali breviter triramosa cuprea opaca; subtus virescens undique dense niveo-pubescentis, antennis pedibusque longissimis, unguiculis magnis, labro brevi albo medio paulo promiaulo, vix obsolete unidentato. Long. .4. Guérin, Rev. Zool. 1840, 37.

Pensacola, Florida; the only specimen in his collection was most liberally given me by Dr. Schaum.

GROUP XXIII.

A very small cylindrical species, of bright metallic colour, with red legs. The labrum is moderately large, rounded in front and feebly bisinuate in the middle, with one very small tooth; it thus appears subtridentate: the head is glabrous, densely striate each side: the eyes are large and prominent. The palpi are pale with black tips. The thorax is cylindrical, slightly hairy on the sides. The elytra are strongly punctured, with a white vitta far removed from the margin, and slightly lobed internally, extending from the humerus to the tip, where it bends around to the suture: tip obliquely narrowed (in the male) and slightly serrate. Body beneath hairy on the sides; anus testaceous. Anterior tarsi of the male very slightly dilated.

61. *C. lemniscata*, elongata, cylindrica, supra fulgente-cuprea, capite thoraceque viridi-variegatis, granularis et rugosis, illo utrinque fortius striato, hoc cylindrico, utrinque parce piloso, elytris fortiter dense punctatis, cylindricis ad apicem oblique angustatis, subserrulatis, vitta integra alba discoidali intus pone medium bilobata, et ad apicem ad suturam ambiente ornatis: subtus cyaneo-viridis, lateribus usque ad anum testaceum albopilosis, pedibus rufis; labro albo antice rotundato, medio obsolete subtridentato; palpis pallidis articulo ultimo æneo. Long. .31.

Lec. Proc. Acad. Nat. Sc. 7, 220.

Found by Dr. Webb of the Boundary Commission, and probably from the valley of the Gila.

GROUP XXIV.

Two very small species of dull sericeous surface, without humeral angles. Head large, glabrous, eyes very prominent, front much striate each side. Labrum moderate, rounded

in front, with a prominent medial tooth limited each side by a slight incisure, palpi pale at the base in both sexes. Thorax long, cylindrical, slightly narrowed behind, with faint transverse impressions, sides finely sparsely pubescent. Elytra narrowed in front, humeral angles none; tip rounded, not serrate, sutural spine large, retracted in the female, prominent in the male; coarsely punctured, sparsely clothed with short hair: the markings are a very narrow apical lunule, a discoidal dot and marginal line representing together the medial band, and in one species an anterior discoidal dot, which is the tip of the humeral lunule, or in the other species a very slender imperfect lunule. Wings rudimentary, unfit for flight. Body beneath hairy at the sides, anus testaceous; legs very long, anterior tarsi of the male feebly dilated.

62. *C. celeripes*, fusco-ænea, obscura, sericea, capite thoraceque granulato-rugosis, illo utrinque fortius striato, oculis maximis, hoc cylindrico, latitudine sesqui longiore, postice subangustato, lateribus rectis parce pilosis, elytris fortiter punctatis, antrorsum angustatis, humeris nullis, ad apicem late rotundatis haud serratis, spina suturali magna, guttis utrinque discoidalibus (ad trientem a basi et apice positis) posteriore interiore, linea marginali ad medium, lunulaque apicali tenui albis; subtus viridi-ænea, lateribus albo-pilosis, trochanteribus anoque testaceis; labro albo antice rotundato, medio bisinuato et unidentato, palpis sexus utriusque ad basin pallidis. Long. ·3—·35.

Mas sutura integra; femina sutura retracta.

Lec. Ann. Lyc. Nat. Hist. 4, 183; tab. 14, fig. 14.

Found near the branches of the Kansas River, and between the latter and the Platte: in the month of May I found it extremely abundant, and a further suite of specimens from Fort Riley I owe to the kindness of Dr. Wm. A. Hammond, U. S. A. Specimens occur in which the discoidal dots are wanting, and only the apical lunule and marginal line remain white; sometimes even the latter disappears.

Nearly allied, but perhaps only a variety, is the species indicated by me (Proc. Acad. Nat. Sc. 6, 66) upon a single elytron brought from the Creek Boundary by Dr. Woodhouse: the punctures are not so large or so deep, the pubescence, if any existed, has been removed by the alcohol in which it was preserved: the humeral lunule is slender, curved, and entire; the marginal line sends off an internal branch at the middle running towards the discoidal spot, and the apical lunule is rectangularly inflexed at its anterior extremity. Among the specimens sent by Dr. Hammond is one, however, which corresponds exactly with the elytron above mentioned: in form it agrees exactly with *C. celeripes*, and by close inspection a few hairs may yet be perceived on the elytra, the punctures are less deep, and the tibiæ, tarsi, and tip of the femora are testaceous with green metallic lustre. On this account I am induced to separate it as a distinct species.

63. *C. cursitans*, elongata, æneo-fusca, sericea, elytris modice punctatis subglabris, antrorsum angustatis, lunula humerali antice abbreviata postice inflexa, cum linea marginali iuncta, hoc ramulo ad medium emittente, versus guttam dorsalem tendente, lunulaque apicali tenui antice inflexa albis; subtus viridi-cyanca lateribus albo-pilosis, ano obscuro, trochanteribus, femorum apice, tibiis tarsisque plus minusve testaceis. Long. ·34.

One female, Fort Riley, Dr. Hammond.

SPECIES UNKNOWN TO ME.

I. '*C. decemnotata*, green above, tinged with cupreous; elytra margined with bright green or bluish; four white spots and an intermediate refracted band.'

Say, Am. Ent. pl. 18; Journ. Acad. Nat. Sc. 1, 19.

'Labrum three-toothed, white; mandibles black, base white: elytra with a white spot on the shoulder, another equidistant from the first and the band: band broad, arising from the middle of the margin, refracted at the centre of the elytron, and terminated near the suture in a line with the tip of the third spot: this spot is large, orbicular, and placed near the external tip of the terminal one, which is transverse and triangular; body beneath green, trochanters and tail purple.' Length three-fifths of an inch nearly.

Mr. Nuttall; found on the Missouri River above the confluence of the Platte. Seems allied to *C. purpurea* (race *limbalis* or *amœna*) or to *C. patruela*, but is evidently distinguished from each by the middle band being more deflexed.

II. '*C. limbata*, elytra white, suture oblique line and dot green, exterior and basal edge bluish. Length less than half an inch.'

Say, Journ. Acad. Nat. Sc. 1, 141.

'Body green, varied with blue and purple, and with cinereous hair: antennæ black at tip, labrum and exterior and superior base of the mandibles white: thorax hairy each side, indented lines violaceous; elytra white, a green sutural vitta narrowed behind, an oblique irregular line behind the middle, and a small triangular dot before the middle green; exterior edge and basal edge, bluish green or violaceous; beneath hairy; venter purplish. This species, at first sight, resembles *C. dorsalis*, but is very distinct in its marking and in the form of its thorax. Found on the Nebraska and Arkansas Rivers.'

This species does not seem allied to any that I have seen.

III. '*C. terricola*, black; a white line at the tip of the elytra. Length more than two-fifths of an inch.'

Say, Long's Expedition to St. Peter's River, 2, 268.

'Inhabits North West Territory. Body destitute of metallic lustre; labrum white, breadth more than twice the length, tip three-toothed, intermediate tooth conic acute, the lateral teeth angulated obtuse: mandibles white on the exterior base: thorax a little hairy: elytra with scattered very minute punctures, which are oblique, as if formed by a pointed instrument directed towards the anterior part of the insect, so that the surface before each puncture is a little elevated; a white line margins the extremity; venter blackish-testaceous. This species is closely allied to *C. pusilla*, but the marking of the elytra differs, and the thorax is not so much contracted at base, and is more closely affixed to the abdomen.'

C. triguttata Herbst, Käfer, 10, 182, tab. 172, fig. 5. Unless this is one of the varieties of *C. punctulata*, it is not North American.

C. obscura Fabr. is the European *C. germanica*, Erichson, (Käfer Mark Brand. 3.)

C. cœrulea || Herbst, Käfer, 10, 182, tab. 172, fig. 4. (*C. Kunzii* Gistl.) as stated by Erichson, is also a variety of *C. germanica*.

C. venosa Kollar, Ann. Wien. Mus. 1, 330, as I am informed by Dr. Schaum is *C. nitida* Dej.

APPENDIX.

10—11. *C. viatica*, cyaneo-viridis, fronte utrinque striata medio punctata et pilosa, capite thoracque subtilius minus dense rugosis, hoc convexo lateribus rotundato, postice paulo angustato, elytris haud profunde punctatis, punctis postice fere oblitteratis, puncto humerali strigaeque brevi transversa ad medium albis, ad apicem subtiliter serrulatis spina suturali parva: subtus cyanea parce albo-pilosa, labro (femina) albo, antice obsolete tridentato. Long. .46.

Chevr. Col. Mex. 2nd cent. no. 180.

Sonora, Mr. Arthur Schott; one specimen. While these sheets were passing through the press, a valuable collection made by Mr. Schott during his concluding field labours on the Boundary between the United States and Mexico has been submitted to me by the kindness of the Commissioner, Major W. H. Emory: and in it, with many most beautiful species of other genera, occurred the present interesting addition to our fauna.

This species resembles in form and colour *C. sexguttata*, but differs from it by the less densely rugose thorax, the less deeply punctured elytra, and the pilose front. It seems in fact to be most nearly related to the *sexguttata* group, tending towards the preceding group, in *C. rugifrons*, from which it is obviously distinguished by the serrate elytra, and less robust form; from both groups it differs by the very slightly marked teeth of the labrum.

This species should therefore form a new group immediately before V. characterized as follows:

Thorax convex, sparsely rugous; front striate, pilose; elytra finely serrulate, not deeply punctured, markings very imperfect.

GROUP VI.

On renewed examination, with a very powerful lens, I find that the tips of the elytra of *C. splendida* and *limbalis* are not absolutely free from serratures. In the former especially the serration may be perceived in most specimens, but individuals of both species occur in which almost every trace of serration has vanished. In the groups I.—IV., even with the powerful lens, the edge appears perfectly smooth.

27—28. *C. californica*. By the kind attention of Mr. Ménériés, I have received, since the printing of the preceding pages, a diagram of an elytron of his species, which I have here reproduced in a wood cut. The markings are quite distinct from any known to me; Mr. Ménériés informs me in his letter that the labrum has only a single tooth. The species must be placed either in group VIII. or IX.



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ARTICLE XXVIII.

(From the American Philosophical Transactions, Vol X.)

Revision of the Elateridæ of the United States. By John L. Le Conte, M. D. Read October 21st, 1853.

BEFORE proceeding to the consideration of the characters by which I have been guided in my endeavour to classify the large group of Coleopterous insects herein treated of, it will be proper to allude briefly to what has been already done in relation to this branch of entomology.

After the separation of *Eucnemis* by Ahrens, *Pyrophorus* by Illiger, and a few other genera by various entomologists, the first person who seems to have been convinced of the necessity of a systematic division of the great Linnean genus *Elater*, was Eschscholtz. This excellent naturalist published, in Thon's *Entomologisches Archiv* for 1829, a synoptic table of the divisions established upon the species then known to him. Finding, with more extensive researches, the imperfection of the views there given, he afterwards devised another table of genera, based chiefly upon the study of the species in the collection of Count Dejean.

Being prevented by death from concluding his labours, this table remained in a manuscript form for several years, but was eventually published by Mr. Laporte in the fourth volume of Silbermann's *Revue Entomologique*. Mr. Laporte took occasion, at the same time, to add several new genera to those of Eschscholtz.

The next addition, to our knowledge of the classification of this family, is due to Latreille, who, however, also died before concluding his investigations; the imperfect results of which, unfortunately in a very confused form, are published, as a posthumous memoir, in the third volume of the first series of the *Annales de la Société Entomologique de France*.

In the first volume of his *Zeitschrift für Entomologie*, Germar reprinted all of Eschscholtz's synoptic table, that relates to genuine *Elateridæ*, and then proceeded to the consideration of separate groups of genera; admitting, however, that these groups, founded upon some ideas of Eschscholtz on the value of the lobes of the tarsal joints, were purely artificial, but confessing that until the isolated genera were more fully defined, nothing could be done towards a natural classification: a view repeated by Erichson in his monograph of *Elaters* with pectinate tarsal claws, in the third volume of the same work.

Several of these artificial groups were elaborated by the editor, in the five volumes of the work just mentioned, while Erichson lent his assistance by monographing those with serrate angues, and those with truncate prosternal spine.

A number of artificial genera have been constructed by various entomologists, who, however, with the exception of Kirby, in the *Fauna Boreali Americana*, have not suggested any ideas respecting the classification of the species.*

The genera found in Austria have been carefully described by Redtenbacher in his *Fauna Austriaca*, but unfortunately with the tendency to adopt the large number of genera founded by Eschscholtz on unimportant characters.

The group of *Eucnemides* has been revised as a separate family, by Mr. Guérin, in the *Annales de la Société Entomologique de France*, (ser. 2d., vol. 1,) where numerous very gross errors of Mr. Laporte are corrected.

More recently, Mr. Solier, in the fauna of Chili by Claudio Gay, has described a large number of South American species, which he has distributed into a large number of new genera founded upon the form of the mandibles, mentum, and the proportions of the joints of the antennæ. As no reference is made to the labours of previous investigators, and as care is taken to avoid all mention of the parts of the body, which served as the basis of earlier classifications, the result of this has been to produce confusion, which can only be removed by the comparison of the actual types of the genera established by Mr. Solier with those already known. I may also add, from the study of our native species, that the characters upon which Mr. Solier relies, especially those derived from the form of the mandibles, are difficult to perceive, and when perceived are of no value, since they vary in species which are certainly closely allied. I am happy to confirm my own opinion about this matter, by that already expressed by my friend, Dr. Schaum, in his report on the progress of Entomology during 1851, in *Troschel's Archiv*. From the impossibility of identifying any of Mr. Solier's genera, I have avoided expressing any opinion of them in the following pages.

Such being a brief sketch of the previous investigations made in this family, I have next to return my grateful acknowledgments to Dr. Melsheimer for the kind assistance rendered me by the loan of the typical specimens of all the species described by him: and to Dr. T. W. Harris for the loan of several types of species described by Say, and, also, for several very interesting nondescript species from his collection.

The descriptions in the following pages are usually diagnoses of the species, as the specific characters in most of the genera are very clear and well-defined. In the genera *Pedetes*, *Elater*, and *Cratonychus*, such is not the case, the species being difficult of recognition, even when typical specimens are before the student. Long and laboured descriptions in such cases are of no avail, and only tend to confuse; in those genera, I have thought it better to make the diagnosis include a description of all those parts of the body, which, after close comparison of *all* the species, I have found subject to change of form

* In the first volume of the *Zoological Journal*, there is a Monograph of *Cebionidæ*, by Mr. W. E. Leach, in which several species are noted as occurring in North America. As it is unfortunately not possible to recognise any of them, the essay will not be referred to in the following pages.

or sculpture. If, consequently, any doubt still remains in the determination of the species, it results from the inherent difficulty of the subject, which would not be removed by a greater amount of detail.

Proceeding now to the principles employed in the classification of the species, we must first inquire into the natural limits of the group.

The family of Elateridæ has always been considered as closely allied to the Buprestidæ, in which also the prosternum is prolonged posteriorly and received into the excavated mesosternum; nevertheless, on comparison, great differences are found: in the Buprestidæ, although the anterior coxæ are small and globular, the acetabula in which they are received are composed partly of the epimera of the mesothorax, while in Elateridæ the acetabula, although open posteriorly, are confined to the prosternum; the prothorax thus acquires a greater degree of mobility than is seen in the Buprestidæ: the same structure is seen in the Throscites that has been just noticed in the Buprestidæ. Other differences are seen in the structure of the abdomen: the suture between the first and second segments is more or less obliterated in Buprestidæ, while in all Elateridæ it is as distinct as the other sutures.

From the other groups of serricorn pentamerous Coleoptera, the Elateridæ are distinguished by the small globular anterior coxæ and the prolonged prosternum. The combination then of the four following characters will define the family, as understood by me:

Coxæ anticæ parvæ rotundatæ, non contiguæ in prosterno sitæ, acetabulis postice hientibus; prosternum pone coxas productum, præcipue mucronatum, in mesosterno excavato receptum; abdomen suturis ventralibus omnibus distinctis; tarsi 5-articulati.

This definition includes the so-called families of Eucnemides and Cembrionides, which differ by unimportant characters, from the genuine Elaterides. The value of these characters will be presently discussed. Accompanying the four essential characters above given, there are others of great constancy, such as:

The antennæ are serrate, flabellate, or pectinate, rarely subfiliform, never clavate, or capitulate; in the males only of certain Eucnemides are the terminal joints enlarged, but they always preserve their serricorn type. The eyes are round, (in *Perothops* alone are they slightly oval,) and never emarginate; the antennæ are inserted in foveæ, the upper margins of which are more or less defined, usually under the side of the front, immediately in front of the eyes; in Eucnemides the fovea becomes a sinus, which contracts the front at the middle, and the antennæ approach each other, thus becoming farther removed from the eyes. The mandibles are usually small and retracted; in Cembrionides they are longer and prominent; the labrum is distinct in the true Elaterides, indistinct in the other groups; the prosternum is lobed in nearly all of the true Elaterides; not lobed in *Campylus*, *Oestodes*, Eucnemides, and Cembrionides; the head is deflexed, and the mouth entirely covered in the Eucnemides (except *Melasis* and *Tharops*;) it is applied against the lobe of the prosternum, and consequently moderately deflexed in most Elaterides; not deflexed, but free in *Campylus*, *Oestodes*, and in the Cembrionides; the posterior thighs are retractile under the dilated plates of the coxæ, except in *Cerophytum*, where the coxal plates are obsolete; the plate is slightly emarginate, and usually toothed at the internal angle, thus

exposing slightly the articulation; in the Eucnemides (except *Anelastes*) the margin is regular, and the articulation entirely concealed; the abdomen has only five ventral segments, except in *Cebrio* and an allied genus, where the fifth joint is truncate and the sixth becomes prominent. The femora articulate at the apex of the trochanters, which are thus fulcrant; the tarsi are never much dilated, occasionally furnished with membranous lobes beneath, and usually pubescent; the fifth joint is slender with two equal claws, varying in form, and usually with a small intermediate appendage terminated by two setæ. The tibiæ are usually slender, never fossorial, rarely compressed; in one genus, allied to *Cebrio*, a tendency to the fossorial form is shown.

The mentum is small, trapezoidal, and inflexed; the base of the maxillæ exposed; the latter have two distinct lobes, the outer one is never palpiform; the last joint of the maxillary palpi is usually dilated, and larger than the preceding; in *Tharops* and *Melasis*, however, the terminal joint is oval and pointed, and not much larger than the one before it; in *Adrastus* alone, of the true Elaterides, it is long and acuminate; and, finally, in the Cebriionides it is cylindrical and truncate; the labial palpi are very small except in the Cebriionides.

From this detail of characters, we would at first be inclined to select for the definition of our three primary groups, (admitting them to be three in number,) the insertion of the antennæ, and the structure of the abdomen, as being those of probably the greatest value. Genera are soon found, however, in which all the other characters of *Cebrio* are found, and which have the abdomen constructed as in other Elaterides; the form of the mandibles is obviously a character of too little value for a primary division; we are thus forced to divide the entire family into two great groups: Eucnemides, having the antennæ inserted in a sinus, and somewhat approximated, and the clypeus dilated anteriorly; Elaterides, having the antennæ inserted at the margin of the eyes, under the front, which is not dilated anteriorly, and not narrowed at the middle.

The Eucnemides contain three distinct types: *Melasis*, with the small acute terminal joint to the maxillary palpi, the imperfectly protected mouth, and the hardly approximated antennæ; *Eucnemis*, with moderately approximate antennæ, and convex deflexed front; *Cerophytum*, with closely approximate antennæ, and somewhat gibbous front.

The Elaterides divide naturally into two groups: the true Elaterides, with small retracted mandibles, and small labial palpi; and the Cebriionides, with long porrected mandibles, and cylindrical palpi, all of which are moderately elongated.

These tribes, with the exception of the true Elaterides, are so small, that their resolution into genera is attended with no difficulty: it is very different, however, with that large and difficult group, nor have any previous attempts to arrange its contents been attended with any success.

On examining the other groups, with a view to ascertain whether any light could be gained from them, I found, in the genuine Eucnemides, a remarkable correspondence in the elongated basal joint of the antennæ, and the absence of any tooth at the internal part of the coxal plates: the genus *Anelastes* makes the only exception to this latter character; and the various places given to that curious genus by different authors sufficiently

prove its anomalous nature; the tarsi, although lobed occasionally, are never inflated, or tufted beneath, as in some Elaterides; the mesosternum is similarly constructed in all the genera: I was, therefore, led to regard these as characters of importance, and to try what might be produced by their application to the large and complicated group of genuine Elaters; by this means I obtained three sets:

1. Species having the tarsi uniformly pubescent, sometimes lobed; the prosternum with a long and sharp spine; the mesosternum never protuberant; the antennæ never received in grooves.

These comprise the greater number of ordinary Elaters, and may be divided according to the length of the first joint of the antennæ, and the form of the coxal plates into several smaller groups, and, finally, into genera, as will be seen hereafter.

2. Species having the tarsi more densely pubescent in the form of tufts beneath, never lobed, but frequently swelled out; the mesosternum frequently prominent; the prosternum always lobed, and always armed with a long spine.

These are mostly large species, not so variable in the form of the front or coxal plates as the preceding group, but containing three forms, which, although not having an exact uniformity of structure, are related to each other, and are distinguished by strong contrasts from those of the first group.

a. Those in which the antennæ are received in deep grooves.

b. Those having luminiferous vesicles on the thorax.

c. Those having a prominent mesosternum.

3. Small species in which the mesosternum is also somewhat prominent, but the spine of the prosternum is short and suddenly truncate. The tarsi are pubescent, and their fourth joint is occasionally lobed. This contains only one genus: *Cardiophorus*.

With regard to the affinity of this family, I have but little to say: the earlier states of the animal will perhaps give us more information; but the time has not yet come for any rational systematic arrangement of the families of Coleoptera among themselves. We are yet too little acquainted with the comparative value of characters to subordinate the relations properly: the results thus far obtained have certainly been very imperfect, and I fear that while the zeal for making known isolated species and genera continues as great as at present, that the time is far distant when any definite results may be expected.

The relation between Buprestidæ and Elateridæ has been very much exaggerated, on account of the ease with which the form of the prosternum enables these families to be distinguished from all others with pentamerous tarsi. The only other evidence of such affinity rests in the resemblance between the larva of *Melasis*, and that of Buprestidæ; from other grounds, I have great doubt of the propriety of retaining *Melasis* and *Tharops* in this family; but as I do not know where else they can be placed, it seems necessary for the present to leave them where they have been placed by others.

The form and structure of the larvæ point more clearly to a relation with the Tenebrionidæ and Melandryadæ; but, besides many other characters, these families differ essentially in having the posterior tarsi of the imago four-jointed. The resemblance, in external appearance as well as in the general arrangement of the parts of the mouth, is, however, very considerable between some of the genera, and certain Melandryadæ, such as *Orchesia*. The development of the affinities, which exist in that direction, cannot be done, until a thorough revision of the Tenebrionidæ, with a division into groups upon ra-

tional characters, has been made: a Herculean task which might terrify the most adventurous, but which the voluminous and widely-scattered memoirs of Mr. Solier have rendered still more necessary.

The scheme of arrangement, into primary divisions, above indicated, is as follows:—

Subfam. I. EUCNEMIDES.

Antennæ in sinibus insertæ; clypeus antice dilatatus; labrum indistinctum; abdomen 5-articulatum: prosternum antice non vel vix lobatum.

Div. 1. *Melasides*.

Antennæ fere distantes; palpi maxillares articulo ultimo ovali acuto.

Div. 2. *Eucnemides* (*genuini*.)

Antennæ approximatae; palpi maxillares articulo ultimo magno, dilatato; ungues non pectinati.

Div. 3. *Cerophytides*.

Antennæ valde approximatae; palpi maxillares articulo ultimo magno dilatato; ungues pectinati.

Subfam. II. ELATERIDES.

Antennæ in foveis lateralibus, sub fronte insertæ; clypeus antice non dilatatus.

Div. 4. *Elaterides* (*genuini*.)

Mandibulæ parvæ, labrum distinctum; abdomen 5-articulatum; palpi labiales breves, maxillares articulo ultimo maiore præcipue dilatato: prosternum præcipue lobatum.

Div. 5. *Cebrionides*.

Mandibulæ elongatæ, porrectæ; labrum indistinctum; prosternum non lobatum; abdomen sæpe 6-articulatum; palpi omnes longiusculi, articulo ultimo cylindrico, truncato.

N. B.—The Catalogue of the described Coleoptera of the United States, by Dr. Melshemer, being intended merely as an index to descriptions, has not been quoted in this essay for any changes in nomenclature there introduced, as if retained, without special reason and reference, they were intended as mere suggestions, and not as contributions to science.

Div. 1. MELASIDES.

I have constructed this group from two genera, *Melasis* and *Tharops*, which differ from *Eucnemis* by the following characters:—

The head is large, so that the eyes, which are small, become entirely disengaged from the thorax; the antennæ are inserted in emarginations of the clypeus, but are more widely separated at the base than in *Eucnemides*: the clypeus is emarginate anteriorly in one genus, but the labrum is indistinct: the last joint of the maxillary palpi is oval and acute, very little larger than the preceding joint: the prothorax beneath is truncate, the suture

of the prosternum does not reach the anterior angles of the thorax, but is continued directly to the apical margin of the inflexed portion.

The mandibles, although short, trigonal, and without any tooth, are more prominent than in the genuine Eucnemides: the anterior margin of the sinus for the antennæ is very distinct, and even elevated, but the posterior margin is obliterated in one of the genera (Tharops.) The margin of the prosternum does not seem to abut against the mandibles, so as to enclose and protect the mouth as in the two other divisions of the Eucnemides: the gula is corneous, and extends as far back as the sides of the head, which, though deflexed, is really inserted by a narrow neck: the anterior margin of the prosternum is furnished with a large inflexed membranous portion, abutting against the gula, and supported by two corneous pillars. I have very great doubts whether this division should be included in the present family, but as I have not yet discovered any other place for it, it must remain for the present.

MELASIS Oliv.

1. *M. pectinicornis*, nigro-piceus, cylindricus, tenuiter fulvo-pubescent, capite confertim punctato, subcanaliculato, thorace latitudine brevior muricato, lateribus omnino rectis, postice angustato, angulis anticis porrectis, posticis acutis parvis prominulis, elytris confertim scabris distincte striatis, pedibus antennisque rufescentibus, his articulis 2—6 sensim paulo latioribus, 7—11 valde transversis intus productis. Long. .26—32.

Melsheimer, Proceed. Acad. Nat. Sc. 2, 148.

Pennsylvania, Dr. Melsheimer; Ohio, Dr. Schaum. This genus is easily distinguished from the next by the broad and compressed legs: in our species the second joint of the antennæ is nearly as large as the third. The abdomen has an obtuse elevated compressed tubercle at the apex. The clypeus is slightly emarginate at tip, and the small labrum is thus rendered visible.

Closely allied to this, but evidently a different species, and possibly even a new genus, is the following, which has not been found since its description by Say.

Eucnemis quadricollis, "Body piceous black with yellowish hairs: head with crowded large punctures, longitudinally confluent on the vertex: antennæ rather distant at base, not seated in approximated sinus, but under frontal elevations: second joint more robust than the third, and equally long: fourth joint rather longer than the third: remaining joints obconic subequal, the last a little longer: palpi terminal joint oval: thorax transverse quadrate with punctures like those of the head, but not much confluent: anterior angles rounded: lateral edges nearly parallel, very slightly contracted towards the posterior angles, which are nearly rectangular, a little acute, not continued backward beyond the line of the base: elytra with punctured striæ, and minutely punctured interstitial lines: pectus with less crowded punctures than the thorax, middle segment very broad: no groove: feet like all beneath dark piceous: tarsi a little paler. Length over one fourth of an inch." Indiana. (Say, Trans. Am. Phil. Soc. 6, 186.)

THAROPS Lap.

1. *T. ruficornis niger*, tenuiter pubescens, capite thoraceque scabro-punctatis, hoc quadrato, lateribus fere rectis, angulis posticis acutis, linea dorsali pone medium acute impressa, elytris scabro-

punctatis, striis punctatis, luteo-flavis, humero dimidioque postico fuscis, pedibus antennisque rufis, his articulo 3^o sequente paulo longiore; femoribus infuscatis. Long. 21—3.

Le Conte, Proc. Acad. Nat. Sc. 6, 46.

Melasis ruficornis Say, Journ. Acad. Nat. Sc. 3, 166.

Eucnemis (Nematodes) ruficornis Say, Trans. Am. Phil. Soc. 6, 187.

Missouri, near Booneville. One specimen has the elytra entirely yellow. The antennæ of the male are strongly flabellate from the fourth joint: the apex of the abdomen of both sexes has three small prominences beneath, of which the middle one is crest-like, and the lateral ones tuberculiform. This species differs from the next by the less elongated third joint of the antennæ.

2. *T. obliquus*, niger, tenuiter pubescens, capite thoraceque scabro-punctatis, hoc quadrato, lateribus ad apicem paulo rotundatis, angulis posticis acutis, linea dorsali pone medium acute impressa: elytris scabris, striis punctatis, sutura usque ad medium late luteo-testacea, pedibus antennisque rufo-testaceis, his articulo 3^o sequentibus duobus æquali, femoribus infuscatis. Long. 23—32.

Le Conte, Proc. Acad. Nat. Sc. 6, 46.

Eucnemis obliquus Say, Trans. Am. Phil. Soc. 6, 187.

Ohio, New York, New Hampshire. In six specimens, I can discover no sexual differences: the fourth joint of the antennæ is a little less dilated in one than in the other five: the antennæ after the fourth joint are strongly serrate, almost pectinate, the joints gradually becoming more transverse: the third joint is slender, and as long as the fourth and fifth together. The apex of the abdomen, as in the preceding species, has three small elevations.

Div. 2. EUCNEMIDES.

This division is sufficiently characterized by having the front slightly and uniformly convex, the antennæ moderately approximated, inserted in a deep sinus, with the clypeus expanding anteriorly: the labrum appears merely as an indistinct margin to the clypeus: the prosternum is truncate anteriorly: the lobe seen in *Elaterides* is represented by a margin separated by an impressed transverse line: the lateral suture is nearly always straight, in *Anelastes* alone, a little curved, and meets the lateral margin of the thorax at the anterior angle: the posterior spine is short and usually truncate, somewhat as in *Cardiophorus*: the anterior part of the sides of the prothorax reaches the eyes, which are thus partially concealed. The coxal plates are always distinct, frequently very broad: the first joint of the antennæ is always long; the last joint of the maxillary palpi always dilated, and usually large: the ungues either entire, or with a single tooth at the middle.

I have removed from this division *Melasis* and *Tharops*, for reasons before given, and, therefore, modify the synoptic table of genera given by me in the Proceedings of the Academy of Natural Sciences, vol. 6, p. 45, to suit this change of classification.

A. Thorax subtus non sulcatus:

Coxæ posticæ laminis angustis;

intus quadrangulariter paulo dilatatis;	-	-	-	<i>Anelastes.</i>
intus non dilatatis	-	-	-	<i>Hylochaeres.</i>

- Coxæ posticæ laminis magnis;
 intus sensim valde dilatatis, tarsi antici articulo 1^{mo} vix longiore Emathion.
 intus subsubito dilatatis (ξ art. 8-11 elongatis) - - Epiphaniis.
 intus sensim maxime dilatatis (ξ art. 9-11 elongatis) - Euryptychus.
- B. Thorax subtus ad latera sulcatus; (coxæ laminis magnis:)
 Tarsi articulis 1-3 non lobatis.
 Antennæ tenues, subcylindricæ - - - - Fornax.
 Antennæ serratæ vel pectinatæ - - - - Eucnemis.
 Tarsi articulis 2-4 breviter lobatis - - - - Galba (Dendrochares.)
- C. Thorax subtus ad prosterni latera sulcatus: (coxæ laminis mediocribus.)
 Tarsi non lobati - - - - - Microrhagus.

The native species belonging to these genera have been enumerated by me in the Proceedings of the Academy of Natural Sciences above mentioned. For the purpose of making the present paper complete, I will here add, to what is there contained, diagnoses of Say's species, which are there only mentioned by name. It is necessary first to state, that I have united the genus *Isarthrus Lec.* with *Fornax*, as being not sufficiently distinct. The genus *Onychodon Newman*, of which I have procured the typical species, must also be united with *Fornax*: from the very loose manner in which Newman's descriptions were drawn up, the affinity of *Onychodon* to the *Eucnemides* has not been recognised; nor is there any thing in his description (except the lateral grooves for the reception of the antennæ) which indicates it to be other than a true *Elateride*.

ANELASTES *Kirby.*

1. *A. Druryi*, obscure rufo-piceus, subcylindricus, opacus, thorace transverso convexo, lateribus rotundatis angulis, posticis parvis divergentibus, subtiliter scabro, postice canaliculato, elytris striis profundis, interstitiis convexis, scabris. Long. .45—.6.

Kirby, Trans. Linn. Soc. 12, tab. 21, fig. 2; Guérin, Ann. Ent. Soc. Fr. ser. 2d, 1, 17.

Silenus brunneus Latreille, Ann. Ent. Soc. France, 3, 129.

Southern States, not rare. The front, as in the next species, is faintly channelled anteriorly, the whole upper surface is more scabrous than in the next species, and the sides of the thorax are less rounded: the dilated portion of the posterior coxal plates is emarginate and toothed, a character seen in no other genus of this division.

2. *A. Latreillei*, obscure rufo-piceus, subnitidus, thorace transverso convexo, subtiliter parce granulato, postice canaliculato, lateribus valde rotundatis, angulis posticis subdivergentibus, elytris profunde striatis, interstitiis subtiliter rugosis et scabris. Long. .4—.5.

Lec. Proc. Acad. Nat. Sc. 6, 47.

California, collected in the interior of the country by Mr. Child.

HYLOCHIARES *Latr. Guérin.*

1. *H. nigricornis*, subcylindricus, crassiusculus, ater, opacus, capite scabro canaliculato, thorace subtransverso, convexo, lateribus late rotundato, scabro, profunde canaliculato, utrinque ad medium et ad basin transversim profunde impresso, angulis posticis minutis, elytris striis profundis punctatis, interstitiis convexis scabris, antennis pedibusque obscure rufo-piceis. Long. .3.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Melasis nigricornis Say, Journ. Acad. Nat. Sc. 3, 165.

One specimen, Ohio, Dr. Schaum. The robust subcylindrical form gives it a strong resemblance to the species of the preceding genus, from which it differs principally in having the plates of the posterior coxæ not dilated internally, and the fourth joint of the tarsi slightly lobed. It is awkward that the specific name should belong to a species with brown antennæ.

EMATHION Lap.

1. *E. atropos*, elongatus, postice paulo angustatus, nigro-piceus, tenuiter fulvo-pubesceus, capite thoraceque rufo-piceis, scabris, hoc latitudine non brevior, lateribus ante medium rotundatis, angulis posticis medioeribus acutis, canaliculato, utrinque ante medium foveato, et pone medium transversim impresso, elytris scabris, tenuiter fere obsolete striatis. Long. .32.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Eucnemis atropos Say, Trans. Am. Phil. Soc. 6, 187.

One specimen, Louisiana, Dr. Schaum. The third joint of the antennæ is longer than the fourth, and the last six joints are slightly enlarged: the last being, probably, a character belonging to the male: the fourth joint of the tarsi is slightly lobed beneath: in Say's description, by an error commonly called clerical, the last instead of the fourth joint is said to be dilated.

2. *E. penetrans*, valde elongatus, postice paulo angustatus, ater, subtilissime fulvo-pubesceus, subtiliter confertissime scabro-punctatus, fronte linea tenuissima lævi, thorace latitudine sesqui longiore, lateribus parallelis antice rotundatis, pone medium canaliculato, utrinque obsolete bifoveato, elytris tenuiter striatis, antennis pedibusque rufo-piceis. Long. .22—3.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Georgia, rare. In my former description, I only mentioned the two anterior foveæ of the thorax, but on re-examination, I find that the posterior pair, just behind the middle, are also visible: the sixth joint of the antennæ, in this species, is not more than half the size of the seventh, while, in the preceding, they are equally enlarged.

3. *E. frontosus*, nigro-piceus, modice elongatus, griseo-pubesceus, capite punctato, linea frontali vix distincta, thorace subtransverso, lateribus parallelis antice rotundatis, confertissime scabro-punctato, postice canaliculato, utrinque vix obsolete foveato, elytris (parallelis?) scabro-punctatis, tenuiter fere obsolete striatis. Long. .2.

Eucnemis frontosus Say, Trans. Am. Phil. Soc. 6, 187.

Epiphanis canaliculatus Lec. Proc. Acad. Nat. Sc. 6, 46.

One female specimen, Pennsylvania. On comparing this with the preceding species, I do not find sufficient differences to warrant their being retained in separate genera: the fourth joint of the tarsi, however, is smaller, and is not lobed: the form of body is a little stouter, but is different from that of *Epiphanis* from the thorax not being regularly narrowed in front: the plates of the posterior coxæ, so far as I can examine them, appear to be gradually dilated as in the two preceding species, not suddenly dilated and subtruncate as in *Epiphanis cristatus*: they are, however, pushed out of place by the pin, and cannot be properly examined: the third joint of the antennæ is a little longer than the fourth: the eleventh is nearly as long as the two preceding. This is evidently Say's species, although, by some strange oversight, I failed previously to identify it as such.

EPIPHANIS *Esch.*

1. *E. cristatus*, nigro-piceus, griseo-pubescent, capite punctulato, fronte cristata, thorace subtransverso, antrorsum valde angustato, lateribus rotundatis, subtilius dense punctato, lineâ dorsali angustata lævi, angulis posticis productis, elytris parallelis, punctatis, tenuiter fere obsolete striatis, antennis pedibusque rufo-piceis. Long. .20.

Le Conte, Proc. Acad. Nat. Sc. 6, 46.

One specimen found at New York. This species agrees in the form of the body, as well as in all its generic characters with *E. cornutus* *Esch.* The punctures of the upper surface are not scabrous, and by the great narrowing of the thorax in front, the form of body, usual in the Elateridæ, is at length reached: the last four joints of the antennæ together are equal in length to all the rest: the third is hardly longer than the fourth: the fourth joint of the tarsi is not at all lobed, and the first joint of the anterior pair is as long as the two following united. It is distinguished from the preceding, as well as the next genus, by the plates of the posterior coxæ being more suddenly dilated, and truncate posteriorly, so that they do not extend farther at the middle than at the internal margin.

E. cornutus *Esch.*, Zool. Atlas 1, 10, tab. 4, fig. 6; Mann. Bull. Mosc. (1843) 238: is from Sitkha; it is unknown to me, and seems to differ from the one described above, by its reddish brown colour, with only the head and thorax black, and more prominent crest forming a short horn.

EURYPTYCHUS *Lcc.*

1. *E. heterocerus*, rufo-castaneus, helvo-pubescent, thorace transverso, antrorsum valde angustato, lateribus præcipue antice rotundatis, subtiliter dense punctato, angulis posticis paulo productis, elytris a basi subangustatis, striis tenuibus, interstitiis subtiliter scabro-punctulatis. Long. .37—52.

Le Conte, Proc. Acad. Nat. Sc. 6, 46.

Eucnemis heterocerus Say, Trans. Am. Phil. Soc. 6, 186.

Pennsylvania, rare: two specimens from Rev. D. Ziegler and Mr. Rathvon. The last three joints of the antennæ are as long as the preceding, leaving out the elongated first joint: the third is nearly twice as long as the fourth. The general form is that of true Elater, yet, although differing so much in appearance, the distinction of this genus from *Emathion* is obscure. Neglecting the form of the antennæ as possibly sexual, and the fourth tarsal joint, as it is not lobed in one species of *Emathion* above described, we find no differences left, except that, in the present genus, the first joint of the anterior tarsi is as long as the three following: the fourth joint is two-thirds the length of the third, and cylindrical; and the plates of the posterior coxæ are very much more dilated internally, and at the middle extend much farther than at the inner margin.

FORNAX *Lap.*

Among our species of this genus, which is synonymous with *Dirhagus* *Esch.*, are some in which the claws of the tarsi are suddenly dilated at the base, with the extremity of the dilated portion forming a prominent tooth. The largest of these species is the type of Newman's genus *Onychodon*. The species separated by me, under the name *Isarthrus*, must also be placed in this genus, as the slight difference in the length of the third joint

of the antennæ, and the absence of the very short lobe of the fourth joint of the tarsi, are insufficient characters. Our species may, therefore, be arranged in three groups.

A. *Tarsi articulo 4^{to} breviter lobato; unguis ad medium fortiter dentati.*

1. *F. orchesides*, fusco-piceus, opacus, helvo-pubescens, capite thoraceque dense scabro-punctulatis, hoc antrorsum angustato, latitudine vix brevior, lateribus rotundatis, angulis posticis productis, basi ad medium tripunctata, elytris a basi vix angustatis, subtiliter scabro-punctulatis, tenuiter striatis, pedibus antennisque ferrugineis, his versus apicem attenuatis, articulo 3^{io} sequente vix longiore. Long. '68.

Onychodon orchesides Newman, Entomological Magazine, 5, 384.

One specimen found at Racine, Wisconsin, given me by Dr. Hoy. This is by far the largest species of *Eucnemide* yet found in the United States. It seems to be very rare; the unique specimen described by Newman was found at Trenton Falls, in the state of New York.

2. *F. bicolor*, supra fuscus, opacus helvo-pubescens, capite thoraceque dense scabro-punctulatis, hoc antrorsum angustato, latitudine vix brevior, lateribus antice rotundatis postice subparallelis, angulis posticis productis, elytris a basi angustatis confertim scabro-punctulatis, tenuiter striatis, subtus ferrugineus, antennis articulo 3^{io} sequente longiore. Long. '37.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Hylocharus? bicolor Melsheimer, Proc. Acad. Nat. Sc. 2, 149.

One specimen found at New York, given me by Mr. Willcox. Resembles in general characters the preceding, but is very much smaller: the middle lobe of the base of the thorax is shorter, and appears to be only bipunctate: the elytra are regularly narrowed from the base, and the third joint of the antennæ is one-third longer than the fourth: a portion of the antennæ is wanting, so that I do not know if they are more slender externally, as in *F. orchesides*.

B. *Tarsi articulo 4^{to} breviter lobato; unguis non dentati.*

3. *F. badius*, fuscus, elongatus, helvo-pubescens, capite thoraceque dense subtilius punctatis, hoc latitudine longiore, antrorsum subangustato, lateribus vix late rotundatis, angulis posticis productis paulo inflexis, elytris a basi vix angustatis, scabro-punctulatis, tenuiter striatis, pedibus antennisque obscure ferrugineis, his articulo 3^{io} sequente duplo-longiore, versus apicem non attenuatis. Long. '31.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Dirhagus badius Melsheimer, Proc. Acad. Nat. Sc. 2, 149.

Dirhagus rufipes? Melsheimer, Proc. Acad. Nat. Sc. 2, 150.

Two specimens found in Pennsylvania: the second joint of the antennæ is longer than the two preceding species, being one-half as long as the third: the fourth joint is shorter than the fifth, which is equal to the following: the third joint is about twice as long as the second, or the fourth. The antennæ are nearly filiform, not being attenuated towards the tip, as in *F. orchesides*: the unguis of the tarsi are dilated at base, but not toothed: the margin of the thorax is slightly curved inwards at the posterior angles, while in the preceding species it is straight at that part. One specimen has the front indented with a slight longitudinal fovea, and is probably *Dirhagus rufipes* *Mels.*

4. *F. cylindricollis*, niger, valde elongatus, tenuissime fusco-pubescent, thorace latitudine longiore, lateribus parallelis, ante medium paulo angustato et rotundato, sat dense punctato, pone medium profunde late exarato, angulis posticis paulo productis, elytris a basi vix angustatis, punctatis, striis obsoletis, suturali sola conspicua, antennis articulo 3^o sequente duplo longiore, versus apicem non attenuatis. Long. .26—31.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Eucnemis cylindricollis Say, Trans. Am. Phil. Soc. 6, 188.

Middle, Southern, and Western States. The proportions of the joints of the antennæ are as in the preceding: the legs are black, with the tibiæ and tarsi slightly piceous. This species very much resembles the next: the striæ of the elytra are, however, obsolete, the sutural one alone being distinct, and the punctures are more distinct, and less confluent.

5. *F. striatus*, niger, valde elongatus, tenuissime fusco-pubescent, thorace latitudine longiore, lateribus postice parallelis, antice paulo rotundatis, confertim subtilius punctato, pone medium late exarato, angulis posticis paulo productis, elytris a basi subangustatis, confertim rugose punctatis, striis distinctis, interstitiis paulo convexis, pedibus antennisque rufescentibus, his articulo 3^o sequente duplo longiore, versus apicem non attenuatis. Long. .22—28.

Lec. Proc. Acad. Nat. Sc. 6, 47.

Middle and Southern States. The feet are sometimes almost rufo-piceous, the antennæ have also a reddish tinge in one specimen: the joints have the same relative proportions as in the two preceding species.

C. Tarsi articulo 4^o non lobato; ungues non dentati.

6. *F. spretus*, elongatus, fusco-niger, pubescens, thorace latitudine fere brevior, antorsum angustato, et lateribus rotundato, dense sat grosse punctato, angulis posticis modice productis, elytris sat grosse confluentem punctatis, striis tenuibus, interstitiis externis paulo convexis, pedibus antennisque rufis, his versus apicem paulo crassioribus, articulis 2-12 subæqualibus. Long. .2.

Isarthrus spretus Lec. Proc. Acad. Nat. Sc. 6, 48.

One specimen, Lake Superior: the punctures of the head are a little smaller than those of the thorax; there is a faintly impressed fovea at the vertex, which is perhaps accidental.

EUCNEMIS Ahrens.

From Fornax, this genus seems to be essentially distinguished by the plates of the posterior coxæ being less dilated, and truncate posteriorly, so as to extend no farther at the middle than at the internal margin. The antennæ are either serrate or pectinate, but never filiform, as in Fornax: the ungues are not dentate, and the fourth joint of the tarsi is slightly lobed. The first species, from the bad condition of the specimen in my collection, was incorrectly stated by me to have the tarsi not lobed.

1. *E. clypeatus*, fusco-niger, fusco-pubescent, capite thoraceque confertim punctatis, hoc latitudine vix brevior, lateribus postice parallelis, ante medium rotundatis, elytris striis vix distinctis, confluentem punctatis, pedibus antennisque totis rufo-testaceis, his serratis, articulo 3^o sequente plus sesqui longiore. Long. .16—18.

Say, Trans. Ann. Phil. Soc. 6, 189.

Elater clypeatus Say, Ann. Lyc. of New York, 1, 266.

One specimen from Pennsylvania, given me by Dr. Zimmermann; another from Tennessee, sent by Dr. Schaum.

2. *E. amaenicornis*, niger, opacus, vix pubescens, capite thoraceque confertim minus subtiliter punctatis, hoc latitudine non brevior, antrorsum paulo angustato, lateribus late vix rotundatis, elytris confluentur punctatis, striis sat profundis, versus suturam tendentibus; pedibus testaceis femoribus infuscatis, antennis longe pectinatis, piccis articulis 2 et 3 testaceis, hoc sequente sesqui longiore. Long. ·12—·16.

Say, Trans. Am. Phil. Soc. 6, 189.

Common in the Middle and Southern States. Some of the specimens have the sides of the thorax more rounded than others; these are probably females: the branches of the antennæ do not, however, appear to be shorter than usual in such specimens: the elytra in all of them are tolerably strongly narrowed from the base to the tip, and the striæ on the middle of the disc consequently run together, and vanish before reaching the apex. The head is subject to abnormal impressions: in one specimen there are three occipital grooves: in another, two faint ones just behind the antennal sinus: in a third, there is a broad frontal fovea, such as has been already mentioned in some species of *Fornax*.

GALBA Esch. Guér.

The North American species of this genus is unknown to me: a single specimen was obtained in Georgia by my father, who sent it to Count Dejean. On account of the lobes of the second, third, and fourth joints of the tarsi being shorter than in the *Galbæ* of the eastern continent, Mr. Guérin proposed to form of this species a subgenus *Dendrocharis*. His description and figures are found in the *Annales de la Société Entomologique de France*, Ser. 2d, vol. 1, 193; tab. 6, fig. 60—63. As the work is not generally available to American students, I add a translation of Mr. Guérin's description:

G. flavicornis, "Length 9—12 millimetres;" (·35—·47 unc.) "Brown, smooth, convex, with the sides parallel. Antennæ strongly pectinate, a little thicker towards the apex; with the first two joints brown, and the others orange yellow. Anterior tibiæ broad, compressed, ciliate externally, with stiff bristles; tarsi capable of being folded along the tibiæ, with second, third, and fourth joints dilated beneath; the dilatations much less elongated than in *Galba marmorata*."

MICRORHAGUS Esch.

A. Tarsi articulo 4^{to} paulo dilatato sublobato.

[*M. pygmaeus*, fusco-niger, brevissime fusco-pubescens, fronte subcanaliculata, thorace latitudine vix brevior, antrorsum modice angustato, lateribus late rotundatis, sat grosse punctato, angulis posticis productis valde carinatis, linea marginali antice furcata, elytris a basi subangustatis, fortius punctatis, vix striatis, pedibus obscure testaceis. Long. ·18.

A male specimen sent me by Dr. Schaum.* This species has the antennæ subflabellate, as in *Eucnemis amaenicornis*, but as the pectoral grooves are at the side of the prosternum, it cannot be associated with that species. It differs from all the following species in having the marginal line of the thorax double before the middle, and the posterior angles more strongly carinate: the pectoral grooves are well defined and broad: the ungues of the tarsi are slender.]

* This European species is described in connexion with our native species for the purpose of exhibiting the specific characters more clearly; references are, therefore, omitted.

1. *M. imperfectus*, ater brevissime fusco-pubescens, thorace latitudine brevior, lateribus antice fortius rotundatis, punctato, linea dorsali tenuissima lævi, angulis posticis modice carinatis, linea marginali medio obsoleta, elytris fortius punctatis, vix striatis, pedibus rufis. Long. .22.

LeC. Proc. Acad. Nat. Sc. 6, 48.

New York and Maryland. The antennæ of the male are dark coloured and slightly pectinate, those of the female are but little darker than the feet, and moderately serrate; the front in one specimen is channeled, but this is a character of but little value in the present group of insects. The marginal line of the thorax is dislocated and interrupted at the middle, the portion from the anterior angle being far above the short posterior portion, which is connected with the base; the pectoral grooves are indistinct posteriorly; the nails of the tarsi are dilated and toothed at the middle.

2. *M. subsinuatus*, ater vix fusco-pubescens, thorace latitudine brevior, antrorsum subangustato, lateribus obliquis subsinuatis non rotundatis, punctato, postice canaliculato, ad apicem transversim marginato, angulis posticis planis paulo inflexis, linea marginali dislocata, elytris fortius rugose punctatis, vix striatis, tarsis testaceis. Long. .2.

LeConte, Proc. Acad. Nat. Sc. 6, 48.

Eucnemis triangularis Harris, Trans. Hartford Nat. Hist. Soc. 72.

One male specimen found in the upper part of Georgia. The antennæ are three-fourths as long as the body, and very slightly serrate; the pectoral grooves are deep and well defined; the marginal line from the anterior margin of the thorax in this species almost forms a junction with the carina of the posterior angle, which, from the flattening of the latter, is pushed out of its normal position, and forms the lateral edge; the basal portion of the true marginal line is deflexed as usual, and becomes obsolete in front of the middle. The claws of the tarsi are not toothed.

3. *M. triangularis*, ater, pubescens, thorace latitudine brevior, lateribus parallelis, apice summa rotundatis, confertim punctato, angulis posticis acutis, breviter fortius carinatis, linea marginali dislocata, elytris a basi angustatis, apice obtusis, fortiter punctatis vix striatis, pedibus testaceis, antennis piceis. Long. .1—13.

LeConte, Proc. Acad. Nat. Sc. 6, 48.

Elater triangularis Say, Journ. Acad. Nat. Sc. 3, 170.

Eucnemis triangularis Say, Trans. Am. Phil. Soc. 6, 189.

Southern and Western States. In my specimens, the antennæ are three-fourths as long as the body, and very slightly serrate: the posterior angles are not flattened, as in the preceding species; the anterior part of the marginal line is very short; the posterior extends in front of the middle, and is deflexed, as usual. The pectoral groove is moderately well-defined, and the claws are not toothed. Guérin (Ann. Ent. Soc. Fr., 2d Ser., 1, 187) refers this species to *Eucnemis*, but Say expressly states (Trans. Am. Phil. Soc., 6, 189) the pectus is canaliculate "each side of the middle." Say seems at first to have considered other species as varieties of this, as in the Journal of the Academy he mentions individuals having the elytra striate, and others with the third joint of the antennæ less elongated. As Say does not mention the flat and incurved posterior angles of the thorax, it will be more prudent to consider this as his species, although somewhat smaller than that required by his description.

B. *Tarsi articulo 4^{to} nec latiore nec lobato.*

4. *M. humeralis*, opacus, ater, parce fusco-pubescentis, thorace latitudine brevior, lateribus parallelis apice summa rotundatis, angulis posticis subcarinatis, linea marginali dislocata, confertim scabro-punctato, medio utrinque subfoveato, elytris fere parallelis apice obtusis confluentem scabro-punctatis, obsolete striatis, basi late rufescentibus, pedibus antennisque rufis, his articulo 3^{io} non angustiore. Long. .15.

Lec. Proc. Acad. Nat. Sc. 6, 48.

Eucnemis humeralis Say, Trans. Am. Phil. Soc. 6, 189; Harris, Trans. Hartford Soc. Nat. Hist. 72.

Pennsylvania, Dr. Melsheimer; Tennessee, Dr. Schaum. Differs from all the preceding species by the third joint of the antennæ being as wide as the fourth. The antennæ in both specimens are half as long as the body, compressed, but not strongly serrate: the two discoidal foveæ of the thorax are broad, but not deep; there is also a trace of a dorsal impressed line: the marginal line is dislocated, as usual; the anterior portion is very short, and the posterior portion extends nearly to the apex. The claws of the tarsi appear to be indistinctly toothed at the middle.

This species seems subject to variation in colour: the anterior margin of the thorax and the posterior angles are usually tinged with rufous. A specimen sent by Dr. Schaum has the elytra entirely black, but otherwise seems not to be sufficiently distinct.

Div. 3. CEROPHYTIDES.

Although differing greatly from each other, there is such a close accordance in some characters between Cerophytum and Perothops that I have been induced to place them together. The latter genus has been very fully examined by Erichson, and the detail of his observations is given in the third volume of Germar's Zeitschrift. He has placed it among the genuine Elateridæ, considering it as forming a transition to the Cibrionidæ by its more prominent mandibles and cleft ligula. The approximation of the antennæ, however, brings it nearer to the Eucnemides; and it will be found, on comparison, that those points in which it differs from the Eucnemides are precisely those in which it differs from the true Elaterides, and approaches the Cibrionides. I therefore prefer regarding it as an osculant between the latter family and the Eucnemides, and, on account of its general form, and the structure of the head, to be placed next the last mentioned division.

The differences between Cerophytum and Perothops are as follow:

The front of Cerophytum is gibbous, while in Perothops it is only deflexed anteriorly. The mandibles are larger and more prominent in Perothops: the prosternum is furnished with a short rounded lobe in Cerophytum, while in Perothops it is nearly truncate anteriorly: the lateral suture is curved convexly outwards in Cerophytum, and is straight in Perothops: the laminæ of the posterior coxæ are somewhat suddenly dilated internally in Perothops, and are entirely obsolete in Cerophytum: the posterior trochanters are very long in Cerophytum, and moderate in Perothops: the tarsi are lobed and spongy in Cerophytum, with the first joint longer and the fourth joint bilobed: in Perothops the joints are short, diminish very gradually in length, the first being much thicker, and are very densely pubescent.

The strong points of resemblance are as follows:

The antennæ are closely approximated, inserted in a deep sinus; the labrum is indistinct, being connate with the clypeus, which is dilated in front of the antennæ: the first joint of the antennæ is elongate; the anterior coxæ are more widely separated than in the true Elateridæ, and the posterior spine is short; the last joint of the palpi is very large and triangular; the tarsi are short, and the claws pectinate.

CEROPHYTUM *Latr.*

1. *C. pulsator*, ater, opacus, capite thoraceque fusco-pubescentibus, hoc convexo, latitudine fere sesqui brevior, lateribus antice valde rotundatis, confertim punctato, angulis posticis minutis prominulis, elytris striis punctatis, interstitiis planis scabro-punctatis. Long. .27—.33.

Haldeman, Proc. Acad. Nat. Sc. 3, 348; LeConte, *ibid.* 6, 230.

Chorea pulsator Haldeman, Proc. Acad. Nat. Sc. 3, 150.

Pennsylvania; Ohio. The female was given me by Mr. Haldeman, the male by Dr. Schaum. The latter is more slender than the female; the third to the tenth joints of the antennæ are furnished with a stout branch near the base, externally; the last joint is longer, and is thickened somewhat towards the tip, as if composed of two joints agglutinated together.

PEROTHOPS *Esch. Erichson.*

1. *P. mucidus*, piceo-niger, tenuiter cinereo-pubescentibus, thorace convexo, latitudine brevior antrosum valde angustato, lateribus rotundato; angulis posticis brevibus subdivergentibus, subtilissime punctulato, punctis paucis minutis consperso, elytris tenuiter striatis, interstitiis paulo convexis, alutaceis, parce subtiliter punctatis, ore barbato. Long. .55—.6.

Erichson, Germ. Zeitschr. 3, 117.

Elater mucidus Schönh., Syn. Ins. Supp. 133; (*mucidus*) Say, Ann. Lyc. 1, 256.

Eucnemis mucidus Say, Trans. Am. Phil. Soc. 6, 186.

Elater unicolor Say, Ann. Lyc. 1, 256.

Eucnemis unicolor Say, Trans. Am. Phil. Soc. 6, 186.

Middle and Southern States. *E. mucidus* Say is a brown, not fully coloured variety.

Div. 4. ELATERIDES, (*genuini.*)

The genera of this division are very numerous, and seem to have been very unnecessarily multiplied on slight grounds. They are all characterized by having the mandibles small and retracted, and the antennæ widely separated, inserted very near the eyes in deep foveæ: the clypeus is never dilated anteriorly, and the labrum is always distinct. The following table expresses the relations of the genera found in this country, in a tolerably natural manner, though the necessity of introducing several new genera, mostly for single anomalous species, is very much to be regretted.

1. *Tarsi subæqualiter pubescentes, sæpe lobati; mesosternum non protuberans; prosternum semper mucronatum; antennæ non receptæ.*

A. Prosternum semper mucronatum, lateribus rectis: frons præcipue concava, vel plana, fossulis antennarum male definitis: coxæ posticæ laminis angustis, intus paulo dilatatis, vix dentatis: antennæ articulo 1^{mo} mediocri; ungues simplices.

- A. Prosternum antice truncatum, non lobatum:
- | | | | | | | |
|--------------------------------------|---|---|---|---|---|-----------|
| Frons producta, marginata, reflexa | - | - | - | - | - | Campylus. |
| Frons depressa, antice non marginata | - | - | - | - | - | Oestodes. |
- B. Prosternum antice lobatum, rotundatum:
- | | | | | | | |
|---|---|---|---|---|---|-------------|
| Frons antice marginata; tarsi articulo 1 ^{mo} elongato; | | | | | | |
| Tarsi articulis 2 et 3 lobatis, 4 ^{to} parvo recepto | - | - | - | - | - | Pedetes. |
| Tarsi articulis non lobatis, 4 ^{to} non recepto | - | - | - | - | - | Athous. |
| Tarsi articulis 2—4 breviter lobatis, 4 ^{to} non recepto | - | - | - | - | - | Pityobius. |
| Frons antice marginata; tarsi articulo 1 ^{mo} non vel vix longiore; | | | | | | |
| Antennæ articulo ultimo non maiore | - | - | - | - | - | Limonius. |
| Antennæ articulo ultimo maiore | - | - | - | - | - | Gambrinus. |
| Frons antice non marginata; | | | | | | |
| Tarsi filiformes, articulo 1 ^{mo} paulo longiore | - | - | - | - | - | Corymbetes. |
| Tarsi articulis 2 et 3 lobatis, 4 ^{to} recepto, 1 ^{mo} elongato | - | - | - | - | - | Asaphes. |
- B. Prosternum lobatum et mucronatum, sutura concava, antice non exarata: frons præcipue convexa, apice non marginata, fossulis antennarum distantibus bene definitis; coxæ posticæ laminis variis, antennæ serratæ, articulo 1^{mo} medioeri.
- | | | | | | | |
|---|---|---|---|---|---|----------------|
| Coxæ posticæ laminis postice non truncatis: | | | | | | |
| Tarsi articulo 1 ^{mo} longiore | - | - | - | - | - | Crigmus. |
| Tarsi articulo 1 ^{mo} vix longiore | - | - | - | - | - | Atractopterus. |
| Coxæ posticæ laminis postice truncato-emarginatis | | | | | | |
| - | - | - | - | - | - | Ludius. |
- C. Prosternum, lobatum, et mucronatum, sutura laterali concava, antice exarata: frons valde convexa, apice non marginata: coxæ posticæ non valde dilatatæ, intus minus dentatæ: antennæ vix serratæ, articulo 1^{mo} elongato:
- | | | | | | | |
|----------------------------------|---|---|---|---|---|-----------|
| Ungues simplices, palpi dilatati | - | - | - | - | - | Dolopius. |
| Ungues serratæ, palpi acuminati | - | - | - | - | - | Adrastus. |
- D. Prosternum lobatum et mucronatum, sutura laterali concava, præcipue antice exarata: frons plus minusve convexa, antice marginata: coxæ posticæ dente interno magno, acuto: antennæ articulo 1^{mo} medioeri.
- | | | | | | | |
|---|---|---|---|---|---|---------------|
| Ungues simplices: coxæ laminis maxime dilatatis; | | | | | | |
| Tarsi articulo 3 ^{io} longe lobato | - | - | - | - | - | Anchastus. |
| Tarsi articulo 3 ^{io} breviter lobato | - | - | - | - | - | Brachycrepis. |
| Ungues simplices: coxæ laminis subsubito modice dilatatis; | | | | | | |
| Tarsi articulis 2 et 3 subtus longe lobatis | - | - | - | - | - | Dicrepidius. |
| Tarsi non lobati, filiformes | - | - | - | - | - | Elater. |
| Ungues simplices; coxæ laminis sinuatim sensim dilatatis | - | - | - | - | - | Blauta. |
| Ungues simplices; coxæ laminis regulariter sensim dilatatis | - | - | - | - | - | Cratonychus. |
- E. Prosternum lobatum et mucronatum, sutura laterali subconcava, antice exarata: frons antice marginata, rotundata: coxæ posticæ laminis intus subito dilatatis, dente rotundato: antennæ articulo 1^{mo} elongato: unguis simplices:
- | | | | | | | |
|---|---|---|---|---|---|----------------|
| Tarsi articulo 4 ^{to} lobato, vel simplici | - | - | - | - | - | Monocrepidius. |
|---|---|---|---|---|---|----------------|
- F. Prosternum lobatum et mucronatum, sutura fere recta, non exarata: frons antice marginata; antennæ flabellatæ, articulo 1^{mo} longissimo: coxæ posticæ angustæ, dente interno rotundato.
- Hemirhipus.
- G. Prosternum lobatum et mucronatum, medio latiore, (sutura inde extrorsum convexa:) frons antice

tice marginata rotundata, parum convexa: antennæ articulo 1^{mo} mediocri: coxæ posticæ dente interno vix prominulo: tarsi non lobati:

Ungues simplices: tarsi mediocres setosi - - - Cryptohypnus.
Ungues medio unidentati: tarsi elongati pubescentes - - - Oedostethus.

2. *Tarsi non lobati, subtus densius pubescentes, vcl sæpius inflati et penicellati; antennæ sæpe receptæ; mesosternum sæpe protuberans; prosternum semper mucronatum et lobatum: (frons modice vcl vix marginata;) (laminæ coxarum angustæ, non vcl vix subito dilatatæ.)*

H. Antennæ receptæ; thorax vesiculis nullis:

Antennæ articulo ultimo, non constricto - - - Adlocera.
Antennæ articulo ultimo constricto - - - Agrypnus.

I. Antennæ non receptæ; thorax vesiculis luminiferis:

Antennæ fere 12-articulatæ - - - Pyrophorus.

K. Antennæ non receptæ; mesosternum protuberans; thorax vesiculis nullis:

Frons sensim declivis; tarsi mediocres;

Coxæ posticæ laminis postice sinuatis - - - Aphanobius.
Coxæ posticæ laminis non sinuatis - - - Melanactes.

Frons subito declivis; tarsi crassiusculi;

Mesosternum distinctum - - - Alaus.
Mesosternum connatum - - - Chalcolepidius.

3. *Tarsi pubescentes, sæpe subtus lobati, nec inflati, nec penicellati; antennæ non receptæ; mesosternum protuberans; prosternum antice lobatum, mucrone postico brevi truncato; (frons marginata, unguis varii.)* - - - Cardiophorus.

CAMPYLUS Fischer.

A. *Tarsi articulis 2—4 subtus ad apicem spongiosi.*

1. C. productus, æneo-piceus, fusco-pubescent, thorace planiusculo confertim punctato, latitudine longiore lateribus rectis parallelis, fortius marginatis, margine angulisque posticis rufescentibus, elytris seriatim punctatis, substriatis, interstitiis punctatis et subrugosis. Long. .58.

