

A monograph of the species of the sub-families EUCNEMINÆ, CEROPHYTINÆ and PEROTHOPINÆ inhabiting the United States.

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After the grand monograph of the Eucnemides completed by de Bonvouloir, in 1875, the present essay seems almost unnecessary, but to the vast majority of our students the book is inaccessible.

As might have been expected a small number of our species remained unknown to de Bonvouloir, which are in their correct places in the following pages, and in addition four have been described since, while ten new ones, besides, have been collected.

Regarding the status of the species treated there has been some difference of opinion. In the early days of the science the Eucnemides were considered Elateridæ and a number described as Elater, later in the posthumous work of Latreille we find them recognized as a tribe of Elateridæ. In a synopsis of the Eucnemides (Proc. Acad. 1852, p. 45) Dr. LeConte uses the following words: "Although many entomologists consider that the small group of Coleopterous insects herein treated constitute a peculiar family I am under the necessity, after very careful examination, of viewing them as a mere section of the extensive natural family of Elateridæ, and no more entitled to a distinct place in the series than any other group of genera in that family." The same ideas were repeated the next year in his "Revision of the Elateridæ" (Trans. Am. Philos. Soc. x).

It was not until 1857 that Lacordaire recognized the Eucnemidæ and Elateridæ as families of equivalent standing with the Buprestidæ. This view was finally adopted by Dr. LeConte in the first edition of the "Classification," and de Bonvouloir follows in accord excluding, however, Perothops from the Eucnemidæ as a troublesome element without definitely assigning it a place.

Realizing these difficulties it was suggested by me (Trans. Am. Ent. Soc. vii, 1879, p. xxi) that Cerophytum and Perothops should be isolated, and that the term Elateridæ should be so extended as to embrace the aberrant forms, those to be considered sub-families. The relations of these various series to each other are fully explained in the "Classification" of the Coleoptera of N. A. edit. 2, and need not here be dwelt upon.

The present essay purposes to deal with the three sub-families named, the Cebrioninæ having been already treated, and the Elaterinæ is of sufficient magnitude to require its being dealt with in a fragmentary manner, as has been begun in the last few years.

EUCNEMINÆ.

Head convex, mouth inferior, labrum absent, or very slightly visible; clypeus more or less inflexed, narrowed at its base by the insertion of the antennæ; prothorax movable, but less so than in the Elaterinæ; prosternum without lobe in front; hind coxal plates laminate.

The Eucneminae may be divided into two tribes in the following manner:

Antennæ moderately distant; last joint of maxillary palpi acute; prosternal sutures and side margin parallel..... **Melasini.**

Antennæ approximate; last joint of maxillary palpi dilated; prosternal sutures and margin convergent..... **Eucnemini.**

Tribe MELASINI.

In this tribe the head is rather broad and less deeply inserted, so that the eyes are free and the mouth not applied against the prosternum.

Two genera are known.

Tibiæ broad, compressed..... **Melasis.**

Tibiæ slender..... **Tharops.**

MELASIS Oliv.

Form elongate, subcylindrical; antennæ not passing the middle of the thorax, distinctly pectinate ♂ or feebly so ♀; head rather large, moderately convex; clypeus feebly narrowed at base, apex emarginate at middle and sinuate each side; prothorax wider than long, anterior angles obtuse, the posterior acute and slightly prominent; lateral margin entire, but not prominent; prosternal sutures distant and parallel, the lateral marginal lines also nearly parallel with them; no antennal grooves on the under side of the thorax; metasternal episterna covered in front by the elytra, visible posteriorly, epimera concealed; hind coxal plates very broad internally, narrow externally; last ventral segment tubularly prolonged, with an ante-apical elevation, segments one to four slightly elevated at the middle of the posterior margin; legs rather short, the femora stout, the tibiæ flat and rather broad, terminated by a single spur; tarsi robust, rapidly attenuating, the first joint as long as the next three, all joints simple, claws simple.

Melasis and Tharops are considered by Bonvouloir to form a group apart from the other Eucnemides characterized by the parallel pros-

ternal sutures and the lateral margin of the thorax. In all the specimens of *Melasis* which I have examined I can find but one tibial spur, a character which seems to have escaped mention.

Two species are known to me from our fauna.

Third joint of antennæ ♂ nearly twice as wide as long, the fourth nearly three times; color piceous, or nearly black.**pectinicornis**.

Third joint of antennæ ♂ distinctly longer than wide, the fourth very little wider than long; elytra and antennæ rufo-ferruginous.....**rufipennis**.

As males only of the latter species are known to me I am unable to give characters separating the females.

M. pectinicornis Mels.—Form elongate, subcylindrical, piceous or black, opaque, sparsely clothed with extremely short grayish pubescence; antennæ barely attaining the middle of the thorax, brown or ferruginous, the first joint piceous, joints four to ten strongly ♂, or feebly pectinate ♀; eyes small, round, feebly convex; head coarsely, closely and roughly punctured, a slight impression of the vertex, more distinct in the male; prothorax broader than long, slightly narrowed posteriorly, the sides straight at middle, broadly ♂ or feebly ♀ arcuate at the front angle, rather deeply sinuate in front of the hind angles, which are acute and divergent ♂, or scarcely perceptibly sinuate, the angles not divergent ♀, disc convex, a distinct median impressed line deeper in the ♂, the surface coarsely punctured, with elevated granules; elytra slightly narrowing posteriorly, their apices acute, surface with rather deep punctured striæ, the intervals slightly convex, densely granulate and rugose; body beneath densely punctate; legs piceous, tibiæ and tarsi paler. Length .24 – .32 inch; 6 – 8 mm.

In the female the thorax is much more deeply emarginate in front and the head relatively smaller, the surface less rugose and the granulations of the thorax more distant.

Occurs from Pennsylvania to Texas, but very rare. For an opportunity of examining the female I am indebted to Mr. H. Ulke.

M. rufipennis n. sp.—Form elongate, subcylindrical, slightly narrowed behind, piceous, subopaque; pubescence fulvous, scarcely visible, elytra and antennæ rufo-ferruginous; antennæ attaining the middle of the thorax, the third joint nearly twice as long as the visible (in front) portion of the second, joint four triangular, broader than long, five to ten gradually more prolonged anteriorly, but less so than in *pectinicornis*; eyes small, round, feebly convex; head densely and rather coarsely punctate, not rough; clypeus slightly concave, front sometimes with a slight transverse carina; thorax a little wider than long, slightly narrower behind, sides straight, slightly arcuate at the apical angles and with a feeble sinuation in front of the hind angles, which are acute and slightly divergent; disc moderately convex, densely punctured and roughly granulate, with a narrow median smooth line very distinctly impressed posteriorly; elytra gradually narrowed posteriorly, the apices acute, disc deeply striate with coarse punctures, the intervals convex, densely punctured, but more shining than above; legs piceous, tibiæ and tarsi brown. Length .36 – .42 inch; 9 – 19.5 mm.

This species is evidently closely allied to *rufipalpis* Chev. from Mexico. The color is different, but this may be an accident, although I have seen three specimens from different localities taken in different years, all alike. In one specimen before me the transverse carina of the front is slightly distinct, in the other absent. The striæ of the elytra are coarsely punctured.

Occurs in Nevada and Washington Territory.

THAROPS Cast.