Elater (Campylus) productus Randall, Bost. Journ. Nat. Hist. 2, 8.

Lake Superior, two specimens; Maine, Randall.

B. *Tarsi subtus æqualiter pubescentes, non spongiosi.*

2. C. denticornis, ater, parce flavo-pubescent, capite thoracæque grosse confluentem punctatis, fronte thoracisque margine omni pallido, hoc canaliculato, paulo inæquali, antice subangustato, latitudine non longiore, elytris æneo-piceis, substriatis, confertim rugose punctatis, margine vittaque tenui sæpe obsoleta, pallidis. Long. .43.

Kirby, Fauna Bor. Am. 145; Germar, Linnæa Entom. 1, 150.

Campylus flavinasus Melsheimer, Proc. Acad. Nat. Sc. 2, 219.

Lake Superior, Maine, and Pennsylvania. In the male the sides of the thorax are slightly sinuous, and the antennæ are longer than in the female.

OESTODES *Lec.*

Frons planiuscula, lateribus oblique marginatis, antice non marginata; labrum antice rotundatum; mandibulæ acutæ, edentatæ; antennæ elongatæ, serratæ 11-articulatæ, articulo 1^{mo} breviusculo, 2^{ndo} parvo, 3—5 latis triangularibus, sequentibus sensim angustioribus, 11^{mo} paulo longiore non constricto; palpi articulo ultimo ovali, truncato; prosternum antice truncatum non lobatum, mucrone postico elongato, acuto, lateribus rectis non excavatis; mesosternum non protuberans; coxæ posticæ laminis angustis intus vix latioribus, non dentatis; tarsi tenues pubescentes, articulis 1—4 sensim brevioribus, 5^o elongato, unguiculis validis simplicibus.

A curious genus related to *Campylus* by the absence of the prosternal lobe, and to *Corymbites* by its tarsi, the first joint of which is not conspicuously longer than the second; the front is entirely that of *Corymbetes*; the body is long, slender, and subcylindrical.

1. *O. tenuicollis*, niger, nitidus, glaber, capite parce punctato, thorace vix punctulato, elytris striato-punctatis, interstitiis parce subtiliter rugose punctatis, tibiis tarsisque testaceis, antennis nigris. Long. .27.

Elater tenuicollis Randall, Bost. Journ. Nat. Hist. 2, 14.

Vermont, Prof. Adams; Maine and Massachusetts, according to Randall. The elytra vary in colour from black to yellow; the intermediate variety has the disc yellow, with the base, margin and suture black. In one specimen the posterior angles of the thorax are yellowish.

In the species of this genus the thorax is convex, longer than wide, parallel on the sides, and slightly constricted near the posterior angles, which are long, acute, divergent, and finely carinated; the base is not fissured, but is marked each side with a tolerably long acutely elevated line; the body is glabrous above, but a few short hairs may be perceived towards the tip and margin of the elytra; the thorax in the male is more constricted posteriorly than in the female, whereby its outline appears less straight.

2. *O. graciliformis*, niger, nitidus, glaber, capite punctato, thorace subtilius parce punctato, apice angulisque posticis testaceis, elytris striato-punctatis, interstitiis subrugosis, pedibus flavis, antennis fusco-testaceis. Long. .28.

Elater graciliformis Randall, Bost. Journ. Nat. Hist. 2, 13.

One specimen, Vermont, Prof. Adams. In form precisely similar to the preceding.

PEDETES *Kirby.*

There are a number of North American *Elaters* having the second and third joints of the tarsi lobed beneath; the first joint considerably elongated; the coxal plates narrow, and the front produced and margined. And although Germar (*Zeitschr.* 2, 214) complains that he has not been able to detect the lobed tarsi in the species mentioned by Kirby as the type of his genus, this confusion is not to be wondered at, when we remember the very different names applied to the most common European species by the entomologists of different nations.

Our genus seems to be equivalent to *Athous*, as defined by Latreille, (*Ann. Ent. Soc. France*, 1st ser., vol. 3,) but by no means what was intended by Eschscholtz, who placed his *Athous* in a group in which the tarsi are not lobed. The species may be naturally grouped as follows:

A. *Thorax angulis posticis non carinatis, apice rotundatis.** *Antennæ articulis 2 et 3 æqualibus 4^o minoribus.*

1. *P. trivittatus*, fusco-testaceus, cinereo-pubescentis, thorace convexo, elongato, lateribus rectis, confertim subtilius punctato, elytris rufo-piceis, sutura margineque infuscatis, striis punctatis, interstitiis planis, sat dense punctatis, fronte non impressa. Long. .4.

Athous trivittatus Melsheimer, Proc. Acad. Nat. Sc. 2, 157.

One specimen in Dr. Melsheimer's collection. This species differs from all the others in having the front not impressed and hardly produced. The antennæ and feet are pale testaceous.

** *Antennæ vix serratæ, articulo 3^o 4^o æquali, vel vix minore.*

2. *P. Brightwelli*, fuscus, vel testaceus pubescens, thorace elongato, plus minusve canaliculato, convexusculo, confertim punctato, elytris striis valde punctatis, interstitiis minus convexis, punctatis et parce rugosis, versus basin impressis et testaceis. Long. .42—.47.

Kirby, Fauna Bor. Am. 146.

Athous oblongicollis Mels. Proc. Acad. Nat. Sc. 2, 155.

Athous arcticollis Mels. Proc. Acad. Nat. Sc. 2, 156.

Middle and Southern States, not rare. The specimen described by Kirby seems to have been a pale coloured variety of this species, which varies much in colour. In the male the thorax is constricted before the posterior angles, which are slightly divergent; in the female, the sides are straight and the angles do not diverge; the dorsal channel is never deep, and is frequently wanting.

3. *P. acanthus*, æneo-piceus, pubescens, thorace elongato, convexo, subtilius punctato, angulis rufescentibus, elytris striis valde punctatis, interstitiis minus convexis punctatis, versus basin impressis, epipleuris pedibus antennarumque basi testaceis. Long. .27—.35.

Elater acanthus Say, Trans. Am. Phil. Soc. 6, 178.

New Jersey, Mr. Guex; a typical specimen in Dr. Harris' collection. Differs from the preceding by its smaller size, and more convex and more finely punctured thorax. Otherwise there appears to be no satisfactory difference; the front is sometimes testaceous; probably pale-coloured varieties will occur.

B. *Thorax angulis posticis subtiliter carinatis, apice rotundatis.** *Antennæ articulo 3^o 4^o æquali.*

4. *P. scapularis*, ater opacus, subtiliter fusco-pubescentis, thorace elongato, antrorsum subangustato, confertissime punctato, angulis posticis testaceis, carina angulari margini approximata, indistincta, elytris macula basali lutea, striis punctatis, interstitiis scabro-punctatis. Long. .4.

Elater scapularis Say, Trans. Am. Phil. Soc. 6, 178.

The typical specimen from New Hampshire kindly loaned me by Dr. Harris. The feet and antennæ are entirely black. The lobes of the tarsi are smaller than in the other species, and with some species contained in *Athous*, would seem to indicate that the two genera should be united. The antennæ, as in the next species, are elongated.

5. *P. cucullatus*, testaceus, vel picco-testaceus, fulvo-pubescentis, thorace elongato, antrorsum

subangustato, dense punctato, carina angulari obliqua, elytris striis punctatis, interstitiis vix convexis, parce punctatis, antennis pedibusque flavis. Long. .4—·5.

Elater cucullatus Say, Ann. Lyc. 1, 264; Trans. Am. Phil. Soc. 6, 177.

Athous hypoleucus Melsheimer, Proc. Acad. Nat. Sc. 2, 155.

Athous procericollis Melsheimer, Proc. Acad. Nat. Sc. 2, 156.

Athous strigatus Melsheimer, Proc. Acad. Nat. Sc. 2, 154.

Pennsylvania, Maryland, and Ohio. The sides of the thorax in the female are broadly rounded in front, while in the male, they are entirely straight.

Say's original description does not appear to be sufficient entirely to identify the species, but his subsequent remarks refer to a species having carinated thoracic angles; the type in Dr. Harris' collection is a male of this species. The antennæ in both sexes are longer than the thorax.

Melsheimer's *Athous strigatus* is merely a very large female (.69 unc.) of this species, showing no specific difference.

6. *P. fossularis*, nigro-piceus, tenuiter cinereo-pubescent, thorace latitudine longiore, lateribus parallelis antice rotundatis, confertim grossius punctato, pone medium utrinque profunde transversim foveato, angulis posticis subrectis, carina angulari margini approximata fere indistincta, elytris striis profunde impressis, punctulatis, interstitiis subconvexis vage scabro-punctulatis. Long. .45.

One specimen, New Jersey, Mr. Guex. Easily distinguished by the rounded sides and the coarser punctuation of the thorax, as well as by the two deep impressions half way between the middle and the base. The specimen is apparently a female, as the antennæ do not extend beyond the base of the thorax. The form is more robust than the preceding or next species.

7. *P. equestris*, ater, subtiliter cinereo-pubescent, opacus, capite thoraceque dense punctatis, rubris, hoc latitudine vix longiore, lateribus rectis, antice rotundatis, angulis posticis nigris, subrectis, carina angulari margini approximata, basi medio nigricante, elytris striis punctatis, interstitiis scabris. Long. .57.

One specimen, Georgia. The lobes of the tarsi are very narrow and short; the upper surface of the head is red, but the mouth and organs are entirely black. The antennæ are not longer than the thorax, and strongly serrate.

** *Antenna articulis 2 et 3 parvis aequalibus.*

8. *P. posticus*, picus, fusco-pubescent, thorace elongato, minus convexo, antice vix angustato, lateribus rectis fortius marginatis, diaphanis, apice breviter rotundatis, disco dense punctato, postice canaliculato, basi tota testacea angulis posticis inflexis rotundatis, carina obliqua valde distincta, elytris striis punctulatis, interstitiis planis confertim rugose punctatis, antennis basi pedibusque testaceis. Long. .48.

Limonius posticus Melsheimer, Proc. Acad. Nat. Sc. 2, 158.

Pennsylvania. I have seen only the typical specimen in Dr. Melsheimer's collection. The antennæ are a little longer than the thorax, tolerably strongly serrate, fuscous black, with the first joint testaceous. Has very much the form and general appearance of *Camptylus productus*; the lobes of the tarsi are very short.

ATHOUS *Esch.*

The species which I include in this genus only differ from those of the preceding genus in not having the second and third joints of the tarsi obviously lobed; the fourth joint, therefore, though only half the size of the preceding, is not received upon it: the first joint is as long as the two following united.

This genus will eventually be merged with the preceding, in which case the two species here described, forming the first group, having the posterior angles of the thorax not carinated, and the third joint of the antennæ equal to the fourth, will enter the division (A**), before *Pedetes Brightwelli*; those of the second group will enter (B**.)

A. *Thorax angulis posticis non carinatis.*

1. *A. reflexus*, piceus, vel obscure testaceus, parallelus, tenuiter cinereo-pubescent, fronte profunde excavata, thorace oblongo, marginato, lateribus fere rectis, angulis posticis subrectis, paulo convexo, sat dense, lateribus confluentur punctato, clytris striis punctatis, interstitiis subconvexis, parce punctatis, subtus rufo-piceus. Long. .65—7.

Middle States, rare. Body elongate; beneath, rufo-piceous; above, piceous, rarely testaceous; the suture and margin of the elytra darker. Head coarsely punctured, with the front very much produced, deeply excavated: antennæ a little longer than the thorax, subserrate; second joint small, third equal to the fourth: thorax longer than wide, anteriorly not narrowed, sides very slightly rounded, almost straight, distinctly margined, margin reflexed posteriorly, so that the posterior angles become elevated, as in *Pedetes Brightwelli*; angles almost rectangular, with a very indefinite trace of a carina; disc slightly convex, coarsely punctured, punctures denser and confluent at the sides: elytra parallel, obtusely rounded posteriorly; striæ punctured, interstices slightly convex, with a few distinct punctures.

2. *A. vittiger*, niger, tenuiter pubescens, parallelus elongatus, fronte excavata testacea, thorace minus convexo elongato, lateribus vix rotundatis, dense punctato, lateribus testaceo, clytris striis punctatis, interstitiis subconvexis rugose punctulatis, vitta integerrima margineque laterali flavis, antennarum basi pedibusque flavo-testaccis. Long. .3.

A mutilated specimen from Oregon. The tarsi, so far as can be distinguished, belong to the present genus, and the characters are those of the preceding species: the sides of the thorax are less reflexed posteriorly, and the antennæ are somewhat less serrate.

Allied to this species appears to be *Elater rufifrons* Randall (Bost. Jour. Nat. Hist. 2, 6) from Maine. It is similarly coloured, but is much larger (.6 unc.) It was found in Maine.

B. *Thorax angulis posticis acute carinatis.*

3. *A. discalceatus*, fulvo-castaneus, helvo-pubescent, infra læte rufo-testaceus, thorace latitudine fere sesqui longiore, (antrorsum angustato, lateribus postice rectis, antice late rotundatis,) angulis posticis subdivergentibus, punctato, clytris tenuiter striato-punctatis, interstitiis vage punctatis. Long. .5.

Elater discalceatus Say, Trans. Am. Phil. Soc. 6, 169.

The typical specimen found in New Hampshire: in Dr. Harris' collection: it is evidently a female, and the antennæ are as long as the head and thorax.

A specimen from Pennsylvania, which I consider as the male of this species, has the sides of the thorax perfectly straight, the posterior angles scarcely diverging, and the antennæ longer than the head and thorax. It is much smaller than the female, (.38 unc.) and darker coloured. In this and the next species the second and third joints of the antennæ are equal, and, together, not longer than the fourth.

4. *A. bicolor*, supra ater, pube erecta nigro-grisea vestitus, thorace latitudine fere sesqui longiore, (antrorsum angustato, lateribus paulo rotundatis,) confertim punctato, angulis posticis piceis subdivaricatis, elytris striis tenuibus punctulatis, interstitiis confertim rugose punctulatis, subtus castaneus, antennis pedibusque testaceis. Long. .35.

One specimen found at New York. It is a female, having the antennæ as long as the head and thorax.

PITYOBIUS *Lec.*

Frons producta, profunde excavata; mandibulæ apice emarginatæ; antennæ elongatæ 11-articulatæ, maris bipectinatæ, feminae subserratæ, articulis 2 et 3 minoribus, illo minore, 11^{mo} simplici; prosternum antice lobatum, postice mucronatum, lateribus rectis, antice subexcavatis; mesosternum non protuberans: coxæ posticæ laminis angustis intus sensim paulo latioribus, non dentatis: tarsi articulo 1^{mo} elongato, sequentibus duobus æquali, apice subtus spongioso, 2—4 sensim brevioribus subtus breviter lobatis, 5^{to} longiore tenui, unguiculis simplicibus.

The body is long and parallel, not convex; the thorax without basal fissures, with the posterior angles acute, produced and diverging, and marked with an indistinct carina parallel to the margin.

1. *P. anguinus*, piceo-niger, tenuiter pubescens, thorace confluentè punctato, profunde canaliculato, antice utrinque profunde foveato, angulis posticis elongatis, divaricatis obsolete carinatis, elytris striis profundis, valde punctatis, interstitiis convexis subtilius punctatis. Long. .8—1.0.

This fine species is found in pine forests, but is rare: my specimens came from the Southern States, but Dr. Harris has found it in New Hampshire. The late Mr. Melly sent me, under the name *Calocerus niger*, (Westwood,) two males, found in turpentine. I have substituted for the specific name that under which it appears in Dejean's catalogue, and have been compelled to change the generic name, as being applicable to but one sex.

LIMONIUS *Esch.*

This genus differs from *Athous* in having the first and second joints of the tarsi equal or hardly different in length; the fourth is not suddenly smaller than the third, and none of the joints are lobed or spongy beneath. Our species are difficult to distinguish, as they approach very closely in external characters; they may be grouped as follows:

- | | | | | |
|--|--|---|---|------------|
| A. Prosternum sutura laterali antice excavata: | | | | |
| α. | Clypeus valde emarginatus | - | - | Sp. 1—2. |
| | Clypeus late vel vix emarginatus; | | | |
| β. | Antennæ articulis 2 et 3 parvis, pedibus nigris | - | - | Sp. 3—4. |
| γ. | Antennæ articulis 2 et 3 coniunctis 4 ^{to} maioribus, pedibus rufis | | | Sp. 5—11. |
| δ. | Antennæ articulis 2 et 3 parvis, pedibus flavis | - | - | Sp. 12—13. |
| B. Prosternum sutura laterali vix excavata | | | | |
| | | - | - | Sp. 14—25. |

A.—a.

1. *L. auripilis*, plumbeo-niger, griseo-pubescent, clypeo emarginato, aureo piloso, thorace polito, latitudine sublongiore, convexo, minus dense grossius punctato, dense aureo-piloso, basi canaliculato, elytris striis punctatis, interstitiis planis, confluentur punctatis, margine basali rufo, epipleuris pedibusque rufis, antennis nigris, articulo primo præcipue rufo. Long. .35.

Elater auripilis Say, Journ. Acad. Nat. Sc. 3, 172; Trans. Am. Phil. Soc. 6, 178.

Southern and Western States. A specimen from Alabama, given me by Mr. Halde-
man, has the antennæ entirely black: in a specimen from Illinois, the dense hair covering
the head and thorax is less yellow than in the others, so that the insect has a dull leaden
appearance. The distinction between this and the next species rests on the polished sur-
face of the thorax, and in its less dense punctuation, characters which, though obscured
by the dense pubescence, may be readily seen. The lobes of the clypeus in both species
are subacute.

2. *L. pubicollis*, niger, opacus, griseo-pubescent, clypeo emarginato, aureo-piloso, thorace la-
titudine sublongiore, convexo, dense fere confluentur punctato, aureo-piloso, basi canaliculato, elytris
striis punctatis, interstitiis planis fere confluentur punctatis, margine basali rufo, epipleuris pedibus-
que rufis. Long. .37—.46.

Georgia, not rare. In all the specimens examined, the antennæ are entirely black: the
antennæ of the male are a little longer than those of the female, and more strongly ser-
rate; in both this and the preceding species, the third joint, though not dilated, is scarcely
shorter than the fourth.

A.—3.

3. *L. mirus*, ater, supra opacus, tenuiter griseo-pubescent, clypeo concavo, vix sinuato, thorace
latitudine longiore antrorsum subangustato, lateribus fere rectis, confertim punctato, elytris striis
punctatis vix impressis, interstitiis confertim punctatis, aurantiacis, macula postica communi magna
ad apicem extendente nigra. Long. .37.

One specimen, San Diego, California. Body black, above without lustre, thinly covered
with short gray hairs: antennæ longer than the head and thorax; serrate: second and
third joints, together, not longer than the fourth: head densely punctured; front mode-
rately produced, slightly concave, anterior margin hardly sinuate: thorax longer than wide,
slightly and regularly narrowed in front, scarcely rounded on the sides; disc somewhat
convex, very densely punctured; posterior angles not divergent, moderately produced,
rounded at tip, carina, as in the other species of the group, short and parallel with the
margin: elytra not wider than the thorax, very slightly narrowed from the base, obtusely
rounded at the apex; striæ scarcely impressed, strongly punctured, interstices finely and
densely punctured; base deeply transversely impressed; colour bright orange, with the
posterior third covered with a large black spot, the anterior outline of which is oblique,
so that the orange colour extends along the sides almost to the apex. In this species and
in the next the last joint of the antennæ is subacuminate; in all the other species known
to me it is rounded at tip.

4. *L. aurifer*, ater, subtiliter cinereo-pubescent, clypeo concavo æneo, thorace latitudine longiore,
lateribus vix rotundato, aureo-purpureo nitido, parce punctato, postice canaliculato, elytris fere opa-
cis, striis punctatis vix impressis, interstitiis punctatis. Long. .24—.32.

Vermont, Prof. Adams; Illinois, Mr. Willcox. This very pretty little species is easily distinguished by its brilliant metallic purple thorax: the antennæ are longer than the head and thorax, and serrate; the second and third joints are equal, and together equal in length to the fourth: the anterior margin of the clypeus is reflexed, and almost straight. In the larger specimen the punctures of the striae of the elytra are hardly larger than those of the interstitial spaces: in both the base is transversely impressed.

A.—γ.

5. *L. interstitialis*, æneo-niger, griséo-pubescens, clypeo late emarginato, thorace latitudine longiore dense punctato, angulis posticis carinatis paulo productis, elytris striis acutis, punctulatis, interstitiis planis confertim punctatis, antennis pedibusque rufis. Long. .6.

Corymbetis interstitialis Melsheimer, Proc. Acad. Nat. Sc. 2, 215.

One specimen from Pennsylvania, in Dr. Melsheimer's collection. This only differs from *L. cylindriciformis* by its larger size, and more finely punctured elytral striae: I have doubts of its being really distinct.

6. *L. cylindriciformis*, fusco-niger, dense fusco vel griseo-pubescens, clypeo late emarginato, thorace latitudine longiore, dense punctato, angulis posticis carinatis, paulo productis, elytris striis acutis parcius punctatis, interstitiis planis confertim punctulatis, basi margineque sæpe rufescentibus, antennarum basi pedibusque rufis, illis sæpe rufescentibus. Long. .4—45.

? *Elater cylindriciformis* Herbst, Käfer, 10, 93; tab. 166, fig. 9.

Elater cylindriciformis Say, Jour. Acad. Nat. Sc. 3, 176; Trans. Am. Phil. Soc. 6, 166.

Limonius hirticollis Melsheimer, Proc. Acad. Nat. Sc. 2, 215.

Very abundant in the eastern part of the United States. Although the description given by Say, above cited, may not be sufficient fully to identify this species, his subsequent observations, and the notes under his description of *Elater appressifrons* (Ann. Lyc. 1, 267,) remove all doubt. Herbst's description seems rather to apply to this species, as the *Corymbetes*, to which it is referred by Germar, and which is *El. appressifrons* Say, has the antennæ nearly black, even at the base: the form of the clypeus is, unfortunately, not mentioned. This determination is confirmed by Dr. Melsheimer, by whom specimens were furnished to Say and Knoch: his *L. hirticollis* is, however, merely a large female of the same species: it is curious that he should have placed it under a genus different from the preceding closely allied species.

7. *L. confusus*, æneo-piceus, cinereo-pubescens, clypeo late rotundato, thorace latitudine longiore, antrorsum subangustato, lateribus vix rotundatis, punctato, postice canaliculato, angulis posticis brevibus, subcarinatis, non divaricatis, elytris striis punctatis, interstitiis planis sat punctatis, pedibus picco-rufis, antennis totis nigris. Long. .37.

One specimen from Lake Superior, and another from New York. This species resembles very closely the next, but may be distinguished by the moderately produced clypeus being rounded anteriorly, not truncate: the antennæ are entirely black, a little longer than the head and thorax, serrate, with the second and third joints subequal, together a little longer than the fourth: the thorax is distinctly but slightly narrowed in front, and scarcely rounded on the sides: the epipleuræ are testaceous at the margin, and the thighs are darker than the tibiæ.

8. *L. plebeius*, æneo-piceus, minus subtiliter cinereo-pubescent, clypeo truncato, thorace latitudine longiore, antrorsum subangustato (minus in femina) lateribus late rotundatis, punctato, angulis posticis carinatis brevibus vix divaricatis, elytris striis punctatis interstitiis sat punctatis, antennarum basi pedibusque piceo-rufis. Long. ·34—·37.

Elater plebeius Say, Ann. Lyc. 1, 263.

Limonijs metallescens Melsheimer, Proc. Acad. Nat. Sc. 2, 158.

Common in the Middle and Southern States. The base of the antennæ is sometimes dark coloured, but never black, as in the preceding species: the second and third joints are equal, and together are longer than the fourth: the clypeus is moderately produced, truncate anteriorly, and even very slightly sinuous. In the females the sides of the thorax are more rounded, and the antennæ are a little shorter than the thorax. The margin of the epipleuræ is always rufo-testaceous.

9. *L. ænescens*, fusco-æneus, griseo-pubescent, clypeo truncato, thorace latitudine paulo longiore, antrorsum subangustato, lateribus omnino rectis, angulis posticis carinatis brevibus divaricatis, densius punctato, postice subcanaliculato, elytris striis punctatis, interstitiis planis punctatis, pedibus rufis. Long. ·35.

One specimen, New Jersey, Mr. Guex. Allied to the two preceding species, but sufficiently distinct by the perfectly straight sides of the thorax: the posterior angles are short, and continue the line of the sides; they therefore appear divergent: the antennæ are hardly piceous at base; the second and third joints together are longer than the fourth: the margin of the epipleuræ is testaceous.

10. *L. æger*, fusco-æneus, griseo-pubescent, clypeo truncato, thorace latitudine longiore antrorsum subangustato, lateribus late rotundatis confertim subtilius punctato, angulis posticis vix carinatis brevibus subacutis, elytris striis subtiliter punctatis, interstitiis plane discrete punctatis, antennarum basi pedibusque rufis. Long. ·26.

One specimen, Lake Superior. In form and structure resembles very much *L. plebeius*, but is much smaller: the thorax is more finely and densely punctured: from the next it is distinguished by its larger size and more densely punctured thorax, as well as by its truncate clypeus: the thorax is scarcely channelled posteriorly.

11. *L. quercinus*, niger, cinereo-pubescent, clypeo late emarginato, thorace postice canaliculato, latitudine longiore, antrorsum subangustato, lateribus paulo rotundatis, minus dense punctato, angulis posticis vix carinatis subacutis, elytris striis punctatis, interstitiis discrete punctatis, antennarum articulis tribus pedibusque rufis. Long. ·2—·27.

Dejean, Cat. 103.

Elater quercinus Say, Ann. Lyc. 1, 262.

A very common species in every portion of the United States. From the next it may be distinguished by the more acute posterior angles of the thorax, and by the second and third joints of the antennæ being longer than the fourth, as in the preceding species: the posterior angles of the thorax are sometimes piceous, but never yellow, as in the following species.

A.—δ.

12. *L. basillaris*, niger, tenuiter cinereo-pubescent, clypeo late emarginato, thorace postice canaliculato, latitudine longiore, lateribus fere rectis antice paulo rotundatis, minus dense punctato,

angulis posticis fere obtusis, flavis vix carinatis, elytris striis punctatis, interstitiis discrete punctatis, pedibus flavis, antennarum articulis 2 et 3 parvis, 1^{mo} vel nigro, vel piceo, vel flavo. Long. .17—.23.

Elater basillaris Say, Journ. Acad. Nat. Sc. 3, 172.

Abundant every where. I was at first inclined to consider Say's species as merely identical with the preceding, but as in the description he says that the first and second joints of the antennæ are pale rufous, it can refer to no other than the present species. The antennæ are more strongly serrate than usual, and the erect hairs along the margin are very distinct: the second and third joints are equal, and together are shorter than the fourth: the first joint is usually piceous; sometimes it is black: sometimes both the first and the second joints are yellow. The posterior angles of the thorax are very short, and almost obtuse; they are always distinctly yellow: the anterior angles of the inflexed portion of the thorax and the anterior lobe of the prosternum are rufous. The antennæ of the male are longer than the head and thorax; those of the female are shorter.

13. *L. semiæneus*, piceo-æneus, cinereo-pubesceus, clypeo late emarginato, thorace latitudine longiore, postice canaliculato, lateribus fere rectis, subtilius sat dense punctato, angulis posticis fere obtusis vix carinatis flavis, elytris vel flavis, vel piceis basi margineque flavis, striis punctatis, interstitiis discrete punctatis, pedibus flavis, antennis nigris, articulis 2 et 3 æqualibus parvis. Long. .2.

Georgia, not common. Except that the sides of the thorax are scarcely rounded, and the punctures very slightly finer and more dense, I find no differences but those of colour between this and the preceding.

B.

14. *L. subauratus*, elongatus nigro-æneus (dense?) cinereo-pubesceus, clypeo truncato, thorace latitudine sesqui longiore, antice vix angustato, lateribus fere rectis, angulis posticis carinatis subacutis, convexo, postice obsolete canaliculato, punctato, elytris nigro-piceis, striis punctatis, vix impressis, interstitiis punctulatis, pedibus antennisque nigris, his articulo 3^{io} 4^{to} subæquali. Long. .39.

One specimen from Oregon, Col. M'Call. The pubescence has been nearly destroyed by alcohol, but enough remains at the base of the thorax to show that it was ash-coloured, and tolerably dense. This species has also very much the appearance of a *Corymbetes*, but the anterior margin of the clypeus, though very slightly prominent, is perfectly well defined.

15. *L. pilosus*, æneo-piceus, nitidus, pilis longioribus fere erectis cinereis minus dense vestitus, clypeo truncato, margine subreflexo, thorace latitudine longiore, lateribus rectis antice paulo rotundatis, punctato, parcius in medio, angulis posticis carinatis subacutis, elytris tenuiter seriatim punctatis, interstitiis discrete punctatis, antennis pedibusque nigris, illis articulo 3^{io} 2^{do} paulo maiore. Long. .42.

One specimen from San Diego, California. This species is less elongated than the preceding, the thorax is less convex, and the anterior margin of the clypeus is quite prominent and slightly reflexed. The thorax is scarcely channelled posteriorly.

16. *L. hispidus*, minus elongatus æneo-niger, minus nitidus, griseo-pubesceus, capite thoraceque pilis longioribus erectis subhispidis, clypeo truncato, margine distincto, thorace latitudine paulo longiore, lateribus rectis, punctato, postice canaliculato, angulis posticis carinatis vix acutis, elytris tenuiter striato-punctatis, interstitiis densius punctatis, antennis pedibusque nigris, illis articulis 2^{do} 3^{io} que subæqualibus, 4^{to} coniunctis longioribus. Long. .37—.43.

San Francisco, California, abundant. The antennæ of both sexes are moderately ser-

rate: in the male they are longer, in the female shorter, than the head and thorax: the form of body is more robust than in any of the preceding species: the posterior angles of the thorax are almost rectangular.

17. *L. dubitans*, minus elongatus æneo-picceus, fusco-pubescens, capite thoraceque pilis longioribus subhispidis, clypeo margine antico recto, indistincto, thorace valde convexo, punctato, lateribus rotundatis, angulis posticis parvis subacutis subcarinatis, elytris striis punctulatis, interstitiis vix convexis, dense punctatis, antennis articulis 2 et 3 subæqualibus, 4^{to} coniunctis longioribus. Long. .5.

New York and Pennsylvania, two females: still more robust and more cylindrical than the preceding, to which it appears to be most nearly allied. The great convexity of the thorax, which is hardly narrower in front than at the base, gives this species somewhat the aspect of *Cardiophorus*, while by the indistinctness of the anterior margin of the clypeus, it makes the transition to *Corymbites*.

18. *L. canus*, piceo-niger, valde elongatus, cinereo-pubescens, capite thoraceque densius pubescentibus, pilisque paucis suberectis vestitis, clypeo truncato, margine vix reflexo, thorace latitudine sesqui longiore, antrorsum angustato, et paulo rotundato, confertim punctato, canaliculato, angulis posticis obtusis subcarinatis apice rotundatis, elytris tenuiter striato-punctatis, interstitiis dense punctatis, pedibus fere piceis, antennis nigris, articulis 2 et 3 subæqualibus, 4^{to} coniunctis longioribus. Long. 39.

One specimen, San Diego, California. The antennæ are longer than the head and thorax, and strongly serrate: the hairs on the thorax are so disposed as to produce a faint longitudinal dark line from the basal depression on each side: the dorsal channel is distinct both at base and apex: the tibiæ and tarsi are paler than the femora. The general form is that of the male of *L. cylindriformis*.

19. *L. anceps*, elongatus, piceo-æneus, densius cinereo-pubescens, clypeo truncato, vix prominulo, thorace latitudine fere sesqui longiore, lateribus parum rotundatis, sat punctato, angulis posticis subacutis vix carinatis, elytris fuscis striis punctatis, interstitiis discrete punctatis, epipleuris pedibusque obscure rufis, antennis piceis articulo 3^{io} 4^{to} paulo brevioribus. Long. .3—35.

Western New York: specimens from Ohio are also in Dr. Harris' collection. The clypeus, although not prominent, is decidedly margined anteriorly: the absence of the small elevated line at the anterior portion of the inflexed margin of the thorax will distinguish it from *L. confusus* and *L. plebeius*, to which it bears a slight resemblance: the form is more slender, being about the same as *L. aurifer*: the hair on the elytra is so dense as to render the punctures indistinct: the third joint of the antennæ, though not as wide as the fourth, is perceptibly dilated.

20. *L. ectypus*, elongatus, piceo-æneus, densius cinereo-pubescens, clypeo truncato, vix prominulo, thorace latitudine longiore, lateribus late rotundatis, angulis posticis parum productis subacutis, obsolete carinatis, sat dense punctato, postice canaliculato, elytris fusco-testaceis, striis punctatis, interstitiis punctatis, pedibus antennisque testaceis, his articulis 2 et 3 coniunctis 4^{to} vix longioribus. Long. .35.

Elater ectypus Say, Trans. Am. Phil. Soc. 6, 167.

A typical specimen from Maine, in Dr. Harris' collection. Very much resembles the preceding, but the proportion between the basal joints of the antennæ will at once distinguish it.

21. *L. agonus*, clongatus, picco-æneus, densius cinereo-pubescent, clypeo truncato, vix prominulo, thorace latitudine longiore, lateribus late rotundatis, densius punctato, postice canaliculato, angulis posticis vix obsolete carinatis brevibus fere obtusis, elytris fusco-testaceis, striis punctatis, interstitiis punctatis, antennis pedibusque rufo-testaceis, illis articulis 2 et 3 coniunctis 4^{to} vix longioribus. Long. ·38.

Elater agonus Say, Trans. Am. Phil. Soc. 6, 171.

A typical specimen in Dr. Harris' collection: locality not marked. This species is very similar to *L. ectypus*, but the posterior angles of the thorax are not at all produced, and their apex is not acute: the ordinary carina is very small, and hardly visible.

22. *L. definitus*, cylindricus piceus, tenuiter pubescens, thorace confertissime punctato, angulis posticis rectis non carinatis subtestaceis, elytris striis profundis punctatis, interstitiis vage punctatis, antennis basi pallidioribus. Long. ·19—·23.

Ziegler, Proc. Acad. Nat. Sc. 2, 268.

Middle and Southern States, rare. In one specimen the elytra are brownish.

23. *L. infernus*, cylindricus, piceus, tenuiter pubescens, thorace dense grossius punctato, margine omni testaceo, angulis posticis rectis, non carinatis, elytris striis profundis punctatis, interstitiis parce punctatis, pectoribus, pedibus antennisque basi testaceis, abdomine nigricante. Long. ·15—·17.

Pennsylvania and New York, not rare. The under surface of the thorax is usually testaceous; sometimes it is fuscous, with the sutures paler. The pale margin of the thorax is dilated at each angle, so as to appear like four small yellow spots: the disc of the thorax is slightly channelled posteriorly.

24. *L. vagus*, piceus, subæneus, tenuiter cinereo-pubescent, clypeo medio non marginato, thorace latitudine brevior antrorsum modice angustato, lateribus antice paulo rotundatis, angulis posticis subcarinatis, acutis, divaricatis, subtilius punctato, linea dorsali pone medium lævi, elytris confertim punctatis stria suturali sola vix conspicua, basi margineque plus minusve testaceis, apice obtuse rotundatis, pedibus testaceis femoribus infuscatis, antennis nigris articulis 2 et 3 æqualibus 4^{to} coniunctis longioribus. Long. ·29—·35.

Lake Superior, on the northern shore. This species and the next differ considerably from all the others in appearance, as well as by the absence of the elytral striæ. Nevertheless, on close comparison, nothing of a generic value can be found to separate them. The front is indeed not margined anteriorly, but the lateral margins are slightly advanced, so that it presents, in certain directions, the same truncate appearance seen in other species of the genus. The body beneath is black, slightly bronzed. The elytra of the female are gradually dilated posteriorly, so as to be about one-third wider than the thorax; in the male they are parallel on the sides; in both sexes obtusely rounded at the apex; the sides of the thorax are more rounded anteriorly in the female than in the male.

25. *L. estriatus*, piceus, subæneus, cinereo-pubescent, clypeo medio non marginato, thorace latitudine fere sesqui brevior, antrorsum angustato, et lateribus rotundato, angulis posticis subcarinatis divaricatis, acutis, subtilius punctato, linea dorsali postice sublævi, elytris subtilius punctatis, striis obsolete, basi margineque testaceis, apice obtusis, antennis basi testaceis, articulo 3^{io} 2^{ndo} longiore et 4^{to} æquali. Long. ·26.

Eagle Harbor, Lake Superior. Smaller than the preceding, which it resembles very

much, and is readily distinguished by the sides of the thorax being more rounded anteriorly, and the third joint of the antennæ being as long and nearly as wide as the fourth; the feet and under surface are black.

GAMBRINUS *Lec.*

Frons paulo producta, antice recte marginata, subconcaua; labrum rotundatum, mandibulæ breues: antennæ articulis 2 et 3 subæqualibus, coniunctis sequente non longioribus, 4—10 triangularibus, gradatim paulo latioribus, ultimo duplo maiore, ovali, obtuso: prosternum antice lobatum, postice mucronatum, lateribus rectis, sutura antice vix excavata: coxæ posticæ laminis angustis, intus sensim paulo dilatatis: tarsi pubescentes, longius setosi, articulis 1—4 gradatim brevioribus, 5^o iterum longiore, unguiculis simplicibus.

The posterior angles of the thorax are finely carinated, and moderately produced. In form and structure approaches very near to *Limonius*, but is easily known by the last joint of the antennæ being considerably larger than the others, and by the first joint of the tarsi being longer than the second. To this genus possibly belongs *Elater stigma* Herbst, (*Käfer*, 10, 86, tab. 166, fig. 1,) which is, however, unknown to me; Dejean, in his catalogue, places it in *Limonius*; it seems to differ from the one here described by the feet and antennæ being fusco-testaceous.

The generic name is derived from *γαμβρος*, *socer*.

1. *G. armus*, virescenti-niger, nitidus, tenuiter cinereo-pubescent, thorace latitudine longiore, antrorsum subangustato, lateribus rectis, ad apicem subito oblique angustatis, minus subtiliter remotius punctato, postice subcanaliculato, elytris striis fortius punctatis, interstitiis discrete punctatis, macula magna humerali oblonga læte rufa, tarsis piceis. Long. .34.

Elater armus Say, *Trans. Am. Phil. Soc.* 6, 171.

One specimen from Georgia. The elytra, as in *Limonius*, are parallel on the sides, and obtusely rounded at the apex.

CORYMBITES *Latr.*

Frons plana, antice depressa, non marginata; labrum antice rotundatum; mandibulæ breues, acutæ, vel simplices, vel ante apicem dentatæ, vel truncatæ et scalprariæ: palpi articulo ultimo plus minusve dilatato: antennæ plus minusve serratæ (maris interdum pectinatæ) articulis 2 et 3 variis, 11^{mo} sæpe constricto, non maiore; prosternum antice lobatum, postice mucronatum, mucrone non vel vix inflexo, lateribus antice non vel vix excavatis: mesosternum non protuberans: coxæ posticæ laminis angustis, intus paulo dilatatis, non dentatis: tarsi longiusculi, pubescentes (vel subsetosi) articulis 1—4 sensim brevioribus (1^{mo} sæpe vix longiore) non lobatis, 5^o longiore, unguiculis integris.

A very extensive, but apparently natural genus, which may be easily divided into groups, for the purpose of facilitating the determination of the species. Some of these groups have received generic names, and, on a first glance, there appear to be certain peculiarities of habit, which render them easy to be recognised. With a large series of species, these differences appear to merge insensibly together, so that no well defined distinctions remain. For this reason, I consider the genera *Diacanthus* and *Pristilophus* as untenable: the latter, as founded by Latreille, is perfectly unintelligible, and as reformed by Germar, contains two very distinct forms, of which his first division (forming the genus

Melanactes of the present essay) must receive a distinct name, as the definitions both of Germar and Latreille absolutely exclude it, while the second division must be united with the present genus.

Our species may be grouped as follows:

A. *Tarsi subtus æqualiter pubescentes.*

1. Antennæ subserratæ, articulo 3^{io} cylindrico, sequentibus triangularibus, æqualibus : frons subconvexa ; corpus dilatatum, pubescens, elytris præcipue testaceis - Sp. 1—11.
 2. Antennæ subserratæ, articulo 3^{io} cylindrico, 4^{to} sequentibus longiore ;
 - α. Corpus dilatatum supra præcipue glabrum, frons planiuscula - - Sp. 12—17.
 - β. Corpus valde dilatatum pubescens, frons valde concava - - Sp. 18.
 - γ. Corpus lineare, supra glabrum, antennis articulis 2 et 3 singulis 4^{to} vix minoribus - - - - - Sp. 19—20.
 3. Antennæ serratæ, articulo 3^{io} cylindrico, sequentibus triangularibus, æqualibus, 11^{mo} sub-constricto ; corpus lineare, glabrum vel pubescens - - - Sp. 21—24.
 4. Antennæ serratæ, articulo 3^{io} dilatato ; 4—10 æqualibus, 11^{mo} constricto : frons plana : corpus lineare parallelum - - - - - Sp. 25.
 5. Antennæ serratæ, articulo 3^{io} vario, 4—10 æqualibus, 11^{mo} constricto ; frons concava, corpus subparallelum - - - - - Sp. 26—31.
 6. Antennæ serratæ, articulo 3^{io} triangulari, præcipue 4^{to} æquali, 4—10 æqualibus, 11^{mo} præcipue non constricto ; frons subconvexa vel plana : corpus non dilatatum.
 - * Elytra postice rotundatim attenuata :
 - α. Thorax angulis posticis carinatis - - - - - Sp. 32—35.
 - β. Thorax angulis posticis non carinatis - - - - - Sp. 36—37.
 - ** Elytra postice oblique attenuata, fortius marginata - - - - - Sp. 38—41.
 7. Antennæ compressæ, vix serratæ, articulo 3^{io} sequenti æquali, 11^{mo} vix constricto : frons concava, corpus præcipue lineare - - - - - Sp. 42—45.
- B. *Tarsi articulis 2—4 subtus ad apicem sericco-spongiosi* - - - - - Sp. 46—49.

A.—1.

1. *C. hamatus*, crassiusculus, capite thoraceque atris dense subtilius punctatis, aureo-pilosis, hoc postice canaliculato lateribus rotundatis, angulis posticis subdivergentibus, margineque testaceis, elytris testaceis, macula laterali transversa margineque pone medium fuscis, striis profundis punctatis, interstitiis punctatis, abdomine rufo, pectore nigro, pedibus antennisque testaceis. Long. 43.

Elater hamatus Say, Trans. Am. Phil. Soc. 6, 170.

New Jersey, Mr. Guex, one specimen. A very peculiar and well marked species, having the form of *C. hieroglyphicus*, but very distinct by its characters. The third joint of the antennæ is not perceptibly larger than the second ; the front is more elevated than usual, and almost angulated at tip, the lateral margins converging so as almost to meet ; the palpi are black. The dense golden yellow hair of the thorax conceals the punctures, which are dense, but not coarse ; the lateral margin, posterior angles, and inflexed portion are rufo-testaceous ; the dorsal channel is distinct posteriorly. The striæ of the elytra are strongly impressed, the interstices convex and densely punctured.

Although the form of the front of this species is nearly that of *Cryptohypnus silaceipes*, the shape of the posterior coxæ, and the parallel sides of the prosternum, prevent its association with that species.

2. *C. rubidipennis*, crassiusculus, niger, supra flavo-pubescent, thorace non transverso, anto medium rotundatim angustato, angulis posticis vix divergentibus, dense subtiliter punctato, elytris luridis, striis impunctatis, interstitiis subtilissime punctulatis, pedibus ferrugineis, antennis nigris. Long. .37—.42.

Lake Superior, not rare. This species differs from the description given of *medianus* Germ. (Zeitsch. 4, 71) by the impunctured elytral striæ. The form of the body is as in the preceding; the third joint of the antennæ is a little longer than the second, but both together are not longer than the fourth.

3. *C. acutipennis*, crassiusculus, niger, subflavo-pubescent, thorace subtransverso, antrorsum angustato, lateribus rotundatis, angulis posticis subdivergentibus, dense punctulato, elytris testaceo-piceis, striis vix punctatis, interstitiis distincte punctulatis (apice maris acuminatis,) antennis pedibusque rufo-testaceis. Long. .38.

Diacanthus acutipennis Germ. Zeitschr. 4, 70.

Two specimens found at Ann Arbor, Michigan. Germar describes the striæ of the elytra as punctured; in one specimen they appear smooth, in the other they are feebly punctured; the female does not differ in form from the preceding species; the male has the apex of the elytra produced and acute. The third joint of the antennæ is one-half longer than the second.

4. *C. propola*, niger, cinereo-pubescent, thorace latitudine non brevior, apice subangustato, lateribus rotundatis, minus dense punctulato, angulis posticis subtestaceis, elytris lurido-testaceis, macula utrinque lunata, postice concava, ad medium fusca, tenuiter striatis, interstitiis punctulatis, antennis piceis basi testaceis, articulo 3^{io} 2^{n^{do}} sesqui longiore, pedibus piceis, vel testaceis. Long. .3— .33.

Lake Superior, Eagle Harbour; found also in Western New York. The less densely punctured thorax will distinguish this from the other species of this group. The third joint of the antennæ is shorter than the fourth, although longer than in the preceding species; by this character it forms a transition to *C. hieroglyphicus*. In my catalogue of Lake Superior insects, this is erroneously placed as *El. curiatus* Say.

5. *C. triundulatus*, elongatus, niger, cinereo-sericeus, thorace convexo, latitudine non longiore, lateribus rotundatis, angulis posticis brevibus non carinatis, divaricatis, subtiliter dense punctato, subcanaliculato, elytris lateribus vix dilatatis, luteo-testaceis, fasciis tribus postice concavis subdudatis fusciscentibus, striis punctulatis, interstitiis planis, dense punctulatis, antennarum articulo 3^{io} sequenti brevior. Long. .28—.35.

Elater triundulatus Randall, Bost. Journ. Nat. Hist. 2, 12.

Abundant at Lake Superior, and in Maine.

6. *C. hieroglyphicus*, crassiusculus, niger, cinereo-pubescent, thorace aureo-sericeo, dense subtiliter punctato, non transverso, lateribus late rotundatis, angulis posticis subtestaceis, elytris luteo-flavis, macula obliqua humerali per suturam extensa, alteraque ad medium lunata per suturam fere ad apicem producta nigris, striis vix punctatis, interstitiis subconvexis, punctatis, antennis pedibusque rufis, illis extus fusciscentibus, articulo 3^{io} 4^{to} non brevior. Long. .5.

Elater hieroglyphicus Say, Trans. Am. Phil. Soc. 6, 172.

Lake Superior, Ohio, Maine; not rare. The joints of the antennæ diminish slightly in length from the fourth, but the difference is not so obvious as in many of the following species. The black markings of the elytra are connected by their sutural extensions; in one specimen the oblique line from the humerus to the suture is wanting, although the sutural portion of the spot is as large as in the other specimens.

7. *C. furcifer*, niger, cinereo-pubesens, thorace latitudine longiore, subtiliter punctato, lateribus late rotundatis, angulis posticis subtetaceis, elytris luteo-testaceis, macula humerali obliqua per suturam extensa, alteraque lunata pone medium nigris, striis punctatis, interstitiis distincte punctatis, antennis pedibusque piceis, illis articulo 1^{mo} testaceo. Long. ·32.

One specimen found at Eagle Harbour, Lake Superior. Marked like the preceding, but in size only equal to *C. propola*, from which it differs by the longer thorax, and more deeply striate and more distinctly punctured elytra. In form it is a little less dilated than any of the preceding species.

8. *C. nubilus*, crassiusculus, niger, cinereo-pubesens, thorace non transverso, lateribus rotundatis, subtilissime punctulato, angulis posticis testaceis, elytris lurido-testaceis, maculis 3 pone basin (una communi) rotundatis, alteraque utrinque pone medium lunata, nigricantibus, tenuiter striatis, interstitiis fere planis punctulatis, antennis pedibusque nigris. Long. ·35.

One specimen, collected in California by Mr. Child, and given me by Mr. Rathvon. The markings are on the same plan as those of the preceding species, but they are not dilated along the suture, and the anterior is broken up so as to form a rounded spot each side behind the humerus, and a larger less distinct one at the suture. The finer punctuation of the thorax, and the black feet, will enable it to be readily recognised.

9. *C. inflatus*, obesus, æneo-niger, cinereo-pubesens, fronte plana convexa, thorace convexo, dense subtilius punctato, subtransverso, lateribus antice rotundatis, elytris striis punctatis, interstitiis subconvexis, confertim punctulatis, antennis piceis basi rufescentibus, pedibus rufis. Long. ·33—·45.

Elater inflatus Say, Ann. Lyc. 1, 258; Trans. Am. Phil. Soc. 6, 174; Germ. Zeitschr. 4, 74.

Common in the Southern and Western States; rare in Pennsylvania. The interstices of the elytra vary, being sometimes almost flat, and sometimes distinctly convex. This species is properly attached to the first division, from the other species of which it differs only by the elytra being less broadly margined; the joints of the antennæ following the fourth are equal; and the fourth is hardly perceptibly longer than the fifth.

10. *C. nitidulus*, piceo-æneus, tenuiter cinereo-pubesens, thorace convexiusculo, latitudine sublongiore, antrorsum subangustato, lateribus parum rotundatis, angulis posticis acutis productis, rufescentibus, minus dense subtiliter punctato, postice canaliculato, elytris striis impunctatis, interstitiis planis disperse punctulatis, antennis piceis basi pedibusque rufis. Long. ·35—·4.

Abundant at Lake Superior. Smaller and more slender than the next species; hardly dilated on the sides: it is easily distinguished by its convex, less rounded, and less densely punctured thorax.

11. *C. aratus*, crassiusculus, æneo-niger, tenuiter cinereo-pubesens, thorace latitudine sublongiore, paulo convexo, lateribus antice rotundatis, angulis posticis acutis productis rufescentibus, postice profunde canaliculato, confertim, lateribus densius punctato, elytris striis tenuibus, punctatis, interstitiis præcipue planis, disperse punctulatis, pedibus rufis, antennis piceis. Long. ·43—·53.

Abundant at Lake Superior: smaller and more slender than the next species, hardly dilated on the sides: it is easily distinguished by its convex, less rounded and less densely punctured thorax.

11. *C. caratus*, crassiusculus, æneo-niger, tenuiter cinereo-pubescent, thorace latitudine sublongiore, paulo convexo, lateribus antice rotundatis, angulis posticis acutis, productis, rufescentibus, postice profunde canaliculato, confertim; lateribus densius punctato, elytris striis tenuibus, punctatis, interstitiis præcipue planis, disperse punctulatis, pedibus rufis, antennis piceis. Long. .43—53.

Abundant at Lake Superior: closely resembles in form and characters *C. splendens*, but is distinctly pubescent, and a little more slender in its general form: the fourth joint of the antennæ is not longer than the fifth.

A.—2.—a.

12. *C. splendens*, crassiusculus cupreo-æneus, vel brunneo-æneus, supra vix tenuissime pubescens, thorace paulo convexo, latitudine longiore, lateribus antice rotundatis, angulis posticis productis, rufescentibus, confertim lateribus confertissime punctato, elytris striis punctulatis, antennis nigris, pedibus prosternique lobo rufis. Long. .4—52.

Diacanthus splendens Ziegler, Proc. Acad. Nat. Sc. 2, 44.

Pennsylvania, Massachusetts, Lake Superior: it is *Elater metallicus* of Harris' catalogue. The epipleuræ are sometimes tinged with rufous. The specimens from Lake Superior usually have the thorax more densely punctured, but otherwise do not differ from those found nearer the Atlantic.

13. *C. æripennis*, crassiusculus, niger, supra glaberrimus, thorace minus convexo, latitudine sublongiore, lateribus late rotundatis, confertim punctato, angulis posticis elongatis, elytris viridi-æneis nitidis, striis punctatis, interstitiis minus dense punctulatis. Long. .5—58.

Aphotistus æripennis Kirby, Fauna Bor. Am. 150, (1837.)

Elater appropinquans Randall, Bost. Jour. Nat. Hist. 2, 5, (1838.)

Diacanthus æripennis Germ. Zeitschr. 4, 82.

Very abundant at Lake Superior: found by Randall in Maine. The elytra vary in colour, being sometimes almost coppery.

14. *C. carbo*, nigerrimus, supra glaber, thorace latitudine longiore, paulo convexo, dense lateribus confertissime punctato, antice angustato et lateribus rotundato, angulis posticis elongatis, elytris striis punctatis, interstitiis fere planis, punctulatis. Long. .56.

One specimen from Oregon. Not so broad in its form as *C. æripennis*, but having, like that species, the fourth joint of the antennæ conspicuously longer than the fifth: it resembles very much the next, but the thorax is entirely black, and the dorsal line is very faint, and visible only near the base.

15. *C. lateralis*, nigerrimus, supra glaber, thorace latitudine longiore, paulo convexo, dense lateribus sanguineis confertissime punctato, antice angustato et lateribus rotundato, angulis posticis productis, dorso acute canaliculato, elytris striis vix punctulatis, interstitiis fere planis punctulatis. Long. .54.

One specimen, Oregon, Col. M'Call. The inflexed portion of the thorax, as well as a broad lateral margin, is sanguineous: the antennæ are as in the two preceding species.

16. *C. coniungens*, niger, parce griseo-pilosus, thorace canaliculato, latitudine longiore, antice angustato, convexiusculo, ante basin paulo latiore, lateribus late rotundatis, sat punctato, lateribus paulo densius, elytris lateribus vix dilatatis, apice vix oblique attenuatis, profunde striatis, striis punctatis, interstitiis subbiseriatim punctatis, antennis rufo-piceis, pedibus ferrugineis. Long. .42.

One specimen, California, Mr. J. Child. This species at first seems similar to *C. æthiops*, but the joints of the antennæ are not broad and compressed, but are formed as in the preceding species: the third joint is considerably longer than the second, and a little longer than the fourth, so that it cannot be associated in the division with *C. rotundicollis* and *C. sulcicollis*, to which it forms a transition by its less dilated elytra.

17. *C. pulcher*, crassiusculus, vix tenuissime pubescens, niger, thorace quadrato, convexo, lateribus antice rotundatis, angulis posticis acutis paulo productis, confertim punctato, sanguineo, vitta dilatata dorsali margine prosternoque nigerrimis, elytris testaceis, sutura, macula elongata humerali, fasciaque pone medium transversa nigris, striis profundis punctulatis, interstitiis parce punctulatis, abdominis lateribus sanguineis. Long. .53.

One specimen from New Hampshire in Dr. Harris' collection. It closely resembles *Ela-ter cruciatus* Linn. of Europe, but differs (according to description) by the black feet and antennæ. This species might perhaps be more naturally placed in the preceding division near *C. hieroglyphicus*: the joints of the antennæ do not diminish in size after the fourth, as in the preceding species of this division: the fourth is, however, decidedly longer than the fifth.

A.—2.—6.

18. *C. crassus*, obesus, piceo-niger, vix tenuissime pubescens, fronte profunde concava, thorace transverso, inflato, lateribus antice rotundatis, apice fortius transversim impresso, minus dense punctato, elytris striis punctatis, interstitiis planis parcius punctatis, pedibus piceis. Long. .55.

Kentucky, Dr. Harris; Pennsylvania, Dr. Melsheimer. The deep impression along the apical margin of the thorax is dilated at the angle, each side, and is a remarkable character. It is much more robust and inflated in its form than any other of our species.

A.—2.—7.

19. *C. rotundicollis*, angustatus, niger, glaber, thorace quadrato, latitudine paulo brevior, lateribus rotundato, angulis posticis parvis acutis divaricatis, convexo, parce subtilius punctato, (sæpe sanguineo,) elytris lateribus vix dilatatis, apice rotundatim attenuatis, striis profundis impunctatis, interstitiis vix punctulatis, pedibus nigris, tarsis fere testaceis. Long. .41.

Ela-ter rotundicollis Say, Ann. Lyc. 1, 259, (var. thor. sanguineo.)

Vermont, Prof. Adams. The black variety is from Pennsylvania, and was given me by Rev. D. Ziegler. The remarkably rounded, quadrate thorax, with small, sharp, diverging angles, will distinguish this from any other native species. It differs from all the preceding by the more parallel elytra, which behind the middle are not obliquely narrowed, but regularly rounded. The fourth joint of the antennæ, although longer than the following, is not so much so as in the species just described: the antennæ are hardly serrate, so that the fourth and following joints are very little wider than the third.

Diacanthus sticticus and *russicollis*, Germ. (Zeitschr., 4, 74,) seem to be closely related to this species, but must be different: the former has the thorax slightly rounded on the sides; the latter has the thorax and feet rufous, and the thorax strongly rounded on the sides.

Elater rubricollis Say, (Journ. Acad. 3, 177,) quoted by Germar, under his *D. russicollis*, is in reality Herbst's species of the same name, and will be found under *Elater rubricollis* of the present essay.

20. *C. sulcicollis*, elongatus, parallelus, nigro-piceus, glaber, thorace antice sublatiore latitudine fere sesqui longiore, lateribus rectis, apice breviter rotundatis, minus convexo, confertim punctato, profunde canaliculato, angulis posticis acutis, elytris apice rotundatim attenuatis, striis punctatis, interstitiis modice convexis, punctulatis, epipleuris pedibusque picco-rufis. Long. .55—.6.

Elater parallelus || Say, Ann. Lyc. 1, 256.

Elater sulcicollis Say, Trans. Am. Phil. Soc. 6, 168.

Middle and Southern States, rare. The joints of the antennæ are moderately dilated and diminish gradually in length from the fourth.

A.—3.

21. *C. nubilipennis*, elongatus linearis, vix pallide pubescens, niger, fronte subconcaeva, thorace latitudine longiore, antrorsum vix angustato, lateribus paulo rotundatis, minus dense punctato, postice canaliculato, elytris parallelis, striis punctatis, interstitiis disperse punctulatis, testaceis pone basin et ad medium infuscatis. Long. .34.

One specimen from Oregon, Col. McCall. The posterior angles of the thorax are long and acute; the third joint of the antennæ is equal in length to the fourth, but is not at all dilated. The last joint is wanting, so that we cannot be certain that it belongs to this division; its general appearance, however, prevents it from being placed in any other. The front is slightly concave, not showing the quadrate outline which may be perceived in the others of this group.

22. *C. ærarius*, elongatus, supra glaber, splendide viridiaureus, thorace latitudine longiore, antrorsum subangustato, lateribus late rotundatis, sat dense lateribus confertim punctato, cupreo-marginato, postice subcanaliculato, elytris striis punctatis, interstitiis parce subtiliter punctulatis, antennis nigris, articulo 3^o non dilatato. Long. .45—.56.

Elater ærarius Randall, Bost. Journ. Nat. Hist. 2, 7.

Elater (diacanthus) Racinei Chevrolat, Rev. et Mag. de Zoologie, 1852.

Lake Superior, Maine, Newfoundland. This must be very similar to *C. resplendens*, (Germ. Zeitschr. 4, 60,) which, however, must have the third joint of the antennæ dilated. In my catalogue of Lake Superior Coleoptera, I have placed them as synonymous, but, until comparisons are made, they must be considered as distinct. The front in this species is not slightly concave as in the preceding, but flattened, not quite so straight along the anterior part, where the declivity commences, as in the next two species, but showing a tendency to become quadrangular; the antennæ of both sexes are strongly serrate.

Varieties occur of a golden copper, and also of a bluish green colour.

23. *C. furtivus*, elongatus, linearis, æneo-piceus, cinereo-pubesceus, thorace latitudine longiore, antrorsum vix angustato, lateribus rotundatis, punctato, postice profunde canaliculato, elytris striis punctulatis, interstitiis fere planis, sat dense punctulatis, pedibus piceis. Long. .45.

One male specimen, Oregon. This species exactly resembles *C. appressifrons* in appearance; the third joint of the antennæ, however, is not dilated, and the elytra are slightly obliquely attenuated behind the middle; the front is almost flat, and the declivity commences along a straight line, which gives a quadrate appearance to the front, and indicates an osculation with *Limonius*.

24. *C. atropurpureus*, elongatus, linearis, cupreo-piceus, cinereo-pubesceus, thorace latitudine longiore, convexo antice angustato, lateribus postice subrectis, antice rotundatis, sat dense punctato, canaliculato, elytris striis vix punctulatis, interstitiis planiusculis parce punctulatis, epipleuris pedibusque rufis, antennis piceis. Long. .44.

Melsheimer, Proc. Acad. Nat. Sc. 2, 215.

I have only seen the typical female specimen in Dr. Melsheimer's collection; it was found in Pennsylvania. The antennæ are hardly as long as the thorax, and the third joint is not at all dilated. The front is as in the preceding species.

A.—4.

25. *C. appressifrons*, piceus, obsolete ænescens, cinereo-pubesceus, cylindricus, postice obtusus, thorace latitudine longiore, antice non angustato, lateribus fere rectis, angulis posticis acutis divaricatis, sat punctato, postice canaliculato, elytris striis acutis, punctulatis, interstitiis fere planis punctatis, epipleuris pedibusque rufo-piceis.

Mas, thorace latitudine fere sesqui longiore, modice convexo: antennis thorace longioribus. Long. .45—.5.

Elater appressifrons Say, Ann. Lyc. 1, 267; Harris, Insects Injurious to Vegetation, 1st, 49; 2d, 48.

Corymbetes cylindriformis † Germ. Zeitschr. 4, 64.

Femina, thorace latitudine paulo longiore, magis convexo: angulis posticis minus productis; antennis thorace brevioribus. Long. .6—.72.

Elater brevicornis Say, Ann. Lyc. 1, 265.

Corymbetes parallelopipedus Germ. Zeitschr. 4, 66.

Middle States, abundant. We are indebted to Dr. Harris for the discovery of the interesting difference in form, in the sexes of this species.

For the reasons upon which I refuse to adopt Germar's opinion, that this is the *Elater cylindriformis* *Herbst*, see the remarks under *Limonius cylindriformis*.

A.—5.

26. *C. obscurus*, ater, subtiliter nigro-pubesceus, subparallelus, fronte concava thorace latitudine non longiore, antrorsum vix angustato, lateribus late rotundatis angulis posticis breviusculis, parum convexo, confertim punctato, linea dorsali vix conspicua lævi, elytris pone medium subattenuatis, striis tenuibus, interstitiis fere planis confertim punctulatis. Long. .46.

One specimen, California, Mr. Pease. Body moderately elongated, not dilated on the sides, black, not very shining, finely pubescent with grayish black hair; head broadly concave, punctured; thorax not longer than wide, slightly convex, densely punctured,

especially at the sides, with a hardly perceptible smooth not impressed dorsal line; sides broadly rounded, posterior angles short, truncate, slightly divergent. Elytra not wider than the thorax, very slightly obliquely attenuated behind the middle; striæ fine, well impressed; interstices tolerably densely, finely punctured. Legs and antennæ entirely black; the latter as in the male of *C. appressifrons*, with the joints triangular, not produced at the angle; the third joint a little smaller than the fourth; the eleventh elongated, deeply constricted.

27. *C. cribrosus*, ater, breviter nigro-pubescent, subparallelus, fronte concava, thorace latitudine longiore, lateribus late rotundato, antrorsum vix angustato, canaliculato, grossius, lateribus dense punctato, angulis posticis acutis subdivergentibus, elytris striis punctulatis, interstitiis punctatis et rugosis, fere scabris. Long. .54.

California, San Francisco. The antennæ are much more strongly serrate than in any of the preceding species; the joints are decidedly broader than long, and somewhat produced externally; the third joint is smaller than the fourth, and the eleventh is constricted. The elytra are very slightly obliquely attenuated behind the middle.

28. *C. signaticollis*, niger, nitidus, supra glaber, subparallelus, fronte concava, thorace latitudine longiore, parce grossius punctato, antrorsum vix angustato, lateribus late rotundatis, læte rufo, vitta dorsali lata, angulisque posticis divergentibus nigris: elytris striis punctatis profundis, interstitiis vix punctulatis, pedibus piceis. Long. .33.

Diacanthus? signaticollis Melsheimer, Proc. Acad. Nat. Sc. 2, 216.

Middle and Southern States, not common. The antennæ of this species are very strongly serrate, the joints not transverse, with the outer angle produced; the third is somewhat smaller than the fourth; the eleventh constricted. The prosternum is entirely black, the inflexed portion of the prothorax is red, becoming black towards the sternum.

29. *C. trivittatus*, ferrugineus, cinereo-pubescent, subparallelus, capite nigro, concavo, thorace latitudine sublongiore, antrorsum modice angustato, lateribus rotundatis, angulis posticis acutis divergentibus, maculaque magna dorsali nigris, sat dense punctato, leviter canaliculato, elytris flavo-testaceis, sutura vittaque discoidali, sæpe ante medium interrupta nigris, striis irregulariter, interstitiis vage punctatis, tarsis piceis, antennis nigris articulo 3^o sequenti multo minore, vix triangulari. Long. .46—.68.

Abundant in the upper portions of the Southern States; sent me by Zimmermann, as *Pristilophus 3-vittatus* Germ. MSS. This species is of difficult location, but from its concave front, narrow form, and strongly serrate antennæ, it seems most naturally placed in the present division, forming the transition from those having the third joint of the antennæ dilated, to the two following, in which it is almost cylindrical. The pubescence of the under surface is silvery, and the sutures of the pectus are blackish; the last joint of the antennæ is strongly constricted.