Form slender, subcylindrical, more or less narrowed posteriorly; antennæ slightly passing the hind angles of the thorax, flabellate from the fourth joint ♂; head moderately convex; eyes round, entire; clypeus slightly narrower at base, apex bisinuate; prothorax a little longer than wide, lateral margin entire; scutellum oval, truncate at tip; elytra striate, not entirely covering the abdomen; prosternal sutures straight, very nearly parallel with the lateral margin, the propleuræ not excavate for the antennæ; metasternal episterna very narrow in front, broader posteriorly, the epimera visible; posterior coxæ gradually wider internally, the posterior margin internally, truncate; legs moderate, tibiæ slender, tarsi filiform, the first joint as long as the next four, the fourth small and simple; claws simple.

This genus forms with *Melasis* a small group differing from the other members of the *Eucneminae* in having the prosternal sutures and lateral margin of the thorax parallel, the two genera differing at first sight in the form of the tibiæ.

Two species are known in our fauna.

Elytra with inconspicuous pubescence.....**ruficornis.**

Elytra with dense silken pubescence forming a distinct design.....**nubila.**

T. ruficornis Say.—Form subcylindrical, slightly narrower posteriorly, piceous black, elytra variable in color, usually with an elongate, triangular, sutural, yellowish space, surface very inconspicuously pubescent; antennæ not passing the hind angles of the thorax, rufo-ferruginous; head coarsely and densely punctured, front above the clypeus slightly depressed ♂; clypeus narrowed at base, not wider than the distance to the eyes; thorax longer than wide, sides nearly parallel, slightly arcuate near the front angles, hind angles short, not carinate; disc moderately convex, median line usually impressed, surface coarsely, moderately densely punctured; elytra striate, intervals slightly convex, moderately densely, roughly punctured; prothorax beneath rather coarsely, but not densely punctured; metasternum more densely; abdomen more finely and densely punctured, last ventral segment acute at tip; legs rufo-ferruginous. Length .14 - .32 inch; 3.5 - 8 mm.

Male.—Antennæ rufo-ferruginous, first joint rather robust, second small, partly concealed, third as long as the three following joints, joints four to ten short, each, however, gradually longer and narrower, furnished with a branch as long as the entire antennæ, eleventh as long as the branch of the tenth, but stouter; the middle of the posterior margins of the third and fourth ventral segments slightly elevated in a mucro.

Female.—Antennæ rufo-ferruginous, the basal joint sometimes darker; first joint stout, second small, partly concealed, third as long as the next two, fourth triangular, longer than the fifth, joints five to ten triangular, a little wider than the fourth, subequal in length, but gradually wider, eleventh oval, nearly as long as the next two; last ventral segment acute at tip, penultimate segment elevated at middle of posterior margin in a distinct mucro.

The males are usually smaller and more slender than the females, and have often a slight transverse impression of the middle of the thorax.

The median line of the thorax is a very variable character, often the line is rather deeply impressed posteriorly and ends abruptly, it may also continue slightly to the apical margin or be entirely wanting.

The elytra are variable in coloration. I have a specimen entirely piceous, another with a small spot at base on each side of the scutellum, from this the yellow space becomes gradually longer and may reach nearly to the apex.

The male does not seem to have been known to Bonvouloir, and very few of the other sex. I am entirely unable to separate two species in the large material I have examined. The males are much less frequent than the females.

Occurs from Canada and New Hampshire to Missouri and Virginia.

T. nubila Bonv.—Form elongate cylindrical, scarcely narrower behind, entirely black, moderately densely clothed with sericeous fine pubescence forming a distinct design; antennæ (rufo-testaceous?) wanting; head rugosely punctured; thorax as long as wide, sides straight posteriorly, slightly arcuate in front, disc convex a distinct depression of the median line posteriorly, very densely and finely punctate, surface in front marked with two rings of cinereous pubescence; elytra striate, striæ finely punctured, the intervals finely granulate toward the base, and slightly rugose posteriorly; covered with dense ashy-gray pubescence, forming a transverse band at middle, which is narrower at the suture, oblique each side in front, the apical fourth also densely pubescent with a small portion of the apex uncovered; under side of body entirely black, inner side of the posterior coxæ and legs ferruginous. Length .20 inch; 5 mm.

This species I have never seen. It is known to me by the description and figure given by Bonvouloir and a drawing made by Major LeConte from the same specimen.

The only specimen known was collected more than fifty years ago by Major LeConte in Northern Georgia and sent to Count Dejean.

Tribe EUCNEMINI.

The head is not very broad, the mouth resting against the anterior margin of the prosternum, the eyes at least in contact with the thorax often partly concealed.

The different genera present so many modifications of structure, while preserving the same general type, that it is unnecessary here to deal more fully with them as they more properly belong to the generic descriptions.

This tribe is the equivalent of the *Eucnemites propres* as defined by de Bonvouloir, and contains eighty-seven genera, twenty of which are represented in our fauna. Having less material to deal with than he, I have been enabled to modify the table of genera in such a way as to use characters more readily seen and to avoid exceptional cases. For the latter reason I have been compelled to avoid the use of the coxal plates near the beginning of the table, inasmuch as two species of *Microrhagus* have parallel coxal plates and might be supposed to belong to *Hylochares*.

The characters used in the following table seem not to require special explanation, in case of doubt reference should be made to the genera themselves.

Thorax with antennal grooves usually sharply limited, close to the lateral margin.....	2.
Thorax without <i>marginal</i> antennal grooves.....	8.
2.—Tarsi with joints 2-4 lobed beneath.....	Dendrocharis.
Tarsi with the fourth joint, at most, slightly lobed	3.
3.—Prosternal sutures arcuate.....	Stethon.
Prosternal sutures straight.....	4.
4.—Antennal groove continuing directly from the thorax to the head.....	5.
Antennal groove more or less interrupted or narrowed by the eyes.....	7.
5.—Metasternum with a fine groove, limited by finely elevated lines, prolonged backward from the outer side of the middle coxæ; propleural triangle small.....	Eucnemis.
Metasternum without groove	6.
6.—Antennal groove of thorax wide, at least equal to half the propleural triangle, usually wider behind	Deltometopus.
Antennal groove narrow, not more than a fourth as wide as the propleural triangle, not wider behind	Dromæolus.
7.—Antennæ slender, fourth joint of tarsi excavate-emarginate and slightly lobed beneath.....	Fornax.
Antennæ short, clavate, fourth joint of tarsi simple....	Phænocerus.
8.—Lateral margin of thorax formed by two finely elevated lines, the one starting from the anterior margin and prolonged backward, the other from the hind angles becoming inferior; antennal grooves juxta-sutural.....	9.
Lateral margin of thorax single, sometimes nearly entirely obliterated; under side of prothorax without antennal grooves, at most a faint longitudinal depression in the triangle	10.
9.—Juxta-sutural groove very short, merely slightly indicated in front.	Adelothyreus.

Juxta-sutural groove entire.

Antennæ with second joint alone small.....**Microrhagus.**

Antennæ with joints two and three moniliform.

Entomophthalmus.

10.—Posterior coxal plates parallel or wider externally.....11.

Posterior coxal plates narrower externally.....12.

11.—Antennæ slender, filiform.

Third joint not longer than second.....**Xylobius.**

Third joint much longer than second.....**Hylochaeres.**

Antennæ bi-serrate ♀, or bi-pectinate ♂.....**Sarpedon.**

12.—Mandibles stout, rugose.....13.

Mandibles slender, not rugose.....14.

13.—Last ventral segment prolonged in a point.....**Nematodes.**

Last ventral segment obtuse at tip.....**Hypocoelus.**

14.—Prosternal sutures straight; lateral margin of thorax distinct.....15.

Prosternal sutures arcuate; lateral margin almost obliterated.....17.

15.—Clypeus very deeply sinuate each side.....**Schizophilus.**

Clypeus regularly arcuate in front.....16.

16.—Coxal plates suddenly broader internally; last four joints of antennæ abruptly longer.....**Epiphanis.**

Coxal plates gradually broader internally.