30. *C. æthiops*, niger, tenuissime cinereo-pubescent, subparallelus, postice magis angustatus, fronte concava, thorace latitudine longiore antrorsum subangustato, lateribus late rotundato, canaliculato, punctato, densius ad latera, elytris striis punctatis, interstitiis vage punctatis, antennis articulo 3^o sequenti non brevior, vix dilatato. Long. .53—.83.

Elater æthiops Herbst, Käfer, 10, 70; tab. 164, fig. 4.

Pristilophus æthiops Germ. Zeitschr. 4, 86.

Middle States, not rare. The tarsi are somewhat more densely pubescent than usual, but by no means brush-like beneath, as in the large species with prominent mesosternum, placed by Germar in the same genus with this species, but which I have removed under the name *Melanactes*.

31. *C. maurus*, ater, minus nitidus, tenuissime fusco-pubescent, subparallelus, fronte concava, thorace latitudine longiore, lateribus postice parallelis antice rotundatis, angulis posticis acutis divergentibus, leviter canaliculato, dense, lateribus confluentur punctato, elytris striis punctatis, interstitiis fere planis sat dense punctatis et rugosis, antennarum articulo 3^o subdilatato, 4^o non brevior. Long. .63.

Oregon, Col. McCall. Sufficiently distinct from any other species herein described, and apparently more nearly related to *C. æthiops*; the third joint of the antennæ is triangular, as long, but only half as wide as the following, which are acutely triangular, but not produced at the angle; the eleventh joint is not longer than the tenth, not acuminate, but still distinctly constricted.

A.—6*.—a.

32. *C. vernalis*, ater, tenuiter fusco-pubescent, thorace latitudine longiore, antrorsum angustato, lateribus rotundatis, subtiliter punctato, angulis posticis divergentibus, elytris læte flavis, macula scutellari, alterisque utrinque duabus subrotundatis nigris, striis punctatis, interstitiis subtilissime punctulatis, fere planis, antennæ maxime serratis, articulo 3^o sequenti non minore. Long. .28.

Germar, Zeitschr. 4, 56.

Elater vernalis Hentz, J. Ac. Nat. Sc. 5, 374; tab. 13, fig. 2: Say, Tr. Am. Phil. Soc. 6, 172.

Middle, Southern, and Western States, rare. The third joint of the antennæ is not smaller than the fourth, but its outer angle is not produced.

33. *C. Kendallii*, nigro-cupreus, tenuiter cinereo-pubescent, thorace latitudine vix longiore, antrorsum angustato, lateribus rotundato, angulis posticis acutis divergentibus, convexo, profunde et late canaliculato, punctato densius ad latera, elytris luteo-testaceis, striis punctulatis, interstitiis fere planis, subtilius punctatis, plaga elongata versus apicem suturaque purpurascens, antennis articulo 3^o sequenti non minore. Long. .6.

Germar, Zeitschr. 4, 57.

Ctenicerus Kendallii Kirby, Fauna Bor. Amer. 149; tab. 2, fig. 7, (1837.)

Elator anchorago Randall, Bost. Journ. Nat. Hist. 2, 5, (1838.)

One specimen, found on the north shore of Lake Superior. Mr. Randall found it in Maine: Kirby's specimen was found in lat. 65°. The thorax is so deeply and broadly channelled that the disc appears longitudinally elevated each side: the antennæ of the male are pectinate.

34. *C. cuprascens*, æneo-cupreus, æqualiter cinereo-pubescent, thorace latitudine sublongiore, antrorsum angustato, lateribus rotundato, angulis posticis elongatis, divergentibus, canaliculato, punctato, densius ad latera, elytris striis punctulatis, interstitiis planis confertim subtilius punctulatis, pedibus rufis, antennis piceis, basi rufescentibus, articulo 3^o sequenti paulo minore, 11^{mo} non constricto. Long. .63.

One specimen, Saratoga, Mr. James Thomson. Very similar to the next, but is more robust than the female of that species: the principal differences are that the antennæ have

not the last joint constricted, and that the pubescence of the upper surface is uniformly distributed.

35. *C. micans*, æneo-cupreus, cinereo-pubescent, thorace latitudine longiore, antrorsum subangustato, lateribus antice rotundatis, angulis posticis elongatis divergentibus, subcanaliculato, punctato densius ad latera, elytris striis punctulatis, interstitiis planis confertim subtilius punctulatis, spatiis transversis denudatis subfasciatis, antennis piccis vel nigris, articulo 3^o sequente vix minore, 11^{mo} constricto. Long. .5—·6.

Germar, Zeitschr. 4, 62.

New York and New England. In the female the antennæ are shorter than the thorax, and the elytra behind the middle are more suddenly narrowed to the apex.

A.—6*.—6.

36. *C. tarsalis*, elongatus, æneo-niger, vix nitidus, tenuiter fusco-pubescent, thorace latitudine fere sesqui longiore, antrorsum subangustato, lateribus vix late rotundatis, angulis posticis productis, vix obsolete carinatis, minus convexo, confertim lateribus confertissime punctato, elytris luteis, sutura nigricante, striis punctatis, interstitiis subconvexis, dense punctulatis, pedibus testaceis, antennis nigris articulo 3^o sequenti fere æquali, 11^{mo} constricto. Long. .43.

Athous tarsalis Melsheimer Proc. Acad. Nat. Sc. 2, 157.

Massachusetts to Maryland, not common. It is the *Elater suturalis*, Harris' Cat., according to a specimen communicated to me by Dr. Harris. Dr. Melsheimer describes his specimen as having black tarsi, but on examination I find that they are only fuscous: in most specimens they are no darker than the tibiæ. In his specimen, as in Dr. Harris', there is an oblong fovea at the apex of the clypeus, which, however, is wanting in my specimens. There can be no doubt about the generic position of this species; it only differs from the neighbouring species in having the carina of the posterior thoracic angles less distinct.

A variety in Dr. Harris' collection, from New Hampshire, is a little more lustrous, and has the interstices of the elytra less densely punctulate.

37. *C. telum*, valde elongatus, linearis, fusco-niger, subæneus, tenuiter cinereo-pubescent, thorace latitudine sesqui longiore, antrorsum vix angustato, lateribus rectis, angulis posticis valde divergentibus non carinatis, confertim lateribus confertissime punctato, elytris tenuiter striatis, interstitiis confertissime rugosis, pedibus fusco-piccis, antennis elongatis, nigerrimis. Long. .4.

One specimen, Oregon. Although having the same structure of antennæ, and the same sculpture of thorax, as the preceding, this species, by its form, approaches very closely to the species of a subsequent division, containing *C. pyrrhos*: the triangular joints of the antennæ, and the slightly convex front, require it to be placed in this division.

A.—6**.

38. *C. semiluteus*, ater, tenuiter fusco-pubescent, thorace latitudine longiore, lateribus postice parallelis, ante medium rotundatis, confertim subtilius punctato, linea dorsali tenui lævi parum convexo, angulis posticis non divergentibus, elytris minus convexis fortius marginatis luteo-testaceis, antice parallelis pone medium oblique attenuatis, striis subtiliter punctatis, interstitiis confertissime punctulatis, antennarum articulo 3^o sequenti æquali. Long. .48.

One specimen, California, collected by Mr. Child. This species with the following establishes a passage to *C. rubidipennis* and others above described: the sides of the elytra are however less dilated, so as not to alter the regular outline of the anterior portion; the antennæ are also more compressed, and the third joint is fully as large as the following ones: the last joint is wanting, but is probably not constricted.

39. *C. fallax*, ater, cinereo-sericeus, thorace latitudine sublongiore, antrorsum angustato, lateribus rotundatis, angulis posticis brevibus divaricatis apice obtusiusculis, confertim punctato, postice subcanaliculato, elytris piceo-testaceis tenuiter striatis, interstitiis confertissime subtiliter punctulatis fasciis duabus subdenudatis notatis, fortius marginatis, pone medium oblique attenuatis, pedibus testaceis femoribus obscurioribus, antennis nigris, articulo 3^o sequente non brevior, parum dilatato. Long. 42.

Elater fallax Say, Trans. Am. Phil. Soc. 6; 170.

One specimen, Lake Superior, Dr. Harris has found it in New Hampshire. This species completes the connexion with the species in the first group of the genus: in addition to the obliquely attenuated and broadly margined elytra, the third joint of the antennæ is only half as wide as the fourth: the last joint is not constricted. The bands on the elytra are produced by the hairs being placed in a different direction, so as not to reflect the light when the other portions show a sericeous lustre.

40. *C. divaricatus*, fusco-piceus, breviter griseo-pubescent, fronte paulo concava, thorace parum convexo, latitudine sublongiore antrorsum paulo angustato, lateribus omnino rectis apice subito inflexis, angulis posticis elongatis divaricatis, confertim sat grosse punctato, canaliculato, elytris pone medium oblique attenuatis, plus minusve fusco-testaceis, striis punctatis vix impressis, interstitiis subtiliter punctatis, antennis articulo 3^o 4^o æquali, 11^{mo} vix constricto. Long. 37—45.

Georgia and Carolina, abundant. This species will be easily distinguished by the long divergent posterior angles of the thorax, and the straight sides which are inflexed suddenly at the apex, so that the anterior angles become rounded: the apex is transversely impressed and excavated each side as in a few other species. The elytra are usually brownish, but are sometimes as dark as the thorax.

40. *C. appressus*, latiusculus, niger, supra glaber, thorace latitudine brevior, antrorsum angustato, lateribus late rotundatis, angulis posticis productis subdivergentibus, obsolete carinatis, apice lateribusque postice latioribus late rufis, confertim subtiliter punctato, elytris postice suboblique attenuatis, fortius marginatis, læte flavis, sutura antice latiore, macula oblonga humerali, lineaque pone medium nigerrimis, striis vix punctatis, interstitiis planis punctulatis, tibiis basi testaceis, antennis nigris, articulo 3^o 4^o æquali, 11^{mo} vix constricto. Long. 4.

Elater appressus Randall, Bost. Journ. Nat. Hist. 2, 11.

Corymbites mirificus Le Conte, Agass. Lake Sup. 228.

One specimen, Lake Superior; Randall found it in Maine. By its shorter thorax and broader form, this species is remarkably different from all the other species here described, in which the third joint of the antennæ is dilated; but by the more distinctly margined elytra it shows an affinity to the two preceding species. The under surface is black, with the exception of the inflexed margin of the prothorax, which is red, with a large discoidal black spot; the black line of the elytra is connected with some indistinct black marks about the middle, which in some specimens may form a transverse fascia.

A.—7.

42. *C. spinosus*, modice elongatus, piceo-niger, tenuiter cinereo-pubescent, thorace latitudine longiore, parum convexo, antrorsum subangustato, lateribus late rotundatis, confertim subtiliter punctato, angulis posticis elongatis, subtectaceis, elytris piceo-testaceis, pone medium suboblique angustatis, dense punctatis, obsolete striatis, pedibus piceis, antennis nigris, articulis elongatis, 3^o sequenti non angustiore. Long. 48—62.

Lake Superior, not rare. This species is an osculant between this division from which it borrows the slender subquadrate antennal joints, and the first division, to which it approaches by the somewhat obliquely attenuated elytra; the elytra are, however, not strongly margined, and possibly a nearer approach is made to *C. tarsalis*, of the preceding division. The posterior angles of the thorax are finely and strongly carinate, and the carina is parallel to the lateral margin. The sides of the thorax are more rounded in the female than in the male, and the thorax is less narrowed in front; the antennæ of the female are hardly longer than the thorax, those of the male are nearly half as long as the body.

43. *C. pyrrhos*, valde elongatus, linearis, fusco-testaceus, vel fuscus pubescens, fronte subconca, thorace latitudine plus sesqui longiore, subconvexo, confertim punctato, linea tenui dorsali lævi, angulis posticis elongatis, divaricatis, elytris striis punctatis, interstitiis vage punctatis, vix convexis, abdomine, pedibus, antennisque flavo-testaceis, his articulo 3^o sequenti æquali. Long. 67—84.

Mas, thorace lateribus fere rectis, elytris postice haud oblique attenuatis; antennis valde elongatis.

Elytra pyrrhos Herbst, Käfer, 10, 30; tab. 160, fig. 11: Say, Trans. Am. Phil. Soc. 6, 186.

Femina, thorace lateribus obtuse subangulatis, elytris paulo dilatatis et oblique attenuatis.

Athous pyrrhicus Hald. Proc. Acad. Nat. Sc. 1, 303.

Athous vagrans Melsheimer, Proc. Acad. Nat. Sc. 2, 153.

Athous æqualis Melsheimer, Proc. Acad. Nat. Sc. 2, 153.

Middle, Southern, and Western States, not rare. Although placed in *Athous* by many authors, this species does not differ in any respect from *Corymbites*; the first joint of the tarsi is not as long as the two following, nor is the front margined anteriorly.

44. *C. bivittatus*, valde elongatus, linearis, nigro-piceus, fusco-pubescent, fronte concava, thorace latitudine plus sesqui longiore, antrorsum paulo angustato, lateribus rectis, angulis posticis elongatis testaceis, scabro-punctato, margine apicali, lineaque dorsali sæpe obsoleta testaceis, elytris testaceis, sutura, vitta dorsali margineque plus minus nigro-piceis, striis punctatis, interstitiis planis scabris, antennis piceis vel fuscis articulo 3^o sequente paulo brevior. Long. 32—42.

Campylus? bivittatus Melsheimer, Proc. Acad. Nat. Sc. 2, 219.

Middle, Southern, and Western States. A variety found in New Jersey by Mr. Guex, has the elytra luteous with the exception of a narrow black sutural and marginal line; another from Illinois has the thorax testaceous, with two broad dorsal vittæ, and a narrow marginal line blackish. The feet are sometimes piceous, sometimes testaceous. The antennæ are half as long as the body in my specimens, all of which appear to be males.

45. *C. iaculus*, valde elongatus, linearis, fusco-piceus, fusco-pubescent, fronte valde concava, antice submarginata, thorace latitudine plus sesqui longiore, lateribus rectis parallelis, apice paulo rotundatis, confertim punctato, angulis posticis divergentibus, productis, elytris striis punctatis, interstitiis subconvexis, rugose punctulatis, pedibus piceo-testaceis, antennis articulo 3^o sequente vix minore. Long. 45.

Two specimens, San Diego, California. Although differing slightly in the form of the front, and in the smaller size of the fourth tarsal joint, this species is so exact a miniature of *C. pyrros*, that it cannot be separated as a distinct genus.

Body dark fuscous, covered with fine short brownish gray hair; head densely punctured, deeply concave, with the lateral margins indistinctly uniting at tip; eyes prominent. Antennæ half as long as the body, second joint small; the following ones compressed, elongate, very slightly triangular, the third not quite as long as the fourth, the eleventh hardly acuminate. Thorax more than one-half longer than wide, sides straight, except at the apex, where they are very slightly rounded; posterior angles elongate, acute, slightly diverging, carina sharp, near the lateral margin; disc densely and coarsely punctured; elytra parallel, rounded posteriorly, striæ fine, subpunctulate, interstices very slightly convex, rugosely punctulate, especially near the striæ; beneath somewhat paler, legs almost testaceous, tarsi with the first joint decidedly longer than the second, and with the fourth joint one-half as long as the third.

B.

46. *C. insidiosus*, æneo-niger, longiusculus, cinereo-pubescens, thorace minus convexo, angulis anticis foveatis, quadrato, lateribus parallelis antice rotundatis, angulis posticis angustis, acutis carinatis divergentibus, minus dense punctulato, subcanaliculato, elytris densius punctatis, testaceis, obsolete striatis, antennis vix serratis piceis, articulis 2 et 3 æqualibus sequente coniunctis longioribus, ano pedibusque fusco-testaceis. Long. 45.

Lake Superior, rare. A very easily distinguished species, of a somewhat elongate form, with the elytra slightly obliquely attenuated behind the middle. The first joint of the tarsi is hardly longer than the second.

47. *C. falsificus*, æneo-niger, elongatus cinereo-pubescens, thorace latitudine longiore, convexiusculo, lateribus rectis parallelis apice rotundatis, angulis posticis parvis divaricatis non carinatis, subtestaceis, disco subtiliter punctato, subcanaliculato, elytris testaceis, tenuiter striatis, interstitiis dense punctatis, sutura infuscata, pedibus testaceis, antennis piceis, vix serratis, basi testaceis, articulis 2 et 3 æqualibus coniunctis 4^{to} longioribus. Long. 3—35.

In form closely resembles the preceding, but the smaller size and non-carinated angles of the thorax distinguish it: the thorax at the apex is indistinctly margined, and somewhat impressed near the angles: the first joint of the tarsi is conspicuously longer than the others.

In case the small spongy tuft at the tip of the tarsal joints should not be considered of sufficient importance to warrant the grouping of the species here adopted, the natural position of this and the preceding species would be in Div. (2,) in the same group with *C. inflatus*, forming the transition between that in *C. rotundicollis*.

48. *C. mendax*, piceo-æneus, elongatus, cinereo-pubescens, thorace latitudine longiore, convexo, ad apicem utrinque transversim impresso, lateribus ante medium rotundatis, angulis posticis carinatis divergentibus, confertim punctato, subcanaliculato, elytris striis punctatis, interstitiis planis rugose punctulatis, antennis nigris, vix serratis, articulo 3^{io} 2^{ndo} paulo longiore, coniunctis 4^{to} longioribus, pedibus piceis. Long. 41.

One specimen, Lake Superior: has the appearance of *Limonius*, but the front is not

margined anteriorly, and not quadrate: its real affinities are with the two preceding species, from which it differs by its more convex and coarsely punctured thorax. The elytra are somewhat obliquely narrowed posteriorly, and more strongly margined than in the two preceding. The first joint of the tarsi is not longer than the second.

49. *C. angularis*, nigro-piceus, valde elongatus, tenuiter pubescens, thorace latitudine fere sesqui longiore, antice non angustato, parum convexo, lateribus fere rectis, apice submarginato, angulis anticis rufescentibus latius marginatis, angulis posticis acutis divaricatis, setaceis, carina margini valde approximata, confertim punctato, elytris striis punctulatis, interstitiis rugose-punctulatis, pedibus piceis, antennis nigris, basi piceis, subserratis, articulo 3^{io} 4^{to} non brevior, subcylindrico. Long. .35.

One specimen, Oregon. Although evidently allied to the others in this division, the third joint of the antennæ is considerably narrower than the following ones: the curious reflexed margin of the anterior thoracic angles will easily distinguish this species: the sides of the thorax are almost straight, slightly rounded at the apex, and before the basal angles: the first joint of the tarsi is slightly longer than the second.

ASAPHES Kirby.

Although but one species of this genus is described by Kirby and another by Germar, I find that several of our Elaters possess characters which require them to be associated with his type. They seem to form a natural group approaching most nearly to Corymbites, and indeed differing from that genus only in the structure of the tarsi. The second and third joints of the tarsi are dilated beneath into a short spongy lobe: the first joint is as long as the second and third together, and usually spongy at the tip: the fourth joint is small and narrow, received upon the third, and is sometimes also spongy beneath: the fifth joint is elongate with simple claws.

Our species may be grouped according to the presence or absence of the basal fissures and carinæ of the thorax. The third joint of the antennæ is more or less dilated and usually but little smaller than the fourth. The first group osculates with Corymbites: the second with Athous and Pedetes.

A. *Thorax fissuris basalibus distinctis; angulis posticis carinatis.*

1. *A. hemipodus*, crassus, nigro-piceus, subænescens, tenuiter griseo-pubescens, thorace subtransverso valde convexo, transversim subcorrugato, modice punctato, densius ad latera, lateribus rotundatis, angulis posticis parvis divergentibus, elytris ad medium latioribus, dein oblique angustatis, striis punctulatis, interstitiis vage punctatis, pedibus obscure rufis. Long. .61.

Elater hemipodus Say, Ann. Lyc. 1, 254: Trans. Am. Phil. Soc. 6, 176.

One specimen, Maryland, Prof. Adams: a curious robust species which exhibits a wonderful resemblance to *Corymbites crassus* above described. The transverse wrinkles of the thorax are not mentioned by Say, and are possibly not constant. The elytra have four broad faint impressions, producing a slight elevation about the middle, nearer to the side than to the suture: the third joint of the antennæ appears to be about the same size as the fourth, and hardly narrower.

2. *A. memnonius*, atro-fuscus, fusco-pubescent, thorace non transverso, antice vix angustato dense punctato, linea lævi dorsali vix distincta postice impressa, angulis posticis parvis non divergentibus, elytris confertim punctatis, striis distincto punctatis, antennis pedibusque piceo-rufis. Long. ·63—·82.

Elater memnonius (err. typ.) Herbst, Käfer, 10, 29, tab. 160, fig. 10: Say, Trans. Am. Phil. Soc. 6, 176.

Pedetes (Asaphes) ruficornis Kirby, Fauna Bor. Am. 146.

Maine, Ohio, Pennsylvania, Alabama. The thorax of the female is more convex than the male, and more rounded on the sides. The interstices of the elytra are usually slightly convex, but one individual from Mr. Guex has them entirely flat. The carinæ of the posterior angles of the thorax are parallel with the margin and very strongly marked.

3. *A. baridius*, nigro-fuscus, fusco-pubescent, thorace subtransverso, antice angustato, lateribus ante medium valde rotundatis, dense punctato, linea dorsali postice subimpressa, angulis posticis non divaricatis, elytris striis punctatis, interstitiis subconvexis confertim punctatis, antennis pedibusque rufo-piceis. Long. ·90.

Elater baridius Say, Trans. Am. Phil. Soc. 6, 176.

Hemicrepidius Thomasi Germ. Zeitschr. 1, 213.

Maine to Georgia. I was at first inclined to believe this merely a variety of the preceding, but as the difference in the form of the thorax cannot be altogether sexual, they must be considered as distinct: the carinæ of the posterior angles of the thorax, as in the preceding, are very strong and parallel with the margin.

4. *A. morio*, niger, nitidus, parce pubescens, thorace latitudine non longiore parce punctato, postice canaliculato, angulis posticis non divergentibus, carina divergente, elytris striis profundis punctatis, interstitiis subconvexis, minus dense punctulatis. Long. ·70.

One female, Oregon, Col. McCall: the sides of the thorax are broadly rounded before the middle. This species has the robust form of *A. memnonius*, but the thorax is quite finely and thinly punctured at the middle, and more coarsely and densely at the sides: the carinæ of the posterior angles of the thorax are not parallel with the sides. The striæ of the elytra are more strongly punctured before the middle, and the outer striæ are deeper than those towards the suture: the interstices are moderately convex, finely not densely punctulate; from each puncture proceeds a short blackish hair, forming an indistinct pubescence.

5. *A. æreus*, elongatus, nigro-piceus, ænescens, cinereo-pubescent, fronte paulo concava, thorace subtilius punctato, densius et subtilius versus latera, latitudine longiore, angulis posticis subdivaricatis, elytris striis punctatis, interstitiis subconvexis, punctatis, pedibus rufis vel piceis, antennis nigropiceis, articulo 3^o modice dilatato. Long. ·43—·45.

Athous æreus Melsheimer, Proc. Acad. Nat. Sc. 2, 156. (♀)

Athous æneolus Melsheimer, Proc. Acad. Nat. Sc. 2, 156. (♂)

Middle and Southern States. The male resembles very much in appearance *Corymbites appressifrons*: the sides of the thorax are very slightly rounded, and the third joint of the antennæ, though narrower, is as long as the fourth. The female has the thorax narrowed and rounded before the middle, and the third joint of the antennæ about two-thirds

the length of the fourth. The front is slightly concave as in all the preceding species, a character which with the finer and denser punctuation of the thorax and prosternum, will readily distinguish this from the next species. The legs seem subject to variation in colour: sometimes they are bright testaceous yellow, and sometimes very dark piceous. A typical specimen of *Athous æneolus* furnished me by Dr. Melsheimer is a male of the variety with dark legs.

6. *A. decoloratus*, piceo-niger, elongatus, cinereo-pubescens, fronte plana, non concava, thorace convexiusculo, latitudine longiore, subtiliter punctato, angulis posticis subdivergentibus, elytris (sæpe testaceis) striis profundis vix punctatis, interstitiis subconvexis, parce subtiliter punctulatis, antennis (basi sæpe rufis) articulo 3^{io} vix dilatato, 4^{to} paulo brevior, pedibus vel testaceis vel nigris. Long. .35—.5.

Elater decoloratus Say, Trans. Am. Phil. Soc. 6, 180.

Middle, Eastern, and Western States. Distinguished from the preceding by the punctuation of the thorax being more distinct, the thorax itself less convex, and the front not concave, although marked with two faint impressions; the third joint of the antennæ appears less dilated: in the male it is as long as the fourth; in the female somewhat shorter; the sides of the thorax are almost straight in the male, while in the female they are rounded before the middle. Among the specimens in my collection are three well marked types, which, however, are not sufficiently distinct to stand as species:

α. Corpus nigrum, elytris testaceis, pedibus testaceis, vel fusco-testaceis. (*El. dec.* Say.)

ε. Corpus nigrum, pedibus, antennisque basi flavo-testaceis. (*El. xanthopus* † Harris.)

γ. Corpus nigrum, antennis pedibusque nigro-piceis.

Of the first variety, the base of the antennæ is sometimes almost testaceous; of variety (β) I have seen only females, and of (γ) only males.

7. *A. indistinctus*, piceo-niger, elongatus cinereo-pubescens, fronte concava, thorace latitudine longiore, subtiliter, medio fere obsolete punctato, angulis posticis subdivergentibus, elytris striis punctatis, interstitiis fere planis, subtiliter parce punctulatis, pedibus testaceis, antennis articulo 3^{io} non dilatato (feminae 2^{ndo} vix longiore.) Long. .45.

One specimen, Georgia, with the thorax moderately convex, and the sides rounded before the middle. Easily distinguished from any of the varieties of the two preceding species, by the finer and more distant punctures of the thorax, and the more concave front.

B. *Thorax fissuris basalibus nullis, angulis posticis non carinatis.*

8. *A. melanophthalmus*, castaneus, vel rufo-piceus, helvo-pubescens, thorace confertim punctato, latitudine longiore, ante basin paulo latiore, angulis posticis parvis acutis, obsolete canaliculato, elytris striis antice punctatis, interstitiis planis minus dense punctatis, pedibus pallidioribus, antenna ruri articulo ultimo constricto. Long. .6—.7.

Athous melanophthalmus Melsheimer, Proc. Acad. Nat. Sc. 2, 154.

Middle States, rare; as in the other species of this division, the front is slightly concave. This and the following species are so closely related, that it is very difficult to point out sufficient characters to distinguish them; the differences in the shape of the thorax in the sexes of the same species, also complicate the subject, as the precise sexual

relations are not known in all the species. I have endeavoured to point out such distinctive characters as appear to be independent of sex, but am very doubtful about the correctness of the results; although the differences of the posterior thoracic angles, the striæ of the elytra, and the constriction of the last joint of the antennæ are very considerable, yet until the sexual relations are fully understood, no great confidence can be felt in such characters, where the external appearance is so uniform.

This supposed species has the posterior angles of the thorax very small, not at all divergent, and acute; the sides of the thorax are broadly rounded, more so in (the female?) one sex than in the other; the last joint of the antennæ is strongly constricted and acuminate. The colour varies from dark reddish brown to castaneous; the pectus is sometimes darker than the abdomen; the feet are paler.

9. *A. tener*, valde elongatus, rufo-castaneus, helvo-pubescent, thorace elongato, antrorsum subangustato, lateribus rectis, confertim punctato, minus convexo, angulis posticis acutis, paulo productis, non divergentibus, elytris striis antice subtiliter punctatis, interstitiis fere planis, punctatis, antennis articulo ultimo non constricto. Long. .60.

One specimen, New York; possibly the true male of the preceding; the angles of the thorax, though longer are still acute; the sides are straight, except at the very apex, where they are slightly rounded; the dorsal line is visible only at the base; the antennæ are scarcely longer than in the preceding, but their last joint is not constricted. It has the general appearance of *Corymbites pyrrhos*, but the thorax is less elongate, and the posterior angles less produced.

10. *A. consentaneus*, fusco-piceus, helvo-pubescent, thorace latitudine longiore, ante basin non latiore, lateribus ante medium late rotundatis, angulis posticis paulo productis, apice rotundatis, confertim punctato, postice subcanaliculato, elytris striis antice profundius punctatis, interstitiis paulo convexis, punctatis, pedibus antennisque ferrugineis, vel piceis, his articulo ultimo constricto. Long. .65.

One specimen from New York, having reddish feet and antennæ, and another from Michigan with the same parts dark brown. This species seems different on account of the longer and more obtuse thoracic angles, which prevent it from being associated with either of the two preceding; the thoracic angles do not diverge at all, in which respect it differs from the next, but may, nevertheless, be the male of it. The thorax is as densely punctured as in *A. melanophthalmus*.

11. *A. bilobatus*, nigro-piceus, helvo-pubescent, thorace latitudine longiore, convexiusculo, medio parcius, lateribus sat dense punctato, lateribus vix late rotundatis, angulis posticis paulo productis, divergentibus apice rotundatis, elytris striis antice profunde punctatis, interstitiis paulo convexis punctatis, pedibus ferrugineis, antennis fuscis, articulo ultimo constricto. Long. .60.

Elater bilobatus Say, Trans. Am. Phil. Soc. 6, 174.

One specimen, Wisconsin, Dr. Hoy. Say describes the antennæ as of the same colour as the legs, but we see from the preceding species that this is not a constant character. This one differs by its more convex and less densely punctured thorax, and the more divergent and more rounded angles; the sides of the thorax are very slightly rounded, and are a little sinuous near the posterior angles. From all the others, except the preceding, this is known by the more deeply punctured striæ of the elytra.

12. *A. planatus*, piceus, helvo-pubescent, thorace latitudine longiore, lateribus antice late rotundatis, confertim punctato, angulis posticis paulo productis, non divergentibus, apice rotundatis, elytris striis profundis, antice paulo punctatis, interstitiis omnino planis parce punctulatis, subtus rufo-piceus, pedibus pallidioribus, antennis articulo ultimo non constricto. Long. .60.

One specimen, New Jersey, Mr. Guex. This species precisely resembles in form *A. consentaneus*, and only differs by the angles of the thorax being still more rounded, and the striæ of the elytra being less punctured, with entirely flat interstices; the last joint of the antennæ does not appear constricted.

13. *A. cavifrons*, rufo-testaceus, paulo pubescens, thorace latitudine longiore, lateribus parallelis, antice vix rotundatis, confertim punctato, angulis posticis modice productis, acutis, elytris striis punctatis, interstitiis paulo convexis parce subtiliter punctatis, antennis articulo ultimo constricto. Long. .5.

Athous cavifrons Melsheimer, Proc. Acad. Nat. Sc. 2, 154.

Pennsylvania and Georgia. The thorax of the female is a little more convex than that of the male, and the sides converge a little in front. The clypeus is not more concave than in the other species of this division, from all of which it is easily distinguished by its smaller size and less densely pubescent body, as well as by its brighter colour.

CRIGMUS Lec.

Frons parum convexa, antice depressa, non marginata, margine laterali obliqua, ad apicem extensa: fossulæ antennales distantes, bene definitæ: labrum antice rotundatum, mandibulæ apice acutæ, edentatæ: antennæ valde serratæ, articulo 1^{mo} medioeri subconico, 2 et 3 parvis, æqualibus, 4—10 æqualibus triangularibus, 11^{mo} valde constricto, fere diviso: palpi articulo ultimo triangulari, acuto: prosternum antice lobatum, postice mucronatum, mucrone non inflexo, sutura oblique concava, antice non excavata: mesosternum non protuberans: coxæ posticæ intus fere sensim paulo dilatatæ, dente interno magno acuto: tarsi filiformes pubescentes, articulo 1^{mo} sequentibus duobus coniunctis æquali, 2—4 sensim brevioribus, 5^{to} præcedentibus 2 æquali, unguiculis integris.

I have formed this genus upon *Aphanobius hepaticus* Germ., which appears sufficiently distinct from the type of the genus, *A. infuscatus*, on account of the declivous mesosternum, and shorter first joint of the antennæ. The tooth at the internal part of the posterior coxæ is stronger and more acute, while the posterior margin of the plate is not undulated, as in *A. infuscatus*, but regularly and very slightly curved; the pubescence of the tarsi is uniform, without any tendency to form brushes as in *A. infuscatus*. The external resemblance (barring size) is very great, but we have frequent examples in this family of close external resemblance among species of most widely distinct genera. With regard to the weight of the character derived from the mesosternum, that will become evident, I think, to any one who will observe the constancy of the protuberant form, through a large group of species, which carry in their appearance the evidence of the distinctness of their type. Adopting such a principle of division, *Aphanobius infuscatus* will then form the osculant of the group with protuberant mesosternum with the present genus.

1. *C. hepaticus*, obscure castaneus, dense longius helvo-pubescent, thorace latitudine longiore confertim punctato, subcylindrico, lateribus antice paulo rotundatis, elytris fastigiatis, apice muticis, striis punctatis interstitiis confertim punctatis et rugosis, pedibus antennisque rufis. Long. .6—74.

Elater hepaticus Germar, Ins. Nov. 43.

Aphanobius hepaticus Germar, Zeitschr. 5, 184.

Georgia and Texas; South America, according to Germar. The posterior angles of the thorax are long, acute, and carinated; there are no basal fissures.

2. *C. texanus*, obscure castaneus, dense longius helvo-pubescentis, thorace confertim punctato, antrorsum angustato, latitudine non longiore, lateribus rectis antice rotundatis, elytris fastigiatis, muticis, striis punctatis, interstitiis confertim punctatis et rugosis, pedibus rufescentibus. Long. .7.

Two specimens collected by Mr. Schott, of the Mexican Boundary Commission, at Eagle Pass, on the lower Rio Grande. Only differs from the preceding by the thorax being shorter and distinctly narrowed anteriorly.

ATRACOPTERUS *Lec.*

Frons modice convexa, lateribus oblique marginatis, margine ferè ad apicem extendente, fossulis antennarum bene definitis distantibus: labrum submarginatum: mandibulæ versus apicem dentatæ, apice acutæ: antennæ serratæ, articulo 1^{mo} breviusculo, 2 et 3 subcylindricis, illo brevior, 4—10 triangularibus, 11^{mo} apice subacuminato: palpi articulo ultimo parum dilatato apice rotundato: prosternum antice breviter lobatum, mucrone postico vix inflexo, sutura laterali non excavata, oblique concava: mesosternum non protuberans: coxæ posticæ laminis angustis, intus parum dilatatis, dente interno minusculo acuto: tarsi æqualiter pubescentes, filiformes, articulo 1^{mo} vix longiore, 2—4 sensim paulo brevioribus, 5^o præcedentibus 3 æquali unguiculis maiusculis integris.

Differs from *Crigmus* by its convex front, and less elongate first tarsal joint; from *Ludius* by the narrower, less dilated, and less dentate coxal laminæ. The form of body is narrow and fusiform, being narrowed each way from the base of the elytra, which are acute at the tip; the posterior angles of the thorax are acute, and carinated; there are no basal fissures.

1. *A. fusiformis*, nigro-viridis, cinereo-pubescentis, thorace punctato, latitudine longiore, antrorsum angustato, lateribus rectis, angulis posticis elongatis, sæpe testaceis, elytris piceo-testaceis, striatis, interstitiis paulo convexis sat dense punctatis, apice subacutis, pedibus testaceis, antennarum articulo 1^{mo} rufo. Long. .55.

Lake Superior, not rare. It is the *Pristilophus fusiformis* of my catalogue in Agassiz' Lake Superior.

2. *A. viridanus*, ferrugineus, supra piceo-æneus, tenuiter cinereo-pubescentis, thorace latitudine longiore, subcylindrico, lateribus rectis, ad apicem rotundatis, parce punctato, margine omni ferrugineo, pone medium canaliculato, ante medium utrinque fovea profunda impresso, elytris striis punctatis vix impressis, interstitiis planis, parce punctulatis, antennis nigris basi rufis. Long. .35.

Elater viridanus Say, Ann. Lyc. 1, 250.

Elater sublucens Randall, Bost. Journ. Nat. Hist. 2, 37.

Pennsylvania, Dr. Melsheimer. A small species, looking like a *Dolopius*, and very remarkable by the two deep foveæ before the middle of the thorax; the form is less cuncate than that of the preceding species; the thorax is almost parallel on the sides, and the elytra slightly rounded in their outline. The vertex is marked with a longitudinal fovea, as in *Dolopius*, from which, however, it differs essentially by its less convex front, and shorter basal joint of the antenna.

3. *A. incongruus*, tenuiter cinereo-pubescentis, capite thoraceque olivaceis, opacis, confertim punctatis, thorace latitudine longiore, lateribus postice parallelis ante medium late rotundatis, sæpe

rufo-bivittato, elytris testaceis, striis tenuibus vix punctulatis, interstitiis planis, dense scabro-punctatis, abdomine, prosterni lobo, thoracis parte inflexa, antennarum articulo 1^{mo}, pedibusque testaceis Long. 28—37.

Lake Superior: one specimen with the thorax blackish green, and two with a broad discoidal reddish yellow vitta each side. This species is less slender than *A. viridanus*, and the thorax is more broadly rounded anteriorly, so that it appears less cylindrical. The postpectus is black.

A specimen found with those just mentioned has the thorax entirely greenish black, above and beneath, with the sides much more straight, converging slightly and rounded only near the apex; the disc is punctured as in this species, but has two anterior foveæ as in *A. viridanus*; the abdomen, like the pectus, is black, and does not show any reddish tinge. This may be a distinct species, but until the sexual differences are better understood, I think it better to permit it to remain under *A. incongruus*.

LUDIUS Latr.

1. *L. abruptus*, niger, dense punctatus, fusco-subsericeus, tarsiis piccis; elytris postice obsolete striatis, ad apicem non acuminatis. Long. 8.

Elater abruptus Say, Ann. Lye. 1, 253; Trans. Phil. Soc. 6, 166.

Ludius coracinus Germ. Zeitschr. 4, 47.

Middle, Southern, and Western States; rare.

2. *L. attenuatus*, obscure piceo-sanguineus, dense punctatus, fusco-subsericeus, elytris versus apicem, antennis, pedibusque nigris, elytris postice vix obsolete striatis apice acuminatis. Long. 9.

Elater attenuatus Say, Ann. Lye. 1, 257; Trans. Am. Phil. Soc. 6, 166.

Middle, Southern, and Western States; more abundant than the preceding.

DOLOPIUS Esch.

Latreille and Germar have already asserted that the genera *Dolopius*, *Agriotes*, and *Ectinus*, of Eschscholtz, were separated on evanescent characters; and after patiently examining our native species I have adopted their opinion. Differences of organic character, although too slight for generic distinction, are readily found, and enable us to facilitate the determination of the species, which may be grouped as follows:

- A. Mandibulæ perpendiculariter dilatatæ, apice emarginatæ - - - Sp. 1.
- B. Mandibulæ apice compressæ, non dilatatæ:
 - 1. Antennæ articulis 2 et 3, 4^{to} coniunctis æqualibus - - - Sp. 2—3.
 - 2. Antennæ articulis 2 et 3, 4^{to} singulis vix brevioribus.
 - * Laminæ coxarum intus vix latiores, (thoracis margine plus minus obsoleto) - - - - - Sp. 4—9.
 - ** Laminæ coxarum intus subito paulo dilatatæ, (thoracis margine integro) - - - - - Sp. 10—13.

A.

- 1. *D. mancus*, crassiusculus, ater, vel piceus, pubescens, capite thoraceque confertim sat grosse

punctatis, hoc latitudine vix brevior, lateribus parallelis antice rotundatis, angulis posticis subdivergentibus, elytris striis profundis punctatis, interstitiis planiusculis, rugose punctatis, antennis pedibusque rufis. Long. 3—35.

Elater mancus Say, Journ. Acad. Nat. Sc. 3, 171; Trans. Am. Phil. Soc. 6, 168.

? *Elater obesus* Say, Journ. Acad. Nat. Sc. 3, 168; Trans. Am. Phil. Soc. 6, 168.

Elater (Agriotes) obesus † Harris, Ins. Massachusetts, Injurious to Vegetation, 2d ed. p. 49.

Agriotes truncatus Melsheimer, Proc. Acad. Nat. Sc. 2, 217.

Agriotes striatulus Melsheimer, Proc. Acad. Nat. Sc. 2, 217.

Lake Superior and throughout the Atlantic portion of the United States. A specimen was communicated to me by Dr. Harris as *Elater obesus* Say: the remarks under that species in the Transactions of this Society are as follows: "The clypeus is not prominent and the thoracic spines are not carinated; the elytra in one specimen are acuminate at the tip: the nails are very robust on the basal half, which terminates at the middle in a prominent tooth, separated by a deep fissure." Now in the present species, as in all others arranged under this genus, the spines of the thorax are strongly carinated, and the ungues are not toothed. For these reasons I cannot adopt Dr. Harris' view regarding this species, which appears to me to agree more nearly with Say's *El. mancus*. The basal fissure of the thorax is more distinct than in the other species, in all of which it is almost wanting.

B.—1.

2. *D. oblongicollis*, valde elongatus, fusco-niger, pubescens, thorace latitudine plus sesqui longiore, lateribus parallelis, antice paulo rotundatis, confertim punctato, elytris striis punctatis, interstitiis sat dense punctatis, antennis piceis, articulis 2 et 3 coniunctis 4^o ferè brevioribus, pedibus testaceis. Long. 31—35.

Melsheimer, Proc. Acad. Nat. Sc. 2, 218.

Middle States, not rare. The anterior margin of the thorax is sometimes testaceous.

3. *D. isabellinus*, valde elongatus, luteo-testaceus, pubescens, capite antennisque fuscis, thorace latitudine sesqui longiore, lateribus parallelis, antice paulo rotundatis, minus subtiliter punctato, elytris striis punctatis, interstitiis sat dense punctatis, antennis articulis 2 et 3 coniunctis 4^o fere brevioribus. Long. 37.

Melsheimer, Proc. Acad. Nat. Sc. 2, 218.

Pennsylvania. I have seen only the typical specimen in Dr. Melsheimer's collection. It differs from the preceding only by the coarser and less dense punctation of the thorax.

B.—2*.

4. *D. collaris*, niger, pubescens, thorace latitudine longiore, postice subcanaliculato, lateribus parallelis, antice rotundatis, confertim minus subtiliter punctato, lateribus late rufis, angulis posticis elongatis, elytris testaceis, striis subtilius punctatis, interstitiis minus dense punctulatis, antennis pedibusque rufo-testaceis. Long. 49.

Two specimens, Vermont, Prof. C. B. Adams. Size and form of the next species, and, apart from colour, only distinguished from it by the less densely punctulate elytra.

5. *D. fucosus*, ater, opacus, pubescens, thorace latitudine longiore postice subcanaliculato, lateribus parallelis, antice rotundatis, confertim minus subtiliter punctato, lateribus sæpissime late ob-

scure sanguineis, elytris striis subtilius punctatis, interstitiis confertim rugose punctulatis. Long. .43—55.

Lake Superior and Vermont. The antennæ and legs are black, with a faint pitchy lustre: the sanguineous colour of the sides of the thorax is sometimes almost wanting; at other times it is quite bright, and extends upon the inflexed portion, and even to the anterior margin of the prosternum.

6. *D. pubescens*, ater, subnitidus, pubescens, thorace latitudine vix longiore, postice canaliculato, lateribus postice parallelis antice rotundatis, sat dense punctato, elytris striis subtiliter punctatis, interstitiis confertim rugose punctulatis, antennarum basi pedibusque fusco-testaceis. Long. .36.

Agristes pubescens Melsheimer, Proc. Acad. Nat. Sc. 2, 217.

Pennsylvania and Lake Superior. Smaller and more robust than the preceding, and with the punctures of the thorax less dense: differs from *D. avulsus* by its larger size, shorter and more densely punctured thorax, and by its much less lustrous surface. The antennæ in one specimen are fuscous, in the other black, with the basal joints testaceous.

7. *D. avulsus*, niger, nitidus, minus dense helvo-pubescens, thorace latitudine longiore postice canaliculato, lateribus paulo obliquis, antice rotundatis, parcius grossius punctato, angulis posticis subdivergentibus, elytris striis punctatis, interstitiis vage punctulatis et rugosis, antennis pedibusque rufis. Long. .3.

Pennsylvania and Vermont. Differs from the preceding by its more brilliant colour, brownish and less dense pubescence, and by the coarser and more distant punctures of the thorax.

8. *D. sordidus*, fuscus, dense cinereo-pubescens, thorace latitudine non longiore, lateribus parallelis antice rotundatis, postice canaliculato, confertim punctato, angulis posticis non divergentibus, elytris striis punctatis, interstitiis confertim rugose punctulatis, antennis rufis pedibus flavis. Long. .3.

New York, Mr. Guex: a specimen also in Dr. Harris' collection. Resembles somewhat *D. mancus*, but is less robust; the mandibles, although obtuse, are not dilated and emarginate, as in that species: it is sufficiently distinct from all the other species of this division by its densely and more finely punctured thorax, and more dense pubescence.

9. *D. stabilis*, ater, fere opacus, pubescens, thorace latitudine longiore, lateribus subparallelis, antice rotundatis, alutaceo, ante medium confertim subtilius punctato, angulis posticis vix divergentibus, elytris sæpe piceo-testaceis, striis acutis punctatis, interstitiis planis confertissime rugose punctulatis, antennis pedibusque piceo-testaceis. Long. .33—45.

Lake Superior, abundant. A species easily recognised, and very remarkable for the sculpture of the thorax, the surface of which is finely chagrined, with distinct punctures only in front of the middle: the head is densely punctured. By a very powerful lens, the chagrining of the thorax is seen to be produced by an infinity of very small punctures.

B.—2**.

10. *D. limosus*, ater, flavo-pubescens, clypeo truncato, thorace latitudine longiore, lateribus parallelis, ad apicem rotundatis, postice canaliculato, confertim punctato, angulis posticis rufescentibus non divaricatis, elytris testaceis, striis acutis punctatis, interstitiis confertim rugose punctulatis, antennis pedibusque rufo-testaceis. Long. .35.

Lake Superior, not rare. This species connects this with the last division of the genus: the second and third joints of the antennæ are hardly smaller than the fourth, and the laminæ of the posterior coxæ are distinctly wider internally: the tooth is, however, not so prominent as in the following species, and the clypeus is decidedly truncate at the tip, and considerably elevated above the labrum: the lateral margin of the thorax is well marked for its whole length, and is not deflexed so as to belong to the under surface, as in the preceding species.

11. *D. pauper*, ater, pubescens, clypeo truncato, thorace latitudine vix longiore, lateribus parallelis, ad apicem rotundatis, apice et angulis posticis testaceis, confertim punctato, postice canaliculato, elytris striis acutis punctulatis, interstitiis planis confertim rugose punctulatis, vitta rufo-picea a humero ad apicem plus minusve distincta, antennis fuscis, basi pedibusque rufo-testaceis. Long. .22—.29.

Abundant throughout the Atlantic parts of North America. A specimen was sent me by Dr. Harris as *Elater inquinatus* Say, which, however, being said (Trans. Am. Phil. Soc. 6, 175) to have the fourth tarsal joint lobed, and the thorax with an elongate basal fissure each side, cannot belong to this genus. From the manner in which Say distributed types of his species in Europe, I fear that he was not very careful in naming his duplicates, probably trusting to his usually excellent descriptions, for the identification of those described by him. I am inclined to believe that *E. inquinatus* Say must be referred to *Adrastus*, and that the serration of the ungues was probably overlooked.

Two specimens from Lake Superior are much larger, (.34 unc.) and have the striæ of the elytra less distinctly marked. They do not seem, however, to constitute a separate species.

12. *D. subustus*, fusco-niger, pubescens, thorace rufo-testaceo, marginibus dilutioribus, dense punctato, latitudine vix longiore, lateribus parallelis antice vix rotundatis, elytris rufo-testaceis, basi, sutura margineque leviter infuscatis, striis punctatis interstitiis planis, confertim rugose punctatis, antennis nigro-piceis, pedibus rufis. Long. .27.

Two specimens found at San Francisco, California. Somewhat more slender than *D. pauper*, which, except in colour, it very much resembles: the lateral oblique lines of the front are indistinctly connected anteriorly, and the vertex is not marked with the usual oblong fovea.

13. *D. bigeminatus*, subcylindricus, ater, pubescens, thorace latitudine fere sesqui longiore lateribus parallelis, antice vix rotundatis, confertim punctato, elytris macula utrinque elongata pone basin, alteraque pone medium rotundata, læte rufo-testaceis, striis punctatis, interstitiis sat dense rugose punctatis, pedibus testaceis, antennis vel fuscis vel testaceis. Long. .21.

Elater bigeminatus Randall, Bost. Journ. Nat. Hist. 2, 37.

Lake Superior, Massachusetts and Pennsylvania, rare. This species has the commissure of the oblique frontal lines quite distinct, as in *Adrastus*, but the ungues are absolutely without teeth: the vertex, as in the preceding species, is not foveate.

ADRASTUS *Esch.*

The species below mentioned have the third and fourth joints of the tarsi slightly lobed

beneath, and all belong to Erichson's first division. Their appearance is altogether that of *Dolopius*, except that the elytra are slightly cuncate, and the front is distinctly angulated: the angles of the thorax are not carinated, and the basal fissures are long.

1. *A. recticollis*, piceus, pubescens, thorace lateribus dilutioribus, antice paulo rotundatis, minus dense punctato, angulis posticis subdivergentibus, elytris testaceis sutura infuscata, striis profundis punctatis, interstitiis parce punctatis, antennis pedibusque rufo-testaceis. Long. .2.

Elater recticollis Say, Journ. Acad. Nat. Sc. 3, 168: (*insciis*) Trans. Am. Phil. Soc. 6, 184.

Adrastus pumilus Erichson, Germ. Zeitschr. 3, 120.

Middle States, not common. The difference between this and the following, except in colour, is not obvious: the sides of the thorax, however, appear to be less suddenly rounded in front, and the disc is more convex: the posterior angles appear more elongated and divergent.

2. *A. testaceus*, rufo-testaceus, pubescens, thorace minus dense punctato, lateribus rectis, antice breviter paulo rotundatis, angulis posticis non divergentibus, elytris striis profundis punctatis, interstitiis parce punctatis. Long. .18.

Melsheimer, Proc. Acad. Nat. Sc. 2, 219.

Pennsylvania and Georgia. The sides of the thorax are entirely straight, except immediately at the apex, where they are rounded.

Two specimens from the Southern States agree in form with this species, but are of a fuscous colour, with the antennæ and feet testaceous; they can scarcely be separated.

To this genus must belong *Elater quietus* Say, (Trans. Am. Phil. Soc. 6, 184:) a black species with yellow antennæ and feet, and having the apex of the clypeus more obtuse than in *A. recticollis*. It is .2 unc. long, and was found in Indiana.

Here, probably, must be placed *Elater inquitus* Say, (ibid. 175:) but the serration of the unguis is not mentioned: vide remarks under *Dolopius pauper*.

ANCHASTUS Lcc.

Frons convexa, antice subangulatim marginata: mandibulæ breves, basi triangulariter extus dilatata (sicut in *Dolopio*): labrum antice rotundatum: antennæ articulo 1^{mo} medioeri, parum serratæ, articulis 2 et 3, 4^{to} coniunctis non longioribus: prosternum lobatum, mucrone postico subinflexo, sutura laterali concava, antice excavata: mesosternum non protuberans: coxæ posticæ laminis intus valde dilatatis, margine autem postico non emarginato, dente forti interno instructo: tarsi pubescentes, articulo 1^{mo} elongato, sequentibus duobus longiore: 3^{io} subtus longe lobato, 4^{to} parvo, 5^{to} tenui unguiculis integris.

From *Dicrepidius* this genus differs by the second joint of the tarsi being simple; from *Dicrepidius*, *Elater*, and in fact from all the genera of true *Elateridæ*, described in this essay, it differs by the very great dilatation of the coxal plates internally; their posterior margin is somewhat oblique, though not sinuate as in *Dicrepidius* and *Elater*. The posterior angles of the thorax are acute, strongly carinate, and not diverging; there are no basal fissures. This genus seems related to *Physorhinus*.

1. *A. digitatus*, fusco-piceus, elongatus, helvo-pubescens, thorace latitudine longiore, antrum angustato, lateribus rectis ante medium rotundatis, angulis posticis elongatis, dense punctato,

elytris a basi subangustatis, striis punctulatis, interstitiis confertim rugose punctulatis, antennis articulis 2 et 3 subcylindricis, 4^{to} coniunctis non longioribus. Long. .43.

One specimen, Pennsylvania. The narrow arched body, narrowed at each end, with the thorax fitted closely to the elytra, give this species very much the appearance of some of the Eucnemides; the front is more convex than in the other species, and is almost angulated at the tip. The lobe of the third tarsal joint is very long, extending to the middle of the last joint; the outer margin of the plates of the posterior coxæ is oblique, and the posterior margin also a little oblique inwards, and they unite in an obtuse angle not prominent, but scarcely rounded. The thorax has a short furrow at the middle of the disc, which is possibly accidental; the carinæ of the posterior angles diverge very much from the margin.

2. *A. recedens*, latusculus, fusco-niger, sordide pubescens, thorace latitudine fere brevior, antrosum angustato, lateribus rotundatis, subtilius punctato (punctulis paucis intermixtis,) angulis posticis modice productis acutis, elytris parallelis postice rotundatis, striis punctatis, interstitiis planis rugose punctulatis, antennis articulis 2 et 3 subcylindricis, 4^{to} coniunctis vix longioribus. Long. .2—24.

San Francisco. The smaller sized individuals appear to be more densely pubescent, and the punctures of the thorax appear more distinct;—they do not, however, seem to be specifically distinct. The sides of the thorax are more rounded anteriorly than at the base, but are not straight at any part; the carina diverges very much from the margin, as in the preceding, and the front is moderately convex and slightly angulated. The lobe of the third joint of the tarsi does not reach quite to the middle of the fifth joint.

To this genus may possibly be referred *Cryptohypnus cinereipennis* *Man.* (*Monocrepidius cinereipennis* *Esch.*) and *C. puberulus* *Man.* (*Bull. Mosc.* 1843, p. 240;) of which the fourth tarsal joint is said to be lobed. The difficulty of determining whether the lobe proceeds from the third or fourth joint is sometimes very great. At all events the species alluded to cannot be retained in *Cryptohypnus*, and a new examination is necessary to fix their true affinity.

BRACHYCREPIS *Lec.*

Frons convexa, antice vix producta, rotundatim marginata, non impressa: labrum antice rotundatum: antennæ valde serratæ, articulo 1^{mo} mediocri, 2^{do} parvo, 3^{io} sequenti æquali, 11^{mo} præcedenti non longiore, simplici: prosternum antice lobatum, mucrone postico subinflexo, sutura laterali paulo concava, antice excavata: mesosternum non protuberans, coxæ posticæ laminis intus subito quadrangulariter valde dilatatis, margine postico subsinuato, dente interno mediocri, acuto: tarsi pubescentes articulo 1^{mo} sequentibus coniunctis æquali: 2^{ndo} plus duplo brevior, subtus vix lobato, 3^{io} brevi, subtus breviter lobato, 4^{to} parvo recepto, 5^{to} 2^{ndo} æquali, unguiculis integris.

The lobe of the third joint of the tarsi does not extend beyond the fourth joint. This genus differs from *Dicrepidius* by the more sudden dilatation of the coxal plates, as well as by the structure of the tarsi; from *Anchastus*, it is readily known by the distinctness of the outer angle of the coxal plate (the posterior margin of which is not oblique inwards, but slightly emarginate,) and by the structure of the antennæ and tarsi. The posterior angles of the thorax have two acute carinæ, one parallel with the margin as in *Dicrepidius*, the other diverging as in *Anchastus*.

1. *B. bicarinatus*, elongatus, fusco-castaneus, helvo-pubescent, thorace latitudine longiore, antrorsum angustato, lateribus late rotundatis, subtilius punctato, angulis posticis acutis, bicarinatis, elytris striis punctatis, interstitiis rugose punctatis, abdomine rufescente, pedibus antennisque rufotestaceis. Long. .31.

One specimen, Georgia. The striae of the elytra are well impressed; it resembles in appearance a small specimen of *Dicrepidius soleatus*, but is at once known by its finely punctured thorax.

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DICREPIDIUS *Esch. (emend.)*

Frons modice convexa, antice producta, et rotundatim marginata, sæpe ad apicem bicristata: mandibulæ emarginatæ, basi triangulariter subdilatatæ: labrum antice rotundatum: antennæ plus minus serratæ, maris nonnunquam ramosi, articulo 3^{io} 4^{to} æquali, 11^{mo} non constricto: prosternum antice breviter lobatum, mucrone postico paulo inflexo, sutura laterali antice excavata, paulo concava: mesosternum non protuberans: coxæ posticæ laminis intus subsubito modice dilatatis, postice emarginatis, dente interno forti, acuto: tarsi pubescentes, articulo 1^{mo} sequentibus 2 æquali, 2 et 3 subtus lobatis, 4^{to} parvo recepto, 5^{to} unguiculis integris, maiusculis.

I have modified the diagnosis of this genus, as given by Germar, to allow the introduction of several species, which seem to differ from the type only in the absence of the two acute perpendicular ridges which run from the margin of the front to the base of the labrum, and limit the foveæ in which the antennæ are inserted. From the two preceding genera, this differs in the form of the laminae of the posterior coxæ, which are emarginate, or sinuate posteriorly, as in *Elater*. The posterior angles of the thorax are long and sharp, the carina is well defined and almost parallel with the margin; the basal fissures are short and distinct.

A. *Frons antice bicristata.*

1. *D. ramicornis*, piceo-rufus, helvo-pubescent, thorace minus subtiliter parce punctato, latitudine longiore, lateribus parallelis, antice paulo rotundatis, linea dorsali lævi vix distincta, elytris postice angustatis, striis minus impressis antice fortiter punctatis, interstitiis parce subtiliter punctulatis. Long. .55.

Germar, *Zeitschr.* 1, 214.

Elater ramicornis Beauv. *Ins.* p. 10, tab. 7, fig. 3; *ibid.* 214, tab. 9, fig. 7.

Southern States, rare; more abundant in Cuba and South America. In the male the third and following joints of the antennæ are furnished with a subapical, elongate, spatulate process; the eleventh joint extends beyond the branch of the tenth joint; in the female the joints are triangular, growing gradually narrower, with the last joint one-half longer than the tenth.

2. *D.?* *binus*, niger, helvo-pubescent, thorace latitudine longiore, antrorsum subangustato, lateribus fere rectis, antice paulo rotundatis, subtilius punctato, densius ad latera, angulis posticis acutis, carina angulari valde elongata, margini parallela, elytris striis profundis punctulatis, interstitiis confertim rugose punctatis, macula magna utrinque basali, alteraque versus apicem læte rufotestaceis, antennis pedibusque testaceis. Long. .29.

Elater binus Say, *Trans. Am. Phil. Soc.* 6, 178.

One specimen, Georgia. As the tarsi and posterior coxæ of my specimen are in bad condition, I am not absolutely certain that it belongs to this genus; the two crests of the

anterior portion of the front are distinct, but more distant than in the preceding species; the antennæ are only slightly serrate, and the third joint is not as wide as the fourth; the carina of the posterior angles of the thorax reaches almost to the middle; the first joint, especially of the anterior tarsi, is longer in proportion than in the preceding species; the second joint appears to be lobed, but I am not certain that it is so; the third joint is nearly as long as the second, and extends beneath into a lobe, beyond the fourth joint, which is very small; the fifth is as long as the three preceding, with small slender nails.

Say describes the tarsi as having the penultimate joint lobed, but as the present species agrees in every other respect with his description, I think we may be justified in considering his observation as an error.

B. Frons non cristata.

3. *D. ferreus*, rufo-piceus, longius helvo-pilosus, fronte concava, thorace parce grossius punctato, latitudine vix longiore, antrorsum angustato, et lateribus paulo rotundato, spatio dorsali indistincto lævi, elytris postice angustatis, striis punctatis, interstitiis subconvexis parce punctatis. Long. ·56.

One specimen, Texas, Lieut. Haldeman. The front is more produced than in *D. ramicornis*, and is slightly concave above; the posterior angles of the thorax are carinated, but the carina is less acute than in that species. The lobes of the tarsi extend to the middle of the last joint. The antennæ are blackish and formed exactly as in the female of *D. ramicornis*, but are a little broader. The punctures of the thorax are distant in the middle, but moderately close on the sides; there is a rounded indistinct smooth dorsal space behind the middle.

4. *D. soleatus*, supra castaneus, helvo-pilosus, fronte subconcava, thorace grossius, lateribus densius punctato, latitudine longiore, antrorsum angustato, lateribus rectis, antice paulo rotundatis, elytris subparallelis, postice rotundatis, striis punctatis, interstitiis parce punctatis, postpectore, abdomine, antennis pedibusque rufis. Long. ·45.

Elater soleatus Say, Trans. Am. Phil. Soc. 6, 176.

One specimen, Michigan. This species is closely related to the preceding, but the more densely punctured thorax, and rufous antennæ, distinguish it at once; the thorax is more narrowed anteriorly, and less rounded on the sides; the posterior angles are more acutely carinated.

Say states that the second joint of the antennæ is "not more than half the length of the third;" in my specimen, as in the preceding and next species, it is only about one-third as long as the third joint.

5. *D. simplex*, piceus, helvo-pilosus, fronte vix concava, thorace minus dense punctato, postice canaliculato, antrorsum angustato, lateribus parum rotundatis, elytris striis fortius punctatis, interstitiis planis parce punctulatis, antennis rufo-piceis, pedibus testaceis. Long. ·35.

One specimen, Texas, Lieut. Haldeman. From *D. ferreus* it is distinguished by its smaller size, brown antennæ, unimpressed front, and testaceous feet; from *D. soleatus* by the less densely punctured thorax, the less deep and more strongly punctured striæ of the elytra, and by the deeper colour of the under surface. The carina of the posterior angles of the thorax is as acute as in *D. soleatus*.

ELATER Linn. (*Esch. emend.*)

AMPEDUS Germ.

A.

Densely punctured, opaque species, having the first joint of the antennæ short, the second and third small and equal, the following large and triangular, and the eleventh more or less distinctly constricted: the front is convex, the margin distinct, forming anteriorly an angle, the apex of which is rounded. The lateral suture of the prosternum is not excavated anteriorly. The mandibles are acute at tip, with an obtuse tooth beyond the middle.

1. *E. Sturmii*, ater, opacus, brevissime pubescens, thorace convexo, lateribus parallelis antice rotundatis confertissime punctato, postice canaliculato, elytris parallelis versus apicem angustatis, striis profundis punctatis, interstitiis subtiliter dense scabro-punctatis, antennarum articulo ultimo distincte constricto. Long. .47—.6.

Aphanobius Sturmii Germ. Zeitschr. 5, 188.

Ectinus granulatus Melsheimer, Proc. Acad. Nat. Sc. 2, 159.

Middle and Southern States, rare.

2. *E. turbulentus*, ater opacus, breviter hispide pubescens, thorace subconvexo, antrorsum subangustato, et lateribus late rotundatis, confertissime punctato, postice canaliculato, elytris gradatim angustatis turbido-luteis, pone medium confuse nigro-nebulosis, macula utrinque transversa pallidior, striis profundis punctatis, infuscatis, interstitiis subtiliter dense scabro-punctatis, antennarum articulo 11^{mo} modice constricto. Long. .58.

Two specimens found near San Diego, on a kind of grass, in June. Similar in all its characters to the preceding, but with the sides of the elytra less parallel, and the posterior angles of the thorax more diverging: the elytra are dirty yellow, with the striæ brownish: behind the middle is a large, indistinct, blackish cloud, which includes on each elytron a transverse slightly reniform yellow spot, paler than the ground colour of the elytra. In one specimen the cloudiness is seen only on the margins of this spot, which is also very indistinct.

3. *E. limbalis*, opacus, niger, breviter hispide flavo-pubescens, thorace punctatissimo elongato, antrorsum angustato, lateribus rectis, luteo, macula media margineque basali nigris, elytris striis profundis punctatis, interstitiis confertissime subtiliter scabro-punctatis, sutura margineque luteis, antennæ basi rufo-piceis, articulo 11^{mo} paulo constricto. Long. .34—.45.

Herbst, Käfer, 10, 53; tab. 162, fig. 10: Say, Trans. Am. Phil. Soc. 6, 167.

Ampedus limbalis Germ. Zeitschr. 5, 164.

Middle, Southern, and Western States, not rare. Varies with the yellow sutural margin becoming obsolete about the middle: the thoracic spot varies in size, sometimes reaching both the tip and base of the thorax.

B.

Moderate-sized, or small species, mostly cuneate in form, with the thorax only slightly convex, and considerably narrowed in front: the anterior margin of the front (which is

convex) always distinct and angulated: the first joint of the antennæ short, the second small, the third longer and wider than the second, usually much narrower than the fourth, but varying in this respect both in species and sex: the joints 4—10 triangular, decreasing slightly in breadth, eleventh oval, not constricted. Prosternum with the lateral suture anteriorly excavated for the reception of the antennæ.

4. *E. rubricollis*, ater opacus, helvo-pubescens, capite thoraceque confertissime fere scabropunctatis, obscure sanguineis, clytris striis profundis punctatis, interstitiis convexis confertim punctatis, antennarum articulo 3^o præcedente duplo longiore, subtriangulari. Long. ·5—·58.

Herbst, Käfer, 10, 49, tab. 162, fig. 6, (1801;) Say, Journ. Acad. Nat. Sc. 3, 177; Harris, Trans. Hartford Soc. Nat. Hist. 71.

Elater verticinus Beauvois, Ins. 214, tab. 9, fig. 6, (1805;) Say, Ann. Lyc. 1, 268.

Ampedus rubricollis Germ. Zeitschr. 5, 171.

Middle, Southern, and Western States; not rare in Georgia. The last joint of the antennæ is slightly sinuate or constricted beyond the middle.

5. *E. nigricollis*, ater cinereo-pubescens, thorace confertim punctato, versus latera fere scabro, clytris pallidis subcuneatis, striis profundis punctatis, interstitiis subconvexis punctulatis, pedibus testaceis, antennarum articulo 3^o præcedente duplo maiore triangulari. Long. ·33—·42.

Herbst, Käfer, 10, 73, tab. 164, fig. 7; Say, Journ. Acad. Nat. Sc. 3, 176.

Ampedus nigricollis Germ. Zeitschr. 5, 166.

Middle and Southern States, not rare. The base of the antennæ is indistinctly testaceous: the third joint is considerably dilated, though not as large or as broad as the fourth: the last joint of the antennæ is not at all constricted.

6. *E. linteus*, ater cinereo-pubescens, capite confertissime, thorace confertim punctato, versus latera fere scabro, clytris cuneatis pallidis, puncto humerali, sutura, apiceque nigris, striis profundis punctatis, interstitiis subconvexis parce punctatis, antennarum maris articulo 3^o sequenti fere æquali. Long. ·35—·42.

Say, Trans. Am. Phil. Soc. 6, 168.

Ampedus lugubris Germ. Zeitschr. 5, 165.

Middle and Southern States, and Lake Superior. The outer margin of the elytra is black. This species is subject to some variation: a specimen from Vermont has the legs testaceous, and the head less densely punctured than usual: in other specimens the head is almost scabrous: the female has the antennæ shorter, and the third joint much less dilated than the others. Germar does not cite Say's description; and although the species has long been known under the name proposed by Beauvois, I cannot find any description in his writings.

7. *E. discoideus*, ater, griseo-pubescens, capite thoraceque opacis, confertim punctatis, versus latera fere scabris, clytris cuneatis, basi margineque flavo-fulvis, striis profundis punctatis, interstitiis subconvexis rugose punctatis, antennarum maris articulo 3^o sequenti subæquali. Long. ·42—·38.

Fabr. Syst. El. 2, 240; Herbst, Käfer, 10, 132.

Ampedus discoideus Germ. Zeitschr. 5, 165.

Southern States, not rare. The female has the third joint of the antennæ very slightly dilated, and about twice the length of the second.

8. *E. semicinctus*, ater, subnitidus, griseo-pubescent, thorace sat dense, lateribus densius punctato, elytris cuneatis, basi fulvo-marginatis, striis profundis punctatis, interstitiis parce punctatis, antennis feminae articulo 3^o præcedente duplo longiore, vix dilatato. Long. .45.

Randall, Bost. Journ. Nat. Hist. 2, 10.

One specimen, New York; found in Maine according to Mr. Randall. This species is closely allied to *E. discoideus*, which it resembles in form; the thorax is longer, less suddenly narrowed anteriorly, and not wider than the elytra; the elytra are margined with orange only at the base, and the punctures of the interstices are more regular; in the male, the third joint of the antennæ is probably dilated, as in *E. discoideus*.

9. *E. læsus*, ater opacus, griseo-pubescent, thorace confertim punctato, lateribus fere scabro, elytris basi late, lateribus antice, epipleuris que sanguineis, striis profundis punctatis, interstitiis subconvexis confertim rugose punctatis, antennis articulo 3^o præcedente sesqui longiore (feminae) vix latiore. Long. .5.

One specimen, Georgia. Body black, with but little lustre, covered with fine grayish pubescence. Head densely punctured: antennæ not longer than the thorax, third joint one-half longer than the second, very slightly triangular; fourth and following broad, triangular; eleventh oval, not constricted. Thorax scarcely longer than wide, strongly narrowed and rounded in front, sides posteriorly subparallel, posterior angles scarcely diverging, carinate as in the other species; disc very densely punctured, anteriorly moderately convex, punctures becoming confluent at the sides: scutellum black; elytra almost parallel anteriorly, narrowed and rounded posteriorly, base broadly sanguineous, the colour extending a little posteriorly on the sides; epipleuræ sanguineous; suture dusky; striæ deep, coarsely punctured, interstices convex, tolerably densely finely punctured and rugose. Beneath entirely black.

10. *E. Sayi*, ater, fere opacus, griseo-pubescent, thorace confertim punctato, lateribus fere scabro, elytris pallidis, sutura late, margine externo fere ad basin anguste nigris, striis profundis punctatis interstitiis subconvexis, disperse rugose punctulatis, antennarum articulo 3^o subtriangulari, sequenti longitudine æquali. Long. .5.

Elater oblessus (discoideus || *Fabr.* †) Say, Trans. Am. Phil. Soc. 6, 165.

Middle States, rare. The broad black stripe along the suture gradually narrows near the scutellum: the exterior black margin reaches from the apex to the posterior part of the epipleuræ, where it ceases: the third joint of the antennæ is considerably narrower than the fourth, in both sexes; the eleventh joint is slightly constricted.

I have changed the name proposed by Say, not for its uncouthness, but because it does not properly belong to this species, and was intended as a substitute for a name given by Fabricius, which was supposed to be preoccupied: the reference, therefore, of the present species to that described by Fabricius, being, as already observed by Dr. Harris, an error, the name intended as a substitute fails, at least for this species. As the description, however, shows that this insect was known to Say, I have taken occasion to commemorate it with his name.

11. *E. vitiosus*, ater, subopacus, helvo-pubescent, thorace confertissime punctato, lateribus fere scabro, elytris sordide pallidis nimbo apicali atro, striis profundis punctatis, interstitiis disperse punctatis, antennarum articulo 3^o (maris) triangulari sequente multo minore. Long. .48.

One specimen, Vermont, Prof. Adams. Body black, with very little lustre, covered with brownish hair. Head very densely punctured; antennæ with the third joint triangular, about twice as long as the second, but not more than half the size of the fourth: last joint not constricted. Thorax not longer than wide, narrowed gradually from the base, and broadly rounded on the sides, moderately convex, very densely punctured, punctures becoming confluent towards the sides: posterior angles less elongate than usual, elytra slightly narrowed from the very base, more strongly narrowed posteriorly, pale dirty yellow, with a large apical black blotch, the anterior limits of which are badly defined, and which extends farther along the side than on the suture: striæ deep, strongly punctured, interstices convex, moderately and finely punctured.

This species differs from the following not only by the apical blotch of the elytra extending to the apex and side, but by its more densely punctured thorax, with shorter posterior angles, and by the less parallel elytra: the last is probably a sexual character.

12. *E. apicatus*, niger, helvo-pubescent, thorace confertim punctato, elytris læte sanguineis, plaga utrinque apicali oblonga nigra, striis profundis punctatis, interstitiis convexis, disperse punctatis, antennis piceis (feminæ) articulo 3^o secundo fere duplo longiore. Long. .35—.46.

Say, Trans. Am. Phil. Soc. 6, 170.

Ampedus melanopygus Germ. Zeitschr. 5, 161.

Northern portions of the United States. I have only females of this species, but from the relation which the joints bear to each other, the male probably has antennæ like the preceding species; the apical black spot of the elytra is well defined, and does not touch either the side or suture.

13. *E. phœnicopterus*, niger, helvo-pubescent, thorace confertim punctato, elytris sanguineo-ferrugineis, striis punctatis, interstitiis fere planis ruguloso-punctatis, antennis vix piceis, (feminæ) articulo 3^o secundo fere duplo longiore. Long. .43—.5.

Ampedus phœnicopterus Germ. Zeitschr. 5, 161.

Oregon and Lake Superior. Having compared specimens, I have been convinced of their identity. This species is very closely allied to the last, but the colour of the elytra is more obscure, and without spots: the thorax is more convex and more rounded on the sides: the difference in the depth of the elytral striæ and the punctuation of the interstices is not as obvious as would appear in Germar's description: I find that there is some variation in this respect in different specimens, though the interstices are never as convex as in the preceding.

14. *E. luctuosus*, ater, griseo-pubescent, thorace confertim punctato, postice canaliculato, elytris striis profundis punctatis, interstitiis confertim rugose punctulatis, antennis articulo 3^o secundo vix longiore, pedibusque piceis. Long. .43—.5.

Lake Superior, at Eagle Harbour. This species is extremely similar to the next, but the third joint of the antennæ in both sexes is much shorter than the fourth and hardly longer than the second. The elytra are less tapering, being almost parallel anteriorly, as in the preceding two species. The thorax is narrowed from the base, and moderately rounded on the sides: in the female it is a little broader than long, in the male its diameters are about equal.

15. *E. soccer*, ater, griseo-pubescent, thorace confertim punctato, postice subcanaliculato, elytris striis profundis punctatis, interstitiis subconvexis confertim punctatis, antennis nigris articulo 3^o secundo fere duplo longiore, pedibus piceis. Long. .52.

One specimen, Pennsylvania. The thorax is longer than wide, very slightly narrowed and not rounded from the base to the middle, then narrowed and broadly rounded to the tip: the elytra are slightly narrowed from the very base; the punctures of the interstices are close and distinct. Differs from the preceding by the third joint of the antennæ being longer than the second, and by the form of the thorax: from the next by the much shorter pubescence and also by the form of the thorax.

16. *E. impolitus*, ater, longius helvo-pubescent, thorace breviusculo, confertim punctato, postice canaliculato, elytris striis profundis punctatis, interstitiis confertim rugose punctatis, antennis nigris, basi testaceis, articulo 3^o secundo fere duplo longiore, pedibus ferrugineis. Long. .47.

Melsheimer, Proc. Acad. Nat. Sc. 2, 180.

Pennsylvania, rare. The thorax is a little wider than long, narrowed and rounded from the very base; the punctuation is a little finer, and the pubescence considerably longer than in the preceding species. The elytra are slightly narrowed from the very base. The legs are rufo-testaceous, or ferruginous.

17. *E. hepaticus*, piceo-ater, helvo-pubescent, thorace breviusculo, confertim punctato, elytris striis minus profundis punctatis, interstitiis planiusculis subtilius rugose punctatis, antennis pedibusque fusco-testaceis articulo 3^o secundo fere duplo longiore. Long. .45.

Melsheimer, Proc. Acad. Nat. Sc. 2, 160.

Pennsylvania and Vermont. The antennæ are more slender than in the neighbouring species; the thorax is considerably rounded on the sides, but the narrowing is scarcely perceptible from the base to the middle; it is less convex than usual and not at all channelled posteriorly; the posterior angles in Dr. Melsheimer's type continue the line of the sides, while in my specimen they are slightly divergent. The elytra are parallel to the middle, very slightly narrower than the thorax; the striæ are not deep, the interstices are not convex, finely and not densely rugosely punctured.

18. *E. molestus*, ater, helvo-pubescent, thorace oblongo antice angustato, confertim punctato, postice subcanaliculato, elytris antice parallelis, apice obtusiusculis, striis punctatis, interstitiis confertim rugose punctatis, antennis basi testaceis, articulis 2 et 3 subæqualibus, pedibus testaceo-piceis. Long. .35.

A specimen found at Lake Superior; another with paler legs brought from Maine by Prof. Guyot. The thorax is a little longer than wide, narrowed and rounded before the middle, with the sides parallel posteriorly. The elytra are parallel as far as the middle, then obtusely rounded to the apex; the striæ are narrow and well defined; the interstices are not convex; the antennæ are strongly serrate, the third joint hardly longer than the second; the eleventh joint oval.

19. *E. fuscatus*, ater, helvo-pubescent, thorace oblongo, antice angustato, punctato, elytris a basi subangustatis, striis punctatis, interstitiis rugose punctatis, antennis basi testaceis, articulis 2 et 3 subæqualibus, pedibus rufis. Long. .3—37.

Melsheimer, Proc. Acad. Nat. Sc. 2, 213.

Middle States. Differs from the preceding in the thorax not being channelled behind, and in the punctuation becoming finer near the base; also in the elytra being slightly narrowed from the base, and less obtuse at the apex, and in the interstices being less densely punctured. The antennæ are a little shorter than the thorax and strongly serrate.

20. *E. nigricans*, ater, helvo-pubescent, thorace punctato, postice canaliculato, elytris acutiusculis, striis punctatis, interstitiis remote rugose punctatis, antennis piceis articulis 2 et 3 subæqualibus, pedibus ferrugineis. Long. ·31.

Ampedus nigricans Germ. Zeitschr. 5, 176.

Elater testaceipes Mels. Proc. Acad. Nat. Sc. 2, 213.

Pennsylvania and New York. Differs from *E. molestus* by its less obtuse elytra, and from *E. fuscatus* by the punctuation of the thorax not being fine at the base, and by the dorsal channel being distinct posteriorly. In the specimens seen, the thorax is narrowed anteriorly from the middle, and is a little longer than wide; Germar describes the thorax as being "latitudine bascos subbreuior;" but this difference may be sexual.

21. *E. ursulus*, ater, nigro-pubescent, thorace punctato, postice subcanaliculato, elytris postice obtusioribus, striis punctatis, interstitiis rugose punctatis, antennis articulo 3^o secundo paulo longiore, pedibus rufo-piceis, vel nigro-piceis. Long. ·31.

Melsheimer, Proc. Acad. Nat. Sc. 2, 213.

Pennsylvania and New York. This species is readily distinguished from the preceding closely allied species by its pubescence being finer, and so dark coloured as to be almost invisible, unless viewed laterally; the thorax is a little longer than wide, and is narrowed almost from the base and rounded on the sides.

This species seems subject to variations: in the type the interstices of the elytra are sparsely punctured, and the feet dark rufo-piceous; in two other specimens the feet are black, and the elytra more densely rugous. I should have considered the type as *Ampedus pedalis* Germ. (Zeitschr. 5, 176,) but the thorax is not densely punctured, as required by his description.

22. *E. lacustris*, ater, griseo-pubescent, thorace punctato, antrosum angustato, elytris basi late ferrugineis, striis punctatis, interstitiis subconvexis, disperse punctatis, antennis pedibusque testaceis, illis articulis 2 et 3 subæqualibus. Long. ·22.

One specimen, Lake Superior. The thorax is narrowed from the middle to the apex, and broadly rounded on the sides; it is scarcely longer than wide, the elytra are parallel anteriorly, obtusely rounded posteriorly; the antennæ are not longer than the thorax, which character would distinguish it from *Ampedus pullus* Germ. (Zeitschr. 5, 162.)

23. *E. fuscus*, ater, helvo-pubescent, thorace punctato, ante medium angustato, angulis posticis testaceis, elytris subtilius striatis, striis punctatis, interstitiis planis confertim punctatis, testaceis, sutura late infuscata, antennis pedibusque testaceo-fuscis, illis articulis 2 et 3 æqualibus. Long. ·26.

Lake Superior, two specimens. The thorax is not longer than wide, and tolerably strongly rounded on the sides, which are parallel behind the middle. The elytra are parallel on the sides, and gradually somewhat obtusely rounded at the tip. The antennæ are as long as the thorax.

24. *E. deletus*, ater, nitidus, griseo-pubescent, thorace antrorsum angustato, subtiliter parce punctulato, elytris subtilius striatis, striis punctatis, interstitiis planis, punctatis, antennis pedibusque fusco-testaceis, illis articulis 2 et 3 æqualibus. Long. .25.

Variat, elytris testaceo-fuscis.

Lake Superior. Though the thorax is narrowed almost from the base, and is less rounded on the sides than in the preceding, the chief character for distinguishing them is found in the punctuation of the thorax, which is here much finer and more distant; the pubescence instead of being brown is dark gray, appearing almost black in certain lights. The form and sculpture of the elytra are as in *E. fuscus*.

One specimen from Eagle Harbour, Lake Superior, is absolutely the same in form as those above described; but the striæ of the elytra are deep and strongly punctured, and the antennæ and feet are yellowish testaceous. In the absence of other specimens, I cannot decide if it should rank as a distinct species.

25. *E. mixtus*, piceo-niger, helvo-pubescent, thorace a medio antrorsum angustato, punctato, elytris parallelis, testaceo-rufis, pone medium gradatim nigricantibus, striis subtilibus punctatis, interstitiis planis rugose punctatis, antennis pedibusque piceis, illis articulo 3^o 2^{ndo} sesqui longiore. Long. .32.

Herbst, Käfer, 10, 54, tab. 164, fig. 9.

One specimen, Lake Superior. The antennæ are moderately long: the third joint, although not much more than half the size of the fourth, is larger than the second joint: the thorax is not longer than wide, is obliquely narrowed anteriorly, and but slightly rounded: the elytra are parallel anteriorly, and obtusely rounded posteriorly: the tarsi are testaceous.

26. *E. minipennis*, niger, helvo-pubescent, thorace a medio antrorsum angustato, punctato, elytris parallelis, miniatis, striis profundis punctatis, interstitiis convexis, vix parce punctulatis, pedibus piceo-testaceis, antennis piceis, basi testaceis, articulis 2 et 3 æqualibus 4^{to} coniunctis longioribus. Long. .25—3.

Georgia, Maryland, and Lake Superior. In appearance resembles *E. sanguinipennis*, but is essentially different by the parallel obtuse elytra, and the light-coloured feet. The colour of the elytra is hardly as brilliant as in the next species.

27. *E. sanguinipennis*, niger, nitidus, helvo-pubescent, thorace remotius punctato, antrorsum angustato, elytris a basi postice angustatis, læte coccineis, striis profundis punctatis, interstitiis convexis parce punctulatis, tarsis testaceis, antennis nigris basi subtestaceis, articulis 2 et 3 subæqualibus, 4^{to} coniunctis vix longioribus. Long. .33.

Say, Journ. Acad. Nat. Sc. 3, 177; Trans. Am. Phil. Soc. 6, 173.

Ampedus sanguinipennis Germ. Zeitschr. 5, 160.

One specimen, Georgia; found also in the middle States.

28. *E. palans*, ater, nitidus, griseo-pubescent, thorace latitudine longiore, antrorsum angustato, læte sanguineo, remote subtilius punctato, postice subcanaliculato, angulis posticis prosternoque nigris, elytris striis profundis, punctatis, interstitiis convexis parce rugose punctatis, antennis articulo 3^o paulo dilatato, 4^{to} longitudine æquali. Long. .26.

One specimen, Georgia. Care must be taken that this species is not confounded with the next, to which it bears an astonishing resemblance. On comparison, the thorax is different in form, being but little rounded on the sides: the punctuation is less dense, and

the disc is distinctly channelled posteriorly: the elytra are very slightly narrowed from the base: the third joint of the antennæ is very different in form, being as long as the fourth, though but slightly dilated.

29. *E. collaris*, ater, nitidus, brunneo-pubescentis, thorace sanguineo, latitudine non longiore, a medio antrorsum angustato, sat dense punctato, postice obsolete canaliculato, prosterno nigro, elytris parallelis, griseo-pubescentibus, striis profundis punctatis, interstitiis subconvexis disperse punctatis, antennis articulis 2 et 3 subæqualibus, 4^{to} coniunctis longioribus. Long. ·33.

Say, Annals of the Lyceum of Nat. Hist. New York, 1, 268.

Elater thoracicus † Herbst, Käfer, 10, 51, tab. 162, fig. 8.

Ampedus collaris Germ. Zeitschr. 5, 172.

Middle and Southern States. Herbst seems to have confounded this species with a European *Elater thoracicus* *Fabr.* which is now placed in *Cardiophorus*. There are some naturalists who, finding that the species of the two authors fall into different genera, would retain both; a piece of deference to ancient authorities which can be shown only at the expense of good scientific morals, since it opens the way to carelessness. The only method of preserving nomenclature from even greater confusion than that in which it is already plunged, is to exclude decidedly, and without hesitation, every name founded upon error or misinterpretation of preceding authors. Dr. Harris thinks that the *E. collaris* is a species of *Cratonychus*, but as Say does not mention the serration of the ungues, it is safer to consider the present species, which agrees perfectly with his description, as really the one intended. In his remarks, (*Trans. Am. Phil. Soc.* 6, 174,) Say places *E. collaris* among the species with simple ungues, and it is hardly probable that, after his attention was turned to that character, he would have made an error in grouping the species.

30. *E. rubricus*, ater nitidus, longius helvo-pubescentis, thorace a medio antrorsum angustato, nigro, basi late lateribusque sanguineo, punctato, elytris parallelis, striis profunde punctatis, interstitiis paulo convexis punctatis, pedibus piceo-testaceis, antennis basi testaceis, articulo 3^{io} 2^{ndo} paulo longiore. Long. ·31—·34.

Say, Annals of Lyceum Nat. Hist. New York, 1, 261.

Middle and Eastern States. This species seems to resemble very much *Ampedus concinnus* *Germ.* (*Zeitschr.* 5, 170,) but the thorax is too strongly punctured, and the third joint of the antennæ is not twice as long as the second: in none of the specimens seen by me does the black spot of the thorax reach the base. In a specimen from Vermont, the thorax seems to be narrowed from the base, but as the form is not symmetrical, it must be considered as a distortion. The prosternum is always black; the under surface of the thorax is sometimes entirely red, sometimes almost black. In the male the last joint of the antennæ is slightly acuminate; in the female it is rounded.

31. *E. obliquus*, supra fusco-niger, longius cinereo-pubescentis, thorace subtransverso, parcius punctulato, antice rotundatim angustato, margine omni testaceo, elytris subcuneatis, macula obliqua basali versus suturam latiore lutea, striis profunde punctatis, interstitiis parce punctatis, subtus rufescens, pectore infuscato, antennis fusco-testaceis, articulo 3^{io} angusto 4^o longitudine æquali. Long. ·20—·23.

Say, *Trans. Am. Phil. Soc.* 6, 174.

Ampedus scitulus *Germ.* *Zeitschr.* 5, 168.

Middle and Eastern States, rare. Germar says that this species differs from others by its longer and more strongly serrate antennæ. It is true that the antennæ are strongly serrate, but I find them of the same form in nearly all the species of the present division of the genus; while in *E. linteus*, the antennæ are still more strongly serrate. In my specimens, which are females, the antennæ are but little longer than the thorax; the specimen described by Germar is said to have antennæ half as long as the body, and is certainly a male. Dr. Harris thinks that this is *E. stigma Herbst*; a species placed in *Limonius* by Dejean, and which for the present it is safer to consider as indeterminate, or unknown.

32. *E. areolatus*, rufo-testaceus, cinereo-pubescent, thorace subtransverso, punctulato, antice rotundatim angustato, capite scutello elytrisq[ue] nigris, his macula obliqua basali, apiceq[ue] late rufo-flavis, striis profunde punctatis, interstitiis parce punctatis, antennis fuscis, basi testaceis, articulo 3^{io} angusto, 4^{to} longitudine æquali. Long. 18—22.

Say, Journ. Acad. Nat. Sc. 3, 167.

Middle and Southern States, rare. The only differences between this and the preceding species are those of colour. I am very much disposed to regard them as varieties; if this view should finally prevail, the name *areolatus* has of course precedence.

Erichson has committed a very singular error in quoting Say's species under the genus *Cardiophorus*, (*Germ. Zeitschr.* 2, 321.) The species there described has no resemblance whatever to the present one, and is in reality *Elatер curiatus Say*, (*Trans. Am. Phil. Soc.* 6, 173.)

33. *E. luteolus*, rufo-testaceus, longius flavo-pubescent, thorace subtransverso, antrorsum rotundatim angustato, parce punctulato, elytris subcuneatis, saturatoribus, striis profunde punctatis, interstitiis parce punctulatis, antennis articulis 2 et 3 subæqualibus mausculis. Long. 15.

One specimen, North Carolina, Dr. Zimmermann. This is the smallest species of the genus known to me; in form and structure it altogether resembles *E. obliquus*, except that the thorax is more regularly narrowed and rounded anteriorly, and that the second joint of the antennæ is very little shorter than the third; the specimen is a male, and has antennæ fully half as long as the body.

34. *E. humeralis*, elongatus, ater nitidus, subtiliter nigro-pubescent, thorace latitudine longiore, antrorsum angustato, vix rotundato, parcius punctato, elytris macula humerali quadrata sanguinea, parallelis, striis punctatis interstitiis vix convexis, rugose punctatis, antennis totis nigris, articulo 3^{io} triangulari 2^{ndo} sesqui maiore. Long. 34.

Melsheimer, Proc. Acad. Nat. Sc. 2, 159.

Pennsylvania. I have only seen the type in Dr. Melsheimer's collection. The third joint of the antennæ, although dilated, is hardly one-half the size of the fourth. Germar's *Ampedus xanthomus* (*Zeitschr.* 5, 168) seems to agree nearly with this, but the size (.25 unc.) is so different, that I cannot consider them as identical.

35. *E. protervus*, elongatus, ater, nitidus, cinereo-pubescent; thorace latitudine longiore, antrorsum a basi paulo angustato, lateribus parum rotundatis, sat dense punctato, elytris parallelis basi anguste et epipleuris sanguineis, striis punctatis, interstitiis subconvexis, rugose punctatis, antennis piceis, articulo 3^{io} 2^{ndo} paulo maiore, tarsi rufo-piceis. Long. 4.

Lake Superior. It is difficult to determine whether this should not be considered as *E. semicinctus* *Randall* (*B. Journ. Nat. Hist.* 2, 10;) but the expression "body considerably dilated," coupled with the observation that "it seems most nearly allied to *E. discoidæus*," has induced me to refer *Randall's* description to No. 8 of this genus, above described. The thorax in this species is less narrowed in front than usual; the elytra are also parallel beyond the middle, then gradually narrowed to the tip.

36. *E. stigmatosus*, elongatus, ater cinereo-pubescentis, thorace latitudine longiore, antrorsum subangustato, lateribus antice subrotundatis, sat dense punctato, postice obsolete canaliculato, elytris macula hamata basali, humerum includente, alteraque utrinque transversa pone medium flavis: striis punctulatis interstitiis planis, rugose punctatis, pedibus antennarumque basi testaceis, his articulis 2 et 3 æqualibus. Long. .21—.25.

Lake Superior, two specimens. A very distinct and pretty species; the yellow spots of the elytra are arranged in the following manner: a line from the middle of the base follows along the fourth interstice for one-third the length of the elytra; it there meets a broader line running obliquely inwards from below the humerus, and slightly dilated along the margin; the posterior spot is small, and situated one-third the entire length of the elytra from the apex; in the second specimen the hook formed by the junction of the two anterior lines is imperfect, and the posterior spot is larger, becoming almost round; the tibiæ and tarsi are much paler than the femora. The second and third joints of the antennæ together are not longer than the fourth.

37. *E. rufilabris*, elongatus, linearis, nigro-piceus fusco-pubescentis, thorace latitudine fore sesqui longiore, antice vix angustato, ad apicem paulo rotundato, punctato, basi lutea, elytris basi anguste luteis, striis punctulatis, interstitiis confertim punctatis, pedibus flavo-testaceis, antennis elongatis piceis, basi testaceis, articulis 2 et 3 æqualibus 4^{to} coniunctis brevioribus. Long. .25—.32.

Germ. Ins. Nov. 47.

Ampedus rufilabris Germ. Zeitschr. 5, 169.

Middle and Southern States. The head is larger than usual, although there is not a great deal of difference in form between this and the two preceding species; this is, however, narrower and more parallel. The outline of the front is more rounded than usual, and the margin is slightly reflexed.

BLAUTA *Lec.*

Frons convexiuscula, paulo producta, margine rotundata, non impressa; labrum antice rotundatum; antennæ serratæ, 11-articulatæ, articulo 1^{mo} medioeri, 2 et 3 parvis, hoc sesqui maiore, 11^{mo} subconstricto: prosternum antice lobatum, mucrone postico leviter inflexo, sutura obliqua, subconcaeva, usque ad medium valde exarata; mesosternum non protuberans; coxæ posticæ laminis intus sensim et modice dilatatis, margine bisinuato, dente interno magno, acuto: tarsi pubescentes, articulo 1^{mo} sequentibus duobus æquali, 2—4 sensim brevioribus, subtus breviter lobatis et spongiosis: 5^{to} primo æquali, unguiculis simplicibus.

A curious, subcylindrical insect, which I am very much disposed to consider *Ampedus cribrarius* *Germ.* (*Zeitschr.* 5, 178;) but as it has the thorax a little longer than wide, and the antennæ very distinctly serrate, it is more proper to retain it as distinct from that spe-

cies. The posterior angles of the thorax are carinated, with the carina slightly diverging from the margin: the basal fissures are short and distinct.

1. *B. cauta*, subcylindrica, castanea, helvo-pubescent, capite thoraceque confertim punctatis, hoc latitudine paulo longiore, antrorsum subangustato, lateribus rectis apice paulo rotundatis, elytris striis profundis punctatis, interstitiis subconvexis punctatis. Long. '55.

One specimen, Georgia. The sides of the thorax are not parallel, but converge slightly anteriorly: the posterior angles continue the line of the sides; they are straight considerably in front of the middle, then slightly rounded to the apex.

CRATONYCHUS Dej. Er.

1. *C. corticinus*, linearis elongatus, parcius longe sordide pilosus, piccus, fronte concava, thorace latitudine longiore, antrorsum paulo angustato, lateribus rectis, grosse punctato, parcius in medio, postice canaliculato, angulis posticis productis divergentibus, elytris parallelis, striis punctatis vix impressis, interstitiis rugose punctulatis, antennis thorace sesqui longioribus, (maris sublanuginosis,) articulis 2 et 3 subæqualibus. Long. '58.

Elater corticinus Say, Journ. Acad. Nat. Sc. 3, 174; Trans. Am. Phil. Soc. 6, 183.

One specimen, Georgia. The sides of the thorax are scarcely rounded at the anterior angles: the divergence of the posterior angles causes them to appear slightly concave: the carina is about one-third the length of the thorax and very near to the margin.

2. *C. longulus*, linearis elongatus, piceo-niger griseo-pubescent, fronte concava, thorace latitudine longiore, antrorsum paulo angustato, lateribus rectis apice subrotundatis, grosse punctato, parcius in medio, angulis posticis divergentibus, postice canaliculato, elytris parallelis, striis punctatis haud vix impressis, interstitiis parce punctulatis, pedibus rufis, antennis, (maris lanuginosis,) articulo 3^{io} secundo sesqui longiore. Long. '4.

Four specimens, San Diego, California, all of which appear to be males: the antennæ are not much longer than the head and thorax, and are somewhat strongly serrate.

Found with them was a single female, having a complete resemblance in the form and sculpture of every portion of the body, except the thorax, which is brownish red, with the sides straight as far as the middle, then broadly rounded to the apex: the posterior angles are hardly divergent: the antennæ are formed as in the male, and finely pubescent.

3. *C. macer*, elongatus fere linearis, testaceus, vel fuscus, longius pubescens, fronte concava, thorace latitudine longiore, antrorsum angustato, lateribus fere rectis, sat grosse punctato, parcius in disco, postice canaliculato, angulis posticis non divergentibus, elytris a basi subangustatis, striis punctatis, leviter impressis, interstitiis punctis paucis notatis, antennis pubescentibus thorace sesqui longioribus, articulo 3^{io} 2^{ndo} sesqui longiore. Long. '43.

Georgia and New York. Easily distinguished by its very narrow body, not entirely linear as in the preceding, nor as strongly lanceolate as in the following.

4. *C. cuneatus*, modice lanceolatus, fusco-piceus, densius fusco-pubescent, fronte concava, thorace latitudine subbreviore, antrorsum angustato, lateribus late vix rotundatis, disco minus dense sat grosse punctato, linea dorsali lævi antice obsoleta, elytris a basi angustatis, striis punctatis subimpressis, interstitiis disperse punctulatis, antennis (maris lanuginosis) thorace sesqui longioribus, articulo 3^{io} 2^{ndo} duplo maiore. Long. '62.

Georgia. I have only males. The smooth but not impressed dorsal line distinguishes this from the allied species. The sides of the thorax are thickly, the disc less densely, punctured; the posterior angles have two distinct carinæ. In one specimen, which is possibly a distinct species, the thorax is less convex, and with the exception of the dorsal line is equally and densely punctured.

5. *C. incertus*, piceus, fusco-pubescentis, fronte concava, thorace antrosum a basi angustato, latitudine vix brevior, lateribus late rotundatis, crebre punctato, postice subcanaliculato, elytris subparallelis, striis impressis punctatis, interstitiis subtiliter rugose-punctulatis, antennis pedibusque castaneis, illis articulo 3^{io} 2^{ndo} duplo longiore, (maris lanuginosis, feminae pubescentibus.) Long. 61—75.

Missouri Territory. The sides of the thorax in one male are nearly straight; in the females they are broadly rounded: the elytra are very slightly narrowed from the base in the males, while they are parallel in the females. This species is very similar to the next, and is only to be distinguished by the more gradually rounded sides of the thorax. The posterior angles are bicarinate.

6. *C. decumanus*, piceus, fusco-pubescentis, fronte concava, thorace latitudine fere brevior, lateribus postice fere parallelis antice rotundatis, crebre grossius punctato, postice vix canaliculato, elytris parallelis, striis impressis punctatis, interstitiis punctulatis, antennis (maris longius, feminae subtilius) pubescentibus, articulo 3^{io} 2^{ndo} duplo longiore. Long. 68—73.

Erichson, Germ. Zeitschr. 3, 104.

Maryland, Prof. Adams. Although differing but slightly in appearance from the preceding, the antennæ of the male are not covered with erect hairs, but with prostrate hairs, longer than those seen in the female. The inner carina of the posterior angles of the thorax is distinct.

One female differs in having the punctures of the interstices of the elytra very distinct.

7. *C. clandestinus*, niger, subtiliter cinereo-pubescentis, fronte concava, thorace latitudine longiore, elytris vix latior, lateribus fere parallelis antice late rotundatis, confertim subtilius punctato, postice breviter canaliculato, elytris parallelis, striis punctatis, interstitiis subtiliter rugose punctulatis, antennis lanuginosis piceis articulis 2 et 3 parvis æqualibus, pedibus rufis. Long. 32—37.

Erichson, Germ. Zeitschr. 3, 112.

Middle and Southern States.

8. *C. secretus*, niger, nitidus, pube subtili atro-griseo vix conspicua vestitus, fronte late concava, fortius marginata, thorace latitudine longiore lateribus parallelis antice rotundatis, minus convexo, disperse punctato, postice breviter canaliculato, elytris thorace vix angustioribus parallelis, striis profunde punctatis, interstitiis disperse punctulatis, pedibus antennisque rufis, his breviter lanuginosis, articulo 3^{io} 2^{ndo} paulo longiore. Long. 32—41.

Georgia. The carina of the posterior angles of the thorax is very long, very close to the margin, and parallel with it. The form of the thorax causes this species to resemble the preceding, but its characters are very different. It, however, forms the passage from the species having the front concave, to those with the front flattened or convex.

9. *C. ignobilis*, fusco-piceus, elongatus, griseo-pubescentis, fronte plana, margine subreflexo, thorace latitudine subbrevior antrosum paulo angustato, lateribus rectis, minus convexo, sat dense punctato.

tato, carina angulari margini valde approximata, elytris a basi attenuatis, punctis magnis seriatis, interstitiis parce punctulatis, antennis elongatis, valde serratis, articulo 3^o secundo sesqui longiore, pedibus castaneis. Long. .41.

Melanotus ignobilis Mels. Proc. Acad. Nat. Sc. 32, 152.

A very distinct species, of which I have seen only the single male found in Pennsylvania by Dr. Melsheimer: the pubescence of the antennæ is very short, but dense and erect.

10. *C. depressus*, modice elongatus, piceus, griseo-pubescentis, fronte plana, submarginata, thorace latitudine non brevior, antrorsum angustato, lateribus rectis, antice vix rotundatis, parce distincte punctato, minus convexo, carina angulari margini valde approximata, elytris a basi attenuatis striis impressis subtilius punctatis, interstitiis vage punctulatis, antennis (maris lanuginosis, feminae longius pubescentibus) articulo 3^o 4^o vix brevior, pedibus rufis. Long. .36—4.

Otenonychus depressus Mels. Proc. Acad. Nat. Sc. 2, 151.

Middle and Southern States, not rare. In the male the elytra are more attenuated, and almost straight on the sides; in the female the sides are slightly rounded.

11. *C. angustatus*, rufo-testaceus, nitidus, modice elongatus subtiliter griseo-pubescentis, fronte plana, thorace minus convexo latitudine vix brevior, antrorsum angustato, lateribus rectis apice paulo rotundatis parce subtilius punctato, carina angulari elongata margini valde approximata, elytris striis vix impressis distincte punctatis, interstitiis vix subtiliter punctulatis, antennis articulo 3^o 4^o paulo brevior. Long. .36.

Erichson, Germ. Zeitschr. 3, 113.

Otenonychus testaceus Mels. Proc. Acad. Nat. Sc. 2, 151.

One specimen from Pennsylvania in Dr. Melsheimer's collection, which agrees with Erichson's description in every respect except in being rather paler coloured.

12. *C. trapezoides*, fusco-piceus, longius griseo-pubescentis, fronte fere plana, utrinque paulo impressa, thorace latitudine brevior, antrorsum paulo angustato, parce grossius punctato, lateribus rectis, carina angulari margini approximata, elytris subparallelis, striis impressis subtilius punctatis, interstitiis parce punctatis, pedibus rufis, antennis piceo-rufis, (maris sublanuginosis) articulo 3^o 2^{ndo} duplo longiore. Long. .31—36.

New Jersey, Mr. Guex. Similar in characters to *C. depressus*, but somewhat less elongated, with a shorter thorax; the third joint of the antennæ is intermediate in size to the second and fourth.

13. *C. tænicollis*, niger, minus subtiliter albido-pubescentis, fronte subimpressa, marginata, thorace latitudine non brevior, minus convexo, lateribus postice parallelis, antice rotundatis, parce punctato, margine omni læte rufo, elytris parallelis, striis punctatis, vix impressis, interstitiis parce fortius punctatis, margine basali pedibusque læte rufis, antennis piceo-rufis longius pubescentibus, articulis 2 et 3 parvis æqualibus. Long. .35.

One specimen, Philadelphia, Mr. Schafhirt. Peculiar from the very quadrate form of the thorax; the inflexed portion of the thorax is red, the prosternum black; the carina of the posterior angles of the thorax is short, and diverges a little from the margin; the antennæ do not reach beyond the base of the thorax.

14. *C. Leonardi*, niger, subtilius cinereo-pubescentis, fronte paulo convexa, thorace læte sanguineo, latitudine vix longior, convexiusculo antrorsum angustato, et lateribus rotundato, punc-

tato, parcius in disco, postice subcanaliculato, elytris subparallelis, striis punctatis, interstitiis parce distinctius punctatis, pedibus rufo-piceis, antennis (maris lanuginosis, feminae pubescentibus) articulis 2 et 3 parvis æqualibus. Long. .42.

Georgia, Pennsylvania, and New Hampshire; for a fine specimen from the last locality, collected by the Rev. Mr. Leonard, I am indebted to Dr. Harris. The whole appearance is precisely that of *Elater rubricollis*, but the thorax is brighter coloured. The prosternum is black; the carina of the posterior angles of the thorax is one-fourth the length of the thorax, and diverges slightly. Dr. Harris considers this as *Elater collaris* Say: for the reasons which compel me to differ with him, see the remarks under species (29) of *Elater*.

15. *C. scrobicollis*, piceus, elongatus, fusco-pubescentibus, fronte minus convexa, thorace latitudine sublongiore, antrosum sensim angustato, lateribus vix rotundatis, canaliculato, grosse sat dense punctato, elytris striis punctatis, interstitiis perparce punctatis, antennis (maris lanuginosis, feminae pubescentibus) articulis 2 et 3 subæqualibus. Long. .6—·67.

Middle States and Lake Superior. Brownish piceous, not densely clothed with brown pubescence. Head coarsely and densely punctured, front slightly flattened, not impressed. Antennæ longer than the head and thorax; pubescence in the male erect, in the female depressed; third joint hardly larger than the second. Thorax a little longer than wide, not wider than the elytra, sides oblique from the base, and hardly rounded; disc very coarsely, tolerably densely punctured, dorsal line impressed posteriorly, obsolete before the middle; posterior angles continuing the line of the side, carina extending almost to the middle, internal carina wanting. Elytra slightly narrowed from the base in the male, nearly parallel for two-thirds the length in the female, striæ not deep, coarsely punctured, interstices with a few fine punctures; feet very dark castaneous.

A male specimen from New York differs in having the sides of the thorax nearly parallel behind the middle, and considerably rounded in front; if this should not be an accidental distortion, it would seem to indicate a different species; but after careful comparison no other difference could be discovered.

16. *C. inæqualis*, piceus, fusco-pubescentibus, fronte convexa, thorace subtransverso, postice subcanaliculato, lateribus subangulato, grosse sat dense punctato, elytris subparallelis, seriatim punctatis, interstitiis distinctius parce punctatis, antennis (feminae) pubescentibus articulo 3^{io} secundo sesqui maiore. Long. .70.

One specimen from Point Kewenaw, Lake Superior. Brownish piceous, not densely clothed with brown pubescence. Head coarsely densely punctured, convex, scarcely impressed. Antennæ longer than the head and thorax; third joint much smaller than the fourth, and one-half larger than the second. Thorax as wide as the elytra, a little broader than long, sides behind the middle almost parallel, then strongly narrowed to the apex, and almost angulated on the sides; disc very coarsely and tolerably densely punctured, slightly channelled posteriorly; posterior angles diverging from the line of the side; carina extending nearly midway from the angle to the anterior margin, internal carina hardly visible; elytra nearly parallel, narrowed for the posterior third of their length; striæ not impressed, composed of well defined lines of punctures; interstices flat, distantly and strongly punctured; beneath, uniform piceous brown; legs castaneous.

17. *C. glandicolor*, castaneus, fusco-pubescentibus, fronte minus convexa, thorace latitudine vix longiore, a basi sensim angustato, lateribus rectis ad apicem subito rotundatim angustatis, postice subcanaliculato, parce grosse punctato, elytris subparallelis, striis punctatis, interstitiis planis parce punctatis, antennis (feminae) pubescentibus, articulis 2 et 3 aequalibus. Long. .70.

Melanotus glandicolor Mels. Proc. Acad. Nat. Sc. 2, 152.

One specimen from Pennsylvania in Dr. Melsheimer's collection. This species is very distinct by the form of the thorax, the sides of which are perfectly straight and oblique from the tip of the posterior angles to within one-sixth of the apex, where they are suddenly rounded; the carina of the posterior angle is one-third the length of the thorax.

18. *C. fissilis*, fusco-piceus, brunneo-pubescentibus, fronte margine paulo reflexo, parum producto, thorace elytris latiore, latitudine paulo longiore, antrorsum valde angustato, lateribus rotundatis, angulis posticis bicarinatis non divaricatis, sat grosse punctato, non canaliculato, elytris a basi attenuatis, seriatim punctatis, interstitiis parce punctatis, et rugosis, antennis articulo 3^o sequente vix brevior. Long. .56—.62.

Cratonychus laticollis Erichson, Germ. Zeitschr. 3, 102.

? *Elater brevicollis* Herbst, Käfer, 10, 46, tab. 162, fig. 3.

Cratonychus ochraceipennis Melsheimer, Proc. Acad. Nat. Sc. 2, 150.

Cratonychus sphenoidalis Melsheimer, Proc. Acad. Nat. Sc. 2, 150 (teste Melsheimer.)

Elater cinereus†(*fissilis*) Say, Trans. Am. Phil. Soc. 6, 183.

Elater (*Melanotus*) *cinereus*†Harris, Ins. Injurious to Vegetation 2nd ed. 48.

Abundant in the Middle and Southern States. Easily distinguished by the thorax being wider than the elytra, and not channelled. *C. ochraceipennis* is an immature specimen, in a bad condition. The posterior angles of the thorax in this species are distinctly bicarinate, and the basal fissures very distinct.

19. *C. communis*, fuscus, brunneo-pubescentibus, fronte non concava, paulo producta, thorace elytris sublato, latitudine non longiore, antrorsum valde angustato, angulis posticis bicarinatis, sat grosse punctato, postice canaliculato, elytris striis subimpressis punctatis, interstitiis minus dense rugose punctulatis, antennis articulo 3^o sequente paulo brevior. Long. .45—.55.

Dejean, Cat. ed. 3^o: Erichson, Germ. Zeitschr. 3, 102.

Elater communis Gyllenhal, Schönh. Syn. Ins. 3, Ap. 138, (1817;) Say, Tr. Am. Phil. Soc. 6, 184.

Perimecus communis Kirby, Fauna Bor. Am. 148.

Elater (*Melanotus*) *communis* Harris, loc. cit. 48.

Elater cinereus Weber, Obs. Ent. 77, (1801.)

Abundant, as far as Nebraska. The last synonym is usually given to the preceding species, but, as Weber says, "Thorax punctatus basi canaliculatus," it cannot be there placed. His name has properly priority; but as many entomologists will refuse to adopt the view here given, (which has indeed already been advanced by Kirby,) the change of name would only lead to confusion.

One specimen from New Orleans, given me by Dr. Schaum, has the front moderately deeply concave: the thorax appears a little less convex, and more deeply channelled; but there does not appear sufficient reason to separate it.

20. *C. exuberans*, fusco-piceus, brunneo-pubescentibus, fronte non concava, paulo producta, thorace

latitudine longiore, antrorsum modice angustato, lateribus latius rotundatis, sat grosse punctato, angulis posticis bicarinatis, elytris a basi angustatis, striis punctatis subimpressis, interstitiis parce punctulatis, pedibus obscure ferrugineis, antennis articulo 3^{io} sequente paulo brevior. Long. .53.

Two specimens, Santa Fe, collected by Mr. Fendler. This species is related to the two preceding, but differs by its narrower form, the thorax being proportionally longer, and not wider than the elytra, less narrowed in front, and less rounded on the sides.

21. *C. parumpunctatus*, nigro-piceus, cinereo-pubesens, fronte non concava, thorace latitudine paulo longiore, antice præcipue versus apicem magis angustato, lateribus rotundatis, parce modice punctato, postice subcanaliculato, elytris a basi angustatis, striis punctatis, paulo impressis, interstitiis parce punctulatis, pedibus antennisque ferrugineis, his articulo 3^{io} sequente paulo brevior. Long. .45.

Melshimer, Proc. Acad. Nat. Sc. 2, 150.

Middle States. This species has very much the appearance of *C. communis*, but is darker coloured, and has the punctures of the thorax somewhat smaller, and much less dense: even at the sides they are not at all confluent; the posterior angles of the thorax do not appear bicarinated; otherwise there is no special difference.

22. *C. verberans*, fuscus, cinereo-pubesens, fronte non concava, thorace latitudine non longiore, antrorsum valde angustato, lateribus rotundatis, parce modice punctato, angulis posticis vix bicarinatis, elytris a basi angustatis, striis punctatis subimpressis, interstitiis parce punctulatis, antennis pedibusque fusco-testaceis, illis articulo 3^{io} sequente sesqui minore. Long. .39—47.

Two specimens, Maryland. Resembles exactly *C. communis*, but the thorax is less rounded on the sides, and less densely punctured: there is no trace of a dorsal channel: the inner one of the carinæ of the posterior angles is less distinct, and the third joint of the antennæ is proportionally smaller, being about intermediate in size between the second and fourth.

23. *C. emissus*, longior, fuscus, cinereo-pubesens, fronte non concava, thorace latitudine non longiore, lateribus parallelis, antice rotundatis, modice punctato, densius ad latera, angulis posticis bicarinatis, elytris a basi subangustatis, striis punctatis subimpressis, interstitiis parce punctatis, antennis pedibusque testaceis, illis articulo 3^{io} sequente sesqui minore. Long. .41.

One specimen, Georgia. More cylindrical than the preceding, with the elytra less narrowed posteriorly, and easily distinguished by the sides of the thorax being nearly parallel for three-fourths of their length. The punctures of the thorax are finer and more numerous than in the next species.

24. *C. infaustus*, piceo-fuscus, longior, cinereo-pubesens, fronte non concava, thorace latitudine longiore, lateribus rectis, paulo convergentibus, antice rotundatis, parce punctato, elytris a basi angustatis, striis impressis punctatis, interstitiis parce punctulatis, pedibus antennisque castaneo-rufis, his articulo 3^{io} sequente subbrevior. Long. .46.

Georgia. The straight, slightly converging sides of the thorax, rounded only near the apex, will distinguish this species: the posterior angles have only one carina.

25. *C. cribulosus*, fuscus, longius cinereo-pilosus, fronte non concava, thorace latitudine non longiore, antrorsum angustato, lateribus (maris fere rectis) feminæ rotundatis, cribratim punctato,

densius ad latera, elytris a basi subangustatis, striis impressis punctatis, interstitiis parce punctulatis, antennarum articulo 3^o sequenti æquali, pedibusque fusco-testaceis. Long. ·37—·43.

Nebraska Territory. The difference in the form of the thorax of the two sexes is very great: in the male the sides converge regularly, with scarcely any curvature; in the female the disc is more convex, and the sides are considerably rounded, especially in front: the third joint of the antennæ is wider than usual, and nearly as wide as the fourth.

26. *C. pertinax*, piceo-niger, parce longius cinereo-pilosus, fronte subconca, thorace latitudine subbreuiore, convexo, lateribus postice parallelis, ante medium valde rotundatis, parce punctato, punctis in medio fere obsoletis, postice canaliculato, elytris lateribus parallelis, postice oblique angustatis, striis punctatis vix impressis, interstitiis parce subtiliter punctulatis, antennis pedibusque rufis, illis articulo 3^o sequente non breuiore. Long. ·42.

Elater pertinax Say, Trans. Am. Phil. Soc. 6, 185.

Massachusetts and Georgia. An easily recognised species: the punctures of the thorax, anteriorly and at the sides, are tolerably large; in the middle they are almost obsolete.

27. *C. dubius*, piceo-niger, cinereo-pubescent, fronte non concava, thorace latitudine non breuiore, lateribus rectis, convergentibus, apice rotundatis, parce punctato, subtilius ad medium, postice canaliculato, elytris antice fere parallelis, striis punctatis vix impressis, interstitiis rugose punctulatis, pedibus antennisque rufis, his articulo 3^o sequente non breuiore. Long. ·33.

One specimen, New York. The deep posterior dorsal channel, and the fine punctures of the interstices of the elytra will distinguish this from the next species: it may possibly be the male of the preceding species, but there is no evidence of it except the general similarity of sculpture: the pubescence is denser and not so long: the thorax, however, bears pretty much the same relation in the two species as in the two sexes of *C. cribulosus*.

28. *C. tenax*, piceo-niger, cinereo-pubescent, fronte non concava, thorace latitudine longiore, antrorsum subangustato, lateribus antice paulo rotundatis, parce æqualiter punctato, postice vix obsolete canaliculato, elytris striis punctatis, interstitiis minus subtiliter punctatis, pedibus antennisque rufis, his articulo 3^o sequente paulo breuiore. Long. ·3—·35.

Elater tenax Say, Trans. Am. Phil. Soc. 6, 185.

Middle and Southern States. The punctures of the interstices of the elytra are as large as those of the striæ, and will distinguish this from all other species here described. The striæ in one specimen are tolerably deep; in two others they are not impressed. The elytra in the male are narrowed slightly from the base; in the female they appear nearly parallel.

29. *C. americanus*, fuscus, cinereo-pubescent, fronte non concava, paulo producta, thorace latitudine non longiore, antrorsum magis angustato, lateribus ante medium rotundatis, postice breviter canaliculato, elytris a basi angustatis, striis fortius punctatis, non impressis, interstitiis parce punctulatis, antennis articulo 3^o secundo æquali. Long. ·28—·35.

Erichson, Germ. Zeitschr. 3, 114.

Elater americanus Herbst, Käfer, 10, 74; tab. 165, fig. 2.

A very common species: the punctures of the thorax are hardly smaller at the middle: the small size of the third joint of the antennæ will distinguish it from any with which it is liable to be confounded: Erichson mentions neither this, nor the posterior dorsal chan-

nel, which is, however, very short. The thorax is more convex in the female, and more rounded on the sides than in the male.

30. *C. insipiens*, elongatus, testaceus, cinereo-pubescent, fronte non concava, paulo producta, thorace latitudine longiore, lateribus antice late rotundatis, minus dense punctato, postice canaliculato, elytris subparallelis, striis punctatis impressis, interstitiis punctulatis, antennis articulo 3^o sequente paulo brevior. Long. .23.

Elater insipiens Say, Trans. Am. Phil. Soc. 6, 184.

Southern States. Distinguished from the following by the dorsal channel of the thorax, and its rounded sides.

31. *C. tenellus*, elongatus, testaceus, cinereo-pubescent, fronte non concava, paulo producta, thorace latitudine longiore, lateribus rectis obliquis, minus convexo, minus dense punctato, non canaliculato, elytris a basi subangustatis, striis punctatis impressis, interstitiis parce punctulatis, sutura late fuscescente. Long. .18—23.

Erichson, Germ. Zeitschr. 3, 114.

Georgia. The darker suture gives this insect somewhat the appearance of *Adrastus recticollis*, but a very slight glance enables them to be separated.

32. *C. oregonensis*, nigro-piceus, longior, cinereo-pubescent, fronte non concava, vix producta, thorace latitudine longiore, convexiusculo, lateribus obliquis ad apicem rotundatis, angulis posticis divaricatis, sat grosse, lateribus densius punctato, postice canaliculato, elytris fere parallelis, striis punctatis vix impressis, interstitiis parce punctulatis, pedibus antennisque piceis, his articulo 3^{io} sequenti sesqui brevior. Long. .48.

One specimen, Oregon, Col. M'Call. Sufficiently distinct from any of those above described, and resembling perhaps most nearly *C. infaustus*, but having the thorax more densely punctured and more oblique on the sides, and the third joint of the antennæ hardly more than half the size of the fourth, and only one half larger than the second.

33. *C. longulus*, testaceo-fuscus, elongatus, cinereo-pubescent, fronte non concava, thorace latitudine longiore, lateribus obliquis antice vix rotundatis, parce subtiliter punctato, postice breviter canaliculato, elytris fere parallelis striis punctatis subimpressis, interstitiis parce subtiliter punctatis, antennis articulo 3^{io} 2^{ndo} sesqui longiore. Long. .37.

Georgia. My specimens are in bad condition. The third joint of the antennæ is intermediate in length between the second and fourth: the feet are paler than the body.

34. *C. sagittarius*, fuscus, vel testaceus, elongatus, cinereo-pubescent, fronte subconcava, apice subangulata, thorace minus convexo, latitudine non longiore, antrorsum angustato, lateribus antice late rotundatis, postice breviter canaliculato, parcius sat grosse punctato, elytris a basi angustatis, seriatim punctatis, interstitiis parce punctulatis, antennis articulo 3^{io} secundo sesqui longiore, pedibus pallidioribus. Long. .54.

Middle States, rare. This and the next species seem to differ from all the preceding ones in having the clypeus almost angulated at the apex, although not as convex as in the species of *Elater*: from *C. corticinus*, *macer*, and *exuberans*, which alone resemble it in general form, it is easily distinguished by the characters above given.

35. *C. paradoxus*, elongatus, nigro-piceus, cinereo-pubescent, fronte subconcava, apice suban-

gulata, thorace minus convexo, antrorsum valde angustato, lateribus rotundatis; (vel potius ad medium obsolete angulatis,) carina angulari elongata, minus dense sat grosse punctato, elytris a basi angustatis, parce subtilius punctatis, striis internis oblitteratis, antennis pedibusque rufis, illis articulo 2^{do} 3^{ioque} æqualibus. Long. .6.

Melanotus paradoxus Melsheimer, Proc. Acad. Nat. Sc. 2, 152.

One specimen from Pennsylvania, in Dr. Melsheimer's collection. The sides of the thorax are so obtusely angulated, that they may almost be called rounded: the outer striæ of the elytra are punctured and slightly impressed: the inner ones are reduced to small punctures, which are confused with those belonging to the interstices; the thorax has a very slight and short impression at the middle of the base. This species agrees accurately with *C. prolixus* Er. (Germ. Zeitschr. 3, 94) from Mexico, except that the breast and abdomen are not castaneous.

Besides these, there are described as occurring in North America, the following species, which I do not possess, or cannot identify with certainty.

C. castanipes Er. Germ. Zeitschr. 3, 95. *Perimecus fulvipes* Kirby, Fauna Bor. Am. 148.

C. spadix Er. Germ. Zeitschr. 3, 103. ? *C. cuneatus* Lec.

C. abdominalis Er. Germ. Zeitschr. 3, 104.

C. vetulus Er. Germ. Zeitschr. 3, 105.

Perimecus similis Kirby, Fauna Bor. Am. 149.

MONOCREPIDIUS *Esch.* (*emend.*)

Frons paulo convexa, antice rotundatim marginata, margine prominulo: mandibulæ parvæ, apice subemarginatæ: palpi articulo ultimo triangulari, oblique truncato, acuto: antennæ parum serratæ, articulo primo elongato, 2 et 3 sequentibus angustioribus, 4^{to} coniunctis longioribus: prosternum antice lobatum, mucrone postice non inflexo, sutura laterali recta, antice haud, vel vix excavata: mesosternum non protuberans: coxæ posticæ laminis intus subito modice dilatatis, dente interno magno, rotundato: tarsi pubescentes, articulo 1^{mo} sequentibus duobus æquali, 4^{to} subtus sæpe lobato, in (C.) autem simplici: 5^{to} longiore, unguiculis integris.

In this genus I include several species, placed by Germar in his second division of *Cryptohypnus*, with which they have very little relation: they accord nearly with *Elater*, and seem to differ only in having the front less convex and not angulated, the first joint of the antennæ elongated, and the internal tooth of the posterior coxæ rounded. I was at first inclined to consider the species like *El. dorsalis*, in which the tarsi are not lobed, as a distinct genus; but finding no other difference, and seeing, moreover, that in the species with lobed tarsi, there is no constancy in the form of the prolongation, it appears more natural to consider them as forming one natural genus, in which, as in many others of this tribe, the form of the fourth joint of the tarsi is variable: the posterior angles of the thorax are carinate, produced and sharp: basal fissures none.

Our species may be grouped as follows:—

- | | | | | | |
|--|---|---|---|---|-----------|
| A. Tarsi articulo 4 ^{to} lobato, lobo valde dilatato | - | - | - | - | Sp. 1—3. |
| B. Tarsi articulo 4 ^{to} lobato, lobo angusto, (frons convexior:) | - | - | - | - | Sp. 4—8. |
| C. Tarsi articulo 4 ^{to} non lobato, (frons convexior:) | - | - | - | - | Sp. 9—14. |

The latter division differs from *Cryptohypnus*, by the prosternum not being dilated in the middle, by the tarsi not being furnished with long bristles, and by the coxal plates being less dilated.

A. *Tarsi articulo 4^{to} lobo dilatato instructo.*

1. *M. lividus*, fuscus pube densa pallide cinereo-fusca vestitus, thorace elongato, antrorsum angustato, lateribus late rotundatis, angulis posticis divergentibus, elytris striis punctatis, antennis testaceis, pedibus pallidis. Long. .5—7.

Elater lividus De Geer, Ins. 4, 162; tab. 18, fig. 13.

Elater castanipes †Herbst, Käfer, 10, 23; tab. 160, fig. 5.

Elater lobatus Say, Journ. Acad. Nat. Sc. 3, 175; Trans. Am. Phil. Soc. 6, 174.

Monocrepidius lobatus Germ. Zeitschr. 1, 228.

Middle and Southern States. De Geer's figure and description cannot possibly refer to any other North American species: in a report upon the Coleoptera described by Beauvois, by M. Chevrolat, (Ann. Ent. Soc. France, Sept. 1852,) the name of De Geer is given to *Elater elongatus Beauv.*, a species mentioned as occurring in Hayti: as, however, De Geer states that his specimens came from Pennsylvania, it is obviously imprudent to apply his specific name to a West Indian species, until specimens from different localities have been compared, and their identity fully shown. The female is larger and more robust than the male, and has the sides of the thorax more rounded anteriorly. Germar places this among the species that have the elytra armed with an apical spine, but there is no such character to be seen in any of my specimens.

2. *M. aversus*, fuscus, elongatus, pube densa subcinerea brevissima vestitus, thorace infra flavo-marginato, elongato, lateribus vix rotundato, basi flava, angulis posticis non divaricatis, elytris striis punctatis, scutello, antennis, pedibusque flavo-testaceis. Long. .36.

Georgia, rare. The body is entirely, finely and densely punctulate, as in the preceding species; the pubescence is very short and depressed, hardly altering the general colour of the insect.

3. *M. suturalis*, fuscus, tenuiter cinereo-pubescent, thorace testaceo, linea dorsali fusca, elongato, lateribus late rotundatis, punctato, elytris parallelis, testaceis, vitta communi suturali ad basin et versus apicem latiore, margineque pone medium fuscis, striis punctatis, interstitiis subtilissime punctulatis, antennis pedibusque flavis. Long. .27.

A specimen from Alabama, communicated by Dr. Harris, under the name adopted. This species is very distinct from the two preceding by the distinct punctures of the thorax. The head is fuscous, with the palpi and antennæ pale yellow. The under surface is fuscous, with the exception of the feet, the anterior margin of the prosternum, and the inflexed portion of the prothorax, which are testaceous yellow.

B. *Tarsi articulo 4^{to} lobo angusto, (frons convexior.)*

4. *M. sordidus*, fuscus pube subtili sordida dense vestitus, thorace elongato, convexiusculo, lateribus late rotundato, punctato, angulis posticis pallidioribus subdivergentibus, elytris striis punctatis, interstitiis vix subtilissime punctulatis, antennis articulo 3^{io} 2^{no} longiore, testaceis, palpis pedibusque flavis. Long. .31—37.

Two specimens found on the Gila River, New Mexico. This is a moderately stout species, intermediate in form between the slender *M. vespertinus* and the other species of this group: the oblique side of the last triangular joint of the palpi is straight, so that those organs appear more acute at the tip than in the other species.

5. *M. vespertinus*, elongatus infra testaceus, supra fuscus, cinereo-pubescent, thorace latitudine longiore, punctulato, vittis duabus dilatatis nigro-fuscis, scutello testaceo, elytris vitta discoidali testacea, pone medium sæpissime interrupta, striis obsolete punctatis, antennis articulis 2 et 3 subæqualibus. Long. .27—.40.

Dej. Cat. p. 98.

Elater vespertinus Fabr. Syst. El. 2, 240: Herbst, Käfer, 10, 131: Say, Tr. Am. Ph. Soc. 6, 177.

Elater finitimus Say, Trans. Am. Phil. Soc. 6, 179.

Monocrepidius serotinus Germ. Zeitschr. 1, 227.

Middle and Southern States. Varies very much both in size and colour: the thorax is occasionally black, with a narrow margin and vitta testaceous: the type with the elytral vitta entire and uniform is rare; the only specimen I have seen was given me by Mr. Guex: the vitta is sometimes reduced to a small humeral spot, one about the middle, and a less distinct one towards the tip. The thorax is longer, less narrowed in front, and much less rounded on the sides in the male than in the female: in both sexes the posterior angles are slightly divergent. *El. finitimus* Say, from a type in Dr. Harris' collection, is a dark variety of this species.

6. *M. auritus*, crassiusculus, fuscus, subtiliter pubescens, thorace convexo, ante medium angustato, angulis posticis vix divergentibus, confertim punctato, testaceo, nigro-bimaculato, (sæpe nigro, angulis posticis vittaque obsolete rufo-testaceis,) scutello sæpe testaceo, elytris macula utrinque basali, (ad medium sæpe extensa,) alteraque apicali rufo-testaceis, (sæpe obsolete,) striis antice punctatis, interstitiis subtilissime punctulatis, pedibus testaceis, antennis basi pallidioribus, articulis 2 et 3 subæqualibus, 4^{to} coniunctis longioribus. Long. .2—.29.

Germ. Zeitschr. 5, 148, 190.

Elater auritus Herbst, Käfer, 10, 145.

Oophorus crassicollis Melsheimer, Proc. Acad. Nat. Sc. 2, 214.

New York, Georgia, Missouri Territory, Lake Superior. Extremely variable in colour; some specimens being testaceous above, with merely the head, margin of the elytra, and narrow posterior fascia blackish, while others are entirely black; these pass insensibly into each other, so that no well defined varieties can be separated. In Melsheimer's catalogue of described Coleoptera of the United States, his *O. crassicollis* is erroneously placed under *Cryptohypnus*, but on inspecting the typical specimen I found the tarsal lobe very distinct. The male differs from the female by the thorax being longer and less rounded on the sides.

7. *M. blandulus*, modice elongatus, parce flavo-pubescent, fuscus, thorace testaceo, fusco bivitato, latitudine longiore, a basi antrorsum angustato, lateribus vix rotundatis, punctis minutis et maioribus intermixtis sat dense punctato, elytris testaceis postice gradatim angustatis, margine suturaque postice latiore fuscis, striis antice valde punctatis, interstitiis convexis, vix subtiliter punctulatis, pedibus antennisque flavis, his articulis 2 et 3 æqualibus, coniunctis 4^{to} longioribus. Long. .19.

One male specimen, Georgia. Intermediate in form between *M. vespertinus* and *M.*

auritus, and easily distinguished from both by the punctuation of the thorax being composed of large and small points intermixed: a large series of specimens would undoubtedly show great variations in colour.

8. *M. bellus*, crassiusculus, niger, flavo-pubescent, thorace distinctius punctato, linea dorsali angulisque posticis brevibus testaceis, elytris lineolis pluribus maculaque ante apicem testaceis, striis antice valde punctatis, interstitiis subtilissime punctulatis, pedibus antennisque flavis, his extrorsum crassioribus, articulis 2 et 3 æqualibus, 4^{to} vix longiore. Long. ·14—·16.

Dej. Cat. p. 98.

Elater bellus Say, Journ. Acad. Nat. Sc. 3, 168.

Cryptohypnus bellus Germ. Zeitschr. 5, 147.