Last three joints of antennæ abruptly longer.....**Phlegon.**

Outer joints of antennæ shorter.....**Cryptostoma.**

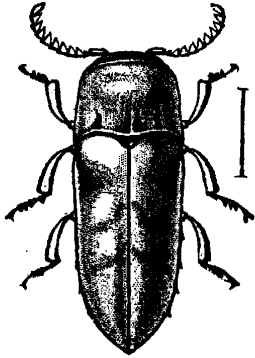
17.—Clypeus arcuate in front; coxal plates abruptly wider at inner third; antennæ with joints 4-10 moniliform.....**Anelastes.**

DENDROCHARIS Guérin.

Form cylindrical, rather robust; antennæ rather short, first joint moderately elongate, second very short, third longer, joints four to ten strongly dentate, eleventh oval, acute; head large, deeply inserted, eyes slightly emarginate; clypeus very little narrowed at base; prothorax wider than long, lateral marginal line entire; prosternal sutures straight, propleural triangle wider than long, with a deep and well defined groove to receive the antennæ along its outer border; metasternum with an oblique groove on each side beginning at the posterior margin of the middle coxæ directed obliquely backward and to the outer side; episterna distinctly wider behind, the epimera not visible; posterior coxal plates broader externally; legs moderately robust, the tibiæ broader toward the tip; posterior tarsi shorter than the tibia, the first joint small, equal to the second, joints 2-3-4 each with a rather long membranous lobe beneath, the fourth not dilated nor enlarged, last joint as long as the preceding three; claws slightly broader at base.

Regarding this genus Bonvouloir very justly remarks that it presents so many strange characters that it is difficult to assign it a place. In the genera *Gastraulacus* and *Temnillus* the same metasternal grooves are observed, but the structure of the tarsi is similar to that of *Agastocerus* and *Galba*. A certain relationship also with *Dromæolus* must not be lost sight of.

D. flavicornis Guérin.—Form cylindrical, moderately robust, attenuate at posterior third only, dark brown, opaque, moderately densely clothed with



yellowish cinereous pubescence; antennæ yellowish in color, scarcely passing the hind angles of the thorax; head densely roughly punctured, front rather flat, a distinct rounded depression between the bases of the antennæ; clypeus very little narrower at base, the anterior border truncate at middle; thorax broader than long, sides nearly straight, very little narrower in front, slightly arcuate at the anterior angles, disc moderately convex, with a slightly marked line at the middle of the base and on each side a short oblique impressed line, surface rather densely rugose; elytra narrower at apical third, without traces of striæ, but with feeble traces of oblique impressions, surface densely rugose, but more finely than the thorax; prothorax beneath densely rugose,

the metasternum and abdomen less coarsely rugose; last ventral segment compressed on each side terminating in an obtuse point. Length .32-.48 inch; 8-12 mm.

The only specimen I have ever seen of this species is in the cabinet of Dr. LeConte, obtained by him from some European collection. It seems to be excessively close to *bombycina* found in Columbia, S. A., and this in conjunction with the fact that forty-two years have elapsed since its description without others having been found, makes me look upon the species as rather doubtful.

Occurs at Savannah (Bonvouloir).

STETHON Lec.

Form cylindrical, rather robust, slightly narrower behind; antennæ very little longer than the head and thorax, compressed, differing in the two species in the proportions of the joints; head convex, deeply inserted; clypeus very little narrowed at base, much broader than the distance to the eyes, apical margin truncate, or feebly emarginate; prothorax wider than long; elytra parallel, narrowed at apical fourth; prosternum rather short in front of the coxæ, the sutures deeply impressed, distinctly arcuate (*pectorosus*), or very feebly arcuate (*errans*), propleural triangle nearly equilateral, the antennal grooves marginal, deep, narrow, closed behind and with parallel sides; metasternal episterna very narrow, parallel; a slight longitudinal impression beginning at the outer side of the coxæ; hind coxal plates broad and dilated internally; legs moderate, tarsi filiform, the first joint as long or longer than the next four, fourth joint simple; claws simple; last ventral segment more or less prolonged at apex.

With the typical species (*pectorosus*) above there would be no difficulty in easily distinguishing the genus from almost every other in the Eucnemine series by the strongly arcuate prosternal sutures, but the second species shows a strong tendency to revert to the form usual in the series. Excluding the prosternal sutures from considera-

tion the genus is closely related to *Dromaeolus*, from which it differs in the simple tarsi and very broad clypeal base. The eyes do not narrow the antennal groove.

S. pectorosus Lec.—Form robust, cylindrical, slightly narrower behind, brown or piceous, subopaque, pubescence extremely short and sparse; antennæ not extending beyond the hind angles of the thorax, flattened, first joint stout, as long as the next three, second small, partly concealed, third one and a half times the length of the fourth, joints 4–10 gradually very little shorter, the outer joints a little wider than long, eleventh oval longer than the tenth; head convex, coarsely and densely punctured; clypeus twice as wide at base as the distance to the eyes, apex very slightly emarginate; thorax a little longer than wide, sides arcuate in front, straight and parallel posteriorly, hind angles rather obtuse, not carinate, a slight depression along the lateral margin, disc convex, sometimes slightly flattened along the middle with a shallow, but broad depression deeper posteriorly and sometimes smoother, surface densely and rather rugosely punctured; elytra striate, the intervals convex in their entire length, densely rugosely punctured; prosternum coarsely but very sparsely punctured, the triangle more coarsely and densely; metasternum coarsely, but sparsely punctured; coxal plates and abdomen more finely and densely; hind tarsi with the first joint as long as the next four. Length .30–.32 inch; 7.5–8 mm.

As observed by Bonvouloir this species has considerable resemblance in form and sculpture to *Hylochares nigricornis*.

Occurs in Ohio, Illinois and Missouri. A specimen in my cabinet was collected under the bark of Shellbark Hickory.

S. errans n. sp.—Form cylindrical, slightly narrower at apical third, color ferruginous brown, feebly shining, very distinctly clothed with short fulvous pubescence; antennæ as long as the hind angles of the thorax, the first joint stout, as long as the next three, second small partly concealed, but as long as the fourth, third as long as the next two and more than twice as long as wide, joints 4–10 subequal in length, but gradually more slender, eleventh nearly as long as the preceding two; head convex, densely punctured, a distinct carina extending from the base of the clypeus to the occiput; clypeus very little narrowed at base, not twice as wide as the distance to the eyes, apical margin truncate; thorax a little wider than long, sides arcuately narrowed in front, very slightly arcuate posteriorly, the hind angles short, a distinct submarginal groove; disc convex, very slightly flattened at middle, a very vague median depressed line, surface densely punctured, on the deflexed sides more sparsely; elytra vaguely substriate, the surface moderately densely subrugosely punctured; prothorax beneath coarsely, but not densely punctured, the triangle more opaque; metasternum coarsely not densely punctured; abdomen more finely and densely; first joint of hind tarsi three-fourths the length of the tibia and longer than the next four joints. Length .28 inch; 7 mm.

The characters in which this species differs from *pectorosus* might almost be considered generic but I prefer to consider them allowable modifications within the genus rather than to increase the already

considerable number of feebly separated genera. The modifications alluded to are in the very feebly arcuate prosternal sutures, the antennæ and the hind tarsi. In form and color this species resembles *Microrhagus impressicollis*, but the pubescence is more evident.

One specimen, Florida.

EUCNEMIS Ahrens.