Abundant in the middle and Western States. Although Germar affirms positively that the fourth tarsal joint is not lobed, I find no difficulty in distinguishing the appendage, when it is not obscured by dust; it seems, in proportion to size, quite as distinct as in *M. auritus*.

C. Tarsi articulo 4^{to} non lobato; frons convexa.

9. *M. comis*, testaceus, subtiliter longius pubescens, capite piceo, thorace latitudine longiore antice angustato, et lateribus rotundato, sat dense subtilius punctato, vitta dorsali sæpe dilatata picea, elytris striis subtilibus punctatis, interstitiis vix subtilissime punctulatis, vitta dorsali antice abbreviata sæpissime cum sutura confluenta, fasciaque postica nigro-piceis, postpectore abdomineque piceis. Long. ·22—·3.

California: found at San Francisco and San Jose. This species resembles, in appearance, *M. dorsalis*, but is at once distinguished by the finer punctures of the thorax, and the less deep and less strongly punctured striæ of the elytra: the pubescence is longer and denser, although not less fine. The general form of the markings of the elytra is that of *M. dorsalis*, but the dorsal vitta does not appear to be ever interrupted, nor is it ever well separated from the suture, and is most frequently entirely confluent with the suture. The prosternum seems to be always more or less piceous.

10. *M. livens*, testaceus, subtiliter longius pubescens, capite subinfusato, thorace latitudine longiore, antice angustato et lateribus rotundato, sat dense minus subtiliter punctato, vitta dorsali antice abbreviata infusata, sæpe obsoleta, elytris striis modice profundis punctatis, interstitiis subtilissime punctulatis, sutura, vitta dorsali antice paulo divergente fasciaque postica infusatis. Long. ·29.

California, at Vallecitas and at the Colorado river. Differs from the preceding by the coarser punctuation of the thorax, and the uniform yellow colour of the under surface. In one specimen the fuscous markings of the upper surface are reduced to an angulated band near the tip of the elytra, and slightly dilated along the suture.

11. *M. circumscriptus*, nigro-piceus, subtiliter parce pubescens, thorace latitudine longiore, testaceo, vitta dorsali dilatata nigro-picea, confertim minus subtiliter punctato, elytris striis punctatis, sat profundis, interstitiis punctulatis, testaceis vitta integra nigro-picea postice cum sutura confluenta; abdomine lateribus rufescente, antennis pedibusque flavis. Long. ·2—·3.

Elater circumscriptus Germ. Ins. Nov. 46.

? *Cryptohypnus circumscriptus* Germ. Zeitschr. 5, 146.

Middle and Southern States. I place a query before the last synonym, as nothing is

said in the description concerning the testaceous sutural margin of the elytra, and the dorsal vitta of the thorax is said to be abbreviated. Three specimens in my collection agree perfectly with the first description given by Germar: a fourth has a small fuscous fascia near the apex of the elytra, thus approaching Germar's second description: the vitta of the elytra might very easily be so dilated as to remove the sutural yellow margin entirely, and if this form coexisted with the posterior band just mentioned, the elytra would agree with those described in Germar's *Zeitschrift*: but I cannot suppose that the dorsal black vitta of the thorax would ever become abbreviated posteriorly as there described.

Apart from the coloration of the elytra, this species is distinguished from *M. dorsalis* by the longer and more densely punctured thorax: the thorax of the male is almost one-half longer than wide, and its sides are nearly straight: those of the female are broadly rounded anteriorly, and the disc is anteriorly a little more convex than in *M. dorsalis*. The under surface of the thorax and prosternum is more or less varied with blackish piceous.

12. *M. dorsalis*, testaceus, subtiliter parce pubescens, capite nigro, thorace latitudine longiore, antice angustato et lateribus rotundato, minus dense punctato, linea dorsali fusiformi nigra, elytris striis profundis punctatis, interstitiis parce punctulatis, macula utrinque elliptica ante medium, fasciaque pone medium angulata nigris, postpectore abdomineque nigro-fuscis. Long. ·23—·27.

Elater dorsalis Say, Journ. Acad. Nat. Sc. 3, 167.

Cryptohypnus dorsalis Germ. Zeitschr. 147.

A very common species, sufficiently distinct from all its allies by the distinct, distant punctures of the thorax.

13. *M. amabilis*, testaceus, subtiliter parce pubescens, capite nigro, thorace latitudine longiore, antice angustato et lateribus rotundato, sat dense punctato, linea dorsali fusiformi nigra, elytris striis sat profundis punctatis, interstitiis parce punctulatis, sutura antice, macula utrinque elongata, fasciaque postica angulata nigris. Long. ·18.

Maryland, Prof. Adams. This beautiful little species is a miniature of *M. dorsalis*, and only differs by the thorax being more densely punctured, and a little more convex: the suture is blackish near the scutellum, and the spot shows a disposition to be prolonged to the posterior band, neither of which characters is seen in *M. dorsalis*. In two specimens the under surface is testaceous, in a third the postpectus and abdomen are dusky.

14. *M. lepidus*, testaceus, subtiliter pubescens, capite nigro, thorace latitudine sesqui longiore, antice vix angustato, angulis posticis divaricatis, confertim minus subtiliter punctato, linea tenui dorsali fusca, elytris striis profundis punctatis, interstitiis parce punctulatis, sutura angustissime, vittaque angusta versus apicem cum sutura confluyente fuscis, hac sæpe obsoleta. Long. ·18.

Two specimens, Georgia. The colour beneath is uniform, pale, testaceous. This species is less shining than the others, and more elongate in its form: the long densely punctured thorax, not narrowed in front, hardly rounded on the sides, and slightly narrowed before the divergent posterior angles will readily distinguish it.

HEMIRHIPUS Latr.

1. *H. fascicularis*, niger, dense fusco-cinereo-pubescens, thorace latitudine longiore, antrorsum modice angustato, lateribus rufescentibus late rotundatis, sat grosse punctato, basi medio breviter ele-

vato, elytris striis punctatis, interstitiis punctulatis alternatim paulo elatioribus, lineis undatis apiceque fuscis. Long. ·75.

Germ. Zeitschr. 2, 272.

Elater fascicularis Fabr. Syst. El. 2, 222: Oliv. Ent. 31, 8; tab. 5, fig. 56: Herbst, Käfer, 10, 104; tab. 168, fig. 1.

Baltimore, North Carolina, Texas, extending into Mexico, and, according to authors, found also in South America. From the extensive range through which it occurs in North America, it is scarcely to be supposed that this insect, though rare with us, has been introduced.

CRYPTOHYPNUS *Esch.* (*emend.*)

This genus is here restricted to such species as have the prosternum broader in the middle than at either end: the lateral suture is consequently convex outwards: the coxal plates are suddenly moderately dilated internally, but the tooth is not prominent: the tarsi are moderately short, and hispid with long bristles. Our species may form two groups.

A. *Prosternum lobo rotundato; palpi articulo ultimo triangulari.* Sp. 1—5.

1. *C. silaceipes*, olivaceo-niger, subtilius aureo-pubescent, fronte margine antico vix elevato, thorace antrorsum angustato, lateribus ante basin obtuse subangulatis, minus dense punctato, canaliculato, elytris striis obsolete punctatis, interstitiis antennisque basi plus minusve testaceis. Long. ·21—·27.

Germ. Zeitschr. 5, 139.

Common in the northern part of the United States. The golden hair is more dense each side at the apex of the elytra so as to show, in particular lights, the appearance of a faint spot. The clytra are sometimes dark testaceous: the punctures of the striæ are by no means obvious.

2. *C. lacustris*, subæneo-niger, nitidus, griseo-pubescent, fronte margine antico vix elevato, thorace antrorsum angustato, lateribus sat late rotundatis, parcius punctato, canaliculato, elytris striis impunctatis, interstitiis subconvexis, basi et apice indeterminate rufo-piceis, antennis basi pedibusque testaceis. Long. ·19.

One specimen, Point Kewenaw, Lake Superior. The posterior angles of the thorax and the inflexed portion are dark testaceous. This species resembles the last, but is smaller, and the sides of the thorax are regularly rounded. From the next species it is distinguished by the thorax being distinctly narrowed in front.

3. *C. picescens*, piceo-testaceus, supra nigricans, griseo-pubescent, fronte margine antico vix elevato, thorace oblongo, antrorsum vix angustato, lateribus fere parallelis vix late rotundatis, parcius punctato, canaliculato, angulis posticis testaceis, elytris piceis margine dilutiore, striis impunctatis, interstitiis subconvexis, antennarum basi pedibusque testaceis. Long. ·20.

Three specimens from the north side of Lake Superior. This species is sufficiently distinct by the form of the thorax to be recognised without difficulty: as in the preceding species the fourth joint of the antennæ is a little narrower than the following.

4. *C. tumescens*, obesus, virescenti-ater, cinereo-pubescent, thorace convexo, antrorsum valde angustato, lateribus rotundatis, dense subtilius punctato, elytris striis vix obsolete punctatis, intersti-

tiis paulo convexis, pedibus flavo-testaceis, antennis piceis, articulis 2 et 3 æqualibus flavis, 4^o sequenti æquali. Long. ·15.

One specimen, north shore of Lake Superior. The front is flat, with the anterior margin distinct: it is as finely punctured as the thorax. This species has very much the appearance of *Cardiophorus*, but the prosternal spine is long.

5. *C. squalidus*, depressus, fuscus, pube grisea subsquamosa minus dense vestitus, thorace dense grossius punctato, subaciculato, antrorsum subangustato, lateribus late rotundatis, elytris striis subtilibus, distinctis, punctatis, interstitiis planis confertim punctatis, antennis pedibusque flavis. Long. ·33.

One specimen, San Jose, California. The lobe of the prosternum is longer than in the preceding species and more rounded: the general appearance is that of *Adelocera*. The anterior margin of the front is slightly elevated: the fourth joint of the antennæ is equal to the fifth.

B. *Prosterno lobo subtruncato; palpi articulo ultimo obovali.* Sp. 6—12.

6. *C. ornatus*, niger, parce griseo-pubescent, thorace latitudine longiore, antice valde angustato, ad basin paulo angustato, grossius dense aciculato-scabro, carinato, elytris striis exaratis, interstitiis convexis, fascia utrinque pone basin, maculaque transversa pone medium margine non attingentibus late flavis, tibiis tarsisque testaceis. Long. ·11—·16.

San Diego, California. June, abundant in wet sand. This species resembles the next, but the thorax is less elongate, and more suddenly narrowed in front: the scabrous punctation is very much coarser: the anterior fascia of the elytra, although dilated externally, is never prolonged to the humerus: the femora appear to be always fuscous.

7. *C. pulchellus*, niger, opacus parcius pubescens, thorace latitudine sesqui longiore, antrorsum angustato, ad basin leviter angustato, lateribus latius rotundatis, subtilius confertissime aciculato, elytris striis exaratis, interstitiis convexis, fascia utrinque pone basin, extus ad humerum producta, maculaque transversa pone medium flavis, antennis basi femoribusque testaceis, tibiis tarsisque pallidioribus. Long. ·11—·17.

Dej. Cat.; Germ. Zeitschr. 5, 142.

Elater pulchellus Linnaeus, Faun. Suec. 745, et auctorum omnium cautorum.

Elater exiguus Randall, Bost. Journ. Nat. Hist. 2, 35.

Cryptohypnus guttatulus Melsheimer, Proc. Acad. Nat. Sc. 2, 214.

Massachusetts and New York. It is quite possible that this species has been introduced from Europe: it does not seem to occur far in the interior of the country. The fascia of the elytra is composed of a small internal, and an elongate external spot, reaching from the humerus nearly to the middle. Sometimes the elytra are testaceous, with a faint cloudiness behind the middle. In this and the preceding species, the lobe of the prosternum is large, and separated from the sternum by a strong transverse carina.

8. *C. guttatulus*, ater, nitidus pubescens, thorace antrorsum valde angustato, punctulato, elytris distincte striatis, interstitiis subconvexis, impunctatis, macula humerali, alteraque utrinque ante apicem antennis pedibusque testaceis. Long. ·12.

Melsheimer, Proc. Acad. Nat. Sc. 2, 214.

I have seen only a badly preserved Pennsylvanian specimen, in Dr. Melsheimer's collec-

tion. The lobe of the prosternum is short, and hardly deflexed, and not well defined from the rest of the sternum. This species seems to have been confounded by Dr. Melsheimer with the preceding: in fact his description agrees entirely with the preceding, except in the description of the spots of the elytra. I have, however, retained Dr. Melsheimer's name, as this specimen was placed as the type in his collection. It is quite possibly identical with *C. 4-pustulatus*, a European species, and may have become erroneously labelled as American. The state of the specimen, however, is very unsatisfactory.

9. *C. striatulus*, ater, minus convexus opacus, tenuiter cinereo-pubescens, thorace latitudine non longiore, antrosum angustato, lateribus regulariter sat rotundatis, confertissime punctulato, linea dorsali lævi, elytris distincte striatis, interstitiis planiusculis dense rugose punctulatis, antennis pedibusque piceis, tibiis tarsisque subtestaceis. Long. ·14.

Two specimens, Lake Superior. The lobe of the prosternum is short, broad, and well defined by a deep transverse impression: the last joint of the palpi is rounded at the extremity as in *C. pulchellus*.

10. *C. pectoralis*, piceus flavo-pubescens, thorace rufescente minus convexo, antice posticeque angustato, lateribus rotundato, punctulato, linea dorsali lævi, elytris vix obsoletissime striatis, confertim punctulatis, plaga utrinque a medio fore ad basin extensa, alteraque apicali flavo-testaceis, antennis pedibusque flavis. Long. ·12.

Elater pectoralis Say, Trans. Am. Phil. Soc. 6, 173.

Middle States and Lake Superior, not rare. The lobe of the sternum is short, broad, and tolerably deflexed: the posterior angles of the thorax as in the following species are small, but the carina is distinct. Independently of colour, this species differs from the following by the thorax being much less convex, and by the traces of striæ visible on the elytra. When the spots of the elytra are large, the latter appear yellow, with the margin, suture and posterior fascia, blackish. Specimens occur in which the thorax is black, and the spots of the elytra obsolete.

11. *C. obliquatulus*, nigro-piceus, punctulatis, cinereo-pubescens, thorace convexo, antice posticeque angustato, lateribus magis rotundatis, elytris versus apicem testaceis, macula utrinque obliqua ad medium alba signatis, antennis pedibusque flavis. Long. ·10—·11.

Melsheimer, Proc. Acad. Nat. Sc. 2, 214.

Pennsylvania. Messrs. Melsheimer and Zeigler.

12. *C. futilis*, longiusculus pallide flavo-testaceus, albo-pubescens, capite piceo, thorace quadrato, antice posticeque vix angustato, lateribus late rotundatis, confertim rugose punctulato, linea dorsali lævi, elytris punctulatis, macula subscutellari, fasciaque pone medium infuscatis. Long. ·08.

San Diego, California, in wet sand. This is the smallest species I have seen. The thorax is broadly rounded on the sides, and not very convex: the posterior angles are very minute, but the carina is distinct: the lobe of the prosternum is short, and defined by a transverse impression.

13. *C. inops*, piceus, cinereo-pubescens, thorace latitudine paulo brevior, convexo, antice posticeque subangustato, lateribus rotundatis, rugose punctulato, linea tenui dorsali lævi, macula magna dorsali testacea, elytris punctulatis, testaceis macula magna communi scutellari, fascia pone medium, suturaque late nigro-piceis, antennis pedibusque flavis. Long. ·08—·09.

San Diego, California. This species in characters closely resembles *C. futilis*: besides the differences in colour, it is a little more robust; the carina of the posterior angles of the thorax is much more distinct, being one-third the length of the thorax, and is almost parallel with the margin.

To this genus belongs *Elater choris* Say, (Trans. Am. Phil. Soc. 6, 172:) it is apparently allied to *C. pulchellus*, but is larger, has the thorax covered with golden hair, and the elytra yellow with black bands.

E. nocturnus Esch. Thon. Arch. 2, 33: Mann. Bull. Mosc. 1843, 239; *C. musculus* Esch. ib.: Mann. ib.; and *C. littoralis* Esch. ib.: Mann. Bull. Mosc. 1846; all from North-Western America, are unknown to me.

C. cinereipennis Esch. and *C. puberulus* Mann. l. c. 240, do not belong to this genus, the tarsi being furnished with a lobe beneath.

Elater dorsalis Say, and *E. circumscriptus* Germ., referred by Germar (Zeitschr. 5, 146) to his second division of this genus, differ by their narrower prosternum, subacuminate mesosternum, and tarsi destitute of elongate setæ: the more convex and deflexed head gives them more resemblance to *Elater*, in general appearance, but from the elongate basal joint of the antennæ and other characters, I have placed them in *Monocrepidius*.

OEDOSTETHUS Lec.

Frons plana semicircularis, marginata, tenuiter canaliculata: labrum antice rotundatum: mandibulæ prominulæ parvæ obtusæ; antennæ longiusculæ, vix serratæ, articulo 1^{mo} obconico mediocri, 3^{io} sequenti non brevior 2^{ndo} sesqui longiore; 11^{mo} acuto, non constricto: prosternum antice brevissime lobatum, mucrone postico non inflexo, medio latius, sutura inde convexa, antice paulo exarata; mesosternum non protuberans: coxæ posticæ laminis subsubito parum dilatatis, vix dentatis: tarsi elongati, pubescentes, tenuissimi, articulis 1-4 sensim brevioribus, 5^{to} 1^{mo} longiore, unguiculis medio dente forti armatis.

A curious little subcylindrical elongated insect, having somewhat the appearance of a slender *Cardiophorus*, or some of the last described species of *Cryptohypnus*, with the thorax distinctly margined, and as much narrowed in front of the spines as at the apex; the sides are considerably rounded, and the disc convex; the posterior angles are small, acute, diverging and carinated; there are no basal fissures: the mandibles are more prominent than usual, but are not long and slender as in the *Cebrionides*.

1. *O. femoralis*, nigro-piceus, tenuiter cinereo-pubescent, thorace convexo, rotundato, latitudine longiore, subtiliter punctulato, angulis posticis parvis divergentibus, elytris confertim punctulatis, striis obsoletis, basi et versus suturam parum distinctis, antennarum articulis duobus, pedibusque flavis, his femoribus infuscatis. Long. .18.

One specimen found in Missouri Territory, another from New Jersey, given me by Mr. Guex. The striæ of the elytra are very fine and impunctured; except at the base, and towards the suture, they can scarcely be seen. The head is punctulate like the thorax; the margin is very slightly reflexed, and the impressed frontal line is not abbreviated, although not deep.

ADELOCERA Latr.

1. *Antennæ articulo 3^{io} secundo longiore.**a. Sulci antennarum integri.*

1. *A. impressicollis*, fusco-brunnea, opaca, pilis depressis luteis minus dense vestita, thorace oblongo, obsolete canaliculato, disco postice utrinque subfoveato, sat dense punctato, angulis posticis planis subdivergentibus, elytris dense subseriatim punctatis, sulcis tarsalibus obsoletis. Long. .36—.47.

Elater impressicollis Say, Ann. Lyc. 1, 260; Tr. Am. Phil. Soc. 6, 182.

Elater lepturus||Say, Trans. Am. Phil. Soc. 6, 182 (var. obscurior.)

Adelocera senilis Germ. Zeitschrift für Entom. 2, 259.

Middle, Western, and Southern States. Between the descriptions given by Say, I can find no characters for considering his *El. lepturus* as distinct: the name itself was preoccupied by Herbst. The antennæ of this species are longer than in the next, and the joints are hardly transverse.

2. *A. pennata*, nigra, opaca, thorace oblongo, canaliculato, postice utrinque foveato, punctato, lateribus late, capiteque fulvo-squamosis, squamis angustis, elytris confertim punctatis, sulcis tarsorum plus minusve distinctis. Long. .33—.43.

Germar, Zeitschr. 2, 258.

Elater pennatus Fabr. Syst. El. 2, 239; Herbst, Käfer, 10, 52, tab. 162, fig. 9.

Elater discoideus Weber, Obs. Ent. 77; Say, Trans. Am. Phil. Soc. 6, 181.

Elater cruentus Oliv. Ent. 31, tab. 4, fig. 42.

Middle and Southern States, not rare. The date of Weber's name is equal to that of Fabricius', but the latter is generally adopted.

3. *A. aurorata*, nigra, opaca, squamis subaureis conspersa, thorace oblongo, confertim punctato, profunde canaliculato, angulis posticis planis divergentibus, elytris confertim punctatis, parcius squamosis, subtus cinereo-pubescentis, tarsis rufis, sulcis tarsorum modice profundis. Long. .54.

Elater auroratus Say, Trans. Am. Phil. Soc. 6, 181.

The typical specimen from New Hampshire was kindly loaned me by Dr. Harris. This species resembles, in form and general characters, the next, but is abundantly distinct.

4. *A. marmorata*, nigra, subopaca, squamis luteis angustis irregulariter maculata, thorace oblongo, profunde canaliculato, confertim punctato, angulis posticis planis subdivergentibus, elytris dense subseriatim punctatis, sulcis tarsorum anticorum profundis. Long. .6—.7.

Germ. Zeitschr. 2, 258.

Elater marmoratus Fabr. Syst. El. 2, 227; Herbst, Käfer, 10, 124; Say, Tr. Am. Phil. Soc. 6, 180.

Southern States, not rare.

b. Sulci antennarum postice abbreviati.

5. *A. obtecta*, nigra, squamis pallidis ellipticis irregulariter vestita, thorace oblongo, punctato, fortiter canaliculato, versus latera depresso, angulis posticis valde divergentibus, elytris disperse punctatis, vix obsoletissime striatis, costa utrinque obsoleta usque ad medium extensa: sulcis tarsorum nullis. Long. .6.

Elater obtectus Say, Trans. Am. Phil. Soc. 6, 181.

Maine and Vermont. The antennæ are moderately long, the second joint is much smaller than the third, and the following are transverse, as is usual in this genus. The pectoral grooves end suddenly near the anterior coxæ.

6. *A. brevicornis*, nigra, opaca, squamis fulvis vel pallidis et nigris ellipticis irregulariter variegata, dense punctata, thorace breviusculo, inæquali, postice angustiore, late profunde canaliculato, antice valde bifoveato, angulis posticis compressis, elevatis, apice inflexis, elytris fascia postice obliqua interrupta densius squamosa; antennis thorace triplo brevioribus. Long. ·55—·70.

Lake Superior. This species seems to be very similar to *A. conspersa* Germ., but the posterior angles of the thorax are not carinated, though compressed and elevated by the excavation of the basal part of the thorax each side. The antennæ are remarkably short, the joints are strongly transverse, and the second joint, though narrower, is not shorter than the others.

2. *Antennæ articulo 3^o secundo æquali.*

7. *A. mucorea*, nigra, dense sordide pubescens, fusco-variegata, thorace subcanaliculato sat dense punctato, antrorsum angustato, basi truncato, angulis posticis divergentibus, elytris striis punctatis vix impressis, interstitiis subtilius confluentur punctatis, antennis rufo-piceis. Long. ·55.

One specimen, Georgia. Similar in form to the following species, but very different in characters.

8. *A. curtus*, nigro-picea, parce subtiliter squamosa, thorace cribratim punctato antrorsum angustato, lateribus rotundatis antice crenatis, angulis posticis rectis, elytris punctis transversis seriatim positus, interstitiis striis non latioribus, parce obsolete punctulatis, antennis pedibusque rufo-testaceis. Long. ·43.

Georgia. This species is *Agrypnus curtus* of Dejean's catalogue, and resembles very closely the next, but is distinguished by the greater size of the punctures which compose the striæ of the elytra: the body is very coarsely punctured beneath, and, as in the next species, is thinly clothed with depressed small scale-like yellow hairs.

9. *A. rectangularis*, picea, parce subtiliter luteo-squamosa, thorace cribratim punctato, antrorsum angustato, lateribus rotundatis, antice crenatis, angulis posticis rectis, elytris punctato-striatis, interstitiis striis latioribus, parce obsolete punctulatis, antennis pedibusque testaceis. Long. ·33—·38.

Elater rectangularis Say, Ann. Lyc. 1, 263; Trans. Am. Phil. Soc. 6, 182.

Missouri Territory, abundant. The pectoral grooves for the anterior tarsi are almost obsolete: in the preceding they are more distinct, while in *A. mucorea*, they are altogether wanting: the elytra of the female are slightly dilated behind the base, and are more obtusely rounded towards the tip than in the male.

To this genus, and to the first division, probably belongs the *Elater operculatus* mentioned by Say, as described in the Annals of the Lyceum: but as he has evidently misquoted himself, and no description bearing that name is found in his writings, it must be considered as unpublished: *Elater avitus* Say (Trans. Am. Phil. Soc. 6, 182) seems allied to *A. impressicollis*. *Adelocera*

Adelocera cavico

AGRYPNUS Esch.

1. *A. Sallei*, piceo-niger, subtiliter brunneo-pubescens, thorace latitudine longiore, antrorsum paulo angustato parum convexo, confertim punctato, lateribus antice paulo rotundatis, postice extrorsum curvatis, angulis posticis inde divaricatis, carina angulari subtili elongata margini parallela, linea

dorsali obsoleta lævi, basi ad medium acute tuberculata, elytris postice acutis, dense punctulatis, striis tenuibus punctulatis. Long. .85—1.10.

This species was discovered by Mr. A. Sallé near New Orleans, and kindly given me by Mr. Guex. It agrees so closely with the descriptions and figures of *A. fuscipes* *Fabr.*, that I supposed it to be that species, imported accidentally from the East Indies. Recently, however, Mr. Schott, of the Mexican Boundary Commission, has found it in abundance on the lower Rio Grande, at Eagle Pass. Between the punctures of the elytra may be perceived small transverse rugosities: the smooth dorsal line of the thorax is very indistinct, and is visible only near the base; the basal tubercle is large and almost reclivate.

2. *A. Schottii*, piceo-niger, subtiliter brunneo-pubescens, thorace latitudine vix brevior antrorsum angustato, convexo, lateribus rotundatis, angulis posticis subdivergentibus, carina elongata subtili margini parallela, confertim punctato, linea dorsali indistincta lævi, basi ad medium tuberculata, elytris postice acutis, dense punctulatis, striis subtiliter punctatis. Long. 1.07.

I have named this fine species after Mr. Schott, as a slight tribute to the scientific zeal displayed while attached to the Boundary Commission under Majors Graham and Emory; a single specimen was procured on the lower Rio Grande. The sculpture is as in the preceding, from which this species differs in the form of the thorax. It exactly resembles in appearance the Egyptian *A. notodonta* *Latr.*

PYROPHORUS *Illiger.*

1. *P. physoderus*, piceo-fuscus, pubescens, thorace latitudine longiore antrorsum modice angustato, lateribus late rotundatis, confertim punctato, antice convexo, vesiculis mox ante angulis posticis positis, elytris dense punctulatis, striis punctatis, apice non mucronata, antennis thorace vix longioribus articulo 3^{io} secundo sesqui maiore. Long. .75.

Germ. Zeitschr. 3, 36.

For a specimen found in Louisiana, I am indebted to Mr. Guex. The little tubercle of the middle of the base of the thorax is quite prominent.

APHANOBIUS *Esch. (emend.)*

This genus should be restricted to those species having the last joint of the antennæ deeply constricted, the front slightly concave and not margined in front; the mesosternum prominent; the plates of the posterior coxæ somewhat suddenly slightly dilated, and emarginate posteriorly, and the internal tooth sharp, and moderately large: the tarsi are somewhat inflated beneath, and very densely pubescent, (being in this respect precisely as in *Agrypnus fuscipes*.) The first joint of the antennæ is moderately elongated, the second and third small, the fourth and following strongly triangular, and equal: the suture of the prosternum is bent outwards posteriorly, and is very deeply marked: the first joint of the tarsi is hardly as long as the second and third united: the base of the thorax has a slight elevation in front of the scutellum, but it is by no means obvious: the posterior angles have a short carina: there are no apparent basal fissures.

1. *A. infuscatus*, niger, dense breviter fusco-pubescens, thorace convexo latitudine longiore,

lateribus parallelis apice rotundatis, sat dense punctato, elytris a basi angustatis, apice mucronatis, sat dense punctatis, vix obsolete striatis. Long. 1.10.

Germ. Zeitschr. 5, 183.

Pristilophus? sordidus Mels. Proc. Acad. Nat. Sc. 2, 216.

Southern States, not common. It is strange that Germar should not have recognised the relation with certain species placed by him in *Pristilophus*. The resemblance in the form of the thorax gives the insect somewhat the appearance of a gigantic *Dolopius*.

MELANACTES *Lec.*

Frons depressa, antice rotundata, vix marginata; antennæ serratæ, articulo 2ndo parvo, 3^{io} sequente paulo longiore non dilatato, 11^{mo} non maiore apice constricto: labrum antice rotundatum: mandibulæ breves, apice acutæ, pone apicem unidentatæ; palpi articulo ultimo non longiore triangulari: prosternum elongatum, antice longius lobatum, postice fortius mucronatum, mucrone compresso non inflexo, lateribus rectis, sutura antice paulo excavata: mesosternum utrinque prominulum: coxæ posticæ laminis angustis intus sensim paulo dilatatis: tarsi mediocres, tenues, compressi, pubescentes, subtus densissime breviter spongioso-pubescentes; articulis 1—4 sensim brevioribus, 5^{io} longiore unguiculis simplicibus.

These are large, shining, black insects, forming the first division of the genus *Pristilophus*, as defined by Germar, (Zeitschr. 4, 82.) Notwithstanding the care taken by the author, the description of the genus fails entirely when applied to the species here alluded to, since they belong to a totally different group of Elaters, from that in which *Pristilophus* was placed: the tarsi, indeed, so far from being uniformly pubescent above and below, as in *Corymbites*, are thinly pubescent above, and furnished with a very dense brush beneath, as in *Alaus*: the peculiarity in the form of the mesosternum was pointed out by Germar, and was, in fact, the character upon which he arranged his species in two divisions. The thorax in all the species is strongly margined: the base is without any fissure and is bidentate in the middle: the posterior angles are carinated.

As the characters of this genus are completely at variance with those laid down for *Pristilophus* both by Latreille and Germar, it would obviously be absurd to retain the name for the species here included, even if, after examination, we have found it necessary to place the remainder of Germar's *Pristilophus* in *Corymbites*.

1. *M. procerus*, niger nitidus, thorace subtransverso, ad medium latiore, lateribus valde rotundatis, angulis posticis divergentibus, subtilius punctato, densius ad latera, elytris subtiliter seriatim punctatis, interstitiis subtilissime parce punctulatis. Long. 1.3.

One specimen, from Mr. Hentz' collection; Prof. Haldeman. This species resembles in characters *M. piceus*, but the difference in the form of the thorax is very great. The thorax is a little wider than long, very slightly convex, considerably rounded on the sides, so as to be wider at the middle than immediately at the base of the spines, which thus appear to diverge more strongly than in the other species: the punctures are, as in *M. piceus*, small, and more dense on the sides than on the middle of the disc: there is an impressed dorsal line behind the middle. The elytra are slightly compressed on the sides behind the base: they are punctured as in *M. piceus*, and as in that species, the outer striæ of punctures are more distinct. Beneath, the prosternum and inflexed part of the prothorax are coarsely punctured: the metasternum is nearly smooth in the middle, sparsely and finely

punctured at the sides: the abdomen is densely and finely punctured, the last joint has a few larger setigerous punctures each side near the tip.

2. *M. piceus*, niger nitidissimus, thorace a basi antrosum subangustato, latitudine longiore, lateribus antice rotundatis, subtilius punctato, densius ad latera, elytris subtiliter seriatim punctatis, interstitiis subtilissime parce punctulatis. Long. .9—1.2.

Elater piceus De Geer, Ins. 4, 162, tab. 18, fig. 3, (1775.)

Elater lævigatus Fabr. Ent. Syst. emend. Suppl. 138, (1798:) Syst. El. 2, 225: Herbst, Käfer, 10, 45.

Elater morio (var.) Say, Trans. Am. Phil. Soc. 6, 165.

Pristilophus lævigatus Germ. Zeitschr. 4, 84.

Pristilophus femoralis Melsheimer, Proc. Acad. Nat. Sc. 2, 216.

Middle, Southern and Western States, abundant. The antennæ and feet are described as fuscous by all the authors: the latter appear to me to be black, with the tarsi brownish piceous: the antennæ are dull black, becoming brownish towards the tip. These are, however, characters of no importance, as they are the same in all the species.

A specimen from Missouri Territory, has the punctures of the thorax and of the elytral series much larger, but otherwise presents no difference.

One specimen from York Co., Pennsylvania, given me by the Rev. D. Ziegler, in form and sculpture agrees exactly with the others, except that the thorax, instead of being sparsely, is quite densely punctured: the punctures at the sides are so close as to become confluent; towards the middle of the base they are finer and more distant: the dorsal line is more deeply impressed than usual. From the next species, this variety is distinguished by the sides of the thorax converging from the base, and by the posterior angles being subacute, as in the preceding species, the lateral margin being slightly dilated, so as to compress the elevated ridge.

3. *M. densus*, ater, nitidus, thorace latitudine non longiore, lateribus parallelis antice rotundatis, confertim, lateribus confluentem punctatis, elytris seriatim punctatis, interstitiis punctulatis et rugosis. Long. .85—.95.

Specimens collected in California by Mr. Pease and Mr. Child. Brownish black, shining: head densely punctured; antennæ with the last joint more obtuse than in the other species: palpi black: thorax not longer than wide; sides margined as usual, parallel, rounded from the anterior third to the tip: posterior angles not divergent, with the elevated ridge broader and more obtuse than in *M. piceus*; disc densely moderately finely punctured; punctures confluent at the sides, less dense but not finer towards the middle of the base; dorsal line very short, almost obsolete: elytra, with series of punctures, as in *M. piceus*, the outer series being more distinct; interstices tolerably densely punctate, and more densely finely rugous than in the preceding species. Beneath, as in *M. piceus*.

4. *M. morio*, niger, nitidus, thorace latitudine longiore, a basi subangustato, lateribus antice rotundatis, lateribus confertim medio minus dense punctato, elytris striis profundis crenatis, interstitiis convexis parce punctulatis, subrugosis. Long. .90—1.06.

Elater morio Fabr. Ent. Syst. emend. Suppl. 138: Syst. El. 2, 225: Herbst, Käfer, 19, 28; tab. 160, fig. 7: Say, Trans. Am. Phil. Soc. 6, 165.

Elater lacunosus Fabr. Syst. El. 2, 224.

Pristilophus morio Germ. Zeitschr. 4, 85.

Middle and Southern States, rare. *E. lacunosus*, as observed by Germar is undoubtedly a variety, having abnormal impressions on the thorax.

5. *M. puncticollis*, niger, nitidus, thorace latitudine longiore, a basi antrorsum subangustato, lateribus antice rotundatis, confertim, disco minus dense punctato, elytris striis fortius punctatis, interstitiis leviter convexis, distinctius punctulatis. Long. .75—.9.

Pristilophus puncticollis Lec. Proc. Acad. Nat. Sc. 6, 68.

Missouri Territory, abundant. This species agrees in characters with the preceding, but is usually smaller, with less deep elytral striæ, and less convex interstices.

6. *M. consors*, latiusculus, niger, thorace latitudine non longiore, lateribus rotundatis, ad medium sublatis, confertim punctato, paulo remotius in disco, elytris striis punctatis, interstitiis leviter convexis, punctulatis et rugosis. Long. .88.

One specimen, Nebraska. Differs from the preceding by its less shining colour, broader form, and more densely punctured thorax. Body black, not very shining; head densely punctured; antennæ reaching a little beyond the middle of the thorax; thorax not longer than wide, at the middle as wide as at the posterior angles, which from the slight narrowing of the base appear divergent; sides broadly rounded, strongly margined: disc densely punctured, punctures a little more distant at the middle, dorsal line not distinct, somewhat smooth. Elytra scarcely perceptibly narrower than the thorax, more obtusely rounded posteriorly than in the two preceding species; striæ well defined, strongly punctured; interstices slightly convex, finely punctulate and rugous.

7. *M. Reichei*, niger nitidus, pube brevissima grisea depressa vix conspicua vestitus, thorace latitudine longiore, medio vix latiore, lateribus rotundatis, confertim, lateribus confluentibus subtilius punctato, postice canaliculato, elytris striis fortius punctatis, interstitiis parum convexis, rugosis. Long. .90.

Pristilophus Reichei Germ. Zeitschr. 4, 85.

One specimen, Georgia. Easily distinguished by the fine short gray hairs which proceed from the punctures: the thorax is more convex than in any of the other species. Germar describes the interstices of the elytra as flat, but in my specimen they are slightly convex, as in the two preceding species.

CHALCOLEPIDIUS *Esch.*

1. *C. viridipilis*, elongatus, niger, pilis minutis squamiformibus olivaceis dense tectus, thorace elongato, subtilissime punctulato, angulis posticis vix divergentibus, scutello obovato, antice obtuso, elytris striis profundis punctatis, interstitiis parce punctulatis, antennarum articulo 3^o parvo, apice acuto. Long. .90.

Elater viridipilis Say, Ann. Lyc. 1, 257; Trans. Am. Phil. Soc. 6, 166.

Middle and Southern States, rare. The antennæ of the male are pectinate, those of the female are strongly serrate. This species must resemble very closely the Brazilian *C. prasinus* *Erichson* (Germ. Zeitschr. 3, 85;) but that species is described as having the thorax finely, tolerably densely punctured, and the scutellum bicuspid anteriorly. Should they prove identical, Say's name has priority.

ALAUUS *Esch.*

1. *A. oculatus*, niger, nitidus, pilis albidis irregulariter maculatus, thorace convexiusculo, disco utrinque macula magna elliptica nigro-sericea albo-marginata ornato. Long. 1.25—1.7.

Eschscholtz, *Thon Ent. Archiv.*, 1829; *Germ. Zeitschr.* 2, 275.

Elater oculatus *Linné*, *Mus. Ubr.* 81; *Syst. Nat.* 2, 651; *Fabr. Ent. Syst.* 210; *Ent. Syst. emend.* 2, 217; *Syst. El.* 2, 222; *Oliv.* 31, 11; tab. 3, fig. 34; *Herbst, Käfer*, 9, 327; tab. 157, fig. 7; *Beauv.* 213; tab. 9, fig. 4.

Common through the Atlantic portions of the United States, extending into Mexico. A variety brought from Texas, by Lieut. Haldeman, has the sides of the thorax entirely covered with the white scales, which usually form only small spots: the eye-like spots are nearly round, and the white scales upon the elytra are more abundant. The thorax of the females is more decidedly narrowed in front, and more convex than that of the males.

2. *A. myops*, niger, nitidus, pilis cinereis irregulariter conspersus, thorace minus convexo, antice sublato, disco utrinque macula angusta elliptica nigro-sericea, cinereo-marginata ornato. Long: .95—1.8.

Eschscholtz, *Thon Ent. Archiv.* 1829; *Germ. Zeitschr.* 2, 275.

Elater myops *Fabr. Syst. El.* 2, 222.

Elater luscus † *Oliv.* 31, 12; tab. 6, fig. 64; *Herbst, Käfer*, 9, 329; tab. 157, fig. 8; *Beauv.* 213; tab. 9, fig. 5.

Middle States, rare; Southern States, abundant: found also in Oregon by Capt. Wilkes' Exploring Expedition. The confusion in the name of the species seems to have been introduced by Olivier applying to it a name given by Fabricius to a distinct species, not known in modern collections: the immaculate body, free from cinereous pubescence, and the absence of any margin to the eye-like spots of the thorax, will fully distinguish *E. luscus*, whenever it is found. Fabricius, with a carelessness which is but too frequent in his writings, then quotes Olivier's figure as belonging to his *E. luscus*, while on the preceding page he has already described the insect figured by Olivier, under the name of *E. myops*, and which is that by which the species is generally known. Beauvois and Herbst merely copy Olivier's error, considering it as sufficiently endorsed by Fabricius.

De Geer (*Mem.* 4, 159, tab. 17, fig. 28) describes a species under an uncouth Gallic name, which it is not necessary to repeat, and cites *E. oculatus* *Linn.* as a synonym: his figure, however, appears to represent the species now under consideration.

As there is no evidence that *Elater luscus* *Fabr.* is found within the limits of the United States, it is not safe to include it in our fauna.

CARDIOPHORUS *Esch.*

The truncate spine of the prosternum, fitting like a wedge into the prominent and deeply cleft mesosternum, will distinguish this group, which contains only one genus: the front is subangulated and margined, moderately convex, slightly impressed: the laminae of the posterior coxæ are suddenly dilated internally. The tarsi are not lobed in any species known to me, found in the United States.

A. *Tarsi et ungues simplices.* Sp. 1—11.

1. *C. erythropus*, elongatus, fusco-niger, cinereo-pubescent, thorace æqualiter fusco-cinereo pubescente, latitudine longiore, convexo, antrorsum angustato, postice breviter canaliculato, lateribus late rotundatis subtilissime punctulato, elytris striis subtilibus, fortius punctatis, interstitiis paulo convexis, pedibus antennarumque basi rufis. Long. .37—.4.

Variat, antennis totis rufis.

Erichson, Germ. Zeitschr. 2, 293.

C. amictus Melsheimer, Proc. Acad. Nat. Sc. 2, 158.

? *Elater convexus* Say, Journ. Acad. Nat. Sc. 3, 169.

Middle and Southern States, not common. Distinguished from the next by the pubescence of the thorax being equal over its whole surface, and by the more distinct fine punctures with which it is covered; the posterior angles are more divergent in some specimens than in others. The elytra, as in the next, are somewhat pointed behind, with the interstices almost imperceptibly punctured. In the females the thorax is more parallel on the sides, and more suddenly rounded anteriorly.

2. *C. saturninus*, elongatus fusco-niger, cinereo-pubescent, thorace antice distinctius postice tenuissime cinereo-pubescente, antrorsum angustato, latitudine fere longiore lateribus rotundatis, confertissime subtilissime alutaceo-punctulato, postice breviter canaliculato, elytris striis subtilibus fortius punctatis, interstitiis paulo convexis, antennarum basi pedibusque rufis. Long. .35.

One specimen, South Carolina, Mr. Zimmerman. Except the differences above pointed out, this species has all the characters of the preceding. The punctures of the thorax are so fine and close, that the lustre is dull and bluish on that portion of the body.

3. *C. cardisce*, niger, subopacus, tenuiter pallide pubescens, thorace latitudine fere longiore, tumido, antrorsum angustato, lateribus rotundatis postice inflexis, confertim punctulato, striis basalibus elongatis, exaratis, elytris ochreo bi-vel quadri-maculatis, postice acutis, striis profundis punctatis, interstitiis convexis dense punctulatis. Long. .28.

Elater cardisce Say, Trans. Am. Phil. Soc. 6, 169; Journ. Acad. Nat. Sc. 3, 169.

Middle States, on the sea shore. The anterior spots of the elytra are about the middle, the posterior about one-fourth from the apex; the latter form an angulated fascia. Sometimes the anterior spots are wanting, and sometimes the posterior: varieties probably occur with immaculate elytra.

4. *C. Dejeanii*, plumbeo-niger, dense cinereo-fusco-pubescent, thorace latitudine sublongiore convexo, dense punctulato, lateribus late rotundatis, elytris striis postice exaratis, interstitiis convexis, dense punctulatis, postice acutis, maculis duabus obsolete testaceis, pedibus piceis, tibiisque testaceis. Long. .25.

C. convexus Erichson: Germ. Zeitschr. 2, 289.

One specimen, Georgia. Erichson, probably misled by Dejean's collection, has confounded this with *Elater convexus* Say, Journ. Acad. Nat. Sc. 3, 169: a very different species which, by description. (having rufous antennæ,) is nearly allied to *C. erythropus*. This species differs from the preceding by the thorax being longer, less rounded on the sides, and more densely pubescent.

5. *C. tumidicollis*, nigerrimus obesus, tenuissime cinereo-pubescent, thorace transverso, tumido, antrorsum angustato, lateribus valde rotundatis, angulis posticis non divergentibus, subtilissime punctulato, obsolete canaliculato, elytris striis punctatis, postice non exaratis. Long. ·25.

One specimen, collected in Oregon by Dr. J. K. Townsend, and given me by Mr. Wilcox. Resembles the next, but is a much thicker species, with a more tumid thorax. Colour deep black, sprinkled with very fine whitish hairs: front very finely punctulate; margin slightly reflexed: thorax at its greatest breadth nearly one-half wider than long, strongly narrowed in front, and very much rounded on the sides, gradually narrowed for the posterior third, with the sides straight near the base: disc convex, very finely, almost imperceptibly punctulate, obsoletely channelled: basal striæ moderately short, deep: elytra about twice as long as wide, not wider than the widest part of the thorax, oval, slightly pointed behind: striæ finely punctured, not deeper posteriorly: interstices flat, scarcely perceptibly punctulate: feet black; claws diaphanous.

This species is perhaps related to *C. latiusculus* Esch. (Thon Ent. Arch. 2, 34,) but the pubescence of the thorax is not fuscous, nor are the knees ferruginous, as is required by the description of that species.

6. *C. convexulus*, niger, nitidus, tenuiter cinereo-pubescent, thorace latitudine brevior, tumido, antice valde angustato, postice parum angustato, lateribus rotundatis, angulis posticis non divergentibus, subtilissime punctulato, elytris striis punctatis, interstitiis dense punctulatis, subconvexis 6^{to} et 8^{vo} paulo elevatis, tibiis versus apicem, tarsisque rufescentibus. Long. ·35.

Maine and Ohio, sent by Dr. Harris under the name adopted. Similar to the next species, but larger and more robust, with a much shorter thorax. The thorax is considerably less narrowed at the base than at the apex: the dorsal channel is very faint and short: the basal lines are short and well defined: the antennæ are entirely black, and a little longer than the head and thorax: the clypeus is more deeply concave than in *C. gagates*.

7. *C. gagates*, nigerrimus, tenuiter cinereo-pubescent, thorace latitudine sublongiore, tumido, lateribus rotundatis, angulis posticis divergentibus, dense subtiliter punctulato, basi breviter canaliculato, elytris striis punctatis, interstitiis paulo convexis, dense subtiliter punctulatis. Long. ·24—28. Erich. Germ. Zeitschr. 2, 297.

Southern States, not rare. A specimen in Dr. Harris' collection is named *C. convexus* Say, but as the antennæ are black, it can by no means be referred to that species.

8. *C. tenebrosus*, plumbeo-niger, nitidus longiusculus, fusco subtiliter pubescens, thorace latitudine sublongiore, convexo, lateribus rotundatis, dense subtiliter punctulato, obsolete canaliculato, angulis posticis subdivergentibus, elytris dense punctulatis, striis punctatis, interstitiis leviter convexis, genibus femorumque basi rufo-piceis. Long. ·28—32.

San Francisco, California. Nearly of the same form as the preceding, but with a less tumid thorax: the basal striæ of the thorax are a little longer: the rufous colour of the knees and trochanters is sometimes hardly perceptible.

9. *C. obscurus*, plumbeo-niger, opacus, dense fusco-pubescent, thorace latitudine non longiore, lateribus valde rotundato, convexo, confertissime subtilius punctato, postice subcanaliculato, angulis posticis divergentibus, elytris dorso subdepressis, striis punctatis, postice minus distinctis, interstitiis planis, dense punctulatis. Long. ·25.

San Diego, California. Resembles the next species, but the feet are entirely black, and the thorax is less lustrous: the basal striæ of the thorax are very short, and the base is deeply and decidedly transversely impressed between them.

10. *C. lævicollis*, plumbeo-niger, subnitidus, dense fusco-pubescent, thorace latitudine non brevior, convexo, lateribus rotundatis, dense subtiliter punctulato, postice canaliculato, angulis posticis divergentibus, elytris dorso subdepressis, striis punctatis, interstitiis punctulatis, vix convexis, pedibus rufis, femoribus sæpe nigricantibus. Long. ·28.

?Er. Germ. Zeitschr. 2, 300.

One specimen from New York, in which the anterior thighs alone are darker: another in the collection of Dr. Harris, having both thighs and tibiæ piceous. The palpi are black, and the posterior channel of the thorax is deep: these cannot, however, be constant characters. The basal striæ of the thorax are short, as in the preceding species. From the next species it differs by its less robust form, longer and less inflated thorax, and more distinct basal striæ. Erichson does not mention the slight flattening of the disc of the elytra.

11. *C. robustus*, plumbeo-niger, vel æneo-niger, minus elongatus, densius cinereo-pubescent, thorace latitudine brevior, convexo, subcanaliculato, lateribus rotundatis, dense subtiliter punctulato, angulis posticis vix divergentibus, elytris dorso subdepressis, striis punctatis, interstitiis planis, dense punctulatis, pedibus rufis, femoribus præcipue infuscatis. Long. ·36.

Middle States. If it were not for the superior size, this might be considered as *C. lævicollis*, but the thorax is fully one-third wider than long, and more convex than in the preceding; the feet vary very much in colour; the antennæ are always entirely black; the palpi are sometimes black and sometimes brown. The only difference between this and the last is in size and form, and future researches may show that these variations are sexual in their character.

B. *Ungues ad medium unidentati: tarsi simplices.* Sp. 12—15.

12. *C. sufflatus*, piceus, subtiliter griseo-pubescent, thorace latitudine sublongiore, antice posticeque angustato, lateribus rotundatis, valde convexo, subalutaceo, parce punctulato, elytris striis distincte punctatis, interstitiis subplanis vix punctulatis, antennis palpis pedibusque flavis. Long. ·20—·24.

Two specimens, San Diego, California. As in the other species of this division of the genus, the posterior angles of the thorax are longer than in the species above described, and project directly backwards: the basal striæ are tolerably long, but faint: the disc of the thorax is obsoletely channelled posteriorly: the elytra are more rounded at the humerus than in the other species, and are not wider than the thorax.

13. *C. inanus*, piceus, subtiliter griseo-pubescent, thorace latitudine sublongiore, antice posticeque angustato, lateribus rotundatis, valde convexo, subalutaceo, parce punctulato, elytris striis parcius punctatis, interstitiis planis, vix punctulatis, basi rufis, antennis piceis, pedibus flavis. Long. ·15.

Two specimens, San Diego. Independently of size, distinguished by the piceous antennæ from the preceding, which it very much resembles in form: the striæ of the elytra are less impressed than in *C. sufflatus*: the thorax is rufo-piceous in one specimen.

14. *C. transfugus*, niger, subtiliter cinereo-pubescent, thorace latitudine sublongiore antice angustato, postice subangustato, lateribus rotundatis, valde convexo, subalutaceo, parce punctulato, basi biimpresso, elytris striis subprofundis subtilius punctatis, interstitiis subconvexis, piccis humeris late testaceis, pedibus antennisque flavis, his extrorsum fusciscentibus. Long. .18.

One specimen, San Jose, California. This species is allied to the next, but the thorax is much more rounded on the sides: the basal striæ are reduced to extremely short fissures, and the space around them is broadly and tolerably deeply foveate: the humeral spot is oblong, and its posterior limit badly defined, appearing inclined to form an obsolete vitta, extending nearly to the tip of the elytra; the suture is darker than the rest of the elytra.

15. *C. curiatus*, niger, nitidus, griseo-pubescent, thorace latitudine vix longiore, lateribus late rotundatis, modice convexo, parce punctulato, elytris rufo-flavis, sutura, fascia lata ad medium, marginique pone medium nigris, striis profundis, subtilius punctatis, interstitiis convexis parce punctulatis, antennæ palpis pedibusque flavis. Long. .18.

Elater curiatus Say, Trans. Am. Phil. Soc. 6, 173.

Cardiophorus areolatus † Er. Germ. Zeitschr. 2, 320.

Middle and Southern States, sometimes quite abundant. The basal fissures are here merely oblong puncturés, but there appear to be two on each side, placed very near together. Erichson seems to have placed great confidence in Dejean's determination (vide *C. nigrofasciatus* Dej. Cat. p. 104) in considering this species as *Elater areolatus* Say, to which it has no resemblance.

Div. 5. CEBRIONITES.

The genera here contained are considered by most systematic entomologists as constituting a peculiar family: and indeed on comparing any species of *Cebrio* with *Elater*, it is difficult to come to any other conclusion. The number of genera composing the supposed family is very small, and they are, moreover, rare in collections, so that but little opportunity is afforded for studying the differences in structure. Having been so fortunate as to discover in our country a species of the very interesting genus *Plastocerus*, recognised as entering this family, and two other genera still more closely allied to *Elater*, I have been convinced of the necessity either of restricting the family *Cebrionidæ* to the genus *Cebrio* alone, (with my genus *Scaptolenus*, as probably a division of it,) distinguished by the fifth ventral segment of the abdomen being truncate; or to place the family *Cebrionidæ* as now received by entomologists with the *Elateridæ*, making of it a division equal in value to the genuine *Elaters*, and distinguished by having the mandibles long, and prominent; from the other great group containing the *Eucnemidæ*, and which appears to osculate with the present division in *Perothops*, the genera here contained differ by the antennæ being widely separated as in *Elater*.

The characters then of the present division are as follows:

Caput porrectum, oculis liberis; mandibulæ elongatæ, porrectæ, sæpe tenues; labrum præcipue connatum; clypeus antice non dilatatus; antennæ distantes, in fossulis vix distinctis insertæ; prosternum non lobatum, sutura laterali præcipue indistinctum, mucrone postico in aliis distincto, in aliis

valde inflexo, et inde indistincto; coxæ anticæ et intermediæ præcipue maiusculæ, posticæ laminis intus sensim dilatatis; tarsi pubescentes, non lobati, unguiculis simplicibus: abdomen articulo 5^o in aliis rotundato, in aliis truncato.

Our genera may be thus arranged:

- A. Abdomen articulo 5^o postice rotundato, sexto abscondito:
- | | | | | | |
|--|---|---|---|---|--------------|
| Antennæ filiformes; frons margine porrecto | - | - | - | - | Aphricus. |
| Antennæ flabellatæ; frons non marginata: | | | | | |
| Antennæ 11-articulatæ | - | - | - | - | Plastocerus. |
| Antennæ 12-articulatæ | - | - | - | - | Euthysanius. |
- B. Abdomen articulo 5^o truncato, 6^o conspicuo: antennæ subserratæ:
- | | | | | | |
|--|---|---|---|---|--------------|
| Tarsi mediocres, tibiæ anticæ apice paulo productæ | - | - | - | - | Cebrio. |
| Tarsi longissimi, tibiæ anticæ bidentatæ | - | - | - | - | Scaptolenus. |

APHRICUS *Lec.*

Frons concava, antice subrotundata prominula; labrum brevissimum, sub fronte absconditum: mandibulæ elongatæ falcatæ tenues: palpi articulo ultimo vix dilatato: antennæ vix serratæ, articulis 2 et 3 coniunctis 4^o æqualibus, (ultimo?); prosternum quadratum, lateribus rectis, antice truncatum, non lobatum, at linea transversa impressum, postice subito inflexum (non mucronatum?): coxæ intermediæ parvæ paulo distantes: posticæ valde obliquæ, laminis intus sensim paulo dilatatis: tarsi longiusculi, pubescentes, setosi, articulis 1—4 subæqualibus, 5^o duplo longiore unguiculis integris: tibiæ omnes tenues, calcaribus parvis: abdomen 5-articulatum.

A small insect having very much the appearance of a slender cylindrical *Cardiophorus*, but by its long mandibles, and very short labrum, evidently belonging to the present group: the head is exserted, and the eyes are moderately prominent: the thorax is as long as it is wide, rounded on the sides, narrowed slightly towards the posterior angles, which are diverging and slender; the lateral margin is not apparent; the scutellum is emarginate in front, and acute behind; the elytra are scarcely wider than the thorax, and nearly parallel on the sides. The prosternum posteriorly is suddenly inflexed so much, that I am unable to see if it is mucronate at tip; the mesosternum, however, is visible between the middle coxæ, and appears concave in its deepest part; the middle coxæ are smaller than in the other genera of this group, and are visibly separated. The posterior coxæ are also divergent at their inner tip, as in the genuine *Elateridæ*; while in the following genera they lie close together.

The name is derived from *αφρικος* (*α* et *φριξ*) quasi *mutus*.

1. *A. californicus*, nigro-piceus, griseo-pubescent, capite scabro-punctato, thorace convexo, quadrato, lateribus rotundato, subtiliter punctulato, angulis posticis valde divergentibus, elytris striis punctatis, interstitiis punctulatis, 5^o pone medium leviter carinato, antennis pedibusque piceis. Long. .25.

One specimen, San Diego, California. The striæ of the elytra are deeper towards the base, so that the interstices are there slightly convex; posteriorly the striæ become merely rows of oblong points; the elevation of the fifth interstice behind the middle is altogether anomalous, and reaches quite to the apex.

PLASTOCERUS † *Schaum*.

Frons planiuscula, antice sensim deflexa, non marginata: oculi convexi prominuli: labrum transversum antice rotundatum, cum fronte arete connatum: mandibulæ longiusculæ, minus tenues, vix acutæ: palpi articulo ultimo vix longiore cylindrico: antennæ pilosæ, flabellatæ, 11-articulatæ, articulo 1^{mo} crassiore; 2—10 gradatim paulo longioribus, 4—10 ramo externo cylindrico valde elongato apicali instructis; 11^{mo} ramo præcedentis longiore, cylindrico: prosternum antice vix rotundatum, postice longe mucronatum: coxæ anticæ parvæ, mediæ maiusculæ contiguæ, posticæ laminis angustis intus paulo latioribus: tarsi longiusculi, pubescentes, articulis 1—4 sensim brevioribus, 5^{to} longiore unguiculis integris: tibiæ tenues calcaribus minutis: abdomen 5-articulatum.

A specimen of this insect was sent by me to Dr. Schaum, who pronounced it strictly congeneric with *Callirhipis angulosus Germ.*, an insect found in Smyrna, and which forms in the *Catalogus Coleopterorum Europæ* the type of the unpublished genus *Plastocerus*.

The characters are very distinct, as given above; the general form of the body is that of *Cebrio*, but more slender; the mandibles are shorter and less acute than in the other genera of this group, and close together just beyond the labrum, so as to leave no open space as in *Aphricus* and *Cebrio*; the labrum is closely soldered to the front, as in *Cebrio*, leaving merely a transverse line; the small size of the anterior coxæ shows the persistence of the *Elater* type. The abdomen, though apparently only 5-jointed, is slightly dehiscent at the apex, permitting the sixth internal joint to be seen.

1. *P. Schaumii*, piceo-castaneus, helvo-pubescent, capite thoraceque pilis longioribus erectis densius vestitis, illo scabro, hoc antrorsum angustato, lateribus sinuatis, angulis posticis elongatis, divergentibus, dense punctato, elytris striis vage impressis, interstitiis subrugosis, pectore longius cinereo-pubescente. Long. .47.

San Diego, California, May and June, abundant, flying about just before sunset, and alighting on bushes, near the shore of the bay. In the male, the thorax is gradually narrowed from the base, and slightly angulated before the middle; in the female, the sides are parallel from the base of the spines to the middle, then rounded to the apex. This insect has very feebly the power of springing.

EUTHYSANIUS Lec.

Frons planiuscula, antice subito devexa, non marginata: oculi convexi prominuli: labrum breve, antice subsinuatum: mandibulæ modice elongatæ, acutæ, medio dentatæ: palpi articulo ultimo non longiore, cylindrico: antennæ pilosæ flabellatæ, 12-articulatæ, articulo 1^{mo} crassiore, sequentibus duobus æquali; 3^{io} 2^{ndo} paulo longiore; 4—11 sensim paulo longioribus, ramo externo valde elongato, cylindrico apicali instructis, 12^{mo} cylindrico, ramo præcedentis sesqui brevioris: prosternum antice vix rotundatum, sutura laterali obliqua recta, postice mucronatum: coxæ anticæ parvæ, mediæ fere contiguæ, posticæ laminis angustis, intus latioribus: tarsi longiusculi pubescentes, articulis 1—4 sensim brevioribus, 5^{to} longiore, unguiculis integris: tibiæ tenues, calcaribus parvis: abdomen 5-articulatum.

The appearance is entirely that of *Plastocerus*, but the 12-jointed antennæ, and the more prominent and acute mandibles, compel me to separate this species. The labrum is more porrected than in the preceding genus, and is nearly horizontal, not following the convexity of the anterior part of the front, which is almost perpendicular.

1. *E. lautus*, piceo-castaneus, tenuiter helvo-pubescent, capite thoraceque sat dense punctatis, hoc latitudine non brevior, antrorsum paulo angustato, lateribus late sinuatim rotundatis, angulis posticis elongatis valde divergentibus, elytris thorace paulo latioribus, seriatim punctatis, vage sub-sulcatis, rugose punctatis, antennis palpis pedibusque castaneo-rufis. Long. .92.

One specimen from San Diego, California. The shallow furrows of the elytra are more obvious behind the middle.

CEBRIO *Fabr.*

Frons paulo convexa, antice non marginata: oculi convexi prominuli: labrum latum, breve, antice præcipue late emarginatum, fronte arcte connatum: mandibulæ elongatæ fere rectangulariter angulatae, apice tenues acutæ: palpi maxillares longiusculi, articulis cylindricis: antennæ subserratae, 11-articulatae, articulo 1^{mo} non crassiore, 4^{to} æquali; 2, et 3 coniunctis 4^{to} æqualibus; 11^{mo} apice subito constricto: prosternum breve, sutura laterali indistincta, postice longe mucronatum: coxæ anticæ maiusculæ, mediæ contiguæ, posticæ laminis intus subito dilatatis: tibiæ anticæ ad apicem extus paulo productæ, calcaribus mediocribus: tarsi paulo pubescentes longiusculi, articulo 1^{mo} elongato, 2—4 subæqualibus, 5^{to} longiore, unguiculis integris: abdomen articulo 5^{to} truncato, 6^{to} 7^{mo}que conspicuis.

This genus is distinguished from the next by the anterior tibiæ being less compressed and not emarginate externally; the terminal spurs of all the tibiæ are moderate, while in *Scaptolenus*, they are very long; the scutellum is obtuse and not elongate. The species resemble each other very closely, and are only to be recognised by the organic differences pointed out below: they are castaneous above, and testaceous yellow below, with the prosternum dusky, and the antennæ ferruginous. Latreille has separated *C. bicolor* as a distinct genus *Selenodon*, but such an arrangement is not tenable.

A. *Palpi articulo ultimo maxillarum brevior.*

1. *C. bicolor*, castaneus, helvo-pubescent, minus nitidus, labro late emarginato, thorace lateribus parallelis antice rotundatis, (maris confertim, feminae parcius punctato,) angulis posticis subdivergentibus, elytris striatis, interstitiis punctatis, subtus testaceus, antennis ferrugineis. Long. (mas.) .7: (fem.) .9.

Cebrio bicolor Fabr. Syst. El. 2, 14; Beauvois, Ins. 8, tab. 7, fig. 2.

Selenodon bicolor Latreille, Ann. Ent. Soc. France, ser. 1, 3, 163.

Southern and Western States, not rare. The female is apterous, and larger and stouter in its form; the antennæ are only as long as the head and mandibles, while in the male they reach beyond the base of the thorax; they are serrate in both sexes, with the last joint acuminate: the only specimen of the female that I have seen, was taken in Alabama by Mr. Hentz, and given me by Prof. Haldeman. In both sexes the apical portion of the mandibles is slender: in the female the tarsi are shorter than in the male, and the anterior tibiæ are more compressed.

As this seems to be the most abundant species, it is probably the original *Cebrio bicolor*.

2. *C. simplex*, piceo-castaneus, helvo-pubescent, labro non emarginato, thorace antrorsum subangustato, lateribus fere rectis (maris confertim fere confluentem punctato) angulis posticis subdivergentibus, elytris nitidis profundius striatis, interstitiis punctatis, subtus testaceus, antennis ferrugineis. Long. .72.

One male from Georgia. The antennæ are a little longer than the head and thorax: besides the differences given in the diagnosis, the thorax is more densely pubescent than in the other species, and its posterior angles are more strongly carinated.

B. *Palpi maxillares articulo ultimo præcedenti æquali.*

3. *C. confusus*, piceus, helvo-pubescent, labro antice late emarginato, thorace lateribus parallelis, antice subrotundatis, angulis posticis breviusculis, non divergentibus (maris confertim subtilius punctato,) elytris minus nitidis, striatis, interstitiis punctatis, subtus testaceus, antennis ferrugineis. Long. .72.

One male from Georgia. More robust than the preceding, almost intermediate in form between the male and female of *C. bicolor*. The antennæ hardly reach beyond the base of the thorax; the posterior angles of the thorax are not distinctly carinated: the front is somewhat more convex than in the other two species.

SCAPTOLENUS *Lec.*

Frons convexiuscula, non marginata; labrum latum antice leviter emarginatum, fronti arcte conjunctum: mandibulæ elongatæ tenues, falcatæ, acutæ; palpi elongati, tenues, articulo ultimo maxillarium præcedenti æquali: antennæ tenues, vix serratæ, 11-articulatæ, articulo 1^{mo} vix crassiore, 4^o æquali, 2 et 3 coniunctis 4^o brevioribus, 11^{mo} apice subito constricto; prosternum breve, postice valde inflexum, mucrone vix distincto: coxæ anticæ maiusculæ, mediæ contiguæ, posticæ laminis intus subs subito dilatatis: tibiæ calcaribus elongatis armatæ, anticæ compressæ, dilatatæ, extus emarginatæ, et apice productæ (ita ut bidentatæ sunt): tarsi tenues, pubescentes, valde elongati, articulo 1^{mo} sequentibus duobus longiore, 2—4 sensim paulo brevioribus, ultimo præcedentibus duobus brevioribus, unguiculis integris: abdomen articulo 5^{to} truncato, 6^{to} 7^{mo}que prominulis.

The body is short and thick, strongly narrowed in front from the base of the thorax; the anterior part of the body, above and beneath, is covered with very long hair. The scutellum is long and pointed.

1. *S. femoralis*, saturate castaneus, nitidus longe helvo-pilosus, punctatus, thorace valde transverso, antice fortiter angustato, lateribus subrotundatis, basi et apice bisinuato, angulis posticis elongatis, elytris postice subangustatis, sulcatis, sulcis antice oblitteratis, subtus flavus, tibiis tarsisque nigricantibus, antennis ferrugineis, palpis piceis. Long. .65.

Cebrio femoralis Chevrolat, Coléoptères de Mexique, fasc. 8, No. 200.

Two males found near San Antonio, Texas, by Lieut. H. Haldeman.

APPENDIX.

Page 454. In *ATRACOPTERUS* add the following species:

A. silaceus, rufo-testaceus, fere opacus, tenuiter flavo-pubescent, thorace latitudine sesqui longiore, antrorsum subangustato, lateribus antice late rotundatis, angulis posticis pallidis subdivergentibus, disco confertissime subtiliter punctato, elytris fere parallelis pallidioribus, striis punctatis impressis, interstitiis vix convexis, punctatis, antennis articulis 2 et 3 æqualibus, 4^{to} coniunctis fere æqualibus. Long. .3—.34.

Elater silaceus Say, Ann. Lyc. of New York, 1, 260.

Middle and Southern States, not rare. This species differs from the following by its less slender form and less elongated antennæ. The head and thorax are somewhat darker than the elytra, but never become piceous or black: the thorax is very obsoletely channelled: the abdomen is rufous, and the postpectus dusky.

A. umbraticus, piceo-niger, fere opacus, tenuiter flavo-pubescent, thorace latitudine sesqui longiore, antrorsum subangustato, lateribus vix rotundatis, angulis posticis testaceis subdivergentibus, confertissime punctato, elytris fere parallelis fuscis, versus basin pallidioribus, striis impressis, punctatis, interstitiis punctatis, pedibus antennisque fusco-testaceis, his valde elongatis, articulis 2 et 3 coniunctis 4^{to} duplo brevioribus. Long. .3.

Middle and Southern States. This is probably what Say alluded to as a variety of the preceding species, having the thorax and abdomen almost black. The thorax, as in *A. silaceus*, is very indistinctly channelled.

With regard to the difference between *Atractopterus* and *Dolopius*, of this essay, a few words of explanation may be necessary. The essential differences may be reduced to two: 1. The head of *Atractopterus* is not perpendicular, and the mouth not inferior; and 2. The basal joint of the antennæ is not elongated.

It may be a matter of dispute by what name the genus called *Dolopius*, in the present essay, should be properly denoted. I confess that I may have acted without due deliberation in selecting the name *Dolopius*, as it has already been placed as a synonym to *Ectinus* by Latreille: I would, therefore, propose to substitute for it *AGRIOTES*, as liable to fewer objections. My reason for selecting *Dolopius* was, that most of the native species previously described had been referred to that genus, and I was unwilling to introduce any change of name, except in cases where it was absolutely necessary. On consultation with Dr. Harris, his opinion, in which I am now happy to coincide, is, that if the genera are united, the choice of names should be restricted to *Ectinus* or *Agriotes*, since Latreille has united the other two (*Dolopius* and *Sericosomus*) with them.

Of the species described in this essay, *D. mancus* and *D. pubescens* differ from the others in having the mouth entirely closed by the sternum, and in this respect agree with *Agriotes segetis* of Europe. The basal fissures are more elongated than in the other species, and present in certain lights the appearance of elevated lines: it might be doubted which of the two is the real *El. mancus* Say, but as it is compared with *El. convexus*, evidently a robust species of *Cardiophorus*, I have given the preference to that having the more robust form.

D. pauper, *D. subustus*, *D. bigeminatus*, *D. oblongicollis*, *D. isabellinus*, and *D. avulsus*, agree closely in characters with the European *D. marginatus*, which is the type of Eschscholtz's genus *Dolopius*: in them the posterior coxæ are somewhat suddenly dilated internally; in the remaining species the coxæ are hardly wider internally, and the second and third joints of the antennæ are variable in their proportions: united together, they are longer than the fourth; they are equal in size, or nearly so; but in *D. limosus* the second appears distinctly longer than the third; the suture of the prosternum is more or less excavated anteriorly, and in all of them to a greater extent than in the European *D. marginatus*.

Under these circumstances, I did not feel justified in separating such closely allied species into different genera, though I confess that the following arrangement of the species described would be more natural than the one proposed in the text, although the thickened and emarginate mandibles separate *A. mancus* from all the other species, both native and foreign, that I have examined:

A. Sternum subtus os omnino obtegens: *A. mancus* and *pubescens*.

B. Os subtus plus minusve liberum:

Coxæ posticæ intus vix latiores: *A. collaris*, *fucosus*, *sordidus*.

Coxæ posticæ intus modice, subgradatim angustatæ: *A. avulsus*, *sordidus*, *stabilis*, *limosus*.

Coxæ posticæ intus modice fere subito angustatæ:

Antennæ articulis 2 et 3 coniunctis 4^{to} brevioribus: *A. isabellinus* and *oblongicollis*.

Antennæ articulis 2 et 3 coniunctis 4^{to} longioribus, (frons apice subangulata:) *A. pauper*, *subustus*, *bigeminatus*.

The following note from Dr. Harris will explain the different views taken by us of the nomenclature of the species, considered by Dr. Harris as *El. obesus*, and by me as *Elater mancus*.

"The species which Dr. Le Conte refers to *Elater mancus* of Say, is strictly congeneric with the European species *segetis* Gyll. (*striatus* Fabr.) *variabilis* F., and *sputator* F., with all of which it has been carefully compared. These species belong to the genus *AGRIOTES* of Eschscholtz and of Latreille. The insect in question is to be found in the 'Catalogue of the insects of Massachusetts,' appended to the 2d edition of Hitchcock's Report, under the name *E. pumilus*, with the doubtful synonym, '*obesus*? var. S.,' given on the authority of Mr. Say: and it is described as *Elater (Agriotes) obesus* in the 'Treatise on Insects Injurious to Vegetation,' in which the specific name was adopted in deference to Mr. Say, although the writer was previously aware that the insect did not accord with Mr. Say's description of the *obesus*."

The following species of this family are unknown to me; those described from Russian

America may be expected to occur in the northern portion of Oregon, but are not included here, as a catalogue of them has already been published by Mannerheim, (Bull. Mosc., 1852.)

Where the genus can be determined, it is placed in parentheses, or reference is made to the preceding pages, where the species is mentioned:

	<i>Eucnemis quadricollis</i> Say, (v. p. 411.)		{choris Say, (v. 489.)
	<i>Galba</i> (<i>Dendrocharis</i>) <i>flavicornis</i> Guér. (v. p. 418.)	<i>Elater</i>	{viridis Say, Ann. Lyc. 1, 255.
	(<i>Eucnemis</i>) <i>subrufa</i> Randall, Bost. Journ. 2, 38.		{obesus Say, (v. 456.)
	<i>dispar</i> Herbst, Käfer, 10, 72, tab. 164, fig. 6.		{macilentus Randall, Bost. Journ. 2, 13,
	<i>flavipes</i> Fabr. Syst. El. 2, 234: Herbst, <i>ibid.</i>		<i>Dolopius californicus</i> Mann. Bull. Mosc., 1843.
	71, tab. 164, fig. 6.		{xanthomus Germ. (v. 471.)
	<i>lepturus</i> Herbst, <i>ibid.</i> 77, tab. 165, fig. 1.		{pullus, (v. 468:) Germ. Zeitschr. 5, 168.
	<i>stigma</i> Herbst, (v. 435, 471.)	<i>Ampeplus</i>	{pusio, Germ. Zeitschr., <i>ibid.</i>
	<i>scutellum</i> Herbst, Käfer, 10, 144.		{cribrarius Germ. (v. 472.)
	<i>inquinatus</i> Say, (v. 459.)		{pedalis Germ. (v. 468.)
	<i>quietus</i> Say, (v. 459.)		{concinus Germ. (v. 470.)
	<i>avitus</i> Say, (v. 491.)		{bombycinus Germ. Zeitschr. 4, 70.
	<i>erosus</i> Say, Ann. Lyc. 1, 258.		{medianus Germ. (v. 437.)
	<i>ruffrons</i> Randall, (v. 427.)		{corporosus Germ. <i>ibid.</i> 4, 72.
	<i>acutipennis</i> Randall, Bost. Journ. 2, 36.	<i>Diacanthus</i>	{sticticus Germ. (v. 441.)
	<i>nimbatus</i> Say, Ann. Lyc. 1, 265.		{russicollis Germ. (v. 441.)
	<i>claricollis</i> Say, Trans. Am. Phil. Soc. 6, 179.		{submetallicus Germ. 4, 72.
	<i>bisectus</i> Say, Journ. Acad. Nat. Sc. 3, 177.		{leucaspis Germ. 4, 73.
	<i>convexus</i> Say, (v. 497.)		{glaucus Germ. 4, 76.
	<i>abbreviatus</i> Say, Journ. Acad. Nat. Sc. 3, 173.		{serricornis Mann. Bull. Mosc., 1843, 241.
	<i>militaris</i> Harris, Transac. Hartford Soc. 70:		{diversicolor Mann., <i>ibid.</i> 243.
	Germ. Zeitschr. 5, 161.		<i>Corymbetes rupestris</i> Germ. Zeitschr.
	<i>basalis</i> Randall, Bost. Journ. Nat. Hist. 2, 9.		<i>Cryptohypnus cinereipennis</i> Mann. (v. 460.)
	<i>honestus</i> Randall, Bost. Journ. Nat. Hist. 2, 9.		<i>Cryptohypnus puberulus</i> Mann. (v. 460.)
	<i>filius</i> Randall, <i>ibid.</i> 2, 14.		{latiusculus Esch. Mann. Bull. Mosc., 1843, 238.
	<i>griseus</i> Beauv., 214, tab. 9, fig. 8. (<i>Limonius</i>	<i>Cardioph.</i>	{californicus Mann. <i>ibid.</i> 238.
	sec. Chevrolat.)		{tantillus Mann. <i>ibid.</i> 239.
	<i>rufipes</i> Beauv., 214, tab. 9, fig. 9.		<i>Cratonychus</i> (species) (v. 481.)

The *Elaters operculatus*, *fenestratus*, and *mendica*, mentioned by Say as having been described by him, cannot be found in his writings.

On p. 439 a duplicate description of *Corymbites aratus* has been inadvertently allowed to remain: the remarks under the first of the descriptions are a repetition of what belongs to *C. nitidulus*.

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ART. XVIII.—*Synopsis of the MELOLONTHIDÆ of the United States.*

By JOHN L. LE CONTE, M. D.

The Melolonthidæ form a group of the family Scarabæidæ less distinctly defined than any other in that extensive family; connecting with several others, it seems to be the great central group, and embraces genera of such diverse form and structure, as to render the attempts at classification not altogether satisfactory. Erichson was the first to attempt a general arrangement of the tribe, and Lacordaire, while following nearly in his path, has introduced some important changes. It would ill become me, having studied only a fauna limited in genera of this type, to pronounce upon the value of the affinities thus displayed between genera which I have never seen; but I have found great difficulty in placing in the schemes of those authors a new genus, which should evidently have place within the limits embraced by them.

The classification of Burmeister is founded upon entirely different characters, and seems at first to give much more natural groups than those formed by Erichson and Lacordaire, though the characters used seem by no means distinct or easy of application. The great stumbling point in both systems is however the curious mixture of characters found in the allied group Anthobia of Burmeister, part of which forms Erichson's family Glaphyridæ, enrolled in the great series of Scarabæi laparosticti. Burmeister having examined (Lamell. 2, 2d, 467) the position of the abdominal stigmata in the genera of Erichson's Glaphyridæ, found great variations between the individual genera, some having them as in Melolonthidæ, while in none had they exactly the situation in which they are found in the other groups of Laparosticti. From these facts he draws the inference that the family Anthobia as established by him is a natural one, osculant between the Phyllophaga (Melolonthidæ and Rutelidæ of Erichson) and Melitophila (Cetoniadæ of Erichson), entirely denying the relationship with the Laparosticti.

While admitting the probable justice of the latter result, although Erichson notes the transition from Phænognatha to Hybosorus, I must say that the facts seem to me to bear a very different interpretation. Looking for example at the four primary groups into which Erichson divides the Scarabæi pleurosticti, the reader will see that the Melolonthidæ have the posterior stigmata diverging but feebly, while the three others have them diverging strongly. We will afterwards see that the position of

the posterior pair in the groups of genuine Melolonthidæ varies. Why, then, may not all these cases of variation, great or small, in the position of the stigmata be brought together in one large group, which may be placed between the pleurosticti and laparosticti, connected more closely with the former than with the latter. The essential character of this large group seems to be the negation of the characters of the other two; and we would thus have the following expression of relations:

Stigmata abdominis in segmentis ventralibus sita postice fortiter divergentia, ultima conspicua	Laparosticti.
Stigmata abdominis parum divergentia, variables, at in membrano non sita, ultima sæpe conspicua	Melolonthidæ.
Stigmata abdominis in membrano inter segmenta ventralia et dorsalia sita, ultima obtecta	Pleurosticti.

Besides this difficulty in determining the limits and characters of the entire family, some difference in observation appears to result from the nature of the characters used in its division. Thus, for example, the ventral segments of the Sericidæ are described as free by Erichson and Lacordaire, and as connate by Burmeister; the sutures are in reality distinct, though probably immovable. Nevertheless, although so deceptive, this character cannot in the present condition of the study be abandoned, though perhaps something may be done to render it more reliable.

Modifying the tables of Erichson and Lacordaire to suit the introduction of the new views enunciated above, and omitting the groups not found in our territory, the following table may be formed:

I. Mandibulæ sub clypeo tectæ.

A. Coxæ anticæ transversæ haud prominulæ.

Parapleuræ latæ.

Segmenta abdominis haud connata 1. *Macrophyllæ*.

Segmenta abdominis suturis oblitteratis 2. *Melolonthæ*.

Parapleuræ angustæ 3. *Rhizotrogi*.

B. Coxæ anticæ conicæ prominulæ.

Parapleuræ angustæ vel medioeres; tarsi onychio distincto; tibiæ posteriores bicalcaratæ.

Abdomen segmentis ventralibus haud connatis:

segmentum sextum haud conspicuum 4. *Diploptaxæ*.

segmentum sextum conspicuum.

Labrum connatum 5. *Sericæ*.

Labrum distinctum:

ungues divergentes, fixi 6. *Macroductyli*.

ungues mobiles, cheliformes 7. *Dichelonychæ*.

Abdomen segmentis ventralibus arcte connatis 8. *Lasiopodes*.

Parapleuræ magnæ.

Tarsi onychio nullo; tibiæ unicalcaratæ vel ecalcaratæ 9. *Hopliæ*.

II. Mandibulæ ante clypeum conspicuæ.

Parapleuræ maximæ (abdomen segmentis liberis) 10. *Glaphyri*.

I. MACROPHYLLÆ.

A group having the epimera and parapleuræ of the metathorax broad as in *Melolonthæ*, but differing by the ventral segments not being connate, although the sixth is less closely articulated. Besides this character, the long slender tarsi, and the very long hair of the head, thorax and sides, enable them to be readily recognized. The group has heretofore had no representative on the American continent, but I am now enabled to make known a new genus found within our territories.

Characters derived from the abdomen, and not mentioned by Burmeister or Lacordaire are the very distinct and straight fissure-like suture between the fifth ventral segment and the propygidium; the stigma is situated on the ventral segment, near the anterior margin, but remote from the suture just mentioned.

The group in its present form was established by Lacordaire. It consists of the group *Tanyproctini* of Erichson, less the genus *Tanyproctus*.

Burmeister combines with it Erichson and Lacordaire's group *Pachypodii*, which differ not only by the variable characters derived from the less development of the oral organs, but by the epimera of the metathorax being narrow.

PHOBETUS Lec.

Corpus ovatum, convexum alatum, margine omni pectoreque longe villosa, clytris abdomineque subglabris. Caput clypeo rotundato margine reflexo, sutura frontali fere oblitterata. Labrum transversum late concavum, parum emarginatum. Mandibulæ obtusæ prominulæ. Mentum medio impressum; palpi labiales articulo ultimo cylindrico (maxillares desunt.) Antennæ 9-articulatæ, articulo 1mo (scapo) elongato, 2do rotundato, 3io 4to æqualibus, 5to obliquo haud brevior, 6to transverso brevi, clava triarticulata, (maris) funiculo paulo longiore. Thorax anticæ linea marginali profunda. Abdomen haud marginatum, segmento quinto ventrali longiore margine postice subcoriaceo; pygidium triangulare, magnum convexum. Tibiæ breves, anticæ bidentatæ, denteque superiore munitæ, longius unicalcaratæ; posteriores spinulis longioribus uniconatæ, posticæ crassiores et denticulo superiore munitæ, omnes longe pilosæ. Tarsi tibiis fere duplo longiores, tennes, verticillatim setosi, articulis subæqualibus, unguiculis versus apicem dente magno lato acuto armatæ, et ad basin iterum subdentatæ.

Seems to be allied to *Tryssus* *Er.* and *Trichiodera* *Burm.*, but the latter has 10-jointed antennæ; the former has, it is true, 9-jointed antennæ, but is very insufficiently described, and being from southern Africa can hardly be the same as the present genus.

1. *P. comatus*, capite obscuro confluentè dense punctato, clypeo rotundato fortiter marginato, thorace luteo-ferrugineo margine omni longissime flavo-piloso, lateribus valde rotundatis, confertim punctato, clytris piceo-testaceis nitidis, margine laterali et basali flavo-pilosis, vix obsolete punctatis, stria suturali profunde exarata, propygidio dense subtilius punctato pubescente, pygidio nitido parce piloso et punctato; subtus ferrugineus, femoribus tibiis posterioribus et pectore longe pilosis. Long. .67.

One specimen found in California by Mr. J. Wittick, probably near Sacramento, and given me by Mr. S. S. Rathvon. The thorax has a strong marginal line at the

apex, and a faint fovea near the side at the middle; the anterior angles are acute. The oral organs, sides of the head, and base of the antennæ are also provided with long hairs.

2. MELOLONTHÆ.

This group differs from the others by the combination of the following characters: five ventral segments of the abdomen are connate, with nearly effaced sutures, the 6th is distinct and rounded; the parapleuræ of the metathorax are broad and their epimera are large.

The latter important character was first observed by Lacordaire, (Gen. Col. 3, 292), but has been overlooked by Burmeister, who distributes the contents into two groups, Leucopholidæ having the third joint of the antennæ short, and Polyphyllidæ having the same joint elongated. The new genus *Thyce*, while important as being the second generic representative of the group on this continent, is still more important, as showing the greater correctness of the view taken by Lacordaire, since with the habit and structure of head and feet of *Polyphylla*, it combines the antennæ of *Leucopholis*.

Additional characters common to our two genera, but which, though apparently of importance, are not mentioned in the generic descriptions of Burmeister, are, that the middle tibiæ, instead of being surrounded externally by two more or less developed crowns of spines, (as in all *Rhizotrogidæ*), are acutely bidentate; the posterior tibiæ of *Polyphylla* are similar to the middle ones; in *Thyce* the inferior prominence is transverse; the suture between the fifth ventral segment and the propygidium is distinct, angulated at the middle, with the stigma placed exactly upon the angle; the thorax is not margined anteriorly, and is ciliate with short bristles.

Our two genera are very distinct, and may be thus known:

Antennarum articulo 3io longiore, clava polyphylla	<i>Polyphylla</i> Harris.
Antennarum articulo 3io haud longiore, clava parva (♀) triphylla	<i>Thyce</i> Lec.

POLYPHYLLA Harris.

A. Tibiæ maris anticæ fortiter tridentatæ.

1. *P. Hammondi*, oblonga, fusca, supra parce albo-squamosa, thorace brevi lateribus oblique rotundatis, antrorsum angustato, canaliculato, trivittato, margine postico longe comato, elytris parce punctatis, sutura anguste, vittaque brevi basali densius albo-squamulosis, ano, antennis pedibusque ferrugineis. Long. .82—1.0.

Two males found at Fort Riley, Kansas, by Dr. Wm. A. Hammond, U. S. A. to whom I owe my most grateful acknowledgements for a very large and complete series of the Coleoptera of that region.

Body oblong, somewhat cylindrical, blackish brown, shining, above very sparsely

sprinkled with small white scales. Clypeus (as in the males of this division) deeply concave, with the sides oblique and diverging anteriorly, margin broadly reflexed, truncate in front, and reddish; vertex with long yellowish hair. Antennæ ferruginous, club much longer than the head. Thorax nearly three times wider than long, sides rounded and oblique, not narrowed towards the base, margin reddish, disc with a dorsal channel which being clothed with denser white scales forms a narrow vitta, another short interrupted vitta is seen each side, but in one specimen is very indistinct; the disc near the anterior margin is furnished with a few long hairs; the surface is shining and sparsely punctured; the posterior margin is fringed with long hair. Scutellum with a white medial line. Elytra shining sparsely punctured, with a very narrow sutural line, and a short basal vitta inside of the humerus more densely clothed with white scales, the vitta disappears in one specimen. Abdomen clothed with small white scales more condensed at the posterior margin of the segments, anus ferruginous. Pectus clothed with dense long hair, legs ferruginous; anterior tibiæ armed with three acute teeth.

2. *P. cavifrons*, oblongo-cylindrica, fusco-ferruginea, pube brevi pallida squamulosa parce vestita, thorace lateribus rotundatis, utrinque angustato, sulco dorsali, plaga utrinque basali densius pubescentibus, margine basali brevius fimbriato, elytris rugosis obsolete tricostatis et vix vittatis, sutura paulo densius pubescente. Long. .9.

Le Conte, Proc. Acad. Nat. Sc. Philada., 7, 222.

Sonora, Dr. Webb, and Mr. Schott, of the U. S. and Mex. Boundary Commission. Only males were procured. This species is slightly more cylindrical than the preceding, being about the same size and form as *P. variolosa*, of a reddish brown color and with a thin covering of short depressed yellow hair; the thorax is however of a different shape, being about two times wider than long, much rounded on the sides, and narrowed both in front and behind, the disc is moderately densely punctured, channeled, with the sides, dorsal vitta and basal spots more densely pubescent with fine short yellowish hair like scales. The anterior part of the disc has a few longer hairs, and the posterior margin is fringed with not very long hair. The head is formed as in the preceding, sparsely clothed with short yellowish hair, with long hair on the vertex; the antennæ are paler ferruginous with the club not much longer than the head. The elytra are finely rugous, not very shining, with three faint costæ, which appear with the suture more densely pubescent. The abdomen is densely clothed with yellowish scale like hairs, the pectus as usual with long yellow hair. The anterior tibiæ are armed with three acute teeth.

3. *P. subvittata*, cylindrica ferrugineo-testacea, parce pallide squamosa, thorace lateribus fere angulatis, utrinque angustato, canaliculato, trivittato, elytrorum sutura vittisque minus distinctis utrinque tribus albo-squamosis, vitta externa ambiente. Long. 1.10.

One mutilated male found by Mr. A. Schott on the Rio Grande, Texas. More

cylindrical than the preceding, and of a paler color, sparsely clothed with small white scales. Clypeus longer, with the sides more diverging, and the anterior angles more defined; vertex as usual with yellow hair. Thorax a little more than twice as wide as long, sides almost angulated, narrowed very much in front, and moderately behind, disc anteriorly without hairs, with the dorsal channel and a lateral discoidal vitta (as in the next species) more densely squamous; surface shining moderately punctured, posterior margin fringed. Elytra shining, coarsely rugous and punctured, with the suture and three vittæ each side more densely squamous; the two inner vittæ extend within one-fourth of the apex, the outer one is less distinct, but entire, and bends around the apex almost to the suture. Body beneath as in the preceding. Anterior tibiæ with three teeth which from wearing have become obtuse.

B. Tibiæ anticæ maris bidentatæ.

3. *P. decemlineata*, fusco-picea, parce sulphureo-squamosa, thorace canaliculato, vittis tribus, scutello medio, elytris sutura vittis tribus brevique humerali niveo-squamosis, antennis ferrugineis. Mas antennarum clava magna, clypeo truncato submarginato antice paulo latiore. Long. 1·10. Femina, antennarum clava parva, clypeo parum concavo, lateribus parallelis, antice subsinuato, tibiis anticis tridentatis. Long. 1·05—1·35.

Lec. Proc. Acad. Nat. Sc. 7, 218. Burm. Lamell. 2, 2d, 407.

Melolontha 10-lineata Say, Journ. Acad. Nat. Sc. 3, 246.

Kansas, Nebraska and New Mexico; shores of Tlamath Lake, Oregon, Dr. Newberry; a specimen of very large size was found by Mr. Joshua Child in the Sierra Nevada of California. The head behind is clothed with moderately long hair, but hardly any is seen on the thorax; the yellow scales on the latter near the margin are elongate, but on the disc they are lanceolate, and about twice as long as their width; the sides are obtusely angulated at the middle, with the posterior angles very obtuse. The yellow scales of the elytra are acute, and a little more than twice as long as their width. The under surface is clothed with pale scales with snowy bands across the abdomen; the pectus is very hairy, the posterior tibiæ are internally clothed with long hair. The feet vary from ferruginous to blackish.

A male found in Kansas is remarkable for the right antenna bifurcating at the end of the second joint; the inner third joint is thick and short, the outer normal; the outer club is normal, but smaller than the one of the opposite side; the inner club is deformed, being composed of two which are fused together at the middle, forming a concave mass, of which the upper laminæ are much longer than the under ones. The anterior tibiæ are almost without teeth.

4. *P. crinita*, fusco-picea, pube depressa vix squamulosa pallide sulphurea parce vestita, capite postice, thorace antice longius crinito, hoc canaliculato, niveo trivittato, scutello medio elytris sutura, vittis tribus humeralique brevi niveis, pygidio sæpius, pedibus antennisque ferrugineis.

Mas antennarum clava magna, clypeo recte truncato, thoracis margine postico longe villosa. Long. .97—1.17.
Femina antennarum clava parva, clypeo antice subsinuato, thoracis margine postico brevius villosa, tibiis
anticeis tridentatis. Long. 1.05—1.35.

Oregon, Washington Territory and California. So similar to the preceding that the females might be readily confounded; on comparison, however, I find the following differences independent of sex. The yellow scale-like hairs are lanceolate, and narrow, being on the elytra about four times as long as their width; on the disc of the thorax especially in the vittæ they are broader, but towards the margins they are elongated, and are gradually converted into long hairs, which towards the apex are as long as those on the back of the head: the sides of the thorax from a dorsal view appear rounded, and not angulated.

The base of the thorax of the male is densely fringed with long yellowish hair, about three-fourths as long as the scutellum, but in the female the hair is not longer than in both sexes of *P. 10-lineata*. The under surface is as in the preceding; the legs are however ferruginous in every specimen before me: the margin of the elytra, the pygidium and last ventral segment are also usually ferruginous.

The study of the genus *Lachnosterna* indicates that in this tribe species may be really distinct, although almost without differences in form and sculpture, otherwise I should not venture to distinguish the present by a specific name, but should rather class it as a race of *P. 10-lineata*.

5. *P. variolosa*, fusco-ferruginea, undique minus dense albido-pubescentibus, capite postice villosa, thorace antrosum fortius angustato, lateribus oblique magis rotundatis, angulis posticis obtusis, canaliculato pube densiore subtrivittato, elytris, sutura anguste, guttisque pluribus densius pubescentibus. Long. .8—0.9.
Mas antennarum clava magna, clypeo concavo antice latiore fere recte truncato, thorace margine basali medio longe villosa.

Femina haud visa.

Harris Ins. Inj. Vegetation, 1st ed. 30.

Melolontha variolosa Hentz, Trans. Am. Phil. Soc. 3, 256, pl. 2, fig. 5. Harris, Ins. Inj. Vegetation 2nd ed. 28.

Middle States, Massachusetts, New Jersey. This species seems to have been confounded by Erichson and Burmeister with the following, to which it bears but little resemblance; or at least the name has been quoted as a synonym, without any knowledge of the object or figure to which it referred. Apart from the want of regular vittæ on the elytra, the pubescence is much less dense, the occiput clothed with long hair, the thorax is shorter, and more narrowed anteriorly and more rounded on the sides, the body is less elongated, and much less cylindrical than in the next species. The abdomen is sometimes fuscous, sometimes reddish brown, with bands of whitish pubescence.

6. *P. occidentalis*, elongata, cylindrica ferrugineo-testacea densius pallide pubescens, thorace antrosum parum angustato, lateribus rotundatis, angulis posticis rectis, vitta dorsali alba, alteraque utrinque

sæpe obsoleta, scutello toto, elytris sutura vittisque tribus densius albo-pubescentibus, interna sæpe abbreviata. Long. .9—1.3.

Mas antennarum clava magna, clypeo lateribus subrectis, antico latiore recte truncato, tibiis anticis bidentatis. Femina antennarum clava parva, clypeo lateribus rotundatis, antice subsinuato, tibiis anticis fortius bidentatis.

Er. Ins. Deutschl. 659; Burm. Lamell. 2, 2nd, 408.

Scarabæus occidentalis Linn. Syst. Nat. ed. 12ma reformata, 1, 2, 555.

Melolontha occidentalis Herbst, Käfer, 3, 72; tab. 23, fig. 8. Drury, Ins. 2, 58; tab. 32, fig. 2. Oliv. Ins. 5, 15, tab. 1, fig. 7, (in part.)

Southern States, S. Carolina, Louisiana. The abdomen is usually blackish with transverse bands of denser white pubescence. The hair of the base of the thorax is distinct but not longer in the male than in the female.*

THYCE Lec.

Corpus oblongo-cylindricum, alatum, squamulosum, pectore villosa, elytris subglabris. Clypeus concavus, antice paulo latior, recte truncatus. Antennæ 10-articulatæ, articulis 3 et 4 æqualibus, clava (feminæ) parva triphylla. Labium profunde excavatum. Mentum paulo concavum, ligula latior. Palpi labiales in margine ligulæ inserti: maxillares articulo ultimo longiore cylindrico ad apicem acuto. Mandibulæ parum prominulæ. Tibiæ anticæ fortiter tridentatæ, intermediæ extrorsum acute bidentatæ, posticæ crassiores denticulo Imo acuto, denteque secundo transversa armata, ad apicem spinulis coronatæ, calcaribus complanatis, interno minore angustiore. Tarsi (postici) breves, verticillatim setosi, articulis 1—4 sensim paulo brevioribus, 5to primo æquali, unguiculis medio dente acuto mediocri armatis. Pygidium subtransversum triangulare, angulis rotundatis.

In every respect resembling *Polyphylla*, except in the antennæ, the more thickened posterior tibiæ, and the ungues.

1. *T. squamicollis*, piceo-ferruginea, capite thoraceque confertissime punctatis, pilis depressis squamiformibus pallidis vestitis, hoc convexo, disco antice posticeque parcius villosa, elytris nitidis punctatis et rugosis parce brevissime pubescentibus, pygidio abdomineque squamulosis, pectore dense villosa. Long. 1.03.

One female collected by T. Charlton Henry, M. D., U. S. A., at Albuquerque, New Mexico.

Uniform reddish brown, with the tibiæ darker. Head densely punctured covered with narrow yellowish scales; front broadly margined, sides straight, slightly diverging, anterior margin nearly straight. Thorax convex, narrowed in front, much rounded and subserrate on the sides, feebly broadly channeled about the middle of the disc, vaguely impressed each side near the anterior angles: densely punctured, covered with small narrow scales like those of the head, with long hairs intermixed towards the base and apex. Scutellum densely pubescent with a glabrous line. Elytra rugous as in most *Rhizotrogæ*, not densely punctured, with a very short hair from each puncture. Pygidium densely, abdomen less densely clothed with very small whitish

* Fabricius has intended by his *Melolontha occidentalis* the European *Anoxia australis*; Olivier confounded them together as is evident by the localities given. His description does apply to the present, as the seven jointed antennal club of the male is mentioned.

scales. Pectus densely clothed with long yellowish hair. Femora and inner margin of the posterior tibiæ fringed with long hair.

§3. RHIZOTROGI.

These are distinguished among the other Melolonthidæ with transverse not prominent anterior coxæ, by the deeply emarginate labrum, the anteriorly margined thorax without apical membrane, the narrow parapleuræ, and the connate ventral segments. Specimens, and perhaps even species occur in which this last character is not very obvious.

Additional characters, not previously noticed are: the 5th ventral segment is joined with the propygidium by an angulated suture, which is sometimes partly obliterated, the stigma is placed upon the suture at the angle, and nearer the posterior than the anterior margin.

The last joint of the maxillary palpi is frequently impressed and sometimes deeply excavated, the unguis and mandibles seem to vary in form within the same genus. In the native genera the posterior coxæ are entirely corneous, without any posterior membranous margin: the posterior external angle is sometimes produced; the antennæ are 9 or 10-jointed, with the club three-jointed.

Our genera may be thus arranged:

Unguiculi haud serrati, prope medium dentati;	
Ligula profunde emarginata;	
Antennæ 10-articulatæ	<i>Eugastra Lec.</i>
Antennæ 9-articulatæ	<i>Endrosa Lec.</i>
Ligula fere truncata;	
Labrum bilobum	<i>Lachnosterna Hope.</i>
Labrum concavum, haud bilobum	<i>Gynnis Lec.</i>
Unguiculi plus minusve serrati, nonnunquam ad medium dentati; ligula fere truncata	<i>Listrochelus Blanch.</i>

EUGASTRA Lec.

Corpus crassum, convexum, sexus utriusque apterum, supra et subtus glabrum. Labrum bilobum; mandibulæ prominulæ, maxillæ validæ ad apicem dentatæ. Ligula parum concava, antice profunde subquadratim emarginata. Palpi maxillares articulo ultimo elongato, levissime obovali, labiales articulo ultimo ovali. Antennæ 10-articulatæ, articulis 3—6 subæqualibus, 7mo brevior, haud latior; clava sexus utriusque parva triphylla. Tibiæ posteriores coronatæ, tarsi tibiis paulo longiores, setosi, postici articulo 1mo vix brevior; unguiculis dente acuto prope basin armatis; calcaribus posticis sexus utriusque liberis. Abdomen segmento ventrali ultimo feminae prominulo, maris brevi; penultimo maris æquali, feminae transversim impresso.

This genus represents on this continent the apterous Rhizotrogi of the group Geotrogus, but differs from that genus by many characters. The deep emargination of the ligula is bisinuous but almost square at base, and will readily distinguish this from all the other genera of the tribe.

1. *E. cribrosa*, brevis inflata, purpureo-picea, thorace varioloso, antice ad medium paulo deplanato, elytris connatis, subreticulatis, longitudinaliter obsolete sulcatis. Long. .65.

Le Conte, Proc. Acad. Nat. Sc. Philadelphia, 7, 217.

Tostegoptera cribrosa Lec. *ibid.* 6, 231.

Texas, valley of the Rio Grande; collected by Messrs. Schott and Clark, of the U. S. and Mexican Boundary Survey. Body convex, stout, ovate in the female, oblong in the male, purplish black. Head scabrous, flat, finely margined, faintly emarginate in front; frontal suture not visible. Thorax nearly twice as wide as the head, sides much rounded, serrate, sparsely ciliate, narrowed towards the base; disc very coarsely and confluent punctured, at the middle slightly flattened, with some smooth polished spaces around the flattened portion. Scutellum transverse, smooth. Elytra ventricose, subsulcate, and covered with shallow foveæ, giving a reticulated appearance, suture not more elevated than the rest. Pygidium sparsely coarsely punctured. Body beneath shining; sternum very coarsely punctured, with very short hairs proceeding from the punctures; sides and the abdomen sparsely punctured and slightly hairy.

2. *E. ventricosa*, atra convexa, thorace lateribus rotundatis serratis, medio subangulatis, confertim grosse punctato, callo dorsali pone medium lævi, disco antice vix obsolete impresso, elytris connatis subsulcatis, confluentur minus profunde punctatis, interstitiis sublævibus. Long. .9.

Lec. Proc. Acad. Nat. Sc. Phil. 7, 217.

Tostegoptera ventricosa Lec. *ibid.* 6, 440.

Eagle Pass, Texas; two females collected by Mr. Schott. Differs from the preceding by the head being more rounded and less scabrous, with the frontal suture slightly visible; by the thorax being less coarsely but more densely punctured, and having a dorsal smooth space behind the middle. The elytra are more distinctly sulcate, and are rather punctured than reticulate. The body beneath is sculptured as in *Eu. cribrosa*.

ENDROSA Lec.

Antennæ 9-articulatæ, articulis 3—5 connatis, longitudine æqualibus, clava triarticulata; palpi maxillares articulo ultimo elongato, cylindrico, labiales articulo ultimo ovali; labrum bilobum, ligula (cum mento) subrotundata, concava, antice profunde acute emarginata. Mandibulæ crassæ prominulæ. Tibiæ posteriores coronatæ; tarsi elongati, postici articulo 1mo paulo brevior, unguiculi dente magno ad medium armati; calcaria postica sexus utriusque libera.

This genus is represented only by *Melolontha quercus Knoch*, and a new species having the appearance of the *Lachnosternæ* of group V, but differing in several respects, the principal of which are the emarginate clypeus and deeply incised ligula. The posterior spurs of the male are free, elongated, flattened and obtuse; the penultimate segment of the abdomen is protuberant and impressed at the middle, the last segment is short, and not impressed, as in the *Lachnosternæ* of division C.

1. *E. quercus*, cylindrica, testaceo-rufa, sericeo-pruinosa, capite thoraceque saturatoribus, illo fortiter haud dense punctato, clypeo anguste marginato, emarginato, thorace parce punctato, elytris parcius fortiter punctatis subcostatis, pygidio et propygidio subtilius punctatis, pectore parum pubescente. Long. .58—.63.

Melolontha quercus Knoch, Neue Beytr. 72, tab. 1, fig. 26.

Melolontha fervida† Illiger, ed. Oliv. 2, 44, (fide Burmeister.)

Ancylonycha quercus Burm. Lamell. 2, 2d, 340.

Middle and Southern States. The club of the antennæ of the male is as long as the stem.

2. *E. volvula*, cylindrica, rufo-testacea nitida, capite fusciscente minus dense punctato, clypeo emarginato, thorace sat dense, elytris fortius punctatis haud costatis, pygidio parce subtiliter punctato, pectore vix pubescente. Long. .5.

One female, New York, Mr. Guex. Much smaller than the preceding, and very different by the shining and more punctured body.

LACHNOSTERNA Hope.

This genus commonly appears under the name *Ancylonycha*, and in the Catalogue of the Described Coleoptera of the United States is called *Phyllophaga*. After carefully examining the history of each of these names, I am convinced that a regard for the purity of nomenclature requires that they should be rejected, and the name proposed by Hope in 1837, (*Coleopterist's Manual*, 1, 99) should be restored.

The name *Ancylonycha*, the one best known, is used for the first time by Dejean, in the Catalogue of his Collection printed in 1833, but the characters were first published by Blanchard, in 1845, and the name was subsequently adopted by Erichson, Lacordaire, Burmeister, and all the leading entomologists of Europe.

Misled by a note in the first edition of Harris' *Insects of Massachusetts Injurious to Vegetation*, (p. 30,) the name *Phyllophaga* was adopted by Mr. Haldeman and myself in the *Melsheimer Catalogue*, as above stated, but by the kindness of a friend I have recently procured a transcript from the *Massachusetts Agricultural repository* cited by Harris, and find that the name, although proposed as early as 1826, is not accompanied by any description.*

* For the convenience of future students, I reprint the passage in which the name is proposed. Vide *Mass. Agricult. Repository*, vol. x. p. 6, (note.)

† The genus *Melolontha* as constituted by Fabricius contains a vast number of species, differing greatly in external appearance, and somewhat in modes of life. Fabricius describes 149 species, and Schönherr, after separating those which constitute the modern genera *Anisonyx*, *Glaphyrus*, *Amphicoma*, *Rutela*, and *Hoplia*, enumerates 226 species of *Melolontha*, to which additions are constantly making from the discovery of new species. Hence the genus requires further subdivision. The bases of these subgenera have been pointed out by Latreille, Knoch, and Schönherr, and some have already been established. I would restrict the name of *Melolontha* to those species which have more than three lamellæ to the club of the antennæ, like the *vulgaris* of Europe, and of which we have an indigenous example in the *M. decimlineata*, of Say, (*M. occidentalis* Herbst?). Our common species *quercina*, *hirsuta*, *hirticula*, *balia*, and some others might receive the generic name, *Phyllophaga*. *M. vespertina*

From this it is clear that the name *Ancylonycha* is the one entitled to least regard, since it the more recent, among the uncharacterized as well as among the characterized names.

The species are very numerous, and many of those recently discovered in the South Western territories of the United States present some very curious characters in the spurs of the posterior tibiæ, which render the establishment of several groups easy. The form of the unguis, and the prominence of the mandibles in a state of repose are characters subject to much variation. Following the example of Lacordaire I have suppressed the genus *Tostegoptera Blanch.* founded on *Mel. lanceolata Say*, and *Trichesthes Er.* as being distinguished by insufficient characters.

The species naturally divide themselves into four principal groups; of these the most numerous is distinguished by the inner spur of the posterior tibiæ being in the male connate with the tibiæ, and by the comparatively large sixth ventral segment being somewhat rounded in front so as to invade the fifth. These would seem to be characters of some importance, and a careful study of the species from Asia and South America may shew the necessity of regarding them as generic, in which case *Trichesthes* must be retained for division D; division A. will keep the name *Tostegoptera*, and C. if differing from the Asiatic species called *Holotrichia* by Hope must receive a new name. In that event, however, as at present the following grouping exhibits the relations of our native species.

- A. Unguis prope basin dentati; tibiæ posticæ calcaribus utriusque sexus liberis.
- I. Corpus squamulis vestitum; thorace postice haud angustato calcaribus posticis rectis Sp. 1.
- II. Thorax ante basin latior; calcaribus posticis rectis, obtusis Sp. 2—3.
- III. Corpus supra glabrum; thorace ante basin latiore, calcaribus posticis contortis Sp. 4.
- B. Unguis ad medium dentati; tibiæ posticæ calcare interno maris fixo, solido, (nonnunquam obsoleto); abdomen articulo ultimo ventrali majusculo.
- IV. Palpi maxillares articulo ultimo sæpe ovali; antennæ 9-articulatæ; corpus cylindricum, supra glabrum Sp. 5—7.

sericca and *iricolor* would form another sub-genus which might be called *Stilbolema*, unless they are included in *Serica* MacLeay, or *Omaloplia* of Megerle; the characters of their genera I have not seen. *M. pilosicollis*, *longitarsa*, and *moesta* of Knoch and Say should each constitute a subgenus. The latter (with *M. sordida* and *frondicola* Say?) belongs to Kirby's genus *Apogonia*. From the singular manner in which the nails are divided at tip, I would call the *linearis* of Schönherr *Dichelonyx*.'

Ibid., vol. x. p. 8. (Note.)

'*Stenothorax* would be an appropriate name for the subgenus having the *subspinosa* for its type.

Scarabæus lanigerus, Linnæus *Melolontha lanigera*, Fabr. has been referred to the genus *Rutela*; but Schönherr says it is not a *Rutela*, and arranges it between *M. fastuosa* and *M. aurata* F., belonging to the genus *Anomala*? it may therefore be considered as the type of a new subgenus. See Schönherr's *Synonymia Insectorum*, III. p. 504. *Scarabæus punctatus*, Lin., *Melolontha punctata* Fabr., or *Rutela punctata*, Latreille, belongs to Mr. MacLeay's genus *Pelidnota*.

Melolontha varians Fabr. is congeneric with the *Anomala vitis* of Megerle and Köppe.'

- V. Palpi maxillares articulo ultimo impresso; antennæ 10-articulatæ; corpus cylindricum, supra glabrum, capite magno Sp. 8—13.
 Palpi maxillares articulo ultimo tenui haud impresso.
- a. Antennæ 10-articulatæ.
- VI. Tibiæ posticæ maris calcare interno obliquo; (corpus glabrum) Sp. 14.
- VII. Tibiæ posticæ maris calcare interno elongato contorto; (corpus glabrum, margine longe fimbriato) Sp. 15.
- VIII. Tibiæ posticæ maris calcare interno recto, (corpus supra glabrum, vix fimbriatum);
 * Thorax haud serratus; clypeus fortius marginatus, vix emarginatus Sp. 16—21.
 ** Thorax serratus vel haud serratus; clypeus anguste marginatus, fortius emarginatus Sp. 22—30.
 *** Thorax lateribus serratis medio-angulatis Sp. 31—34.
- IX. Tibiæ sicut in VIII: corpus supra pubescens Sp. 35—38.
- b. Antennæ 9-articulatæ.
- X. Clypeus emarginatus 39—45.
- XI. Clypeus integerrimus 46.
- C. Ungues ad medium dentati; tibiæ posticæ sexus utriusque calcaribus liberis gracilibus; abdomen articulo ultimo brevissimo; (antennæ 10-articulatæ); mandibulæ ad apicem conspicuæ.
- XII. Clypeus subemarginatus; species pubescentes Sp. 47—50.
- XIII. Species pruinosa Sp. 51—52.
- XIV.* Clypeus integerrimus; species thorace piloso Sp. 53.
- D. Ungues intra medium breviter dentati, tibiæ posticæ sexus utriusque calcaribus liberis gracilibus; abdomen articulo ultimo brevi; mandibulæ occultæ; (antennæ 10-articulatæ) Sp. 53—55.

GROUP I.

We have here a single species remarkable by the small scales which cover the surface. The male is winged, the female apterous and very obese in form. The antennæ are 10-jointed; the mandibles are prominent, and the last joint of the maxillary palpi is elongate and not impressed. The thorax is short, not narrowed at the base. The spurs of the posterior tibiæ are free in both sexes: the claws are long and slender and are armed with a sharp tooth near the base.

1. *L. lanceolata*, fusco-nigra, alutacea, opaca squamis sordide pallidis lanceolatis undique tecta, clypeo reflexo late rotundato, clytris lineis sæpe subdenudatis notatis, pectore villosa, pedibus obscure castaneis. Long. 52—68.

Melolontha lanceolata Say, Journ. Acad. Nat. Sc. 3, 242.

Tostegoptera lanceolata Blanchard, Cat. Col. Mus. Paris, 149; Burm. Lamell. 2, 2nd, 356.

Ancylonycha lanceolata Lacordaire, Gen. Coleop. 3, 285.

Kansas and New Mexico, as far east as Fort Riley.

Male oblong, winged; with the club of the antennæ as long as the stem; the 2—4

* Here may be placed a group containing *Trichestes cylindrica* Burm. from Cuba, distinguished by the 9-jointed antennæ, and very faintly emarginate clypeus; the maxillary palpi are slightly impressed and the body is cylindrical as in group V: the tooth of the unguis is short, and the club of the antennæ of the male is composed of four joints.

anterior segments of the abdomen with a medial short elevated crest, the fifth narrowly incised at the middle, the pygidium broad and flat; the spurs of the posterior tibiæ free long and slender, the tarsi very long.

Female ovate, apterous; more densely squamous, with the last ventral segment more prominent, and the pygidium more triangular, but also flat; the spurs of the posterior tibiæ shorter and broad.

GROUP II.

Contains species of a robust form and rather large size, having the body glabrous, or nearly so, above. The head is small, the clypeus broadly margined, and hardly or not at all emarginate. The antennæ are 10-jointed, the mandibles prominent, and the last joint of the maxillary palpi slender, not impressed. The thorax is widest at the middle, strongly narrowed in front, slightly so behind. The spurs of the posterior tibiæ are free in both sexes, but are very broad and obtuse: the claws are armed near the base with a long sharp tooth.

2. *L. æqualis*, ovata convexa, (femina aptera) piceo-nigra nitida, capite convexo scabro-punctato, clypeo concavo minus dense punctato, thorace fortiter sat grosse punctato, lateribus serratis rotundatis, pilis pallidis depressis parce vestito, clytris fortius punctatis haud costatis, pectore breviter dense villosa. Long. .8.

Tostegoptera æqualis Lec. Proc. Acad. Nat. Sc. 6, 440.

One female found by Mr. Schott, of the U. S. and Mexican Boundary Commission, at Eagle Pass, Texas.

The spurs of the posterior tibiæ are elongate, broad and flattened very much as in *L. lanceolata*, and the wings are rudimentary; but the pygidium is convex and strongly punctured, and the thorax is formed as in the next species; for this reason I have placed it in the present group.

3. *L. faretta*, ovata convexa, alata, castaneo-rufa, glabra, capite fortiter dense punctato, clypeo late rotundato, lateribus anguste, apice latius marginato, thorace sat dense punctato, lateribus serratis ciliatis, clytris fortiter punctatis haud costatis, pygidio gibboso, parce punctato. Long. .75—.95.

New Braunfels, Texas, Mr. Lindheimer. Body ovate, inflated, convex, shining reddish brown. Head flattened on the disc, densely punctured; clypeus rounded and broadly margined in front, slightly so on the sides, and less densely punctured than the head. Thorax convex, twice as wide as the head, fimbriate and strongly serrate on the sides, strongly not very densely nor coarsely punctured. Scutellum with two groups of punctures. Elytra more coarsely and strongly punctured than the thorax, without any trace of dorsal costæ; the suture is broad and rugous. Pygidium of both sexes sparsely punctured and protuberant at the middle, though more acutely so in the female. Breast very finely and sparsely pubescent: abdomen with small depressed hairs.

Male with the club of the antennæ as long as the stem, the abdomen with a broad longitudinal impression not extending upon the last segment, posterior tibiæ with the spurs free, very broad, flat and obtuse: tarsi longer than the tibiæ.

Female with the abdomen not impressed; the posterior spurs as in the male, and the tarsi hardly longer than the tibiæ.

GROUP III.

This group is established upon a single species, having most of the characters of the preceding, but the form is oblong and the spurs of the posterior tibiæ are contorted (at least in the male) and not flattened. The antennæ are 10-jointed, the mandibles and palpi as in the preceding, the clypeus is strongly margined, hardly emarginate. The thorax is rounded on the sides and serrate, but only very slightly narrowed at the base. The breast is moderately hairy, and the claws are toothed near the base: the spurs of the posterior tibiæ of the male are free, the inner (lower) one is curved, almost in a semi-circle, and inserted on the edge of the tibia, the upper one is straight and prismatic, inserted upon the end.

4. *L. torta*, oblonga convexa, castanea nitida, capite dense punctato, clypeo fortius marginato vix emarginato, thorace lateribus serratis postice paulo angustato, confertim fortius punctato, clytris confertim punctatis, subrugosis, costis parum distinctis, pectore dense brevius flavo-villoso. Long. .83.

Two males collected in Texas by Messrs. H. Haldeman, and Lindheimer. The propygidium is opaque, sparsely punctured, the pygidium is shining, more strongly punctured and subtruncate at tip: the abdomen is tolerably strongly punctured.

The club of the antennæ of the male is hardly as long as the stem; the abdomen is longitudinally flattened, and the penultimate segment is roughened and slightly elevated transversely at the middle near the posterior margin; the inner spur of the posterior tibiæ is laterally inserted and curved in a semicircle, the outer one is shorter, pointed, thick and three sided: the tarsi are longer than the tibiæ.

GROUP IV.

This group consists of small cylindrical species, glabrous above. The head is large, the clypeus is entire in one species, and deeply emarginate in the others: the mandibles project beyond the labrum: the last joint of the maxillary palpi is oval, nearly pointed, not impressed externally ~~in all but v o l v u l a, where it is cylindrical and~~ slightly impressed. The antennæ are 9-jointed, with the joints 3—5 connate, the 6th slightly produced inwards. The last joint of the abdomen is tolerably large, merely flattened and not impressed in the males. The inner spur of the posterior tibiæ of the male is fixed, and straight in the species here described. The tarsi especially of the males are very long, and the claws are armed with a small tooth inside of the middle.

5. *L. frontalis*, elongata, cylindrica pallide testacea, capite fusco rude punctato, canaliculato, clypeo

valde concavo, emarginato, testaceo parce punctato, thorace brevi sat punctato, clytris fortius punctatis subcostatis, pectore densius villosus. Long. .52.

Platte River, Kansas Territory. Nearly allied to the next, but the head is more coarsely and less densely punctured, and the breast is more hairy. The form is a little more robust.

In the male the club of the antennæ is as long as the stem, the abdomen is slightly flattened longitudinally, and the penultimate segment has a small posterior lunate impression at the middle; the inner spur of the posterior tibiæ is very small and fixed, but the outer one is long and flattened.

In the female the pygidium is less convex and more triangular, and the inner posterior spur is about one-half as long as the outer one, but more slender.

6. *L. longitarsis*, elongata, cylindrica pallide testacea, capite fusco confluentur punctato, fronte parce punctato, testaceo, valde concavo, emarginato, thorace brevi sat punctato, clytris fortius punctatis subcostatis, pectore parce piloso. Long. .47.

Melolontha longitarsis Say, Journ. Acad. Nat. Sc. Philadelphia, 3, 242.

Illinois, Mr. Willcox: only males were procured, and in their sexual characters they precisely resemble the preceding species.

7. *L. dispar*, cylindrica rufo-testacea nitida, æqualiter fortius sat dense punctata, capite fusco, clypeo parcius punctato, rotundato valde concavo, clytris subcostatis, pectore parum pubescente. Long. .45.

Trichestes dispar Burm. Lamell. 2, 2nd, 361.

Southern States. More robust than the preceding, and approaching in form those of the next group. Burmeister describes the male as fuscous on the upper surface; the only two specimens in my collection are males, but are of a reddish yellow color both above and beneath; only the head is dark.

The club of the male is longer than the stem of the antennæ; the three anterior segments of the abdomen are longitudinally impressed and the last segment is slightly swollen: the pygidium is slightly transverse and strongly punctured; the inner spur of the posterior tibiæ is fixed, one-half the length of the outer, which is slender.

GROUP V.

Containing cylindrical species having the body glabrous above, and beneath only slightly pubescent, even on the breast. The head is large, being scarcely one fourth narrower than the thorax; the clypeus is strongly margined, sometimes entire, sometimes emarginate. The mandibles project beyond the labrum when closed. The last joint of the maxillary palpi is variable in form, but is always more or less oval, and flattened or impressed along the outer part. The antennæ are 10-jointed, with the joints 3—5 connate and indistinct, the sixth and seventh are slightly produced inwards. The thorax is remarkably broad, not narrowed behind, nor serrate on the sides. The last joint of the abdomen is relatively smaller than in the other groups having the inner posterior spur of the male fixed, but in the male is impressed and emarginate.

The inner posterior spur of the same sex is fixed, very small, and sometimes vanishes entirely. The unguis are armed with a short acute tooth just behind the middle. The legs, and especially the tarsi of the male are longer than usual.

8. *L. latifrons*, cylindrica, purpureo-nigra, nitida, clypeo rotundato marginato, ad apicem prominulo, capite thoraceque minus dense punctatis, elytris subpruinosis fortius punctatis, obsolete costatis, antennis palpisque rufis. Long. .66—.70.

New York; only females seen. Larger than the other species of this group, above and beneath of a shining purplish black; antennæ and palpi pale, tarsi dark rufous. Head flat, not densely punctured; clypeus longer than usual, more closely punctured than the head, rounded, narrowly margined on the sides, more broadly in front, with the apex prominent in a very slight angle. Eyes small, distant. Thorax one third wider than the head, and punctured like it. Elytra slightly pruinose, strongly punctured, with faint traces of the costæ. Breast strongly densely punctured, clothed with sparse short whitish hair. Abdomen sparsely but strongly punctured at the sides and apex; penultimate segment faintly transversely impressed. Pygidium tolerably densely punctured. Spurs of posterior tibiæ (female) long and nearly equal.

9. *L. cerasina*, cylindrica, purpureo-rufa, parum nitida, capite parcius punctato, clypeo fortius marginato, late subemarginato, thorace elytrisque modice punctatis, his subeostatis. Long. .65.

One male, Georgia. Similar in form to the preceding, but with the sides of the thorax less rounded; uniform purplish rufous, not very shining. Head and clypeus sparsely, not strongly punctured, the latter strongly margined, very broadly but faintly emarginate, so as to appear scarcely more than truncate at tip. Thorax moderately punctured. Elytra rather more strongly punctured than the thorax, with faint traces of costæ. Propygidium punctured at tip. Pygidium finely punctured. Breast densely punctured, clothed with fine short hair. Sides of the abdomen finely and sparsely punctured.

Male with the club of the antennæ much longer than the stem, and the abdomen faintly channeled; the penultimate segment has a faint posterior excavation at the middle, and two transverse obtuse elevations; the last segment is deeply foveate and rises at the tip into two slight cusps; the outer spur of the posterior tibiæ is long and slender; the inner one is completely wanting.

10. *L. ephilida*, cylindrica rufo-testacea nitida, capite thoraceque obscurioribus, illo dense fere confluentur punctato, clypeo fortius marginato, late emarginato, thorace sat dense, elytris fortius punctatis, obsolete costatis. Long. .70.

Melolontha ephilida Say, Journ. Acad. Nat. Sc. 5, 196.

Trichestes ephilidia Burm. Lamell. 2, 2d, 359.

Georgia and New York; only males observed. Differs from the next by the more densely and finely punctured head, less deeply emarginate clypeus, and by the somewhat more robust form.

Male with the club of the antennæ shorter than the stem; the abdomen obsolete channeled; penultimate segment broadly but suddenly emarginate at the middle and roughened with transverse elevated points; last segment broadly transversely foveate, emarginate at tip, with two obtuse cusps.

11. *L. Burmeisteri*, longior, cylindrica, rufo-testacea nitida, capite obscuriore, sat dense punctato, clypeo fortius marginato, parce fortius punctato late emarginato, thorace fortiter haud dense punctato, clytris fortius punctatis, subcostatis. Long. .62.

Trichestes longitarsis† Burm. Lamell. 2, 2d, 359.

One male found at New York. This species bears no resemblance to Say's *Melolontha longitarsis*, but is very closely allied to the preceding, from which it differs chiefly by the clypeus being sparsely punctured and more deeply emarginate, and by the body being more slender.

The male has the club of the antennæ shorter than the stem; and the abdomen and posterior tibiæ precisely as in the preceding species.

12. *L. glaberrima*, longior, cylindrica, rufo-testacea nitida, capite obscuriore, parcius fortiter punctato, clypeo emarginato, fortius marginato, parce punctato, thorace parcius punctato, clytris fortius punctatis, obsolete costatis. Long. .58.

Ancylonycha glaberrima Blanch. Cat. Col. Mus. Paris, 136.

Georgia. This species has precisely the form of the preceding, but the head is more coarsely and less densely punctured.

The male has the club of the antennæ longer than the stem; the abdomen faintly channeled, the penultimate segment faintly impressed and roughened at the middle, with the posterior margin not emarginate as in the two preceding, with a very slight oblique discoidal elevation each side towards the middle; last segment with a very deep round fovea, bounded each side by an elevated ridge, which, however, hardly rises into a cusp, as in *L. cerasina*. Posterior tibiæ with the terminal fringe of spines longer than usual, with the inner spur distinct, but not larger than one of the spines; outer one long, slender.

A female which I refer to this species has the head much smaller, being only two-thirds the breadth of the thorax, the eyes small and distant, and the spurs of the posterior tibiæ long and nearly equal.

13. *L. inana*, subcylindrica, testacea nitida, capite rufescente, parcius punctato, clypeo emarginato, fortius marginato, thorace sat punctato, lateribus suberenatis, clytris fortius punctatis haud costatis. Long. .45.

One female, New York, Mr. Guex. Much smaller than the preceding, but similar to it in characters; nevertheless, the clypeus and thorax and clytra are more punctured, the scutellum is strongly punctured, and the clytra are not costate, even near the margin. The pygidium is subtriangular, shining and sparsely punctured. The breast is very slightly pubescent, and the claws are armed with a small tooth at the

middle. The penultimate ventral segment is faintly impressed transversely, and the last joint is slightly emarginate at tip.

GROUP VI.

In this group we have a species of oblong form, glabrous upper surface, and 10-jointed antennæ; the clypeus is slightly emarginate, the mandibles are but little prominent, the last joint of the maxillary palpi is distinctly oval, but has no lateral impression. The thorax is not narrowed at the base, and is hardly serrate on the sides: the upper spur of the posterior tibiæ of the male is fixed, laterally inserted and is oblique, thus causing the apical portion of the tibiæ to be emarginate beneath: the upper spur is flattened and acute: the claws are armed with a short acute tooth at the middle.

14. *L. congrua*, fusca, vel pallide castanea, oblonga, convexa, capite dense punctato, clypeo marginato, late sub-emarginato, thorace brevi sat confertim punctato, linea sæpe dorsali indistincto brevi, clytris rugose punctatis subcostatis, subtus pallide brunnea, vel testacea, pectore dense villosa, antennis flavis.
Long. .65—70.

New York, Georgia, and Texas. The pygidium is sparsely but strongly punctured. Only males are known to me, and in them the club of the antennæ is longer than the stem, the last three segments of the abdomen are broadly and deeply channeled, the penultimate has a deep posterior longitudinal line, and the last a triangular space limited each side by a sharply defined edge; the outline of the apex is sinuous, and has two small lobes at the middle. The inner posterior spur is straight, not shorter than the outer, but oblique and connate, inserted upon the side, so as to produce a deep inferior emargination.

GROUP VII.

Contains a single oblong convex species, which, although glabrous above, is fringed on the margin with long erect hairs. The head is moderate, the clypeus narrowly margined, slightly emarginate; the antennæ are 10-jointed, the last joint of the maxillary palpi slender, not impressed. The thorax is not narrowed behind; the breast is clothed with long dense hair; the inner spur of the posterior tibiæ of the male is very long and irregularly bent, the outer one is equally long, but straight and slender; the tarsi are long, and the claws armed with a long tooth a little beyond the middle, so as almost to appear cleft.

15. *L. futilis*, oblonga convexa, pallide castanea nitida, capite dense punctato, sutura sublævi, clypeo anguste marginato, antice late emarginato, thorace sat dense punctato, lateribus serratis fimbriatis, clytris rugose punctatis vix obsolete costatis, margine longe fimbriato, pectore dense longe villosa.
Long. .51—67.

Lec. Agassiz' Lake Superior, 226.

Lake Superior, New York, Kansas; only males seen. Body oblong, convex; head densely punctured, with an indistinct smooth transverse line about the frontal suture; clypeus with narrow reflexed margin, slightly emarginate in front. Thorax one-half wider than the head, short, tolerably densely, not very coarsely punctured, sides

rounded, serrate and fimbriate, dorsal line smooth but not very distinct. Scutellum sparsely punctured. Elytra strongly rugous and punctured, with a faint trace of the inner dorsal costa, but no outer ones: margin fringed with long erect hairs. Pygidium convex, sparsely strongly punctured. Breast densely clothed with long yellow hair.

The male has the club of the antennæ longer than the stem, the abdomen longitudinally impressed, the penultimate segment with a faint transverse elevation, and the last segment with a large fovea bounded posteriorly each side by an acute edge extending to the apex; inner spur of the posterior tibiæ very long, slightly sigmoid, dilated into an oblique narrow disc at tip.

As frequently happens, when isolated species are described before the group to which they belong has been studied, the original description given by me makes no mention of the most remarkable characters of this species.

GROUP VIII.

This is the central group of the genus, and contains a large number of species, which seem in some cases to be so closely allied as to be undistinguishable, thus presenting the phenomenon of races, of which the examples are already so numerous in this as in every other department of Natural History. The body is glabrous above, and sometimes pruinose; the head is small, or moderate in size; the clypeus is more or less emarginate, though in *L. serricornis* it is entirely rounded. The thorax is usually gradually broader from tip to base, but sometimes its widest part is at the middle. The fifth ventral segment is broadly emarginate, and in the male is variously impressed, while the last of the same sex is widely but not deeply excavated. The unguis are variable in form, even between closely allied species. The inner spur of the posterior tibiæ of the male is straight and connate, while in the female both are free, and not very unequal.

According to the form of the clypeus and the sides of the thorax, the following division may facilitate the determination of the species:

- * Thorax not or hardly serrate, clypeus strongly margined Sp. 16—21.
 - ** Thorax not or hardly serrate, clypeus finely margined, but more deeply emarginate Sp. 22—30.
 - Thorax angulated on the sides, strongly serrate, clypeus as in ** Sp. 31—34.
16. *L. fusca*, fusco-picea, vel brunnea, subtus sæpe ferruginea, capite haud confluentè punctato, glaberrimo clypeo parum emarginato, thorace postice latiore, lateribus plus minusve rotundatis, subtilius punctato, elytris plus minusve punctatis et rugosis, subcostatis, pygidio parce punctato, pectore flavo-villoso, antennis pedibusque ferrugineis. Long. 78—97.
- Melolontha fusca* Fröhlich, Naturf. 26, 99 (1792;) 29, 113, tab. 3, fig. 3.
- Melolontha quercina* Knoch, Neue Beytr. 74, tab. 1, fig. 27, (1801.)
- Melolontha fervens* Gyll. Schönh. Syn. Ins. App. 74.
- Melolontha fervida* Oliv. Ins. 5, 24, tab. 9, fig. 109.
- Rhizotrogus fervens* Kirby, Fauna Bor. Am. 132.
- Lachnosterna quercina* Lec. Agass. Lake Sup. 226.
- Ancylonycha quercina* Burm. Lamell. 2, 2d, 319.