Form oblong, moderately robust; antennæ passing very little the hind angles of the thorax, first joint moderately long, second small, third longer than the fourth, joints 4-10 transverse, dentate, the eleventh longer, oval and acute at tip; head deeply inserted, eyes oval, entire, not narrowing the antennal groove; clypeus distinctly narrowed at base (*capucina*), or scarcely so (*americana*), strongly inflexed, the apical margin distinctly sinuate at middle (*capucina*), or broadly emarginate (*americana*), front carinate; prothorax broader than long, narrower in front, hind angles slightly prolonged, not carinate; elytra obsoletely substriate; prosternal sutures straight, but deeply impressed; propleural triangle broad, the outer side a little longer than the basal, the antennal groove deep, limited externally by the margin of the thorax; metasternum with an impressed line beginning at the outer side of the middle coxæ and extending directly backward nearly to the posterior margin and becoming gradually finer, another elevated line extends from the humeral angle of the metasternum and is directed obliquely backwards and inwards; metasternal episterna narrow and parallel; posterior coxal plates triangularly dilated; legs rather short, tarsi slender, the first joint of the posterior nearly as long as the next four together, the fourth joint simple; claws simple.

For the first time this genus as restricted by Bonvouloir is indicated in our fauna. It resembles *Deltometopus* and *Dromæolus* in many of its characters, but may be distinguished from either by the metasternal characters and slender tarsi.

One species is known in our fauna.

E. americana n. sp.—Piceous black, moderately shining, sparsely clothed with short grayish pubescence, form oblong, slightly narrower posteriorly; antennæ ferruginous brown, the first joint darker; head convex, moderately densely punctate, a distinct carina extending from the apical margin of the clypeus to the occiput; clypeus more coarsely punctate, very little narrowed at base and slightly wider than the distance to the eyes; thorax wider than long, narrower in front, the sides feebly arcuate posteriorly, more so in front, disc convex, a slight depression at middle posteriorly and feebly along the basal margin, surface rather finely not densely punctate; elytra vaguely substriate, the surface punctured similarly to the thorax and somewhat rugose along the base, sutural stria fine and entire; body beneath rather coarsely but not densely punctured, the abdomen rather more finely punctured; last ventral segment obtuse at tip, a slight transverse impression each side near the apical margin; legs brownish. Length .24 inch; 6 mm.

The specimen from which the above description has been drawn is in my cabinet, from near Mt. Shasta, California. There is a second

specimen in the cabinet of Dr. LeConte somewhat smaller, the sides of the thorax a little more oblique and the disc of thorax more sparsely punctate; this I am unwilling on the one specimen to separate it with another name notwithstanding the fact that it is labeled Kentucky.

E. americana resembles *capucina* in form and color and seems to differ only in the characters noted in the generic description.

DELTOMETOPUS Bonv.

Form elongate, moderately convex, gradually narrower posteriorly; antennæ moderately elongate; shorter in the female; head convex, rather deeply inserted; clypeus narrower at base than the distance to the eye, the anterior border arcuate, with a slight sinuation at middle; prothorax as long as wide, differing in form in the two sexes; elytra gradually narrower to apex, striate; prosternal sutures divergent, triangle of propleuræ longer than wide, the antennal groove deep, limited externally by the lateral margin, and not interrupted on the head by the eyes; metasternal episterna nearly parallel, very slightly wider behind, the epimera not visible; hind coxal plates gradually, but not greatly dilated internally; last ventral segment obtuse; legs rather short, first joint of hind tarsi as long as the next three, the fourth slightly dilated, excavated above and slightly lobed beneath, claws simple.

The differences between this genus and *Dromæolus* are rather feeble. In the latter the antennal grooves are narrow and not much than one-fourth the width of the base of the propleural triangle, while in *Deltometopus* the grooves posteriorly are one-half the width of the triangle.

Two species occur in our fauna.

Antennæ not as long as half the body, pectinate in the ♂ serrate ♀, the antennal groove distinctly wider behind.....**amœnicornis.**

Antennæ longer than half the body ♂, nearly half as long as body ♀, filiform in both sexes, antennal grooves very broad, not narrowed in front, apparently widest at middle.....**rufipes.**

D. amœnicornis Say.—Form moderately elongate, gradually narrowed behind, piceous, feebly shining, sparsely clothed with grayish pubescence; antennæ not reaching the half of the body, piceous or with the second and third joints testaceous in ♂, first joint rather stout, second small, third three-fourths as long as the first, fourth triangular, broader and more acute ♂, joints 5–10 pectinate ♂, the branches longer than the joint and gradually longer externally, the eleventh joint slender, longer than the branch of the tenth, joints 5–10 ♀ serrate, the tenth oval, acute, as long as the two preceding; head densely punctate, front slightly concave, the interocular carina interrupted at middle and slightly turned downward to the base of the clypeus, but entirely absent in the female; thorax a little wider than long, narrower in front ♂ with the sides straight, slightly arcuate near the front angles; in the female the thorax is widest one-third behind the apex, the sides in front arcuate, posteriorly straight and

slightly converging, disc convex, moderately densely punctate, hind angles not carinate; elytra striate, intervals slightly convex, rather densely rugosely punctate; body beneath coarsely, but not densely punctate; abdomen more finely and closely; legs ferruginous, brown. Length .12 - .18 inch; 3 - 4.5 mm.

The males are usually smaller and more slender than the females and the form is so obviously different that it is not remarkable that Say described them as distinct.

In distribution the species is widely diffused, occurring from the N. E. States to Texas.

I have examined the type of *D. ereptus* Bonv. in the cabinet of my friend Sallé, and find that it is merely an *amœnicornis* with the branch broken from the fifth joint of the antennæ. May not *Eucnemis monilicornis* Mann. be the female of *amœnicornis*?

Closely related to *amœnicornis* is *foveolatus* Guér. from Mexico. Bonvouloir appears to have seen but one ♀ in which there were two transverse foveæ on the disc of the thorax. These seem not to be always present and therefore of no value in separating the two species. I find, however, that the marginal sulcus is quite well marked in the ♀ and will serve to distinguish both sexes from *amœnicornis*.

D. rufipes Mels.—Form oblong, rather slender ♂, stouter ♀, brown or piceous, slightly shining, sparsely clothed with cinereous pubescence; antennæ paler brown, two-thirds the length of the body and slender ♂, less than half the length of body and stouter ♀, joint second shorter, but equal to the fourth, third nearly as long as the next two, joints 5 - 10 slender, gradually longer, the eleventh one and a half times as long as the tenth; in the female joints 4 - 10 are nearly equal in length, very little longer than wide, the eleventh nearly as long as the two preceding; head convex, coarsely and deeply punctate, front rather deeply depressed above the base of the clypeus, the frontal carina broadly interrupted at middle; clypeus very coarsely punctate, very narrow at base, less than half the distance to the eyes; thorax slightly broader than long, narrower in front, but less so in the female, sides posteriorly straight, in front arcuate, hind angles very little prolonged, not carinate; disc convex, moderately coarsely and closely punctate, a very slight median line ♀ not evident in the ♂; elytra gradually narrower at apical third, the disc vaguely substriate near the base, surface more finely and sparsely punctate than the thorax; body beneath coarsely and closely punctate; legs rufo-ferruginous. Length .14 ♂ - .22 ♀ inch; 3.5 - 5.5 mm.

Since my attention has been called to this species by the studies preliminary to the present essay, it has given me nearly as much trouble as my notes concerning it appear to have caused Bonvouloir.

In comparing this species with *amœnicornis* two very striking differences have been observed; first, in the form of the antennæ and second in the antennal grooves. The unusual length of the antennæ ♂ has, however, a parallel in *fallax*, a Brazilian species, and may

and may therefore be dismissed from further consideration. In all the species of *Deltometopus* the antennal groove is distinctly wider behind. In *rufipes* the groove is fully as wide as the small propleural triangle and not wider behind but, if anything, widest opposite the middle of the propleural triangle. The width of the groove is such that the outer apical angle of the prosternum is cut off by it.