A very common and through Atlantic America widely extended species, embracing several races, to which, however, no definite characters can be given. The color varies according to the maturity of the specimen, but usually the whole under surface is ferruginous; the last ventral segment of the male has a broad round impression, and the penultimate is transversely impressed and elevated. The tooth of the claws of the tarsi in the male of the normal race is one-half shorter than the apical part; the club of the antennæ is as long as the stem. In the female the club is small, and the tooth of the claw is as long as the apical portion. The elytra are sometimes very finely rugous without punctures, sometimes very finely and sometimes quite distinctly punctured; the costæ are usually obvious. The sides of the thorax are sometimes slightly, sometimes very strongly rounded; the punctures are distinct but not large nor dense, sometimes a smooth dorsal line is left. The clypeus is usually distinctly, though slightly emarginate, but in some specimens the undulation is hardly perceptible.

The principal races are as follows:

α. Body nearly cylindrical, thorax much rounded on the sides; elytra finely and densely punctulate; male with long tooth on the ungues. *L. consimilis* Lec. Agassiz' Lake Sup. 226.

β. Body slightly ovate, thorax with the sides oblique and rounded, narrower than the elytra; male with unguis tooth short.

γ. Body ovate, thorax strongly punctured with the sides oblique and rounded, shorter than usual, narrower than the elytra, which are strongly punctured. *L. anxia* Lec. Agass. Lake Sup. 226. *A. brevicollis* Blanch. Cat. Col. Mus. Paris, 132.

δ. Thorax narrower than the elytra, almost angulated on the sides, finely sparsely punctured, elytra moderately punctured; claws of the male with long tooth. *A. brevicollis* Burm. Lamell. 2, 2d, 322.

ε. Body hardly ovate, thorax slightly narrower than the elytra, much rounded on the sides, elytra distinctly and sometimes strongly punctured; claws of male with a long tooth. *Ancylomycha puncticollis* Blanch. Cat. Col. Mus. Par. 133.

ζ. Larger, body subcylindrical, thorax very much rounded on the sides, elytra finely and densely rugulose and slightly punctulate. Male with a long tooth on the claws. *Rhizotrogus Drakii* Kirby, Fauna Bor. Am. 133.

Ancyl. profunda and *uniformis* Blanch. Cat. Col. Mus. Paris 132, 133, which are considered by Burmeister to be varieties of this species, appear by description so different that I am not warranted in so placing them, though the characters given are not such as to enable them to be distinctly recognized. The first mentioned is perhaps allied to *L. Knochi*.

A male specimen from Wisconsin, belonging by form and sculpture to ζ, shows a remarkable sexual peculiarity in the penultimate abdominal segment, the elevation on which is very sharply defined and quite curved; in all the other males I have seen the elevation is straight, although sometimes very slightly emarginate.

17. *L. cephalica*, fusco-ferruginea, convexa, oblongo-ovata, nitida, capite haud confluentur punctato, utrinque parce breviter piloso, clypeo parum emarginato, thorace antrorsum angustato fortius haud

dense punctato, lateribus modice rotundatis, elytris subcostatis fortius punctatis, pygidio parce punctato, pectore longe villosa, unguiculis dente mediocri armatis. Long. .69.

One specimen found at Fort Riley by Mr. de Vésey. This species has nearly the form of the common varieties of the preceding, but the punctures of the head, especially towards the side, support short erect hairs; the punctures of the thorax are stronger than usual in that species, and those of the elytra are not dense but strongly marked.

The antennæ are yellow, and the club of the male is a little longer than the stem; the abdomen is broadly impressed longitudinally, and the penultimate segment has an obtuse transverse elevation at the middle; the moveable spur of the posterior tibiæ is more slender than in *L. fusca*; the tooth of the claws is one-half the length of the apical portion.

18. *L. decidua*, fusco-ferruginea, convexa, oblongo-cylindrica, nitida, capite densius haud confluentem punctato, utrinque pube decidua erecta parce vestito, clypeo haud emarginato, thorace a medio antrorsum angustato, lateribus magis rotundatis longe fimbriatis subserratis, fortius haud dense punctato, elytris subcostatis densius punctatis, longe fimbriatis, pygidio parce punctato, pectore densissime villosa, unguiculis dente mediocri armatis. Long. .6—·65.

New York, Mr. Guex. This species and the preceding are nearly related, but the present is more cylindrical in form, with the thorax more rounded on the sides, fringed with long hairs, and narrowed only before the middle: the clypeus is also longer, not emarginate, and more closely punctured; and the elytra are finely and densely punctured. The hairs of the head are sometimes rubbed off, in which case the specimen assumes the appearance very nearly of *L. sororia*, but may be known by the long hairs of the sides of the thorax and elytra; the sexual characters are precisely as in the preceding.

19. *L. sororia*, elongata, subcylindrica, paulo ovata, fusco-castanea, obsolete pruinosa, capite antice dense postice parcius punctato, clypeo latius reflexo vix emarginato, thorace lateribus antice rotundatis parce fortius punctato, clytris fortius minus dense punctatis, subcostatis, pygidio parce punctato, pectore longe flavo-villosa, pedibus castaneis, unguiculis dente longo (♀) vel brevi (♂) armatis. Long. .63.

Middle and Southern States, rare: of somewhat the same form as *L. fraterna* and *L. cognata*, but more cylindrical, differing by the less emarginate but more strongly margined clypeus, and by the sparse punctuation of the head. Care must be taken not to confound it with a species (*L. rufiola*) having 9-jointed antennæ, which although resembling it entirely in form and sculpture, differs by the outer spur of the posterior tibiæ being less slender, and by the pygidium (of the female) being somewhat conoidal. Body above dark reddish brown, very slightly pruinose, cylindrical, a little dilated behind. Head moderately punctured, front densely punctured, clypeus with reflexed margin, very slightly emarginate. Thorax not twice as wide as the head, about twice as wide as long, sides not serrate, converging slightly from the base, but only broadly rounded, especially before the middle, surface equably but

sparsely and strongly punctured. Elytra sparsely and strongly punctured, with indistinct costæ. Pygidium triangular, with rounded angles, convex, sparsely punctured. Breast clothed with long yellowish hair; legs ferruginous.

The male has the club of the antennæ one-half longer than the stem: the abdomen broadly impressed from the base to the fifth joint, which has a very faint transverse impression; the last segment is convex in both sexes. The tooth of the claws is smaller in the male than the female.

20. *L. micans*, nigro-fusca, cinereo-pruinosa, oblongo-ovata, convexa, capite antice confluentem, postice sat dense punctato, clypeo latius reflexo vix emarginato, thorace antrorsum angustato, fortiter haud dense punctato, elytris costatis fortius punctatis, pygidio sat punctato, pectore longe flavo-villoso, pedibus castaneis, unguiculis dente longo (♀) vel brevi (♂) armatis. Long. .65.

Melolontha micans Knoch, Neue Beytr. 77.

Ancylonycha micans Blanch. Cat. Col. Mus. Paris, 138; Burm. Lamell. 2, 2nd, 322.

Middle States, not rare. The club of the antennæ in the male is as long as the stem; the middle of the abdomen is broadly impressed for the whole length, and the penultimate segment has a slightly curved transverse elevation; the tooth of the claws is one-half as long as the apical portion, while in the female there is but little difference in length.

Mr. Blanchard places *A. micans* among the species having nine joints in the antennæ.

21. *L. serriornis*, supra testaceo-rufa, subtus fusca, oblongo-ovata, convexa, nitida, capite thoraceque obscurioribus, illo dense punctato, clypeo integro tenue marginato, thorace lateribus rotundatis ciliatis, minus dense punctato, elytris fortius punctatis subcostatis, pectore longe villosa, unguiculis dente elongato armatis, antennis articulis 3—7 sensim latioribus. Long. .60.

One female found at Coney Island, near New York. Body oblong slightly ovate, convex; head dark reddish brown, densely punctured, clypeus rounded finely margined; thorax a little paler than the head and one-half wider than it, convex, rounded on the sides, which are sparsely ciliate, strongly but not densely punctured. Elytra paler yellowish brown, more coarsely punctured than the head and thorax, convex, with the sutural costa narrow, and the others slightly visible. Propygidium finely punctured, and pubescent at the upper half, then glabrous and more sparsely but coarsely punctured: pygidium strongly punctured, rounded. Beneath fuscous, pectus clothed with long yellow hair; abdomen pubescent and punctured at the sides; penultimate segment with a coarsely punctured vague transverse impression; last segment coarsely punctured, convex, bisinuate at tip.

22. *L. semicibrata*, elongata, testaceo-ferruginea, nitida, capite dense punctato, clypeo emarginato, tenue marginato, thorace lateribus rotundatis ante basin latiore, disco parce grosse punctato, spatium lavi utrinque relicto, elytris rugose punctatis vix costatis, pectore breviter parce villosa, unguiculis dente (♀) magno armatis. Long. .58.

One female from Georgia? Nearly of the form of a *Cyclocephala*, but presenting all

the characters of the present genus. Body uniform shining brownish red; head flat, densely punctured in front, convex and less densely on the vertex, with the occiput smooth; clypeus finely margined, moderately emarginate; antennæ pale, 10-jointed. Thorax about one-half wider than the head, nearly twice as wide as long, much rounded on the sides, narrowed in front, and somewhat narrowed towards the base; moderately convex, with large scattered punctures along the sides, margins and middle, leaving a space each side in front free from punctures. Elytra hardly wider than the thorax, rugosely punctured in front, sparsely punctured behind, with the sutural ridge very strong, but the dorsal ones obsolete. Pygidium very sparsely punctulate. Breast clothed with very short hair. Abdomen convex, smooth in the middle, punctured at the sides, especially the penultimate segment: the latter impressed transversely at the middle towards the posterior margin. Tibiæ not at all hairy; spurs of posterior tibiæ equal, slender; unguis armed with a long tooth.

23. *L. lugubris*, tota nigro-picea, nitida, subovata convexa, clypeo emarginato, capite antice confertim postice convexo et parce punctato, thorace lateribus rotundatis, ante basin sublato, parce fortiter punctato spatio transverso antico lævi, elytris subtiliter punctatis vix obsolete costatis, pygidio parce punctulato, pectore breviter villosa, unguiculis (♀) dente longo armatis. Long. .62.

Two females from New York. More ovate and less slender than the preceding, entirely of a blackish brown, almost black above and shining. Head flat and densely punctured in front, convex and sparsely punctured behind, clypeus finely margined, emarginate; thorax twice as wide as the head, fully twice as wide as long, rounded on the sides, slightly narrowed at the base, sparsely and coarsely punctured, with a transverse smooth space before the middle. Elytra a little wider than the thorax, finely punctured; each puncture supports a very minute hair; the sutural costa is very strong, and there are some faint traces of the dorsal ones. Propygidium nearly smooth, pygidium finely sparsely punctulate. Breast with short not dense yellowish hair. Abdomen convex, smooth in the middle, finely punctured at the sides, but more coarsely on the two last segments, penultimate joint margined behind at the middle.

24. *L. cognata*, supra fusca, vel nigro-fusca, subtus ferruginea nitida, oblonga, clypeo emarginato, capite dense punctato, thorace lateribus rotundatis, postice perparum angustato, fortius subæqualiter punctato, elytris punctatis rugosis subcostatis, pygidio parce punctato, pectore flavo-viloso, unguiculis dente longo armatis. Longo. .60—72.

? *Ancylonycha cognata* Burm. Lamell. 2, 2d, 323.

Common in the Middle and Southern States. The only satisfactory difference I find between this and the next species is in the form of the thorax, which is here much more rounded on the sides, and slightly narrowed at the base. The other differences noted by Burmeister, such as the greater concavity of the clypeus, the longer hair of the pectus, and the finer punctures of the pygidium I do not find constant; but fearing not to possess his species I have placed a query to the reference.

The punctures of the thorax are variable, being sometimes strong and scattered, at others finer and more numerous, but there is never any distinct smooth dorsal line. The punctures of the elytra support very small hairs; the sides of the abdomen are punctured, more distinctly on the last two segments; in the male the last one is foveate, and the penultimate impressed in the middle, and the anterior segments are slightly flattened; the club of the antennæ is not longer than the stem.

25. *L. fraterna*, nigro-fusca, vel piceo-nigra, oblonga nitida, pedibus castaneis, capite dense punctato, clypeo anguste marginato, emarginato, thorace antrorsum angustato, lateribus obliquis late rotundatis, fortius inæqualiter punctato, linea dorsali lævi, elytris punctatis rugosis, subcostatis, pygidio parce punctato, pectore griseo-villoso, unguiculis dente longo armatis. Long. .60—70.

Phyllophaga fraterna Harris, *Ins. Injurious to Vegetation*, 1st ed. 29; 2d, 28.

Ancylonycha fraterna Blanch. *Cat. Col. Mus. Paris*, 133 (syn. excl.); *Burm. Lamell.* 2, 2d, 322.

Middle, Eastern and Southern States, abundant, as far west as Kansas. The sexual characters are precisely as in the preceding, except that the penultimate ventral segment is more deeply impressed; the punctures of the elytra also support very small hairs. I have not observed any well marked races in the species, though individual differences occur in the size and closeness of the punctures of the thorax.

26. *L. lutescens*, rufo-testacea, oblongo-ovata convexa nitida, capite obscuriore confertim punctato, clypeo emarginato, thorace fortiter parce punctato, rufescente, antrorsum angustato, lateribus magis rotundatis, elytris subtilius punctatis subcostatis, pygidio vix punctulato, pectore longo flavo-villoso, unguiculis dente longo armatis. Long. .59.

One male from Georgia. Related by sculpture to the two preceding, but apart from color, it differs by the head being not confluent punctured, and by the thorax being more convex. The club of the antennæ of the male is as long as the stem; the penultimate ventral segment is impressed with a slight oblique elevation each side of the impression, the last segment is deeply foveate, and the anterior ones longitudinally impressed, the last two segments are punctured, but the pygidium is only very finely punctured, and the propygidium is smooth.

27. *L. corrosa*, castanea, oblonga, antice angustior, capite nigricante, dense confluent punctato, clypeo tenuè marginato, emarginato, thorace rude sat dense punctato, linea dorsali sublævi, lateribus serratis parce fimbriatis, elytris subtilius punctatis, vix costatis, pectore brevius flavo-villoso, tibiis posticis calcaribus elongatis, unguiculis dente acuto longo armatis. Long. .77.

Texas; two males collected by Mr. A. Schott, of the U. S. and Mexican Boundary Survey. Body oblong, narrower in front, shining reddish brown. Head dark piceous, very densely, confluent punctured, clypeus emarginate, with a narrow reflexed margin. Thorax about one-half wider than the head, scarcely one-half wider than long, obliquely narrowed in front, and very slightly so behind; sides serrate, sparsely fimbriate; covered with large punctures, sometimes confluent, with an indistinct smooth dorsal line. Elytra more finely punctured, with faint traces of dorsal costæ;

propygidium finely, pygidium strongly sparsely punctured. Breast clothed with rather short yellow hair.

Male with the club of the antennæ a little shorter than the stem; the abdomen slightly flattened in the middle, the penultimate segment with an obtuse rough transverse elevation near the tip, the last segment with a triangular excavation deeper at the apex; spurs of the posterior tibiæ long, slender, acute and nearly equal, the inner one fixed, and a little shorter.

28. *L. calceata*, obscure castanea, antice angustior, capite dense confluentur punctato, clypeo tenuer marginato, emarginato, thorace rude subconfluentur punctato, linea dorsali lævi, lateribus vix serratis parce fimbriatis, elytris rugose punctatis, subcostatis, pectore flavo-villoso, antennis læte flavis, tibiis posticis (maris) calcare interno lato brevi, unguiculis dente acuto armatis. Long. .75.

One male, Texas, Mr. H. Haldeman. Remarkable for the characters of the posterior tibiæ and tarsi, though otherwise allied to the preceding. Body oblong, slightly narrowed in front, dark reddish brown. Head very densely punctured, clypeus emarginate, with the margin narrowly reflexed. Thorax more than one-half wider than the head, short, coarsely and subconfluently punctured, with various small spaces smooth; punctures smaller and more dense towards the apex, which is broadly foveate each side; dorsal line smooth entire; sides hardly serrate, obtusely angulated, slightly fimbriate. Scutellum with two groups of punctures. Elytra not shining, rugosely punctured, with moderately distinct costæ, margin slightly fringed; pygidium sparsely punctured, slightly flattened at the middle. Breast clothed with rather short but dense yellow hair. Abdomen punctured; claws armed with an acute moderate sized tooth at the middle.

The male has the club of the antennæ as long as the stem; the abdomen broadly concave, the penultimate with a deep posterior medial line, and two rough transverse elevations near the anterior margin; the last segment is very broadly excavated; the inner spur of the posterior tibiæ is very short, broad, flat, obtuse and concave, the outer one is long, flattened, and somewhat acute; the first joint of the posterior tarsi is very much thickened and produced externally.

From the peculiar sexual characters I am inclined to believe that this should be separated as a group, but not knowing the female, I cannot indicate any distinctive characters applicable to both sexes.

29. *L. marginalis*, oblongo-ovata, convexa, testaceo-rufa vel fusco-picea, nitida, pedibus castaneis capite densissime punctato, clypeo tenuiter marginato, emarginato, thorace punctis magnis vagis inæqualiter sitis, spatio lævi utrinque relicto, elytris rugosis punctatis, costa submarginali fere integra, pygidio fortiter punctato, pectore flavo-villoso, unguiculis dente magno armatis. Long. .70—80.

New York. Nearly of the same form as *L. fraterna*, but differing by many characters. The color is entirely bright reddish-brown, or else blackish-brown with the legs and antennæ red: the head is sculptured as in *L. fraterna*: thorax not twice as wide as the head, twice as wide as long, narrowed from the base, rounded on the sides,

sparsely covered with large punctures so placed as leave a large smooth space each side of the middle. Elytra gradually widened behind, rugose and punctured, with the usual faint costæ, and a strongly marked submarginal one, extending nearly to the base. Propygidium sparsely, towards the tip strongly punctured; pygidium strongly punctured; abdomen punctured, more faintly in the middle; pectus clothed with moderately long yellow hair.

The male has the club of the antennæ longer than the stem; the abdomen flattened in the middle; the penultimate segment with a semicircular curved elevation, and middle fovea, and the last segment with a longitudinal broad furrow. The abdomen of the female is almost uniformly punctured, the punctures of the last two segments being stronger; the pygidium is triangular, and slightly conical at tip, while in the male it is broader and convex.

This species is remarkable for the length of the submarginal elytral costa, which in most species is seen only near the apex.

30. *L. obesa*, ovata, convexa, castanea nitida, capite dense punctato, clypeo haud confluentur punctato, reflexo, late emarginato, thorace sat dense punctato, lateribus valde rotundatis, elytris fortius punctatis, subcostatis, pectore flavo-villoso, antennis flavis, unguiculis dente mediocri armatis. Long. .72.

Texas, Mr. H. Haldeman. Shorter and more ovate in form than the others of this group. Head densely, clypeus less densely punctured, the latter moderately margined, in front broadly emarginate. Thorax nearly twice as wide as the head, short, convex, tolerably densely, but almost finely punctured; sides very much rounded, serrate, slightly fimbriate. Scutellum sparsely punctured, middle smooth. Elytra dilated behind, strongly punctured, with very faint traces of dorsal costæ, pygidium sparsely punctured. Breast clothed with yellowish hair. Abdomen punctured at the sides; claws with an acute tooth just within the middle.

Male with the club of the antennæ as long as the stem; the abdomen broadly flattened at the middle, with the anal fovea broad, extending from the last upon the penultimate segment, which has a slight curved transverse elevation; posterior tibiæ with the inner spur one-half shorter than the outer, fixed, straight; pygidium transverse, slightly convex.

Female with the spurs of the posterior tibiæ nearly equal, flattened, but not broad; pygidium triangular, obtusely protuberant near the tip.

31. *L. pruinosa*, atro-purpurea, oblongo-ovata convexa, capite densissime punctato, clypeo anguste marginato, emarginato, thorace lateribus serratis subangulatis, postice vix angustato, sat dense fortiter punctato, elytris pruinosis, parce punctatis, subcostatis, pygidio nitido fortiter punctato, pectore parum piloso, unguiculis dente longo armatis. Long. .70.

Ancylonycha pruinosa|| Mels. Proc. Acad. Nat. Sc. Philad. 2, 140.

One specimen from Cleveland, Ohio, Dr. Kirtland; found in Alabama according to Melsheimer. Resembles in appearance *L. micans*, but differs very greatly in its

characters. The thorax is shining, and the punctures are equally distributed; the sides are somewhat serrate, and behind the middle are nearly parallel; the pygidium is coarsely punctured, the propygidium is nearly smooth, with a few punctures as usual at the margin. The abdomen (of the female) is convex, punctured and pubescent at the sides, more deeply on the last two segments; the last one has a triangular flattened impression at the middle; the pectus is thinly clothed with fine short yellowish hair; the tibiæ are dark brown, and the tarsi paler. Burmeister, not having seen this species, places it as identical with *L. micans*.

32. *L. rugosa*, ferrugineo-fusca (vel fusco-nigra) oblonga, convexa nitida, capite densissime punctato, clypeo tenue marginato, emarginato, thorace lateribus fere angulatis, postice subangustato, confertim sat fortiter punctato, linea dorsali lævi, elytris punctatis rugosis subcostatis, pygidio parce punctato, pectore breviter villosa, unguiculis dente longo armatis. Long. .80—85.

Ancylonycha rugosa Mels. Proc. Acad. Nat. Sc. 2, 140; Burm. Lamell. 2, 2nd, 328.

Two specimens from Platte River. According to the authors quoted, it is found in Virginia and Pennsylvania. The propygidium is finely and sparsely punctured; the sides of the abdomen are finely punctured, with the punctures larger on the penultimate segment.

In the male the club of the antennæ is as long as the stem; the abdomen is flattened in the middle; the penultimate segment has a deep transverse impression, and each side of it an oblique elevation; the last segment has a broad reniform impression, and the pygidium is broad and obtusely rounded.

In the female the abdomen is convex, the last segment is sparsely punctured, and deeply squarely emarginate; the penultimate segment has a posterior deep transverse impression; and the pygidium is triangular.

33. *L. affinis*, fusco-ferruginea, oblonga, convexa, nitida, capite thoraceque obscurioribus, illo confertissime punctato, clypeo tenue marginato, emarginato, thorace grosse punctato, linea dorsali lævi, lateribus fortiter serratis angulatis, postice subangustato, elytris punctulatis vix costatis, pygidio parce punctato, pectore breviter villosa, unguiculis dente magno armatis. Long. .73.

One male, upper Missouri, Dr. F. V. Hayden. Closely related to the preceding, but the thorax is shorter, more narrowed in front, and strongly serrate on the sides: the elytra are smoother, not rugose, with finer punctures.

The club of the antennæ is shorter than the stem; the last segment of the abdomen is broadly foveate and the penultimate segment is broadly impressed, with a straight transverse obtuse elevation.

34. *L. Knochii*, fusco-ferruginea, capite thoraceque obscurioribus, illo densissime punctato, clypeo tenuiter marginato, emarginato, thorace rude confluentèr punctato, lateribus angulatis fortiter serratis, postice angustato, elytris confertim punctato-rugosis vix costatis, pygidio punctato, pectore breviter pubescente, unguiculis dente magno armatis. Long. .90.

Melolontha Knochii Gyll. Schönh. Syn. Ins. App. 75.

Ancylonycha Knochii Blanch. Cat. Col. Mus. Paris, 133; Burm. Lamell. 2, 2d, 325.

Middle and Southern States, rare. The pygidium of the female is subtriangular but not conoidal; the punctures are more sparse towards the apex; the sides of the abdomen are punctured, and the penultimate segment has a strongly transverse impression at the middle. The male is unknown to me, but the penultimate ventral segment is described by Burmeister as having no transverse elevation, but a deep impression.

GROUP IX.

The group contains a number of large oblong species having the upper surface pubescent. The head is moderate in size, with the clypeus emarginate, not broadly margined; the thorax is broadest at the middle, and more or less narrowed towards the base. The antennæ are 10-jointed; the breast is clothed with hair. The ungues are toothed at the middle, but the tooth is as long as the apical portion, so that the form appears almost cleft. The spurs of the posterior tibiæ are straight, and the inner one is fixed in the male; the penultimate ventral segment of the male is transversely impressed, while the last joint is broadly foveate.

35. *L. ilicis*, glauco-fusca, subpruinosa, supra pube brevi subdepressa cinerea vestita, thorace confluentè grosse punctato, medio subcarinato, elytris dense rugulosis et punctulatis, costis dorsalibus nullis, margine longe fimbriato, pectore breviter villosa. Long. .88—1.0.

Melolontha ilicis Knoch, Neue Beytr. 75, tab. 1, fig. 28.

Melolontha porcina Heutz, Trans. Am. Phil. Soc. 3, 253, tab. 2, fig. 4.

Ancylonycha ilicis Blanch. Cat. Col. Mus. Paris, 1, 133; (nec. Burm. Lamell. 2, 2d, 326.)

Ancylonycha fimbriata Burm. ibid.

Common in the Middle and Southern States; according to the maturity of the specimen the color varies from blackish fuscous to reddish brown, but the glaucous lustre is always distinct in well preserved specimens, and the legs are ferruginous. In the male the club of the antennæ is as long as the remaining portion; the hair above is finer and less dense, but the hair on the breast is a little longer than in the female; the penultimate ventral segment is deeply transversely impressed, and the last joint marked with a broad round impression.

The present species agrees with the figure and description of Knoch, and is also found as the type in Dr. Melsheimer's collection. That described by Burmeister is something different, and has not yet fallen under my notice: it differs by the finer and more depressed pubescence; by the hair on the breast being scarcely longer (even in the male) than that on the abdomen, and by the pygidium being coarsely punctured with a smooth middle space; in the present species the punctures are scattered, gradually less numerous towards the tip.

36. *L. ciliata*, fusca, (abdominis lateribus solis pruinosa), pube subjecta fulva brevi dense vestita, thorace confluentè grosse punctato, subcarinato, elytris dense rugulosis et punctulatis, subcostatis, pilis longioribus intermixtis præcipue in vittis tribus positis, margine longe fimbriato, pectore breviter piloso. Long. 1.0.

One female from Georgia and another Missouri. Of the same size, form and sculpture as the preceding, but differing not only by the color of the pubescence, but by its texture; the hair is short erect and brownish yellow; it is uniform on the thorax, but on the elytra many longer hairs are intermixed, which on looking obliquely backwards, are seen to be arranged chiefly in three vittæ, although there are some scattered ones especially externally: the margin is fringed as in the preceding with long hair. The sides of the abdomen under the elytra are slightly pruinose; the punctures of the pygidium are larger and more distant than in *L. ilicis*. The legs are ferruginous.

37. *L. subtonsa*, fusca, supra pube brevi suberecta fulva æqualiter vestita, thorace confluentè dense punctato subcarinato, elytris dense rugulosis vix obsolete costatis; pectore longius villosò. Long. .82.

One male found at New York, and kindly given me by Mr. Guex. This species has the form and sculpture of the preceding, but the pubescence is entirely uniform, and the margin of the elytra is not fringed with long hair. The pygidium is moderately coarsely punctured, with the punctures more distant at the middle. The legs are dark brown: the hair on the breast is moderately long, and the sexual characters are precisely as in *L. ilicis*.

38. *L. hirticula*, fusco-ferruginea, pilis erectis longis flavis, in elytris vittatim positæ parce vestita, thorace cribratim punctato, elytris rugose punctatis haud costatis, pectore longe villosò. Long. .65—75.

Melolontha hirticula Knoch, Neue Beytr. 79.

Melolontha hirsuta† Say, Journ. Acad. Nat. Sc. Phil. 3, 243.

Phyllophaga hirticula Harris, Ins. Inj. Veget. 2d ed. 28.

Melolontha hirticula Burm. Lamell. 2, 2d, 327.

Very abundant in the Atlantic States. The hairs on the elytra form a vitta near the suture, three discoidal ones, and a marginal fringe. The pygidium is glabrous and sparsely punctured. The club of the antennæ of the male is as long as the stem, the middle of the abdomen is flattened, and the inner posterior spur is fixed.

GROUP X.

This group contains species having the characters of those of the two last, except that the antennæ have only nine joints (the seventh being obliterated;) the third, fourth and fifth are equal in length, and connate; the sixth is slightly produced internally. The tooth of the unguis varies according to the species.

One species is sparsely pilose, others have a few hairs on the front, while the rest are glabrous: the thorax is never narrowed at the base.

39. *L. hirsuta*, piceo-ferruginea, oblonga nitida, capite confertim punctato, clypeo marginato, emarginato, thorace fortius minus dense, elytris rugose punctatis, pilis longis flavis erectis minus dense vestita, pygidio fortius punctato, piloso; pectore longe villosò, unguiculis dente longo armatis. Long. .67—72.

Melolontha hirsuta Knoch, Neue Beytr. 78.

Ancylonycha hirsuta Blanch. Cat. Col. Mus. Paris (syn. excl.) 138.

Middle and Southern States. The pygidium is sparsely punctured; the legs and antennæ are bright ferruginous; the club of the antennæ of the male is a little longer than the stem; the middle of the abdomen of the male is broadly depressed, the last joint is marked with a broad shallow fovea, and the penultimate has a transverse obtuse elevation; in the female the last mentioned joint is strongly transversely impressed at the middle, and has anterior to the impression a small elevation.

40. *L. balia*, elongata, cylindrica, fusca nitida, elytris castaneis densius punctatis haud costatis, capite confertim punctato, hirtio, clypeo marginato lato emarginato, thorace disperse inæqualiter punctato, lateribus rotundatis, pygidio fortius punctato, pectore longe villosa, unguiculis dente longo armatis. Long. .66.

Melolontha balia Say, Journ. Acad. Nat. Sc. 5, 191.

Ancylonycha comata Burm. Lamell. 2, 2d, 337.

One male from New York, Mr. Guex. This species has nearly the form, sculpture and sexual characters of the preceding, but there are no hairs on the upper surface except between the eyes. From the next species it differs by its more cylindrical form, more sparsely punctured thorax, and by the more strongly margined and less emarginate clypeus.

41. *L. vilifrons*, castanea, capite thoraceque obscurioribus, illo confertim punctato, pilis erectis hirtio, clypeo emarginato, tenue marginato, thorace parum convexo, antrorsum angustato, lateribus obtuse subangulatis, sat punctato, elytris minus convexis subtilius confertim punctatis haud costatis, pectore longe flavo-viloso, unguiculis dente longo armatis. Long. .60.

One male found at Lake Superior. Body oblong, less convex than usual, reddish brown, darker on the head and thorax. Head strongly and closely punctured, with erect yellowish hairs proceeding from the punctures; clypeus finely margined, and deeply emarginate. Thorax nearly twice as wide as the head, less than twice as wide as its length, obtusely angulated at the middle of the sides, narrowed in front, but not behind, strongly but not densely punctured, with the sides partly ciliate, and towards the base slightly serrate. Scutellum with two groups of punctures. Elytra finely and closely punctured, slightly rugous, with the sutural ridge narrow, and the others (even the submarginal,) entirely wanting; propygidium and pygidium punctured. Abdomen shining, sparsely punctured, breast clothed with long yellow hair. Male with the club of the antennæ one third longer than the stem; penultimate ventral segment slightly impressed, and rugous at the middle; last segment with a channel in the middle of the broad impression.

42. *L. hirticeps*, testaceo-rufa, subovata convexa, capite thoraceque obscurioribus, illo fortiter densius punctato parce hirtio, fronte foveata, clypeo emarginato tenue marginato, thorace convexo, lateribus rotundatis subrepandis parce ciliatis, inæqualiter fortiter parcius punctato, elytris fortius punctatis, costa suturali angusta, reliquis nullis, pygidio (feminæ) conico, pectore modice viloso, unguiculis dente elongato armatis. Long. .92.

One female, Georgia. Allied by characters to *L. villifrons*, but the form is more convex, the punctures of the thorax are more distant, and those of the elytra less fine. Body oblong ovate convex, bright yellowish brown inclining to reddish, darker on the head and thorax. Head strongly and thickly punctured, sparsely pilose, with a slight fovea at the middle of the front; clypeus emarginate finely margined. Thorax one-half wider than the head, convex, rounded on the sides, which are almost entire and but sparsely ciliate; disc covered unequally with tolerably large sparse punctures, leaving an indistinct smooth anterior space each side. Elytra slightly dilated behind, convex, tolerably strongly punctured, with the sutural costa narrow elevated, and the others completely wanting. Propygidium distinctly, not densely punctured; pygidium conical, with scattered large punctures, slightly prominent and nearly smooth at tip. Abdomen sparsely punctured at the sides and tip; penultimate segment with a transverse short plica and impression at the middle; last segment hardly emarginate. Pectus clothed with moderately long yellow hair; claws with the tooth as long as the apical portion.

43. *L. nitida*, fusca, oblonga, convexa, pernitida, pedibus antennisque castaneis, capite fortiter punctato, canaliculato, clypeo densius punctato, marginato, emarginato, thorace lateribus rotundatis parce subtilius punctato (fovea utrinque versus latera impresso), elytris minus dense punctatis, subcostatis, pygidio parce punctato (feminae conico,) pectore longe villosa, unguiculis dente longo armatis. Long. 82.

One female from Georgia. Of the size and proportions of *L. fusca* but more oblong and convex, dark brown, very shining. Head strongly punctured, with a medial abbreviated furrow; clypeus densely punctured, emarginate, with the margin reflexed. Thorax nearly twice as wide as the head, more than twice as wide as long, regularly rounded on the sides, which are sparsely ciliate, but not at all serrate; disc finely and distantly punctured, (with a fovea, perhaps accidental, towards each side.) Scutellum entirely smooth. Elytra not densely but distinctly punctured, with the sutural ridge narrow, and the other ridges visible, though not much elevated. Propygidium and pygidium sparsely punctured, the latter conical and protuberant towards the tip. Abdomen sparsely punctured at the sides and tip, penultimate segment with a faint transverse impression at the middle. Breast somewhat densely clothed with yellowish hair. Antennæ and legs bright castaneous; claws with a tooth as long as the apical portion.

44. *L. rufiola*, castaneo-rufa, oblonga convexa, nitida, capite fortiter minus dense punctato, clypeo emarginato, reflexo, thorace lateribus rotundatis integris parce ciliatis, fortiter parce punctato, elytris fortius punctatis, subcostatis, costa laterali evidentiore, pectore parce breviter villosa, unguiculis dente longulo armatis. Long. 63.

One female, Georgia. Body oblong, convex, pale reddish brown. Head strongly but not densely punctured, punctures more close in front; clypeus reflexed, slightly but distinctly emarginate. Thorax hardly one half wider than the head, short; sides rounded not serrate, sparsely ciliate; disc convex, deeply but not very coarsely punc-

tured, punctures somewhat sparse. Elytra tolerably strongly punctured, slightly rugous, with the sutural costa narrow and elevated; the discoidal ones may be traced, and the submarginal one is very distinct, and somewhat elevated behind the middle. Pygidium of the female conical, not very prominent at tip, smooth, with a few large punctures at base. Pectus clothed thinly with short hair. Abdomen sparsely strongly punctured at the sides and apex; penultimate segment slightly impressed transversely each side; last segment deeply emarginate and ciliate at tip.

Care must be taken not to confound this species with *L. glaberrima* above described; the female of the latter has almost precisely the same form, color and sculpture, it is however not so convex; the punctures of the clypeus are as distant as those of the head, and the pygidium is closely punctured and not conical; the antennæ are 10-jointed, though by the consolidation of the articulations this fact is to be recognized by there being two nodiform joints next the club; and finally the last point of the maxillary palpi are externally impressed.

45. *L. robusta*, oblonga, convexa, castaneo-rufa, obsolete pruinosa, capite densius punctato, clypeo marginato, vix obsolete emarginato, thorace sat dense punctato, linea media lævi, lateribus serratis, elytris fortiter sat dense punctatis subcostatis, pygidio (feminæ) conico, pectore dense villosa, unguiculis dente longo armatis. Long. .92.

One female, from Kansas near the Rocky Mountains. More robust than the other species of this division, but hardly ovate, convex, brownish red; head and breast darker. Head strongly and densely punctured, with the clypeus margined, but scarcely emarginate. Thorax scarcely one-half wider than the head, short, less densely punctured than the head, with a smooth dorsal line not reaching the apex, sides rounded in front, somewhat serrate, sparsely ciliate. Elytra more coarsely punctured than the thorax, slightly rugous, very slightly pruinose, sutural costa broad, and the others slightly marked. Propygidium naked, punctured; pygidium conical, shining, sparsely but coarsely punctured, apex protuberant, subtruncate. Abdomen paler than the upper surface, punctured at the sides and tip; last segment flattened in the middle and broadly emarginate at tip; penultimate not impressed. Breast densely pilose; unguis with a long tooth.

GROUP XI.

A group containing a single glabrous species having the antennæ 9-jointed, with the joints of the stem short and serrate, the third fourth and fifth as usual consolidated, but with distinct inner angles. The clypeus is rounded and broadly reflexed. The last joint of the maxillary palpi is cylindrical, the mandibles are only slightly prominent. The sixth joint of the abdomen is shorter than in the first groups, though not so short as in the following ones. The spur of the posterior tibiæ of the male is fixed; the tooth of the claws is medial and short; the pectus is only very thinly clothed with hair.

46. *L. i n t e g r a*, cylindrico-oblonga, rufo-testacea, nitida, capite sat dense, clypeo fere parcius punctato, rotundato, reflexo, thorace fortiter minus dense punctato, lateribus rotundatis, elytris rugosis fortius punctatis subcostatis, pygidio parce punctato, ad apicem subtruncato, pectore parce villosa, unguiculis dente parvo armatis. Long. .65.

One male, Georgia. Body cylindrical oblong, almost uniform rufo-testaceous, shining. Head strongly punctured, a little less densely on the clypeus, which is rounded and strongly reflexed. Thorax about twice as wide as the head, rounded on the sides, strongly but not densely punctured. Elytra coarsely and moderately densely punctured, with the sutural costa narrow, and the others limited by indistinct striæ. Propygidium very finely and sparsely punctulate; pygidium sparsely strongly punctured, convex, triangular, subtruncate at tip. Breast thinly clothed with short hair; abdomen sparsely punctured at the sides. Ungues with a small tooth at the middle, tibiæ not hairy.

The club of the antennæ of the male is a little shorter than the stem; the abdomen is broadly impressed for its whole length; the last segment is slightly elevated in front each side, and has behind at the middle some transverse elevated punctures: the spurs of the posterior tibiæ are slender, and the inner one is fixed and one half shorter.

GROUP XII.

This group contains species having the upper surface hairy; the antennæ 10-jointed, the clypeus distinctly margined, but slightly or not at all emarginate, and the last ventral segment very short; the sexual characters are very feebly marked; there are no differences in the tibiæ, and but very slight ones in the abdomen and antennæ.

47. *L. c r e n u l a t a*, fusca, confertim fere æqualiter punctata, thorace linea dorsali fere nulla, lateribus fortius serratis, longe pubescente, elytris pube breviora dense vestitis pilis longioribus intermixtis, obsolete costatis, pectore longe villosa, unguiculis dente magno armatis. Long. .63—8.

Melolontha crenulata Fröhlich, Naturf. 26, 94; 29, 111, tab. 3, fig. 2.

Melolontha georgicana Gyllenhal, Schonh. Syn. Ins. Append. 77.

Phyllophaga georgicana Harris, Ins. Injurious to Vegetation, 2nd ed. 28.

Ancylonycha crenulata Blanch. Cat. Col. Mus. Paris, 133, (synon. exclusiva); Burm. Lamell. 2, 2d, 327.

Massachusetts, Georgia, Kansas: the specimens from the last mentioned locality are smaller, but do not otherwise differ. The pygidium is densely punctured.

48. *L. a l b i n a*, fusca dense fere æqualiter punctata, dense albido-pubescent, thorace pilis longioribus intermixtis, linea dorsali scutelloque alboribus, pectore longius villosa, elytris costatis, unguiculis dente magno armatis. Long. .7.

Ancylonycha albina Burm. Lamell. 2, 2d, 328.

One female found at Natchez, Mississippi; Dr. Schaum. This species has nearly the form of the preceding, but the sculpture is finer, and the pubescence is much more dense; on the elytra long hairs are intermixed only at the base and sides, while the general pubescence of the thorax is similar to that of the elytra, with numerous long erect hairs intermixed.

49. *L. parvidens*, ferrugineo-fusca, subpruinosa, æqualiter punctata, pube flava erecta in thorace et ad elytrorum basin longiore vestita, pectore longe villosa, unguiculis dente brevi armatis. Long. .77.

One male from Georgia. Closely allied to the preceding; the thorax is finely punctured, convex, slightly narrowed towards the base. The elytra are finely punctured, with the sutural ridge well defined, not wider than usual; the dorsal costæ are very faint: the margin is not fringed, and long hairs are seen only towards the base. The club of the antennæ is as long as the stem, and the abdomen is not impressed. The posterior and middle tarsi are imperfect, but the anterior ones are armed only with a short acute tooth.

50. *L. rubiginosa*, ferrugineo-fusca, subpruinosa, thorace longe minus dense villosa, brevi, subtilius punctato, postice haud angustato, elytris subtilius punctatis, breviter pubescentibus, pilis longis parvis versus basin intermixtis, margine fimbriato, pectore longe villosa. Long. .65—76.

Texas, at New Braunfels, collected by Mr. Lindheimer. Body oblong, slightly ovate, convex; above of a brownish red, with a grayish lustre on the elytra. Head densely, thorax finely punctured, clothed not very densely with long soft erect yellow hair; the thorax is short, and is not narrower at the base than at the middle. The elytra are finely punctured, not costate, but with the sutural ridge broader and less elevated than in the others; the surface is thinly clothed with short yellowish hair, with longer hairs intermixed especially towards the base; the margin is fringed: the pygidium is moderately punctured: the breast is covered with tolerably long dense hair.

In the male the club of the antennæ is as long as the stem and the abdomen has a scarcely perceptible anal impression: the spurs of the posterior tibiæ are free in both sexes.

a. In one male specimen of a more cylindrical form there is a bifurcating oblique elevated line each side of the penultimate ventral segment, but in the other specimens I cannot perceive any vestige of such ornament. Subsequent collections may show the propriety of regarding it as a separate species, for the sutural ridge is more strongly marked, and somewhat narrower. I would hesitate at present to give it as distinct, as no other difference in sculpture can be perceived.

GROUP XIII.

Consists of pruinose species, glabrous above, having 10-jointed antennæ, and not emarginate penultimate ventral segment. The head is comparatively large and the clypeus is strongly margined, hardly sinuate in front. The mandibles project strongly; the last joint of the maxillary palpi is slightly oval, not impressed. The thorax is rounded on the sides, not narrowed at the base. The breast is tolerably densely clothed with long hairs; the tarsi are long and the ungues are toothed near the base.

In the males the club of the antennæ is nearly as long as the stem; the penultimate

ventral segment is transversely protuberant, and rough with elevated punctures, while the last segment is slightly impressed transversely. The spurs of the posterior tibiæ are free in both sexes.

51. *L. s u b m u c i d a*, oblonga convexa, subcylindrica, piceo-rufa, pruinosa, capite dense punctato, clypeo reflexo submarginato, thorace confertim haud fortiter punctato, elytris fortius punctatis, brevissime pubescentibus, costa submarginali distincta, pectore flavo-villoso, unguiculis breviter dentatis. Long. 72—75.

Found by Mr. Arthur Schott, of the U. S. and Mexican Boundary Commission, on the journey from Laredo to Ringgold Barracks. Body oblong cylindrical, convex, uniform reddish, with a pruinose lustre. Head large, closely punctured, clypeus scarcely sinuate in front, but strongly margined. Thorax more than one-third wider than the head, finely and closely punctured, sides rounded subserrate, sparsely ciliate. Elytra more strongly punctured, with very short procumbent hairs in each puncture, sutural costa broad, submarginal one distinct. Pygidium sparsely punctured, shining. Abdomen punctured at the sides.

52. *L. g l a b r i c u l a*, oblonga, convexa, testaceo-rufa, subpruinosa, capite dense punctato, clypeo reflexo haud emarginato, thorace confertim subtilius punctato, elytris fortius punctatis, glaberrimis, costa submarginali obsoleta, pectore flavo-villoso, unguiculis breviter dentatis. Long. 64.

Kansas, near the Rocky Mountains. Agrees with the preceding in sculpture, but is smaller and somewhat more robust, the surface is less pruinose, the punctures of the elytra support hairs so much smaller that they are hardly visible, and the submarginal costa can hardly be seen. The sexual characters are precisely as in the preceding.

More full series may show the propriety of regarding this as a race of the preceding species, but at present it seems sufficiently distinct to entitle it to a separate name.

GROUP XIV.

I have placed in this group a single species having the appearance of those of the next group, but differing by the more robust form, and by the mandibles being visible at the tip. The head is small and hairy, the clypeus deeply concave and rounded; the last joint of the maxillary palpi is hardly oval, and not impressed; the mandibles are visible and tolerably prominent. The antennæ are 10-jointed. The thorax is hairy and not narrowed at the base. The last ventral segment is very short, as in the two preceding groups, and the penultimate of the male is not impressed. The claws are armed with a small tooth at the middle.

53. *L. g l a b r i p e n n i s*, oblonga, minus convexa, æqualiter fortiter punctata, clypeo rotundato, concavo, thorace brevi, lateribus subangulatis, elytris haud costatis glabris, capite thorace scutelloque saturatioribus longe pubescentibus, pectore longissime villosa, pygidio parce punctato et pubescente. Long. 53.

One male collected on the Rio Grande by Mr. A. Schott of the United States and

Mexican Boundary survey. The club of the antennæ is nearly twice as long as the stem; the abdomen is without impression; the spurs of the posterior tibiæ are free, long, flattened and obtuse.

GROUP XV. (D).

Contains some of the smallest species of the genus; they are of an oblong elongate form, with the upper surface, at least of the thorax and base of the elytra, pilose with long hairs. The head is small, the clypeus concave, broadly margined, and rounded. The tips of the mandibles are not visible in a state of repose; the last joint of the maxillary palpi is slightly oval and has an impression on the outer face. The thorax is slightly narrowed at the base. The last segment of the abdomen is short, though not so very short as in the groups XII, XIII, and XIV. The spurs of the posterior tibiæ of both sexes are free, long flattened and obtuse, though slender. On account of the small size of the mandibles the first species of the group was considered as a distinct genus *Trichesthes* by Erichson, but Lacordaire, considering it as established upon insufficient grounds, has properly as I think, suppressed it. Burmeister retains it in his work on *Lamellicornia*, but with an addition of species which renders it unrecognizable.

54. *L. tristis*, testacea, elongato-oblonga, capite thoraceque saturatoribus, dense grosse punctatis, longe pilosis, clypeo integro concavo, thorace postice subangustato elytris confertim punctatis, haud costatis, breviter pilosis, pilis longis versus basin raris intermixtis, margine longe fimbriato, pectore longe dense villosa. Long. 47—56.

Melolontha tristis Fabr. Syst. El. 2, 168.

Melolontha pilosicollis Knoch, Neue Beytr. 85, tab. 3, fig. 29. Say, Jour. Acad. Nat. Sc. Phil. 3, 243. Harris, Ins. Mass. Inj. Veg. 2nd ed. 28.

Trichesthes pilosicollis Er. Ins. Deutchl. 3, 658.

Trichestes tristis Blanch. Cat. Col. Mus. Paris, 141: Burm. Lamell. 2nd, 358.

Middle and Southern States, abundant. In the male the club of the antennæ is longer than the stem, the middle of the abdomen is broadly concave, the penultimate segment has an acute transverse crest at the middle, and the margins of the last segment are slightly elevated.

55. *L. crinita*, elongata, testacea, fortiter punctata, clypeo concavo rotundato, capite thoraceque rufescentibus, hoc postice angustato, longe villosis, elytris breviter pubescentibus, pilis longis paucis versus basin intermixtis, margine fimbriato; pectore longe dense villosa. Long. 5.

? *Trichestes crinita* Burm. Lamell. 2, 2nd, 358.

Texas, Mr. H. Haldeman. This species agrees with the preceding in sculpture and appearance, but the body is longer, cylindrical in the male, slightly ovate in the female; the thorax is more narrowed behind, and the hairs of the elytra are shorter: the latter character is noticed by Burmeister but the former is omitted. The sexual characters are precisely the same.

Unknown or unrecognized species.

- Ancylonycha profunda* Blanch. Cat. Col. Mus. Paris, 132. Texas
Ancylonycha crassissima Blanch. *ibid.* 133. Texas.
Ancylonycha longicornis Blanch. *ibid.* 134.
Ancylonycha diffinis Blanch. *ibid.* 138. Texas.
Ancylonycha ilicis† Burm. Lamell. 2, 2nd, 326.
Ancylonycha gibbosa Burm. Lamell. 2, 2nd, 324.
Ancylonycha Forsteri Burm. *ibid.* 325.
Trichestes comans Burm. *ibid.* 358.
Trichestes prununculina Burm. *ibid.* 360.
Trichestes gracilis Burm. *ibid.* 361.

GYNNIS Lec.

In this genus I have placed a single small elongate species, differing from species of Group IV of *Lachnosterna* by the obliquity of the inner posterior spur of the male and by the impression of the last joint of the maxillary palpi. The head is moderate in size, with strong frontal suture, the clypeus is deep, rounded and strongly margined: the antennæ are 9-jointed, with the third and fourth joints longer than the following: the last joint of the maxillary palpi is oval and has a slight lateral impression externally: the mandibles are moderately prominent, the labrum is very short and broad, directed backwards and very slightly concave, not by any means bilobed as in the other genera of *Rhizotrogi* known to me. The ligula is almost truncate in front, and the mentum is broadly concave; the last joint of the labial palpi is oval. The legs are slender, the middle tibiæ with two, the posterior tibiæ with one transverse crest of spines: the tarsi are elongate, and the claws are hardly perceptibly toothed near the middle. The inner spur of the posterior tibiæ of the male is fixed, and slightly oblique, so as to form an inferior emargination, the outer one is free, slender and acute. The last ventral segment of the abdomen is moderately large, slightly impressed.

1. *G. debilis*, testacea, elongata, nitida, capite fusco sat punctato, clypeo rotundato, concavo testaceo thorace lateribus rotundatis postice subangustato, sat fortiter punctato, elytris fortius punctatis haud costatis, costa suturali elevata subrugosa; pectore fortiter punctato, parum pubescente. Long. .43.

One specimen found at Philadelphia was given me by Mr. Schafhirt.

The club of the antennae of the male is longer than the stem; the abdomen is longitudinally slightly impressed, and the last joint is faintly but broadly foveate, and the fovea does not attain the anterior margin; the tibiæ are described above.

LISTROCHELUS Blanchard.

Corpus oblongum, subcylindricum alatum, supra subglabrum, elytris glauco-pruinosis. Clypeus rotundatus marginatus; labrum profunde emarginatum; mandibulae parum prominulae. Mentum paulo concavum,

ligula truncata; palpi maxillares articulo ultimo modice ovali, impresso. Antennæ 10-articulatæ, articulis 3—5 connatis, 3 et 4 æqualibus; clava triarticulata, maris elongata, feminae parva. Elytra stria suturali profunda. Abdomen articulis 1—5 connatis, suturis haud medio oblitteratis, 6to brevi transverso. Coxæ posticæ angulo externo producto. Tibiæ anticæ tridentatæ, posteriores uni-coronatæ, denteque parum prominulo superiore præcipue armatæ, bicalcaratæ, calcaribus posticis sexus utriusque mobilibus, exteriore longiore: tarsi tibiis longiores, verticillatim setosi, postici articulo primo paulo brevior, nonnunquam tibiis haud longiores; unguiculi (maris præcipue) subtus sulcati, biseriati pectinati, vel compressi, medio dentati, subtus plus minusve uniseriatim serrulati.

By the discovery of new species I have been compelled to modify the description of this genus, until at last nothing distinct remains to separate it from *Lachnosterna*. In one species the serration of the ungues disappears almost entirely, only a slight trace near the base being left. There is however a peculiar appearance which renders the genus easy of recognition, and notwithstanding the remarkable specific and sexual characters, would make any further subdivision of the species here placed under it eminently unnatural.

A. Tibiæ posticæ sub-bicoronatæ.

1. *L. mucoreus*, longior, convexus, piceo-rufus, capite thoraceque nitidis, illo plano fortiter marginato, confertim punctato, antice rotundato haud emarginato, thorace punctato, lateribus obtuse angulatis, antice subserratis, angulis posticis obtusis haud rotundatis; elytris parce punctatis et breviter pilosis, glauco-pruinosis; supra versus latera parce longe pilosus, pectore villosa, calcare postico externo latiore et longiore, tarsis posticis tibiis multo longioribus. Long. .6—65.

Maris antennarum clava funiculo vix brevior; pygidio convexo, unguibus subtus biseriati fortius pectinatis; antico exteriore prope apicem fere dentato.

Feminae unguibus subtus prope apicem acute dentatis, a basi ad dentem pectinatis, postico interiore pectinato haud dentato; pygidio plano.

Fort Yuma, Colorado River, California; Eagle Pass, Texas, Mr. Schott. The outer spur of the posterior tibiæ is longer and broader than the inner one, both are flattened and obtuse. The hairs towards the base of the elytra are very long.

2. *L. texanus*, longiusculus, oblongus, convexus, piceo-rufus, capite thoraceque nitidis, illo plano fortiter marginato, confertim punctato, antice rotundato subemarginato, thorace minus dense punctato, lateribus fortius angulatis subserratis, angulis posticis obtusis haud rotundatis, ad basin longe erecte fimbriato, elytris parce punctatis et breviter pilosis, glauco-pruinosis; supra versus latera parce longe pilosus, pectore villosa; calcare externo postico fere duplo latiore et longiore, tarsis posticis tibiis longioribus. Long. .5.

Mas notis sexus sicut in præcedente.

One specimen found in Texas by Mr. Schott. Closely related to *L. mucoreus*, but is a little less elongated, with the sides of the thorax more strongly angulated, and subconcave in outline behind the angle, and with a basal fringe of long erect hairs. The inner spur of the posterior tibiæ is only two-thirds as long as the outer one, and is more slender than in the preceding species.

3. *L. obtusus*, piceo-ferrugineus, oblongus, convexus, capite rotundato fortiter marginato, confertim punctato, thoraceque nitidis, hoc sat dense punctato, lateribus rotundatis medio subangulatis, angulis posticis obtusis rotundatis, marginibus et ad basin longe piloso, elytris glauco-pruinosis vage punctatis, versus basin longe pilosis ad marginem parce pilosis; pectore villosa; calcare externo postico fere duplo latiore et longiore, tarsis posticis tibiis vix longioribus. Long. .55.

Mas notis sexus sicut in præcedentibus.

One specimen found by me in Kansas, near Platte River. More robust and less cylindrical than the preceding species, with the sides of the thorax less angulated. Some of the hairs about the base of the thorax arise from the disc, and the hairs near the base of the elytra are longer than in the other species, and the punctures behind the middle are almost without hairs. The spurs of the posterior tibiæ are as in the preceding.

B. Tibiæ posticæ unicoloratæ: tarsi postici tibiis haud longiores.

4. *L. falsus*, convexus ferrugineus, capite rotundato, antice vix sinuato marginato, fortiter punctato parce piloso, thorace punctato, lateribus serratis obtuse angulatis, angulis posticis obtusis subrotundatis, elytris glauco-pruinosis, obsolete tricostratis, parcius punctatis, parce pilosis; lateribus et thoracis basi longe parce setosus, pectore villosa, calcaribus posticis angustis externo longiore. Long. .54—.59.

Mas cylindricus elongatus, clava antennarum funiculo longiore; pygidio magis convexo, abdomine late concavo, articulis 5to et 6to medio canaliculatis; unguiculis dente medio minuto armatis vix obsolete serratis, interno anteriore edentato.

Femina subovata; pygidio paulo convexo, abdomine tumido, medio polito; unguiculis omnibus medio dente parvo acuto armatis, obsolete serratis.

Platte River, Kansas. This species, though having all the external appearance of the others, by its characters approaches so near to *Lachnosterna* as to suggest a doubt whether the two genera should properly remain distinct.

5. *L. fimbripes*, subovata, convexa, ferruginea, capite rotundato, antice subsinuato, marginato, fortiter punctato, parce piloso, thorace punctato, lateribus obtuse angulatis, angulis posticis obtusis rotundatis, elytris subpruinosis parce punctatis vix breviter pilosis; lateribus et thoracis basi parce longe setosus, pectore villosa, tibiis tarsisque posticis intus longe laxè pilosis calcaribus posticis angustis. Long. .48.

Mas antennarum clava funiculo fere longiore; abdomine medio fere plano, segmentis 5 et 6 leviter canaliculatis; unguiculis obsolete serratis minime dentatis.

One specimen, Fort Riley, Kansas, Dr. W. A. Hammond, U. S. A. Somewhat more robust than the preceding species.

6. *L. scoparius*, elongatus, cylindricus, piceo-rufus, capite rotundato fortiter marginato, antice vix sinuato, fortiter punctato, thorace punctato, lateribus subserratis angulatis, angulis posticis obtusis haud rotundatis, elytris parce punctatis et pilosis, glauco-pruinosis: marginibus longe parce pilosis, pectore dense villosa, tibiis posticis intus longe, tarsis posticis subtus densissime villosis; calcaribus posticis angustis. Long. .61.

Mas antennarum clava funiculo haud longiore; propygidio fere nudo, pygidio maiore valde convexo; abdominis segmento 6to subtus producto et acute longe bidentato; unguiculis fortius pectinatis.

Sonora, near the Boundary line, Mr. Arthur Schott. From the curious characters of the abdomen and posterior tarsi, I was strongly tempted to consider this as a

separate genus, but the preceding species is intermediate in the last mentioned peculiarity, and the former is altogether a sexual mark. The sixth ventral segment is large, and projects downwards; it is smooth and flat on its anterior surface, strongly punctured and hairy on the posterior surface, which is convex, and nearly horizontal; the line where the two surfaces meet is armed at the middle with two large sharp teeth.

4. DIPLOTAXES.

This group established by Kirby, but first defined as a sub-group by Lacordaire, contains species of small size, forming the transition from the groups with transverse not prominent anterior costæ, to those with the coxæ conical. The thorax is almost always furnished with an apical membranous margin, a character not known to me in any other group except *Dichelonychæ*, which differ by the chelate ungues. Burmeister's group of *Schizonychæ* should probably enter here, as they differ only by the greater depth of the emargination of the labrum, and the less breadth of the ligula: the former is indeed not free from variation in our species of *Diplotaxis*. It has not escaped the attentive eye of Lacordaire that the ventral sutures are distinct in this group, not effaced at the middle as in *Rhizotrogi*; but he mentions that exceptions in this respect are found in *Empecta*: as that genus has no apical margin of membrane on the thorax, I am in doubt whether it might not be more naturally placed in *Rhizotrogi*.

A character not noted by previous authors, which seems to distinguish this group, is the entire coalescence, without perceptible suture between the 5th ventral segment and the propygidium; I know of no other group in which this takes place, and taken in conjunction with the small pygidium, the disappearance of the sixth ventral segment, the distinctness of the ventral sutures, and the prominence of the anterior coxæ, it would seem to render this as distinctly limited as the other groups here recognized.

Our genera may be thus distinguished:—

- Ungues antici dente parum prominulo apicali, posteriores fissi *Orsonyx* Lec.
- Ungues omnes conformes :
- Palpi maxillares articulo ultimo ovali - - - - - *Diplotaxis* Kirby
- Palpi maxillares articulo ultimo elongato, cylindrico - - - - - *Alobus* Lec.

ORSONYX Lec.

Corpus oblongum, paulo convexum, alatum; clypeus margine reflexo, late rotundatus medio subsinuatus, sutura frontali distincta. Labrum concavum, modice emarginatum; mandibulæ validæ prominulæ; maxillæ mala exteriore ad apicem bidentata; (palpi desunt). Mentum trapezoideum, ligulæ latæ connatæ, antice se micirculariter depressum; palpi labiales laterales; antennæ breves 10-articulatæ, clava parva triphylla. Thorax ad apicem membranula coriacea marginatus, linea marginali nulla. Tibiæ anticæ tridentatæ unicalcaratæ, posteriores extus bicoronatæ, ad apicem paulo incrassatæ, posticæ intus dense pilosæ; tarsi tibiis vix longiores, setosi; unguiculis anticis dente tenui acuto subapicali parum prominulo armatis, posterioribus fissis, parte inferiore latiore acuto subtruncato vix brevior: propygidium fere omnino tectum.

O. anxius, oblongus paulo convexus, ater subnitidus, capite dense punctato, vertice vage bifoveato, clypeo rotundato, marginato, antice submarginato, sutura frontali utrinque profundiore, thorace dense punctato, subcanaliculato, lateribus rotundatis ante medium angustato, angulis posticis obtusis subrotundatis, elytris punctatis, subtricotatis, costis uniseriatim punctatis, pygidio grosse punctato, propygidio antice subtiliter postice grosse punctato. Long. 41.

One specimen found by Thos. H. Webb, M. D. of the U. S. and Mexican Boundary Commission in the valley of the Gila. The under surface is coarsely punctured, and it as well as the pygidium is sparsely hairy.

DIPLOTAXIS Kirby.

The species in this genus are now quite numerous, and in sculpture, color and form resemble each other in many instances very closely; I have, therefore sought to establish natural divisions by which they may be classified into small groups. The following will serve the purpose.

- A. *GENUINÆ*. Ungues omnes fissi; (h. e. dente ungue parum brevior); spiracula postica haud prominula; thorax linea apicali nulla.
- a. Thorax ad angulos plus minusve impressus, angulis anticis præcipue acuminatis.
 - Caput haud carinatum, corpus pubescens I. Sp. 1.
 - Caput haud carinatum, corpus supra glabrum II. Sp. 2—5.
 - Caput carinatum, corpus supra glabrum III. Sp. 6—7.
 - b. Thorax ad angulos haud impressus; caput haud carinatum.
 - Clypeus hemihexagonus, angulis acutis elevatis IV. Sp. 8.
 - Clypeus varius, angulis rotundatis vel nullis V. Sp. 9—24.
- B. *SPURLÆ*. Spiracula postica prominula.
- Ungues fissi Sp. 25.
 - Ungues medio dentati Sp. 26.
- C. *SPURLÆ*. Ungues medio dentati; spiracula postica haud prominula.
- Thorax linea apicali nulla Sp. 27.
 - Thorax ad apicem marginatus Sp. 28—29.

I.

1. *D. sordida*, nigra, opaca, undique pube erecta brevi fulva vestita, thorace densius pubescente, elytris subtilius, thorace capiteque rugose densissime punctatis, hoc hemihexagono, margine reflexo, antice late emarginato, sutura frontali profunda, utrinque excavata, tibiis anticis subtridentatis. Long. 47.

Melolontha sordida Say, Journ. Acad. Nat. Sc. 5, 197.

Diplotaxis carbonaria Burm. Lamell. 2, 2nd. 262.

Pennsylvania and Georgia; rare. The thorax is transversely broadly sulcate near the base and apex; the basal angles are not at all rounded, the sides are subangulated behind the middle, and the anterior angles are subacuminate. Burmeister describes the elytra as being costate; in one specimen they are so, in another there are faint traces of external striæ, and of the three discoidal flattened costæ. The teeth of the anterior tibiæ are equidistant, the upper one is feeble.

II.

2. *D. subcostata*, fusco-ferruginea, nitida, oblonga, convexa, capite hemihexagono, grosse punctato, margine reflexo, antice vix emarginato, thorace parcius punctato, lateribus medio valde rotundatis, angulis omnibus acutis vage impressis, elytris grossius punctatis, tricostatis, tibiis anticis subtridentatis; sutura frontali profunda utrinque exaraba, vertice late convexo. Long. 39—45.

Blanch. Cat. Col. Mus. Paris, 171.

Georgia; not rare. Varies a little in the outline of the thorax, and in the depth of the punctures; it is however always obtusely rounded at the middle, sinuate before and behind, with acute angles.

3. *D. liberta*, nigro-picea nitida, oblonga, convexa, capite hemihexagono, tenuiter marginato, fortiter punctato, antice haud emarginato, thorace fortiter haud dense punctato, parcius in medio, lateribus medio rotundatis, angulis anticis subacuminatis, posticis obtusis haud rotundatis, omnibus paulo impressis, elytris fortius punctatis, concinne tricostatis, tibiis anticis tridentatis, sutura frontali profunda, vertice planiusculo. Long. 45—5.

Burm. Lamell. 2, 2nd, 261.

Melolontha liberta Germ. Ins. Nov. 123.

Middle and Southern States; *D. tristis* Kirby, placed by Burmeister as synonymous with this species, is quite distinct, having a thickly punctured thorax, of a different form.

4. *D. brevicollis*, oblonga, convexa, piceo-ferruginea nitida, capite punctato, hemihexagono, antice late emarginato, margine anguste reflexo, sutura frontali profunda, thorace brevi subtilius punctato, lateribus oblique rotundatis, angulis anticis subacutis posticis fere rectis, omnibus impressis; elytris subtilius punctatis et tricostatis, tibiis anticis obtuse tridentatis. Long. 47.

One specimen collected by George Gibbs, Esq., at Steilacoom, Washington Territory.

5. *D. tristis*, oblonga, minus convexa, nigra subnitida, capite dense punctato hemihexagono, antice subemarginato, margine anguste reflexo, sutura frontali profunda, thorace lateribus oblique rotundatis, angulis anticis subacutis, posticis obtusis, omnibus paulo impressis, elytris punctatis, tricostatis, tibiis anticis obtuse tridentatis. Long. 43—53.

Kirby, Fauna Bor. Am. 130.

Middle States and Lake Superior, not rare.

III.

6. *D. excavata*, oblonga, nigro-picea, nitida, capite vix hemihexagono, margine reflexo antice fere rotundato, grosse, occipite parcius punctato, sutura frontali profunde excavata, fronte transversim carinata, medio subimpressa, thorace grosse punctato, antice posticeque versus latera transversim excavata, lateribus medio rotundatis angulis anticis subacuminatis, elytris rude punctatis, subcostatis, tibiis anticis subtridentatis. Long. 35.