Two specimens, Canada.

DROMÆOLUS Kies.

Form slender, subcylindrical, usually narrower posteriorly; antennæ filiform, or very feebly serrate, usually more slender to the tip; head convex, deeply inserted. eyes convex, not encroaching upon the antennal groove; clypeus narrowed at base, inflexed, the apical margin usually truncate at middle, sinuate each side; mandibles robust, the exposed surface large and rugose; prothorax variable in form, usually not longer than wide; prosternal sutures distinct, usually deep, slightly divergent, the propleural triangle always longer than wide at base, the antennal grooves narrow, parallel, open behind, usually deep and sharply limited, rarely (*basalis* and *nitens*) shallow and not limited internally; metasternal episterna parallel, the epimera invisible; hind coxal plates gradually wider internally; legs moderate; hind tarsi with the first joint variable, at least as long as the next three joints, the fourth excavate emarginate above and slightly lobed beneath; claws simple.

This genus and *Fornax* are very closely related, the only constant difference being that the larger eyes of the latter narrow the antennal groove at its entrance on the head. This character is, however, difficult to realize at times, so that I have doubted whether *salsus* should really be retained in the present genus.

This genus is represented on both sides of the continent, the species are as follows:

Interocular carina entire, extending across the base of the clypeus.

californicus.

Interocular carina interrupted at middle.....2.

2.—Clypeus at base half as broad as the apical margin3.

Clypeus at base very narrow.....8.

3.—Body above brown.....4.

Body above black.....5.

4.—Mesopleuræ punctured at base and externally (second joint of antennæ shorter than the fourth *Bonv.*).....**sejunctus.**

Mesopleuræ punctured over the entire surface; second joint of antennæ longer than the fourth.....**salsus.**

5.—Marginal grooves of thorax shallow, not sharply limited internally... ..6.

Marginal grooves deep, sharply limited.....7.

6.—Propleural triangle fully twice as long as wide; upper surface shining, pubescence very sparse and inconspicuous.....**nitens.**

Propleural triangle not twice as long as wide; upper surface opaque, elytra with paler pubescence at basal third.....**basalis**

- 7.—Elytra deeply striate, surface roughly sculptured, the punctuation of the abdomen coarse, the pubescence inconspicuous.....**striatus**.
 Elytra faintly striate, punctuation not rough, the abdomen rather densely and finely punctured, the pubescence conspicuous.....**Harringtoni**.
 Elytra without striæ, punctuation not rough, the abdomen coarsely punctured, pubescence very sparse.....**cylindricollis**.
 8.—Color brown, antennæ shorter than half the body, propleural triangle twice as long as wide; elytra finely striate **Marseuli**.
 Color piceous, antennæ half as long as the body, propleural triangle not twice as long as wide; elytra not striate.....**pusillus**.

D. californicus Bonv.—Form oblong, moderately robust, color nearly black, subopaque, sparsely clothed with short brownish pubescence; antennæ not extending beyond the hind angles of the thorax, filiform and rather compact, second joint distinctly longer than the fourth, third as long as the next two, fourth and fifth very little longer than wide, 6 - 11 gradually longer; head convex, the punctuation dense, slightly rugose, but not very coarse, the interocular carina extending distinctly across the base of the clypeus; clypeus narrower at base than half the apex and equal to half the distance to the eyes; thorax as long as wide, the sides posteriorly parallel, or feebly arcuate, anteriorly arcuately narrowed to the front, disc convex, a very feebly impressed median line almost obsolete in front, surface coarsely, densely and subrugosely punctured; elytra distinctly striate, the intervals feebly convex, densely subrugosely punctured, but less coarsely than the thorax; prosternum coarsely, but sparsely punctate, the sutures straight, open in front, the triangle one and a half times as long on the outer side as wide at base; antennal grooves deep, sharply limited; metasternum and abdomen coarsely and moderately densely punctured, last ventral segment not prolonged in a point; legs brownish; tarsal claws simple. Length .36 - .40 inch; 9 - 10 mm.

This species has the most robust facies of any in our fauna and may be at once known by its subopaque black color and the entire interocular carina. By the table given by Bonvouloir it is plainly related to *ischiodontoides*, from which it differs in color and form of its thorax. In comparing the above description with that by Bonvouloir several unimportant differences will be observed. The type is in my cabinet.

Two specimens, California.

D. sejunctus Bonv.—Form straight, slightly attenuate posteriorly, reddish brown, clothed with short yellowish pubescence; antennæ slender, ferruginous, not as long as half the body, second joint shorter than the fourth, third distinctly longer than the fourth, joints 5 - 10 longer than wide, gradually longer, the eleventh one-half longer than the tenth; head convex, punctuation fine, rather dense, scarcely rugose, interocular carina broadly interrupted at middle; clypeus at base half as wide as the apex; thorax a little wider than long, sides posteriorly straight and parallel, anteriorly feebly arcuate; disc convex, a small fossa on each side of the middle of base, a feeble median line near the base which becomes obliterated, and is again evident in front without, however, reaching the middle, the punctuation not coarse nor very dense, slightly rugose near the sides; elytra finely striate,

striae finely, moderately densely punctate; body beneath finely and densely punctate, a little coarser on the prosternum; antennal groove sharply defined, not wider posteriorly, the propleural triangle with the outer side twice as long as the base; mesopleurae with few punctures at base and externally; legs and tarsi ferruginous. Length .36 inch; 9 mm.

I have in my collection a specimen which I think must be referred to this species, but I do not observe the median depressions of the thorax mentioned in the above description. These are, however, faint in the type and are a variable quantity, so that I do not attach any importance to their absence. The facies of the species is very deceptive and not unlike *Fornax bicolor*. In addition to the characters given by Bonvouloir I observe that the last joint of the tarsi is extremely slender and the claws very small, feebly curved and simple. My specimen is .42 inch; 10.5 mm. long.

Collected near Canandaigua, New York, by l'abbe de Marseul, and on Long Island by Mr. Wm. Jülich.

D. salsus Bonv.—“This species is so like the preceding that I hesitated a long time before separating it; so that it will be necessary to mention only the differential characters. The pubescence is more silken and of a golden reddish color; the head more coarsely, densely and roughly punctured; the clypeus wider at base and the apex is not twice as wide; the front is slightly impressed at middle anteriorly; the thorax is very nearly as long as wide, the sides slightly sinuate, the punctuation coarser, denser and more rugose, the base on each side of middle more depressed and with a small median groove, which is interrupted, attaining the middle in front; the intervals of the striae are distinctly rugose transversely; the mesopleurae are entirely punctured with coarse impressed punctures. Length .38 inch; 9.5 mm.

The above is nearly a literal translation of Bonvouloir's remarks, which I have thought advisable to repeat in order that the preceding species may be more readily known. I observe, however, that the second joint of the antennae is much longer than the fourth, the third as long as the next two, the fourth is short, not as long as wide, joints 5–10 gradually very little longer, eleventh longer and acute at tip.

I am indebted to my friend Sallé for the privilege of examining the type of this species, collected by him in Louisiana.

D. nitens n. sp.—Form oblong, parallel, narrowed only at apical third, color black, moderately shining, the pubescence extremely short and inconspicuous; antennae piceous, extending slightly beyond the hind angles of the thorax, slender, scarcely at all serrate, second joint as long as the fourth, third as long as the next two, 4 and 5 equal, 6–8 equal, distinctly longer, 9 and 10 equal, scarcely longer than 4 and 5, eleventh one and a half times as long as the tenth; head convex, without interocular carina, moderately densely, but not roughly punctured; cly-

peus broad at base, equal to half the apex, and nearly as wide as the distance to the eyes; thorax a little longer than wide, sides posteriorly nearly straight, arcuate at apical third, disc moderately convex, at base a moderately broad triangular depression, at the bottom of which the median line is distinctly impressed and extends forward to the middle becoming gradually obsolete, surface moderately densely punctate, distinctly rugose at the sides; elytra faintly striate at the base and sides, the surface more finely and sparsely punctate than the thorax; body beneath moderately densely punctate, more sparsely and coarsely in front; propleural triangle twice as long on the outer side as wide at base, the antennal groove shallow, deeper in front, not sharply limited internally; mesopleuræ sparsely punctate in front and externally; legs piceous, tarsi brown. Length .38 inch; 9.5 mm.

This species and the next are remarkable in having the antennal grooves badly limited on their inner side. The present species is more shining and with almost invisible pubescence. In general appearance it resembles *cylindricollis*, but is larger and less convex.

Occurs in Oregon and Washington Territory.

D. basalis Lec.—Form moderately elongate, slightly attenuate posteriorly, black, subopaque, clothed with very short brown pubescence, but with the basal third of the elytra more densely clothed with longer, yellowish cinereous pubescence; antennæ dark brown, slender, filiform, slightly longer than to the hind angles of the thorax, second joint as long as the fourth, third a little longer than the next two, four to ten gradually longer, eleventh nearly as long as the two preceding; head convex, densely and rather roughly punctured; clypeus as broad at base as half the apex and nearly as wide as the distance to the eyes; thorax as broad as long, sides posteriorly straight, arcuately narrowing at apical third, disc moderately convex, a vague depression at the middle of the base, median line feebly impressed extending forward nearly to the middle, surface very densely punctured and at the sides rugose; elytra substriate, the surface moderately densely punctured, more finely than on the thorax; body beneath more sparsely and more finely punctured than above, the punctures of the prosternum coarser; triangle of the propleuræ not twice as long as wide at base, the antennal groove shallow and scarcely at all limited internally; mesopleuræ sparsely punctate; legs brown, the femora darker. Length .24–.34 inch; 6–8.5 mm.

The antennal grooves are even more shallow than in *nitens*, a character which seems to have been entirely overlooked by Bonvouloir. The paler pubescence forms a broad band at the base of the elytra and becomes gradually wider externally.

The very shallow and feebly limited antennal grooves of these two species seem to indicate some relationship with those species of *Nematodes* in which there is a beginning of an antennal groove near the front angle of the thorax.

This species occurs in the mountainous regions of Northern California and Nevada.

D. striatus Lec.—Form moderately elongate, gradually narrower posteriorly, black, subopaque, sparsely clothed with short yellowish gray pubescence, sometimes more conspicuous on the thorax and base of elytra; antennæ not passing the hind angles of the thorax, slender, second joint longer than the fourth, third equal to the next two, joints four to ten gradually longer, eleventh one and a half times the length of the tenth; head coarsely and rather roughly punctured, the interocular carina not reaching the clypeus; the latter at base half as wide as at apex, nearly as wide as to the eyes; thorax distinctly longer than wide, sides parallel, or very slightly arcuate, in front arcuately narrowing to the apex, disc moderately convex, a distinct depression at the middle of the base, in which the median line is very deeply impressed one-third toward the apex, surface densely punctured, more roughly toward the sides; elytra deeply striate, the intervals slightly convex, rather coarsely and roughly punctured; prosternum moderately not densely punctured; the propleural triangle twice as wide as long at base, the antennal groove deep, narrow, sharply limited; mesopleuræ sparsely punctate; metasternum very coarsely sparsely punctate; abdomen with a coarse not dense punctuation, the pubescence very sparse; legs piceous, the tibiæ and tarsi somewhat paler. Length .22 – .34 inch; 5.5 – 8.5 mm.

This species is rather more robust, the sculpture more rugose than either of the next two species and differs also in the elytra much more deeply striate.

It seems to be the analogue in the Atlantic region of *californicus* in the Pacific as *cylindricollis* is of *nitens* and *Harringtoni* of *basalis*.

Occurs from New York to Florida, but is more essentially a Southern species.

D. Harringtoni n. sp.—Form elongate, moderately convex, slightly narrower posteriorly, black, shining, sparsely clothed with cinereous yellow pubescence, more conspicuous on the thorax and base of elytra; antennæ slender, passing slightly the hind angles of the thorax, feebly sub serrate, second joint as long as the fourth, third not quite as long as the next two, joints four to ten longer than wide and gradually more elongate, eleventh one-half longer than the tenth; head convex, densely punctured, a distinct transverse frontal impression, interocular carina broadly interrupted at middle; clypeus as wide at base as half the apex and wider than half the distance to the eyes; thorax longer than wide, sides posteriorly straight, but slightly convergent, anteriorly slightly arcuate, disc moderately convex, a slight triangular depression posteriorly, the median line finely impressed one-third to the front, surface not coarsely nor densely punctured at middle, more densely at the sides, but not rugose; elytra substriate, the punctuation a little coarser and closer than on the middle of the thorax; prosternum rather closely finely punctate, the triangle more coarsely, its outer side not twice as long as base, the antennal groove deep, narrow and sharply limited; mesopleuræ coarsely sparsely punctate; metasternum coarsely punctured, the punctuation somewhat longitudinally strigose; abdomen densely rather finely punctate, the pubescence rather dense; legs piceous. Length .22 – .24 inch; 5.5 – 6 mm.

The elytral sculpture is about intermediate between *cylindricollis* and *striatus*, otherwise the sculpture of the surface resembles the for-

mer, but is finer. The median basal depression is smaller than either of those and the median line is not deeply impressed. The punctuation of the abdomen is much finer and its pubescence denser, so that in certain lights it obscures the punctuation. I have no doubt but that this species is mixed in most collections with *striatus* as a smoother variety.

I have named this species in compliment to Mr. W. H. Harrington, of Ottawa, to whom I am indebted for the kind loan of material on several occasions.

Occurs in New York and Canada.

D. cylindricollis Say.—Form elongate, moderately convex, slightly narrower posteriorly, black, shining, sparsely clothed with very inconspicuous yellowish hair; antennæ not extending beyond the hind angles of the thorax, piceous, subserrate, second joint longer than the fourth, third as long as the next two, joints four to ten longer than wide and gradually longer, eleventh one-half longer than the tenth; head convex, coarsely and densely punctured, interocular carina broadly interrupted at middle; clypeus at base half as broad as at apex, but not more than half the distance to the eyes; thorax longer than wide, sides straight and parallel posteriorly, obliquely convergent at apical third, disc moderately convex, a median depression at base, the median line very deeply impressed one-third from the base to the front, surface not very densely punctured at middle, more densely at the sides, but scarcely rugose; elytra with the sutural stria extending two-thirds from apex to base, the surface otherwise moderately coarsely but not very densely punctured and not rugose; prosternum rather finely not closely punctured, the triangle more coarsely and closely, the outer side twice as long as the base, the antennal groove narrow, deep and sharply limited; mesopleuræ obsoletely punctate; metasternum and abdomen coarsely and rather densely punctured; legs piceous. Length .28–.34 inch; 7–8.5 mm.

This species is readily known by the entire obliteration of the elytral striæ except the sutural.

Occurs from Canada to Georgia.