One specimen, Georgia. The punctures of the elytra are large, and sometimes confluent, they are mostly arranged in rows, except towards the suture, and the three costæ are not much more evident than the other intervals.

7. *D. frontalis*, oblonga, nigro-picea, nitida, capite fere rotundato, margine reflexo, grosse occipite parce punctato, sutura frontali profundo, fronte transversim carinata medio subimpressa, thorace parcius punctato, lateribus medio rotundatis, angulis anticis acutis, haud acuminatis, elytris rude punctatis subcostatis, tibiis anticis subtridentatis. Long. .35.

Georgia. Of the same appearance as the last, from which it only differs by the thorax being hardly perceptibly impressed at the angles, instead of being deeply excavated. Perhaps this may be a sexual character.

D. punctatorugosa Blanch. having the front transversely elevated, must belong to this group. Blanchard, however, describes it as "breviter ovata," while according to Burmeister, who does not mention the form, the anterior tibiæ are acutely 3-toothed.

IV.

8. *D. angularis*, elongata cylindrica, ferruginea nitida, capite punctato, hemihexagono, margine reflexo, ad apicem late emarginato, angulis acutis prominulis, sutura frontali mediocri, vertice late convexo, thorace modice punctato, antrorsum angustato, lateribus pone medium fortius rotundatis angulis obtusis, elytris punctatis, tricostatis, tibiis anticis tridentatis. Long. .3.

Copper Mines of the Gila, Dr. Webb. The female is slightly ovate. The apical reflexed margin of the clypeus makes with the lateral margin a reentering angle.

V.

9. *D. moerens*, oblonga, minus convexa, picea vel nigro-picea subnitida, capite confluentem punctato, plano, hemihexagono, tenuiter marginato, antice late emarginato, sutura frontali parum impressa, thorace confertim punctato, lateribus rotundatis, angulis posticis obtusis, elytris fortiter punctatis, punctis fere omnibus seriatis, vix tricostatis, tibiis anticis tridentatis. Long. .44.

Vallecitas, California. Of the size, form and color of *D. tristis*; the inferior portion of the claws is rather shorter than usual, and the labrum is deeply emarginate.

10. *D. punctipennis*, oblonga, convexa, ferrugineo-picea nitida, capite fortiter punctato, clypeo rotundato, latius marginato, sutura frontali impressa, thorace sat dense fortius punctato, lateribus valde rotundatis angulis posticis obtusis, elytris grosse punctatis, punctis fere omnibus seriatis, vix tricostatis, tibiis anticis fortiter tridentatis. Long. .44.

Texas, Mr. Haldeman. The spaces which represent the usual costæ, and the suture are marked with a row of smaller punctures. The inferior part of the unguis is shorter than the upper, but not so much so as in *D. moerens*.

11. *D. texana*, oblonga, convexa, fusco-ferruginea nitida, capite dense punctato, clypeo rotundato, anguste marginato, sutura frontali impressa, thorace fere dense punctato, lateribus modice rotundatis, angulis posticis obtusis, elytris punctatis tricostatis, tibiis anticis tridentatis. Long. .38.

New Braunfels, Texas, Mr. Lindheimer. The punctures between the costæ are confused; the costæ are marked with a row of smaller punctures; the teeth of the anterior tibiæ are not large, and are more close than usual. The clypeus in one specimen is semicircular, but in the other is feebly hemihexagonal. The under part of the unguis is hardly shorter than the upper.

12. *D. Harperi*, ferrugineo-picea, oblonga paulo convexa, nitida, capite fortius confertim punctato, clypeo anguste marginato, rotundato, sutura frontali impressa, thorace fortius sat dense, medio minus dense punctato, antrorsum subangustato, lateribus latius rotundatis, angulis posticis obtusis, clytris fortiter punctatis, subtricastis, costis fortius uniseriatim punctatis, tibiis anticis obtuse tridentatis. Long. .37.

? Blanch. Cat. Col. Mus. Hist. Nat. Paris, 171.

Burm. Lamell. 2, 2d, 263.

Fort Riley, Kansas, Dr. Wm. A. Hammond; found according to Blanchard in Georgia, and Burmeister in S. Carolina. Differs from the next two species by the less rounded sides of the thorax, and the more narrowly margined clypeus; the latter is rounded in the arc of a circle. The punctures of the costæ of the elytra are somewhat irregular; the teeth of the anterior tibiæ are obtuse, and the two lower ones are nearer.

13. *D. frondicola*, oblonga convexa, fusco-ferruginea, nitida, [capite dense punctato, clypeo vix hemihexagono, anguste marginato, sutura frontali impressa, thorace dense punctato, lateribus rotundatis, angulis posticis obtusis, elytris punctatis, tricastis, tibiis anticis dentibus tribus magis approximatis. Long. .28—.32.

D. testacea Burm. Lamell. 2, 2d, 263.

Melolontha frondicola Say, Journ. Acad. 5, 198.

A common species from New York to Texas, and Kansas. The head is always slightly hemihexagonal; the under part of the claws is not shorter than the upper portion. The punctures between the costæ are confused, and the costæ are marked with a row of smaller punctures.

The species described by Mr. Blanchard as Say's is something quite different.

14. *D. dubia*, oblonga, convexa, fusco-ferruginea, nitida, capite dense punctato, clypeo rotundato, marginato, sutura frontali impressa, thorace dense punctato, lateribus rotundatis, angulis posticis obtusis, clytris fortiter punctatis, tricastis, tibiis anticis bidentatis. Long. .32.

Texas, two specimens, Mr. Haldeman. So similar to the preceding, that it might readily be confounded with it. On comparison, however, several differences may be found: the thorax is not so short, and the posterior angles are less obtuse; the clypeus is rounded in an arc of a circle, and more strongly margined; the upper tooth of the anterior tibiæ is almost entirely obliterated.

15. *D. truncatula*, oblongo-ovata, convexa, picea, capite confertim punctato, hemihexagono, clypeo tenuiter marginato, antice truncato, sutura frontali profunda, thorace sat dense punctato, lateribus oblique æqualiter rotundatis, angulis posticis obtusis rotundatis, clytris grossius punctatis, tricastis, tibiis anticis tridentatis. Long. .32.

One specimen, Kansas. The costæ of the elytra are without punctures, or with only a very few small ones. The upper tooth of the anterior tibiæ is acute and distant from the others.

16. *D. consors*, oblonga, nigro-picea, convexa nitida, capite confertim punctato, hemihexagono, clypeo tenuiter marginato, antice truncato, sutura frontali profunda, thorace minus dense punctato, lateribus rotundatis, angulis posticis obtusis rotundatis, clytris grossius punctatis tricastis, tibiis anticis tridentatis. Long. .3.

One specimen, Texas, Mr. Haldeman. Very similar to *D. truncatula*, but differs by the thorax being not so much narrowed in front, less rounded about the posterior angles and less densely punctured. The feet are brownish, the anterior tibiæ as in *D. truncatula*.

17. *D. carbonata*, oblonga, atra subnitida, capite dense punctato, clypeo vix hemihexagono, tenuiter marginato, thorace minus dense punctato, lateribus valde rotundatis, angulis posticis obtusis rotundatis, elytris punctis fortibus fere omnibus seriatis, subtricotatis, tibiis anticis tridentatis. Long. .27—.3.

New Mexico and Texas, Messrs. Clark and Webb. The punctures except near the sutural line are hardly confused, the interstices are marked with ranges of small punctures; the upper tooth of the anterior tibiæ is obtuse but obvious.

18. *D. atratula*, oblonga, atra subnitida, capite dense punctato, clypeo hemihexagono, antice late emarginato, modice marginato, thorace fortius punctato, lateribus antice obliquis parum rotundatis ad angulos posticos fortius rotundatis, elytris punctis fortibus fere omnibus seriatis, vix tricotatis, tibiis anticis fortiter tridentatis. Long. .3.

Frontera, New Mexico, Mr. Clark. Of the form size and color of *D. carbonata*, but differing in the sides of the thorax being oblique and hardly rounded, except near the posterior angles; the punctures of the elytra are not confused near the sutural line, and the interstices are not punctured. The legs as usual are brown, and the upper tooth of the anterior tibiæ is strong and acute.

19. *D. morula*, elongato-oblonga, atra subnitida, capite confertim punctato, clypeo hemihexagono, anguste marginato antice truncato, sutura frontali profunda, thorace sat dense punctato, lateribus antice obliquis postice cum angulis rotundatis, elytris fortius punctatis, tricotatis, tibiis anticis fortius tridentatis. Long. .3.

One specimen, Kansas. Narrower than the preceding species, from which it also differs, not only by the posterior angles of the thorax less suddenly rounded, but by the punctures between the geminate rows being confused; the costæ themselves are marked with a few small punctures. The legs are brown, and the upper tooth of the anterior tibiæ is strongly marked.

20. *D. punctata*, nigro-picea, oblonga, convexa, nitida, capite confertim punctato, marginato, hemihexagono, antice late truncato, sutura frontali impressa, thorace fortiter minus dense punctato, lateribus antice obliquis, pone medium valde rotundatis fere angulatis, angulis posticis perobtusis, elytris fortius punctatis, subcostatis, tibiis anticis fortius tridentatis. Long. .32.

One specimen, Frontera, Rio Grande, Mr. Clark. The punctures of the two inner interstices of the elytra are confused, but the costæ are not very distinct; the costæ are marked with a row of fine punctures.

21. *D. cribulosa*, oblonga, subovata, ferruginea nitida, parce fulvo-pubescent, capite fortius dense punctato, marginato, hemihexagono, antice late truncato, sutura frontali impressa, thorace fortiter minus parce punctato, lateribus rotundatis, antice obliquis, angulis posticis obtusis, elytris fortiter punctatis, subcostatis, tibiis anticis subtridentatis. Long. .34.

One specimen found with the preceding. This species is by its sculpture related to *D. punctata*, but the thorax is more coarsely punctured, and the costæ of the elytra are marked with a very strong row of punctures, which with the punctures between the geminate rows are furnished with short but stout suberect hairs: the punctures of the thorax and those near the frontal suture also emit hairs. The labrum is more deeply emarginate than in the other species, but the under part of the claws is as long as the upper, the thorax has a narrow apical membrane, and all the other characters are of this genus.

22. *D. subangulata*, oblonga, convexa, nigro-picea nitida, capite dense punctato, marginato, fere hemihexagono, antice late truncato, thorace haud dense punctato, lateribus rotundatis medio subangulatis angulis posticis valde obtusis, elytris fortiter seriatim punctatis, punctis internis solis confusis, costis parum distinctis subtiliter uniseriatim punctatis, tibiis anticis acute tridentatis. Long. .34.

One specimen, Oregon, Col. McCall. The under part of the claw is a little shorter than the upper, and less obviously truncate than usual.

23. *D. bidentata*, ovata, convexa, nigro-picea, vix ænescens nitida, capite parcius fortiter punctato, clypeo rotundato, marginato, sutura frontali impressa, thorace parce fortiter punctato, lateribus oblique late rotundatis, angulis posticis obtusis, elytris fortius punctatis, tricostatis, tibiis anticis bidentatis. Long. .3.

Georgia, two specimens. Differs from all others known to me by the ovate body, the sparsely punctured head, and bidentate tibiæ. The punctures between the suture and the first dorsal costæ are confused, those between the other two costæ and the first are less so, but still somewhat confused. The punctures of the under surface are larger and more abundant than usual: the propygidium is more prominent than in the other species and is marked near the apex with a tolerably strong transverse raised line.

The following species cannot be referred to its proper division, from the loss of the head.

24. *D. tenuis*, elongata, cylindrica testacea, thorace confertim punctato, antice posticeque angustato, lateribus rotundatis medio fere angulatis, elytris seriatim punctatis, punctisque paucis internis confusis, tricostatis, tibiis anticis obtuse subdentatis. Long. .28.

A dead specimen found at Vallecitas, San Diego County, California. Resembles in its proportions *D. angularis*, and probably belongs to Div. IV., but differs greatly in the sculpture of the elytra; the punctures of the first interstice are confused, those of the other intervals between the costæ, are represented by rows of punctures equal in size to those of the regular rows but more distant; the costæ are without punctures. The terminal tooth of the anterior tibiæ as usual is long, the others are almost obsolete: the lower part of the unguis is acute, and hardly shorter than the upper; the posterior tibiæ have more long hairs than in *D. angularis*.

B. *Spuriæ*.

25. *D. corvina*, oblongo-ovalis, convexa, piceo-nigra nitida, capite confertissime punctato, clypeo marginato, rotundato, sutura frontali impressa, thorace latitudine plus duplo brevior, fortius sat dense punctato, lateribus rotundatis, parcius ciliatis, angulis posticis obtusis rotundatis, elytris seriatim punctatis, vix tricostatis, punctis internis solis confusis, antennis palpisque piceo-rufis, unguibus fassis. Long. .44.

One specimen, Fort Yuma, Colorado River, California. This insect has the appearance of a large *Aphodius*. The spaces of the elytra which represent the costæ are marked each with a row of small punctures. The under surface is very coarsely punctured, and the punctures have short yellowish hairs. The pygidium is very coarsely and the propygidium densely punctured, the latter is transversely elevated, or rather broadly sulcate near the apex. The posterior tibiæ at the outer apical angle are armed with three longer spines.

26. *D. paeata*, oblongo-ovata convexa, ferrugineo-picea, nitida, capite confertim punctato, clypeo subrotundato, marginato, sutura frontali impressa, vertice vage bifoveato, thorace sat dense punctato, antorsum angustato, lateribus postice cum angulis valde rotundatis, elytris fortiter seriatim punctatis, punctis internis solis confusis: tibiis anticis tridentatis, tarsis anticis antænis palpisque rufis, unguibus dente ad medium armatis. Long. .32.

One specimen found by Dr. Thomas H. Webb, of the United States and Mexican Boundary Commission, in the valley of the Gila. The form is that of most *Diploptaxis*, but the spiracles of the propygidium are prominent as in the last species. The mandibles are less prominent than usual, and in fact hardly visible. The propygidium and pygidium are sculptured as in the preceding; the tooth of the claws is perpendicular, and not large.

C. *Spuriæ*.

27. *D. brevidens*, oblonga, convexa, fusco-ferruginea nitida, capite confertim fortius punctato, subrotundato, clypeo marginato, antice submarginato, clypeo frontali profunda, thorace fortius punctato, lateribus antice obliquis, dein rotundatis, angulis posticis valde obtusis, utrinque ad apicem et ad medium foveato, elytris grossius seriatim punctatis, punctis internis solis confusis, tibiis anticis valde tridentatis, unguibus medio fortiter dentatis. Long. .42.

One specimen found by Dr. Thos. H. Webb in the valley of the Gila. This species repeats the form of the fifth division, as the next does the second of the genuine *Diploptaxes*. The mandibles are more prominent than usual, and bent downwards, so that the ligula is covered by them. The pygidium and propygidium are very coarsely punctured, and the latter has the usual transverse impression near the apex. The apical foveæ of the thorax are half way between the middle line and the angles, the others are near the side, and at the greatest breadth.

28. *D. Haydenii*, oblonga-ovata, rufo-ferruginea, nitida, convexa, capite sat dense punctato, clypeo fere hemihexagono marginato, sutura frontali profunda, fronte transversim obsolete elevata, thorace

modice punctato, brevi, ante medium valde angustato, lateribus obliquis, ad medium fere angulatis, angulis posticis obtusis, subimpressis, ad apicem marginato, angulis anticis magis acutis, elytris fortius punctatis, tricostatis, tibiis anticis tridentatis, dente ultimo oblique truncato, unguiculis medio breviter dentatis. Long. .45.

Yellowstone River, Nebraska, Dr. F. V. Hayden. The mandibles are very prominent, and bent at the apex so as to cover the ligula. The sides of the thorax, from a ventral view hardly converge towards the base. The punctures between the smooth lines of the elytra are confused, and somewhat rugous. The pygidium is coarsely punctured and sparsely hairy; the propygidium is more densely punctured, with the usual transverse impression.

29. *D. innoxia*, oblonga, convexa, rufo-ferruginea nitida, capite sat dense punctato, clypeo fere hemihexagono marginato, sutura frontali profunda, fronte transversim obsolete elevata, thorace modice punctato, brevi, ante medium valde angustato, lateribus ibi obliquis, dein æqualiter rotundatis, angulis posticis obtusis subimpressis, ad apicem marginato, angulis anticis acutis, elytris fortius punctatis, tricostatis, tibiis anticis obtuse tridentatis, dente ultimo subtruncato unguiculis breviter dentatis. Long. .4.]

One specimen, Kansas. Closely allied to the preceding, and precisely similar to it in sculpture: the body is, however, not at all ovate, and the sides of the thorax are more regularly and less suddenly rounded. These two species by the strong apical marginal line of the thorax form a passage to the *Rhizotrogi*; many of which they resemble in the form of the claws.

Species not recognized.

Diplotaxis punctato-rugosa Blanch. Cat. Col. Mus. Paris, 171; Burm. Lamell. 2, 2nd, 263.

Diplotaxis georgiæ Blanch. ibid.

Diplotaxis frondicola † Blanch. ibid.

Diplotaxis castanea Burm. Lamell. 2, 2nd, 262; an *D. subcostata*?

Diplotaxis corpulenta Burm. ibid. 263.

ALOBUS Lec.

Corpus elongato-oblongum, subcylindricum: caput majusculum, clypeo marginato, antice subrotundato, sutura frontali bisinuata; labrum transversum late emarginatum; palpi maxillares articulo ultimo tenui cylindrico, reliquis coniunctis æquali; mandibulæ prominulæ ad apicem obtusæ: mentum quadratum haud impressum; antennæ breves 10-articulatæ, clava parva triphylla. Tibiæ anticæ tridentatæ unicalcaratæ, posteriores tenues haud coronatæ, nec ad apicem incrassatæ, posticæ intus parce pilosæ; tarsi tibiis vix longiores, subtus parce pilosi vel setosi, haud spinulosæ; ungues omnes dente inferno maximo truncato, ungue ipso haud brevior. Thorax membranula apicali nulla.

A genus which approaches the *Rhizotrogi* in another direction, viz., by the absence of the apical membrane of the thorax; nevertheless by the abdomen and by the labrum it must clearly be associated with *Diplotaxis*.

A. fulvus, elongatus, subcylindricus, testaceo-rufus nitidus, capite fusciscente, confertim punctato, clypeo vix hemihexagono, anguste marginato, sutura frontali impressa, thorace latitudine plus duplo brevior, dense, medio parcius punctato, antrorsum haud angustato, lateribus late rotundatis, angulis posticis obtusis; elytris fortiter punctatis, subtricostatis, propygidio subtiliter, pygidio grosse punctato. Long. .36.

One specimen, New York. The three teeth of the anterior tibiæ are near together.

The head is hardly one-fourth narrower than the thorax, which differs remarkably in form from that of any other species in the group, in not being conspicuously narrowed in front. The under surface is coarsely punctured, more sparsely at the middle of the metasternum; the punctures support very short hairs.

5. SERICÆ.

This group is readily known from all the others by the labrum being connate with the clypeus, and very frequently indistinct; in addition, the anterior coxæ are conical and prominent; the abdominal segments are hardly connate, the penultimate dorsal and ventral are separated by a straight suture, and the stigma is concealed in the anterior angle.

The genus *Serica* M'Leay, the only one found in our territory, belongs to the division of genuine Sericæ, having the posterior coxæ dilated, and the ligula corneous and connate with the mentum; it may be thus separated into two groups:

- A. Clypeus utrinque acute incisus; corpus haud micans. Sp. 1—4. *Camptorhina* Kirby.
 B. Clypeus simplex; corpus sericeo-micans. Sp. 5—15. *Serica* (proper).

SERICA M'Leay.

A.

1. *S. vespertina*, oblongo-ovata, convexa picea nitida, margine breviter fimbriata, clypeo densius, capite thoraceque sat dense punctatis, fronte transversim impresso, elytris sulcatis, sulcis in fundo confluentibus fortiter punctatis, interstitiis parce punctatis. Long. .35—.42.

Dej. Cat.; Leconte, Agassiz' Lake Superior, 226.

Melolontha vespertina Schönh. Syn. Ins. Append. 94; Say, Journ. Acad. Nat. Sc. 3, 244.

Omaloplia vespertina Harris, Ins. Inj. Vegetation, 2nd ed. 29.

Serica vespertina Burm. Lamell. 2, 2nd, 175.

Camptorhina atricapilla Kirby, Fauna. Bor. Am. 129.

Middle, Southern, Eastern and Western States, as far as Lake Superior.

2. *S. texana*, oblonga convexa, testacea margine breviter fimbriata, clypeo confertim punctato, ad apicem truncato, paulo magis producto, capite parce, thorace subtilius sat dense punctato, elytris sulcatis, sulcis in fundo punctatis, interstitiis punctis paucis notatis. Long. .32.

Found at Fort Gates, Texas, by Mr. H. Haldeman. This species is smaller than the preceding, and less dilated behind; the clypeus is longer, the lateral incisure of the anterior part is not so deep, the thorax is more convex and more finely punctured, and the elytra are less punctured.

3. *S. atratula*, oblongo-ovata, piceo-nigra, margine vix breviter fimbriata, clypeo confertim punctato antice truncato, fronte transversim impressa, capite parcius, thorace densius punctato, elytris profundius sulcatis, sulcis in fundo punctatis, antennis palpisque rufo-flavis. Long. .26.

One specimen from Texas, Mr. H. Haldeman. Differs from the preceding by the more ovate body dilated behind, by the transversely impressed front, the more strongly punctured thorax, and more deeply sulcate elytra. The clypeus, as in *S. texana*, is less deeply incised at the side than in *S. vespertina*.

4. *S. serotina*, oblonga, subovata, convexa, piceo-rufa, nitida, margine longius fimbriata, clypeo truncato dense, capite parce punctato, fronte transversim impressa, thorace convexo subtiliter sat dense punctato, linea dorsali postice lævi, elytris leviter sulcatis, sulcis in fundo punctatis, antennis flavis. Long. ·42.

One specimen collected at Sacramento, California, by Mr. J. Wittick, and given me by Mr. Rathvon. Of the size of *S. vespertina*, but less dilated behind. The clypeus is broader in front than in any of the preceding species, the lateral incisure is slight. The thorax is very convex, much rounded on the sides, and more finely punctured than in the others; the pectus and coxæ are uniformly and densely punctured, while in the other species the punctures are denser on the coxæ, and gradually become sparse at the middle of the pectus. The hairs which fringe the edge of the thorax and elytra are longer than in the other species.

B.

5. *S. iricolor*, ovata convexa, nigra, iridescens, capite thoraceque dense punctatis pilis fulvis crectis dense vestitis, elytris sulcatis, punctatis parcius pilosis, antennis testaceis. Long. ·29.

Burm. Lamell. 2, 2nd, 178.

Melolontha iricolor Say, Journ. Acad. Nat. Sc. 3, 245.

Middle States. By some strange error this species is placed in the Melsheimer Catalogue of Described Coleoptera as synonymous with *Mel. micans* *Knoch*.

6. *S. fimbriata*, oblongo-ovata, testacea opaca convexa, subiridescens, capite dense punctato, clypeo ad apicem reflexo et late emarginato, thorace minus dense punctato, lateribus magis oblique rotundatis longe fimbriatis, elytris striis uniseriatim punctatis, pectore coxisque longe sat dense flavo-villosis. Long. ·42.

San Diego, California. Of the same size, but more robust than *S. sericea*, and very distinct by the more oblique sides of the thorax being fringed with long lateral hairs, and by the hairy breast. The striæ of the elytra are not irregularly punctured as usual, but have only single rows of punctures. It is possible that dark colored specimens may occur, as mine, although found flying in the evening twilight, do not appear to have become fully hardened.

7. *S. tristis*, oblongo-ovata, nigro-picea nitida, convexa, obsolete iridescens, clypeo plano, dense punctato, antice emarginato, vix reflexo, capite parce, thorace sat dense fortiter punctatis, lateribus oblique rotundatis, elytris parce punctatis, striatis, pygidio parce punctato, antennis testaceis, pedibus piceis. Long. ·32—·35.

Lec. Agassiz' Lake Superior, 226.

North shore of Lake Superior. Resembles in form the next species, but the thorax is broader. The body above and beneath is shining with but little iridescent lustre; the clypeus is flatter in front, hardly margined, and the space in front of the transverse fine line is longer.

8. *S. sericea*, piceo-purpurea vel nigro-purpurea, opaca, sericeo-micans, oblongo-ovata, convexa, margine parce fimbriata, clypeo dense punctato, antice emarginato et reflexo, thorace lateribus oblique paulo rotundatis, sat dense punctato, elytris striatis præcipue in fundo striarum punctatis, pygidio sat dense punctato, antennis pedibusque piceis. Long. ·37.

Burm. Lamell. 2, 2nd, 176.

Melolontha sericea Illiger's Oliv. 1, 5, 75 (fide Burm.); Say, Journ. Acad. Nat. Sc. 3, 245.

Melolontha variabilis† Fabr. Syst. El. 2, 182 (var.)

Middle and Southern States, common. The male is oblong, hardly dilated behind; the female is distinctly ovate.

9. *S. curvata*, elongata, testacea, convexa, supra opaca, subiridescens, subtus nitida, margine fimbriata, clypeo confertim punctato, ad apicem subtruncato et reflexo, thorace subtilius punctato, lateribus valde rotundatis, elytris minus profunde striatis, et in striis punctatis, pygidio subtilius punctato, nitido. Long. .28.

Kansas, in the valley of Platte River. Smaller and narrower than the preceding, and readily known by the strongly rounded sides of the thorax.

10. *S. mixta*, oblonga, testacea subopaca griseo-iridescens, margine longe fimbriata, clypeo dense punctato, antice subrotundatim truncato, thorace lateribus antice magis rotundatis, subtilius punctato, elytris parce punctatis, striatis, interstitiis alternatim latioribus et magis punctatis, pectore villosulo. Long. .34.

San Diego, California. Larger and narrower than the next, but smaller than *S. fimbriata*, and differing from both by the clypeus being almost rounded in front without distinct lateral angles, as well as by the form of the thorax. The breast is more hairy than usual, though less so than in *S. fimbriata*, and the hind coxæ are nearly glabrous.

11. *S. alternata*, oblongo-ovata convexa, purpureo-picea, iridescens, clypeo dense punctato, antice latius subemarginato, et reflexo, thorace punctato lateribus oblique magis rotundatis, parce fimbriatis, elytris punctatis, striatis interstitiis alternis conspicue latioribus, et magis punctatis, lateribus fimbriatis, pectore parce villosulo. Long. .28—34.

San Diego, California. Of the color size and form of *S. sericea*, but the thorax is broader, more rounded on the sides and more strongly fringed: the elytra are less deeply striate, with the punctures more equally scattered over the interstices.

12. *S. anthracina*, breviter ovata, convexa, atra opaca, paulo iridescens, clypeo confertim punctato, antice vix emarginato, reflexo, thorace punctato, lateribus oblique magis rotundatis parce fimbriatis, elytris punctatis, subtiliter striatis, interstitiis planis, pygidio fortius punctato, coxis posticis dense punctatis. Long. .36.

Oregon, Dr. Townsend, and others.

13. *S. frontalis*, breviter ovata, picea, subnitida, paulo iridescens, clypeo confertim punctato, marginato, antice subemarginato, fronte inter antennas linea elevata in vertice subangulata notata, thorace punctato, lateribus oblique magis rotundatis, parce fimbriatis, elytris parce punctatis fortius striatis, pygidio subtiliter punctato, coxis posticis parce fortiter punctatis. Long. .27.

One specimen, Oregon, Col. M'Call. Closely related to the preceding, but seems to differ in the slight transverse angulated frontal line, and the sparsely punctured posterior coxæ; the elytra are more deeply striate but less punctured, and the pygidium is more finely punctured.

14. *S. robusta*, breviter ovata, nigra, nitida, subiridescens, clypeo confertim punctato, marginato, antice sub-

emarginato, thorace sat dense punctato, lateribus valde rotundatis, elytris parcius punctatis, striatis, pygidio subtilius punctato, coxis posticis parce fortiter punctatis. Long. .3.

Sacramento, California, collected by Mr. Wittick, and given me by Mr. S. S. Rathvon. This species differs from the two preceding by the greater roundness of the sides of the thorax, which is slightly wider at the middle than at the base. The hairs of the sides are shorter and fewer in number; those of the sides of the elytra are about as usual.

15. *S. troceiformis*, ovata, convexa nigra subnitida, paulo iridescens, clypeo fortiter punctato, marginato, antice submarginato, thorace lateribus obliquis paulo rotundatis, fortius sat dense punctato, elytris sæpe fulvis, profunde striatis et in fundo striarum punctatis, pygidio parce fortius punctato, coxis posticis fortiter haud dense punctatis, antennis tibiis tarsisque plus minusve rufescentibus. Long. .25.

Burm. Lamell. 2, 2nd, 179.

Omalopecta troceiformis Uhler, Proc. Acad. Nat. Sc. Philad. 7, 415.

? *Melolontha aphodiina* Bilberg, Mem. Acad. St. Petersb. 7, 386, fig. 7. (fide Burm.)

Middle and Southern States, not common. The difference in color would tempt many to separate the variety with fulvous elytra, but, although intermediate specimens do not occur, no difference in form or sculpture exists.

6. MACRODACTYLI.

Among the divisions with prominent conical anterior coxæ, this is distinguished by the upper lip being small and beneath the prolonged clypeus, the mentum channeled, narrow, the segments of the abdomen not connate, the fifth always longer than the others, and finally by the ungues being mostly equal and diverging, and not capable of being folded along the joint. The genera are numerous, and entirely confined to America; only one is found within our limits.

MACRODACTYLUS Latr.

1. *M. subspinosus*, (testaceus? vel) nigro-fuscus, undique dense pollinoso-squamulosus, thorace convexo latitudine parum longiore, pilis brevissimis suberectis parce vestito, elytris fundo testaceis, ano setoso, antennis pedibusque testaceis, tarsis nigro-annulatis. Long. .4.

Latreille, Cuvier's Regne Animal, 4, 562; ed. Amer. 3, 427; Enc. Meth. 10, 372; Laporte, Hist. Nat. 2, 147; Harris, Ins. Inj. Veget. ed. 2nd 30; Burm. Lamell. 2, 2nd, 57. (synon. exclusa.)

Melolontha subspinosa Fabr. Syst. El., 2, 181: Oliv. 5, 70, tab. 7, fig. 73: Latr. Gen. Crust. et Insect., 2, 110.

New York. The abdomen of the female is black and entirely free from bristles; that of the male is testaceous, and at the middle of each segment are long bristles, without order, and more numerous than in *M. elongatus*. Like the other species it is very destructive to roses.

2. *M. setulosus*, testaceus (vel nigro-fuscus?) undique dense pollinoso-squamulosus, capite thoraceque nigris, hoc convexo latitudine parum longiore, pilis erectis sat dense vestito, elytris (fundo testaceis) pilis longis erectis versus basin parce vestitis, pygidio et ano longe piloso, antennis pedibusque testaceis, tarsis nigro-annulatis. Long. .4.

The males are more slender in form than the females, and are distinguished by the club of the antennæ being as long as the funiculus.

I.

1. *D. elongata*, elongata, subtus testacea, capite thoraceque nigricantibus testaceo limbatis, illo fortius confluent, hoc dense punctato cinereo-pubescente subanaliculato, hexagono, lateribus angulatis, antice posticeque paulo concavis, angulis posticis acutis valde prominulis, elytris æneo-testaceis virescentibus, fortiter punctatis, breviter pubescentibus, vix trilineatis. Long. 33.

Burm. Lamell. 2, 2nd, 74.

Melolontha elongata Fabr. Syst. El. 2, 174.

Melolontha elongatula Schönherr, Syn. Ins. 3, 210.

Melolontha hexagona Germ. Ins. Sp. Nov. 124.

? *Dichelonycha virescens* Kirby, Fauna Bor. Am. 4, 134.

Pennsylvania, New York, Massachusetts, Michigan and Lake Superior. Very abundant whenever found. Varies in color, the head and thorax being sometimes almost rufous; the elytra are uniformly bronzed, the suture and a narrow margin only being pale. The lateral angles of the thorax are rounded, and the scutel is pubescent. The legs are yellow; the tarsi and posterior tibiæ are more or less tinged with blackish. I have placed a query to the synonym of Kirby, as his var. C. (which he supposes may be different from the type) evidently belongs to the next species, which from want of attention to the form of the thorax (a character that has been omitted by previous authors) may be readily confounded with the present.

2. *D. subvittata*, elongata, testacea vel fusco-testacea, capite fortius confluent punctato, piceo antice testaceo, thorace pubescente piceo, testaceo-limbato, sat dense punctato, hexagono, lateribus fere acute angulatis, antice posticeque parum concavis, angulis posticis subacutis prominulis, elytris æneo-testaceis vitta lata sublaterali virescente, densius rugose punctatis breviter pubescentibus, vix trilineatis, pedibus totis flavis. Long. 4--46.

Dichelonycha virescens var. C.† Kirby, Fauna Bor. Am. 4, 135.

Lake Superior, abundant. The scutel is densely pubescent. The green vitta of the elytra is broad and curves around the tip; it is sometimes interrupted. The form is a little stouter than that of *D. elongata*.

3. *D. testacea*, minus elongata, testacea, capite confluent punctato, thorace pubescente, sat dense subtilius punctato, antice angustiore, lateribus rotundatis subangulatis, postice vix sinuatis, angulis posticis subacutis, elytris breviter pubescentibus æneo-tinctis, fortiter punctatis, subtrilineatis. Long. 4.

Kirby, Fauna Bor. Am. 4, 135.

Eagle Harbor, Lake Superior, only two females were found. Differs from the preceding by the broader form and almost regularly rounded sides, as well as by the finer punctures of the thorax. From the following species it differs by the same characters and also by the pubescence of the thorax being as fine as that of the elytra.

4. *D. linearis*, elongata, testacea, capite thoraceque sæpe piceis, illo modice marginato confluent, hoc densissime punctato, pilis grossis ochreis dense vestito, lateribus angulatis postice oblique sinuatis, elytris

æneo-testaceis, fusco-æneo vel æneo-viridibus, confertim rugose punctatis margine testacco, tibiis posticis ad apicem, tarsisque nigricantibus. Long. 34—41.

Burm. Lamell. 2, 2nd, 74.

Melolontha linearis Gyllenhal, Schönherr, Synon. Ins. 3, 103.

'*Dichelonycha Backii* Kirby, Fauna Bor. Am.' † Burm. Lamell. 2, 2nd.

Middle States and Lake Superior. When the hair of the thorax has been removed, as is sometimes the case, this species may be known by the very dense, but not fine punctures of the thorax, the base of which is wider than the apex, and the sides angulated at the middle. There appears to be a variation in the form of the basal angles, sometimes they are subacute and moderately prominent, sometimes rectangular, and sometimes obtuse; they are never very acute and prominent as in *D. elongata*. It is possible that by comparing specimens from different localities several closely allied species here confounded together may be separated.

One female from Maryland has the posterior angles more prominent, and the elytra of a dull brownish bronze color. The thorax appears more coarsely punctured, but it is unsafe to propose a new species upon this single specimen.

5. *D. fulgida*, picea, elongata, capite thoraceque piceis vel piceo-rufis, illo tenuiter marginato confluentem, hoc fortius medio minus dense punctato, pilis grossis æneo-flavis dense vestito, lateribus subangulatis, postice oblique subsinuatis, angulis posticis subrectis, elytris fortiter punctatis, vix trilineatis, breviter pubescentibus, viridiæneis, vix lineatis, margine testaceis, antennis pedibusque flavis, tibiis tarsisque infuscatis. Long. 37.

Steilacoom, Washington Territory, Dr. Suckley. Allied closely to the preceding, but the thorax is less densely and more strongly punctured, less suddenly angulated on the sides, and less narrowed behind, and the reflexed margin of the clypeus is very narrow.

6. *D. Backii*, nigro-picea, elongata, capite confluentem punctato, fortius marginato, thorace fortiter sat dense punctato, spatio utrinque sublævi (dense fortius pubescente?) lateribus rotundatis subangulatis, angulis posticis obtusis, elytris læte viridiæneis, margine testaceo, rugose punctatis sublineatis, antennis pedibusque nigro piceis, his rufo-tinctis. Long: 33—39.

Kirby, Fauna Bor. Am. 4, 134, tab. 2, fig. 6.

North side of Lake Superior. Burmeister places this as synonymous with *D. linearis*; my specimens are however clearly different, not only by the dark colored antennæ, but by the more strongly margined clypeus, and by the more coarsely and less densely punctured thorax; on each side of the disc anteriorly, near the lateral fovea is an indistinct space which is less punctured; the sides are less angulated, and not at all sinuate behind. The specimens were found floating in the lake, and had lost nearly all the pubescence; from the appearance of what remains on the side of the thorax, I believe that the hair was coarse and probably dense as in *D. linearis*. Kirby does not mention this character, but it may have been lost in the alcohol in which the specimens were preserved; the hair of the under surface, being better protected, has been preserved in both his specimens and mine.

7. *D. fuscula*, elongata, rufo-testacea vel nigra, supra æqualiter fortius pallide pubescens, capite fortius confluent punctato, margine antico vix rotundato, thorace minus dense punctato, lateribus subangulatis, rotundatis, antrorsum paulo angustiore, angulis posticis obtusis, elytris nigro-piceis, ænescentibus, margine testaceo, dense rugose punctatis, antennis rufis. Long. 3—37.

Middle and Southern States. The legs vary with the body from yellowish red to nearly black, but are uniform in color; the pectus in paler specimens is somewhat fuscous.

8. *D. truncata*, elongata, nigro-picea, æqualiter dense fortius pallide pubescens, capite confluent punctato, margine reflexo testaceo, antice recte truncato, angulis haud rotundatis, thorace dense punctato et parce punctato, lateribus rotundatis obtuse angulatis, angulis posticis obtusis, elytris virescentibus margine testaceo, confertim fortius rugose punctatis, abdomine sæpe testaceo, antennis pedibusque flavo-testaceis. Long. 25.

Platte River, Kansas Territory. Easily known by the truncate clypeus with almost prominent angles.

9. *D. rotundata*, elongato-ovalis, picea, subænea, clypeo hemihexagono, fortiter punctato, anguste marginato, thorace latitudine duplo brevior, convexo disperse punctato, obsolete canaliculato, ante medium angustato, lateribus antice obliquis, postice cum basi fortiter rotundatis, angulis posticis omnino nullis, elytris fortius punctatis tenuiter pubescentibus, lineis parum distinctis. Long. 31.

One very dilapidated dead specimen found at Vallecitas, San Diego County, California. The oblique sides of the truncate clypeus, forming half of a hexagon, and the posteriorly very much rounded sides of the thorax will readily distinguish it.

II.

10. *D. valida*, elongata, nigro-picea, supra parcius, thorace fortius albo-pubescens, capite confluent punctato, vertice angulatim vage impresso, occipite sublævi, thorace inæqualiter grosse punctato hexagono, lateribus ante medium rotundatim fortiter angulatis, angulis posticis valde obtusis, canaliculato, versus latera paulo inæquali, elytris confertim rugose punctatis, fusco-æneis virescentibus, margine, ore antennis pedibusque piceo-testaceis, tarsis obscurioribus. Long. 55.

A female found by Mr. Joshua Child at San Francisco, California, was given me by Mr. S. S. Rathvon. It is very distinct by its large size and other characters. As in the next species the greatest breadth of the thorax is in front of the middle.

11. *D. albicollis*, elongata, picea vel piceo-testacea, supra fortius albo-pubescens, capite confluent punctato, clypeo testaceo, thorace longius pubescente fortius subinæqualiter punctato, hexagono, lateribus ante medium rotundatim fortius angulatis, angulis posticis valde obtusis, canaliculato, versus latera inæquali, elytris virescentibus margine testaceo, confertim rugose punctatis, lineis utrinque elevatis tribus subglabris, ore antennis pedibusque testaceis. Long. 44—5.

Burm. Lamell. 2, 2nd, 74.

Middle States and Lake Superior. Not common. The pubescence of the scutellum is very dense and white.

12. *D. sulcata*, elongata, nigro-picea, fortius albo-pubescens, capite confluent punctato, vertice angulatim vage impresso, occipite medio sublævi, clypeo margine testaceo, thorace cælato, profunde canali-

culato, partibus impressis grosse punctatis et pubescentibus, elevatis lævibus glabris, lateribus ante medium rotundatim valde angulatis, angulis posticis valde obtusis, elytris dense rugose punctatis sublineatis, fusco-æneis, margine, ore antennis pedibusque flavo-testaceis, tarsis, tibiaramque margine interno nigricante. Long. .43.

Sante Fe, New Mexico, Mr. Fendler. The impressions of the thorax, which are coarsely punctured and pubescent, are a deep dorsal groove, another interrupted groove each side, and some impressions about the sides. The scutelis densely pubescent as in the preceding.

13. *D. pusilla*, elongata nigro-picea, fortius minus dense albo-pubescent, margine et pygidio et subtus longius parce pilosa, capite dense punctulato et parce punctato, clypeo margine testaceo antice recte truncato, angulis vix rotundatis, thorace hexagono angulis omnibus obtusis, parce inæqualiter punctato, canaliculato, elytris fusco-æneis lineis tribus subglabris; antennis nigris, pedibus piceo-testaceis. Long. .27.

San Diego, California. So distinct from all the others as to need no further description. The size is about that of *D. truncata*, which it resembles in having the clypeus truncate, but the angles though rectangular are less marked.

8. LASIOPODES.

In this group I have comprised two genera, containing species of small size, living upon flowers. Although differing remarkably in appearance and characters, not less from each other than from all other genera of the tribe known to me, I have been induced to associate them together on account of the following characters, which they have in common.

The anterior coxæ are large, conical and protuberant; the abdomen is very small, and the sutures between the anterior segments are nearly effaced; the last segment is conical, free, and larger than usual. The parapleuræ are narrow. The claws are diverging, with a very short bisetose onychium; the posterior tibiæ are armed with two spurs, but the anterior tibiæ have no spur.

LASIOPUS Lec.

Clypeus rotundatus, valde concavus, ad apicem submarginatus; mentum parvum lineare; pedes postici incrassati; ungues simplices elongati.

Body oval, elongate convex, fringed at the sides and beneath, and on the legs with very long hairs. Head small, eyes large, hardly emarginate, clypeus rounded, deeply concave, slightly emarginate at tip, separated from the head by a deep transverse concave line. Mouth small, labrum and mandibles invisible; mentum small, narrow, not larger than the base of the maxillæ. Palpi slender. Antennæ 9-jointed; first and second joints thick, hairy; four following small; club three jointed, small. Thorax rounded on the sides, convex, narrower in front. Elytra elongate, convex, partly covering the pygidium. Legs strong, hairy; anterior tibiæ subtridentate; middle tibiæ conical, with a crown of spines externally at the middle, and two terminal

spurs; posterior thighs very large, posterior tibiæ like the middle ones, but much thicker. Tarsi twice as long as the tibiæ, slender, with verticillate hairs at the articulations; last joint with two long terminal hairs above; unguis long, slender, diverging onychium hardly visible, bisetose.

I have given to this genus an unpublished name proposed by Dejean for *Aclopus Erichson*, to which genus this seems to bear a remarkable resemblance in form. The labrum and mandibles are however entirely invisible. I regret that I cannot give the position of the abdominal stigmata, but conclude that they must be very much as in the next genus.

1. *L. ferrugineus*, valde elongatus ovalis, nitidus ferrugineus, capite punctato, clypeo parce punctato, thorace minus dense inæqualiter punctato, ad basin lævi, antice subcanaliculato, lateribus longe fimbriatis, elytris parce punctatis, punctis subseriatis extrorsum confusis, breviter parce pilosis, margine fimbriatis; subtus et pedibus parce longe pilosis. Long. .19.

Ringgold Barracks, Texas. We owe this most interesting addition to our fauna to the scientific industry of Mr. H. Haldeman. The genus will be readily recognized by the narrow oval body, fringed with long hairs, and by the long hairs of the legs, and the thickness of the posterior femora and tibiæ.

ONCERUS Lec.

Clypeus duplex; mentum trapezoideum barbatum; pedes postici incrassati; unguis fissi.

The only species of this genus known to me is the smallest of the tribe that I have seen, and presents such a curious assemblage of characters that I am at a loss which to select. The form might be compared to a *Hoplia*, oblong and more narrowed in front; the body is shining, sparsely hairy, especially beneath. The head is narrow with convex prominent eyes, the clypeus prolonged, flattened, parallel on the sides, rounded slightly at the apex and incised each side, with a deep transverse concave suture between the incisions; the frontal suture is straight and deep, running between the antennæ which are short; the first and second joints are thick and hairy; then follow four small joints, and then a small three-jointed club concave outwards; the mentum is large, flat, trapezoidal, wider in front, with long scattered hairs; the bases of the maxillæ are long, slender and prominent each side of the mentum; the maxillary palpi are slender, penultimate joint small, last joint elongate, slightly oval; labial with the last joint longer than the preceding, slightly oval. Thorax wider than the head, rounded on the sides, and gradually narrowed in front. Elytra a little wider than the base of the thorax, oblong, slightly flattened on the disc, with the sutural stria fine. Pygidium slightly exposed. Legs strong, hairy, anterior tibiæ subbidentate; middle tibiæ conical, moderately thick, with a crown of short spines at the middle externally, and two apical spurs. Posterior thighs very large, tibiæ thick conical, with a crown of spines externally about one-third from the tip, and two apical

spurs. Tarsi slender, longer than the tibiæ, with verticellate hairs; unguis diverging, armed with a tooth so long that they appear cleft; onychium short bisetose.

1. *O. floralis*, niger, nitidus, capite rude, thorace parce punctatis, hoc margine longe piloso, elytris picco-testaceis, fortiter disperse punctatis, breviter pallide pilosis, subtus longius parce pilosus. Long. ·13—·16.

Found at Vallecitas, San Diego Co., California in April, on flowers of a composite plant. I can find no sexual characters in the specimens collected. By examination I find the abdominal stigmata situated in the dorsal inflexed portion of the ventral segments; the last pair I cannot detect, since the margins of the ventral segments are thin and reflexed above the dorsal surface, so as to produce a concave surface, in which the posterior pairs are concealed.

9. HOPLIÆ.

This division is known among those having prominent conical anterior coxæ by the ventral segments being connate, the sixth indistinct or even invisible; by the large parapleuræ; the tibiæ without terminal spurs or at most with a single very small one, and by the unguis being chelate (*i. e.* capable of being folded against the last joint of the tarsi,) not divergent, unequal and without any onychium.

In this division, though not in any American form, is found a modification of ligula not seen or only exceptionally in any of the preceding tribes; the ligula is membranous, and not connate with the mentum: by this character, found in *Pachynemus* and allied genera, the passage to the following group is most naturally made.

The only genus found in our country, and in fact the only one found outside of Southern Africa, is

HOPLIA Illiger.

A. Unguis minor anticus et medius duplo vel plus duplo brevior.

1. *H. laticollis*, oblonga, latiuscula, picea opaca, supra æqualiter parcius, subtus et pygidio densius pallide squamulosa, et parce brevissime pubescens, thorace latitudine brevior, lateribus obliquis rotundatis fimbriatis, parce breviter pubescente, elytris sordide testaceis subcostatis, unguibus anterioribus fissis, minoribus plus duplo brevioribus, postico integro. Long. ·30—·33.

New Mexico and Kansas; the anterior tibiæ, as in the others of this group, have two large teeth and a small one above, which is sometimes indistinct. The antennæ as in the other species are 9-jointed. The scales of the elytra are narrower than those of the under surface.

2. *H. Oregona*, oblonga, latiuscula, nigra, breviter pubescens, subtus et pygidio argenteo-squamosa, supra parcius albo-squamosa, thorace latitudine brevior, lateribus obliquis rotundatis fimbriatis, elytris thorace vix latioribus obscure ferrugineis, bistriatis, unguibus anterioribus . . . , postico integro. Long. ·27.

One specimen collected in Oregon, by Dr. J. K. Townsend. Differs from the pre-

ceding by the silvery scales of the under surface and pygidium, and by the stronger pubescence. The thorax is not as wide.

3. *H. convexula*, oblonga, picea, subtus et pygidio parce pubescens, et subargenteo-squamosa, supra parce breviter pubescens, pallide squamosa, thorace latitudine paulo brevior magis convexo, lateribus magis rotundatis, elytris haud costatis; unguibus anterioribus fassis, medio interno plus duplo breviora, postico integro. Long. .24.

One specimen, Sacramento, Mr. Wittick. Resembles the next species in the very small size of the middle inner claw, but differs by the more convex rounded thorax and by the pubescence, which is no longer on the thorax than on the elytra.

4. *H. pubicollis*, oblonga, nigra, subtus et pygidio parce pubescens, subargenteo-squamosa, supra pallide squamosa, capite thoraceque longius pubescentibus, hoc latitudine paulo breviora, lateribus obliquis rotundatis fimbriatis, elytris piceis vix breviter pubescentibus haud costatis, unguibus anterioribus fassis, interno medio plus duplo breviora, postico integro. Long. .28.

Of California, Mr. J. Child. Of the same form as the preceding, but differing by the elytra being free from lines or elevations, and by the longer hair of the thorax.

5. *H. callipyge*, oblonga, nigra, subtus et pygidio parce pubescens, dense argenteo-squamosa, supra pube erecta in thorace longiore sat dense vestita, pallide squamulosa, nigro-punctata, thorace convexiusculo, latitudine parum breviora, lateribus fimbriatis obliquis rotundatis, elytris castaneis, costa dorsali parum notata, postice paulo retusis; unguibus anterioribus fassis, minoribus vix duplo brevioribus, postico integro. Long. .30—34.

California, Mr. J. Wittick. Of the same form as the preceding, but distinguished by the pubescent elytra being slightly retuse behind, and concave towards the suture, and by the splendid silvery lustre of the pygidium and under surface. In one specimen the scales of the thorax are more condensed along the middle and sides.

6. *H. debilis*, elongato-oblonga nigra, squamis angustis albis undique minus dense conspersa, parce cinereo-pubescentibus, thorace pilis longioribus erectis vestito, latitudine vix breviora, lateribus rotundatis haud obliquis, unguiculis anterioribus fassis, postico integro. Long. .25.

One specimen found in Pennsylvania was kindly sent me by Dr. Melsheimer. Of the size and appearance of *H. convexula*, but more elongate, with the sides of the thorax less rounded. The thorax is hardly distinctly narrowed in front, except in consequence of the gradual curvature of the sides, which thus do not appear oblique, nor at all angulated. The elytra are at base wider than the base of the thorax, and somewhat retuse near the apex. The middle claws are wanting, the outer one of the anterior tarsi is one third shorter than the inner one.

7. *H. modesta*, oblonga, nigra, vel testacea, capite thoraceque fuscis, subtus et pygidio parce pubescens, argenteo-squamosa, capite thoraceque pube erecta vestitis, hoc pallide squamuloso, planiusculo, lateribus obliquis parum rotundatis, elytris pilis fusco-pallidis depressis lanceolatis minus dense vestitis, obsolete costatis, sæpe testaceis: unguibus anterioribus fassis, minoribus duplo brevioribus, postico fasso. Long. .24—31.

!Hald. Proc. Acad. Nat. Sc. 1, 304.

Hoplia singularis Burm. Lamell. 2, 102.

? *Hoplia menticola* Proc. Acad. Nat. Sc. 2. 141.

Middle and Southern States; varies much in size and color and also slightly in sculpture, the lines on the elytra being sometimes very faint, and at others quite strong; the flattened thorax with oblique but slightly rounded sides, the silvery scales of the under surface, and the hair-like scales of the elytra readily distinguished it from all others.

B. *Unguis minor anticus et medius paulo, vix sesqui brevior.*

8. *H. tristis*, oblonga, nigra, nitida, undique cinereo-pubescentis, thorace longius pubescente, latitudine paulo brevior, lateribus obliquis, rotundatis, pone medium paulo compressis, elytris subcostatis, pygidio et subtus lanceolato-albo-squamulosa, tibiis anticis subtridentatis, unguibus anterioribus fissis, postico integro. Long. 31.

Mels. Proc. Acad. Nat. Sc. Philadelphia, 2, 141: Burm. Lamell. 2, 2nd, 486.

One specimen from New York. Differs from all the rest by the total absence of scales on the upper surface. The form is rather more similar to the next than to *H. mucorea* with which Burmeister compares it. The anterior tibiae have a small tooth above the two large ones.

9. *H. trifasciata*, oblonga, fusca, subtus, thorace et pygidio squamis subargenteis dense tecta, capite thoraceque pube erecta vestitis, hoc antrorsum angustato latitudine brevior, lateribus subangulatis, elytris castaneis, parce breviter pubescentibus, squamulis pallidis, inaequaliter vestitis, fasciis transversis tribus parum distinctis formantibus, tibiis anticis subtridentatis, unguibus anterioribus fissis, postico integro. Long. 33—44.

Say, Journ. Acad. Nat. Sc. 3, 200.

? *Hoplia primaria* Burm. Lamell. 2, 192.

Hoplia helvola Melshimer, Proc. Acad. Nat. Sc. Phil. 2, 142.

Newfoundland, Lake Superior, New York, Georgia, Illinois. Varies somewhat in characters, the elytra being sometimes almost free from scales, at others almost uniformly clothed with them. Such a specimen would appear to be described by Burmeister, and such a one is now before me; the upper tooth of the anterior tibiae is almost obliterated in it, and might readily be overlooked, as seems to have been done by Burmeister when he described them as bidentate. I have seen no black specimens like the male described by Say.

10. *H. limbata*, longiuscula, atra, subtus et pygidio late argenteo-squamosa, supra breviter pubescentis, griseo parce squamosa, thorace pilis paucis longioribus intermixtis, latitudine haud brevior, utrinque angustato, lateribus fortius angulatis, late dense albo-squamosis, subargenteis, lineaque postica dorsali alba signato, elytris thorace latioribus, basi, margine externo pone basin, suturaque ad medium et ad apicem dilatata albosquamosis, subargenteis, tibiis anticis bidentatis, unguibus omnibus fissis. Long. 34.

Two specimens found at Evansville, Indiana. The dilatation of the white suture at the middle forms an oblique fascia reaching two-thirds way to the suture; the posterior dilatation is a spot connected both with the suture and tip. The thorax is hardly narrower at tip than at base. The legs are black, with the thighs sparsely sprinkled with silvery scales.

11. *H. mucorea*, elongata, nigra, subtus et pygidio sordide albo-squamosa, supra virescente-ochreo-squamosa, capite vix squamoso thoraceque haud dense longe pilosis, hoc latitudine haud brevior, antice angustiore, lateribus fortius angulatis, convexiusculo, elytris thorace haud latioribus, tibiis anticis bidentatis, unguibus anterioribus fissis, postico Long. .28.

Burmeister, Lamell. 2, 193; *ibid.* 2, 2nd, 486, (synon. exclusa).

Melolontha mucorea Germ. Ins. Nov. 129.

Southern States. Readily known by the more elongate and parallel form. The posterior tarsi are broken, so that I do not know whether the claw is simple or bifid. I have excluded *H. helvola*, as a synonym, since the description mentions linear scales on the elytra; it seems to me rather to be the variety of *H. trifasciata* with almost uniformly colored elytra, and this view accords with the measurements given.

H. monticola, Mels. Proc. Acad. Nat. Sc. Phila. 2, 141, I have failed to identify. The dimensions given are $3\frac{1}{2}$ lines by $1\frac{1}{4}$, which are the proportions of *H. mucorea*. From notes sent me by Dr. Melsheimer, it would seem to differ from both that species and *H. modesta*. The color is brownish testaceous, the head and thorax are darker, the latter clothed with short rufous hairs and sprinkled towards the sides with whitish scales, 'the sides are somewhat dilated beyond the middle, slightly incurved posteriorly, sub-rectilinear from its widest portion to the tip; elytra hardly wider at the base than the base of thorax', more than twice as long as the thorax, clothed with short rufous hairs, two obsolete longitudinal raised lines near the middle, pygidium clothed like the elytra, venter covered with small whitish scaly hairs. 'Anterior tibiæ bidentate; inner middle claw less than one half the size of the outer one: posterior claw entire.' Pennsylvania, in Adams County.

Should the last character be erroneous, it might be referred to the light-colored specimens mentioned under *H. modesta*.

10. GLAPHYRI.

A group placed by Erichson among the laparostict Scarabæidæ, but in which, as Burmeister has shewn, the position of the abdominal stigmata ceases to be of value as a primary character. As a group of Melolonthidæ, this may be readily recognized by the labrum being at the end of the clypeus, and in the same plane; by the projecting mandibles, the wide parapleuræ, and the not connate six-jointed abdomen. The ungues are slender, equal and diverging. The only genus found in the United States is *Lichnanthe*, which differs from *Amphicoma* chiefly by the deeply emarginate labrum.

LICHNANTHE Burm.

1. *L. vulpina*, nigra, thorace, scutello, pygidio pectoreque fulvo longissime pilosis, elytris æneo-testaceis punctatis, breviter nigro-pubescentibus, postice valde dehiscentibus. Long. .52—67.

Burmeister, Lamell. 2, 27.

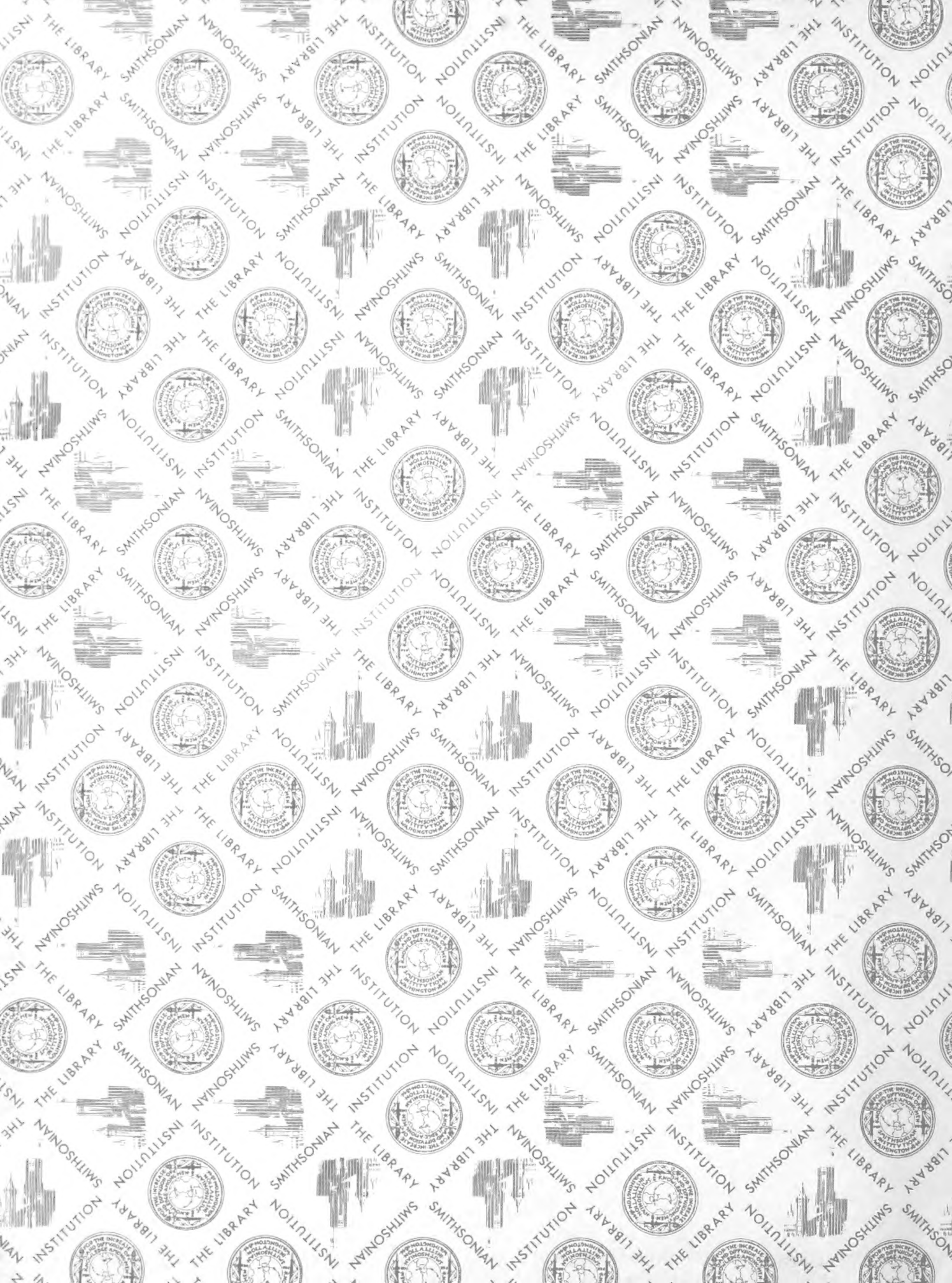
Amphicoma vulpina Hentz, Journ. Acad. Nat. Sc. Phila. 5, tab. 13, fig. 3.

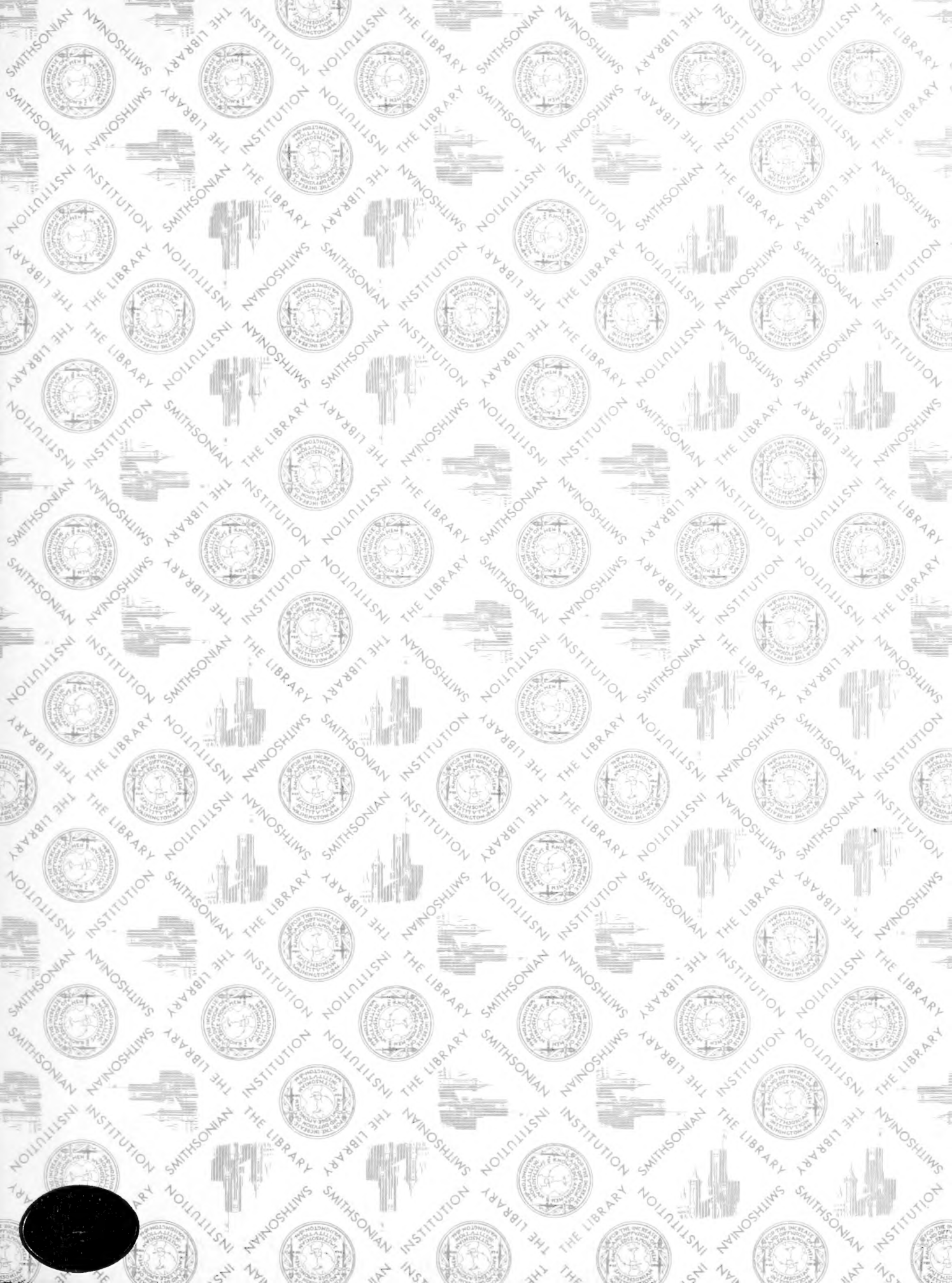
Massachusetts and New Hampshire; Dr. T. W. Harris. The female is much less hairy, and has the club of the antennæ shorter and obtuse. The elytra diverge very strongly along the suture, and are obtusely rounded at tip.

2. *L. lupina*, obscure viridi-ænea, punctata, thorace elytrisq̄ æneo-piceis breviter pubescentibus, thoracis lateribus pectoreque longe haud dense cinereo-pilosis, elytris pallidioribus haud dehiscens, subtus cinereo-pilosa. Long. 36—43.

Sea shore near New York; not common. Found also in Pennsylvania and New Jersey. Much smaller than the preceding, and very distinct by the absence of the long yellow hair, and by the elytra meeting along the suture. The abdomen and the club of the antennæ are as in the preceding.

It is stated by Doubleday that he has seen specimens of this genus from Oregon; it is difficult to believe that either of the species here described have so extensive a range.





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