D. Marseuli Bonv.—Form subcylindrical, slightly narrower posteriorly, bright reddish brown, moderately densely clothed with short yellowish pubescence; antennæ not as long as half the body, filiform, second joint equal to the fourth, third as long as the next two, joints 5–10 at least twice as long as wide, gradually longer, eleventh longer than the tenth and slender; head convex, moderately densely and slightly rugosely punctate, interocular carina broadly interrupted at middle; clypeus very narrow at base, not more than a fourth of the apex and scarcely a half the distance to the eyes; thorax as long as wide, sides posteriorly straight and parallel, anteriorly arcuate and narrowed to the front, on each side of the middle of base a small fossa, median line not impressed, surface rather slightly punctate, denser and subrugose at the sides; elytra finely striate, the intervals finely not densely punctate, slightly rugose on the sides; body beneath a little darker than above, finely and densely punctate, more

sparsely on the prosternum; marginal groove deep, not wider behind, triangle of the propleuræ almost twice as long on the outer edge as at base; legs bright reddish brown. Length .30 inch; 7.5 mm.

This species is also unknown to me in nature. From the description it seems to resemble very closely *Fornax badius*.

Collected at Canandaigua, New York, by l'abbé de Marseul.

D. pusillus n. sp.—Form oblong, rather slender, distinctly narrower behind, piceous black, moderately shining, sparsely clothed with short brownish pubescence; antennæ ferruginous, a little darker externally, as long as half the body, second joint a little shorter than the fourth, third a little longer, joints four to ten feebly serrate, all longer than wide, gradually longer, eleventh more slender, nearly as long as the preceding two; head convex, moderately densely punctate, interocular carina interrupted at middle; clypeus very narrow at base, less than one-fourth the apex and a third the distance to the eyes; thorax broader than long, sides feebly sinuate and gradually narrowed from the base to the apex, disc convex, a slight fovea each side of middle of base, median line a little smoother posteriorly and slightly elevated, surface coarsely not densely punctured at middle, more densely and roughly at the sides; elytra with a fine sutural stria and vague traces of striæ in the basal depression, the surface a little less densely and less coarsely punctured than the thorax; body beneath rather coarsely and moderately densely punctured, outer side of triangle of propleuræ one and a half times the length of the base; antennal groove deep, sharply limited, not more than a third the width of the triangle; mesopleuræ very sparsely punctured; tibiæ and tarsi ferruginous, femora darker. Length .14 inch; 3.5 mm.

This little species has a facies totally different from all the *Dromæolus* in our fauna. It is of the size and form of the male of *Deltometopis amœnicornis*, and it would have been placed in that genus in relation with the Brazilian *fallax*, except that the antennal grooves are as in *Dromæolus*. The triangle of the propleuræ is not, however, as long as is usual in the latter genus. Considering the extremely close relationship of the genera *Deltometopus*, *Dromæolus* and *Fornax*, this species is better placed in the second. It is much the smallest species in our series and is equaled in this respect by *dilutipes* and *Funckii*, both of which belong to the series with the prosternal sutures closed in front. By the table given by Bonvouloir the species would be placed near *frater* and *propinquus*, both of which are comparatively large species and differ otherwise.

A specimen, female, in the cabinet of Dr. LeConte has the thorax larger, that is, the sides are less narrowed to the front and more arcuate, differing, in fact, from the male as the two sexes of *Deltometopus amœnicornis* differ.

One specimen, ♂, Northern Illinois, kindly given me by Mr. Fred. Blanchard, a ♀ in cabinet of Dr. LeConte from Texas.

FORNAX Cast.

Form variable, but usually oblong, and more or less cylindrical; antennæ variable in length, usually serrate; head convex, deeply inserted, the eyes moderately large and encroaching upon that part of the antennal groove extending on the head; clypeus narrowed at base, but variably, the apical margin truncate at middle, sinuate each side; mandibles presenting a rather broad rugose face; prothorax of variable form, usually narrowed in front, the hind angles more or less prolonged; prosternal sutures distinct, slightly divergent, the triangle broad, usually as broad at base as long, the antennal grooves deep, sharply limited on each side, much narrower than the triangle, usually parallel (wider in front in *infelix*); elytra striate; metasternal episterna moderate, parallel, the epimera not visible; hind coxal plates widely dilated internally; last ventral segment obtuse; tarsi filiform, the first joint of the posterior pair as long as all the others, the fourth broader, excavate above and slightly lobed beneath; claws toothed in the larger species, simple or slightly broader in the smaller.

The species of this genus are confined to the Atlantic region of our fauna, and are of rather homogeneous aspect. It is very closely related to *Dromæolus*, and separated by characters which seem inclined to be evanescent. The only species possessing remarkable characters is *infelix*, these are alluded to in the description.

The characters of the following table will readily distinguish our species:

Second joint of antennæ as long, or very nearly as the fourth.....	2.
Second joint small, not half as long as the fourth.....	3.
2.—Front without trace of interocular carina; color pale castaneous..	basalis.
Front transversely carinate between the eyes; color piceous.....	Hornii.
3.—Epipleuræ not grooved.....	4.
Epipleuræ grooved and smooth.....	5.
4.—Interocular carina entire, color piceous; species small.....	calceatus.
Interocular carina wanting; species large.....	6.
5.—Antennæ slender, not serrate; interocular carina extending slightly on the base of the clypeus.....	bicolor.
6.—Lateral margin of thorax single.	
Antennæ serrate on joints 4–8, the last three more slender and not serrate.....	molestus.
Antennæ serrate on joints 4–10, the last joint alone slender.	orchesides.
Lateral margin of thorax double.	
Antennæ a little shorter than half the body and feebly serrate..	infelix.

F. badius Mels.—Form moderately elongate, somewhat narrower posteriorly, castaneous brown, feebly shining, clothed with short fulvous pubescence; antennæ slender, a little longer than the head and thorax, first joint moderately stout, slightly arcuate, as long as the three following, second a little longer than the fourth, third nearly as long as the next two, fourth a little shorter than the fifth, joints 5–10 nearly equal, eleventh a little longer; head convex, with a moderate, but dense punctuation; clypeus half as wide at base as at apex, the

base about equal to the distance to the eyes; thorax a little longer than wide, slightly narrowed in front, the sides nearly straight, slightly arcuate in front, disc convex, moderately, coarsely and densely punctate; elytra finely striate, the intervals flat, moderately densely punctate, slightly rugose at base; body beneath moderately densely punctured, the punctuation finer than above; antennal groove deep, sharply limited; last ventral segment acute at apex; claws broader at base, but not toothed. Length .32-.44 inch; 8-11 mm.

This species is well known to nearly all collectors. The larva has been found by me in decaying oak. By the great kindness of my friend Sallé, I have examined the actual type of *Dromæolus novitius* Bonv. and find that it is merely a darker form of the present species.

Occurs from Pennsylvania to Illinois and Louisiana.

F. Hornii Bonv.—Form oblong, moderately robust, piceous, or nearly black, sparsely clothed with short fulvous pubescence; antennæ brownish, extending a little beyond the hind angles of the thorax, very feebly serrate, second joint as long as the fourth, third a little longer, joints 4-11 gradually a very little longer; head convex, coarsely and densely punctured, a distinct frontal carina between the bases of the antennæ; clypeus at base less than a third the width of the apex and less than half the distance to the eyes; thorax as long as wide, sides posteriorly parallel, anteriorly arcuately narrowing to the front, disc convex, coarsely and densely punctured, a slight depression at the middle of the base; elytra striate, faintly at middle, more deeply at the sides, densely subrugosely punctate; body beneath rather densely punctate; antennal groove deep, sharply limited; posterior coxal plate rather abruptly broader at middle; last ventral segment oval at tip; legs ferruginous; claws simple. Length .28-.32 inch; 7-8 mm.

This species resembles *calceatus*, but is usually more robust and larger, the punctuation finer and the second joint of the antennæ shorter.

In his description of this species in the concluding paragraph (p. 893) Bonvouloir speaks of *F. basalis* Lec. when he plainly refers to this species. He also quotes the locality "California" in error.

Occurs in Canada and Kentucky.

F. calceatus Say.—Form oblong, moderately convex, dark brown or piceous, feebly shining, sparsely clothed with short yellowish pubescence; antennæ nearly half as long as the body, slender, second joint shorter than the fourth, joints 4-11 gradually slightly longer; head coarsely, deeply and roughly punctured, a small, smooth longitudinal space on the front, a distinct transverse carina between the bases of the antennæ; clypeus very narrow at base, scarcely a fourth either of its apex or the distance to the eyes; thorax longer than wide, distinctly narrower in front, sides posteriorly straight, arcuate at apical third, disc convex, a slight median depression at base, surface coarsely, densely and roughly punctured; elytra narrowed at apical third, faintly striate, surface coarsely, roughly and moderately densely punctured, but less coarsely than above; antennal groove deep and sharply limited; posterior coxal plates gradually, but rather widely dilated; tarsal claws simple. Length .20-.24 inch; 5-6 mm.

In this species the interocular carina is more distinct than in *Hornii*, and the posterior coxal plates gradually not abruptly wider, these characters with the smaller second joint of the antennæ and the coarser sculpture will readily distinguish the two.

Occurs in Canada and Massachusetts.

F. molestus Bonv.—Oblong, moderately elongate, convex, very little narrowed behind, dark reddish brown, subopaque, sparsely clothed with fulvous pubescence; antennæ passing very slightly the hind angles of the thorax, second joint small, 3–8 dentate, 9–10 more slender and not dentate, eleventh longer and filiform; head coarsely, densely and roughly punctured, without longitudinal or interocular carinæ; clypeus broad at base, nearly twice the distance to the eyes; thorax a little wider than long, sides subparallel and straight behind, arcuate and narrowed to the front anteriorly, disc convex, a median longitudinal impression extending from the base to the middle, also two small impressed points in front of the scutellum, hind angles short, obtuse; surface coarsely, densely and roughly punctured; elytra slightly broader behind the middle, then arcuately narrowed to the apex, deeply striate, the intervals convex, densely, rather finely punctate and distinctly rugose; mesopleuræ rather finely and moderately densely punctured over the entire surface; legs ferruginous, claws toothed at base. Length .52 inch; 13 mm.

This species is unknown to me. It is evidently very like *orchesides*, but has the elytra a little broader behind the middle, the antennæ differently formed, and the clypeus at base broader.

The locality indicated by Bonvouloir is simply North America.

F. orchesides Newm.—Form oblong, moderately elongate, slightly narrower behind, convex, ferruginous to piceous, feebly shining, surface clothed with very short yellowish pubescence; antennæ slightly compressed, more slender externally, extending a little beyond the hind angles of the thorax, second joint small, third not as long as the next two, joints three to ten serrate, the eleventh slender and longer; head convex, coarsely and densely punctured; clypeus at base a little broader than the distance to the eyes; thorax as long as wide, sides posteriorly feebly arcuate, anteriorly obliquely narrowed to the front, disc convex, the sides suddenly deflexed in front, a distinct median impression at basal half, and on the basal margin each side of the scutellum a small fovea, surface coarsely and densely punctured, hind angles acute, very little prolonged; elytra distinctly striate, the intervals slightly convex, the punctuation finer than on the thorax, dense, slightly rugose at base, epipleuræ flat, roughly punctate; punctuation of the under side of body a little finer than on the elytra and rather dense; propleural triangle more opaque, the inner side and base equal; mesopleuræ sparsely punctate on basal half, nearly smooth in front; hind coxal plate gradually but much dilated internally; last ventral segments obtuse; claws broadly toothed at base. Length .40–.68 inch; 10–17 mm.

This is the largest in our fauna and one of the largest in the entire genus. It varies in size as well as in color, smaller specimens resembling, superficially, the next species.

Occurs in Canada, the New England and Middle States.

F. bicolor Mels.—Oblong, moderately elongate, slightly narrower posteriorly; ferruginous brown, feebly shining, the thorax more opaque, sparsely clothed with short fulvous pubescence; antennæ slender, filiform, not at all dentate, nearly as long as half the body, joint second small, third one and a half times the length of the fourth, joints four to ten gradually longer; head convex, coarsely, densely and rugosely punctured, a slight depression above the base of the clypeus, the interocular carina extending slightly on the base of the clypeus; the latter very little narrowed at base and wider than the distance to the eyes; thorax with the width and length about equal, the sides feebly arcuate and narrowing at apical third, hind angles scarcely prolonged, disc convex, sides strongly deflexed in front, a feeble median impression posteriorly, surface densely punctate, slightly opaque and rugose; elytra striate, intervals slightly convex, densely rather finely punctate and slightly rugose, epipleuræ smooth, longitudinally excavated; body beneath and legs paler than above, the punctuation moderately dense and coarser in front; mesopleuræ sparsely punctate in posterior half, nearly smooth in front; hind coxal plates gradually but much broader internally, the free edge angulate; claws broadly toothed at base. Length .32–.46 inch; 8–11.5 mm.

This species resembles *orchesides* in form, but may be known by the slender antennæ and the smooth sulcate epipleuræ. This species is without doubt the same as that subsequently described by Chevrolat as *luridus*. The information given by me to Bonvouloir that *bicolor* was synonymous with *orchesides* was erroneous, from the fact that the type of LeConte's description of *bicolor* was an *orchesides*. Since that time the type of Melsheimer has been seen, and is the species above described.

Occurs from the Middle States southward, and, according to Bonvouloir, in Cuba.

F. infelix n. sp.—Form subcylindrical, parallel, very obtuse in front, narrower only at apical third, color ferruginous brown, subopaque, sparsely clothed with short yellowish pubescence; antennæ paler, slender, nearly as long as half the body, feebly serrate, joint second small, third a little longer than the fourth, joints four to eleven gradually longer; head convex, coarsely densely and roughly punctured, without trace of interocular carina; clypeus slightly narrowed at base, but not broader than the distance to the eyes; thorax very distinctly broader than long, sides posteriorly feebly arcuate but not convergent, rounded near the front angles, disc convex, coarsely, densely and roughly punctured, a vague depression each side of the base, hind angles slightly prolonged, not acute, lateral margin distinctly double from apex two-thirds to base; elytra striate, intervals slightly convex, moderately densely punctate and quite rough near the base, epipleuræ roughly punctate, not sulcate; prosternum shining, punctuation coarse but distant, the triangle with inner side shorter than the base, surface densely, coarsely punctured; antennal groove very deep and smooth, open posteriorly, very distinctly wider in front; mesopleuræ moderately, densely, finely punctate in anterior half, very smooth posteriorly; metasternum and abdomen moderately, densely punctate; hind coxal plate gradually wider internally, the free angle rounded; claws broadly toothed at base. Length .36 inch; 9 mm.

This species has an entirely different facies from any other in our fauna, it in fact resembles a very large *Microrhagus impressicollis*, and from several rather odd characters which it possesses has given me considerable trouble to arrive at a conclusion regarding its generic position. In the first place the eyes do not so much encroach upon the antennal sulcus as is usual in the other species, while the sulcus is not so free as in *Dromæolus*. The sulcus is very decidedly wider in front. Finally, the lateral margin of the thorax is double in its anterior two-thirds. This double margin is not at all of the form described for *Diaretus*. After leaving the species for very nearly the final study of the present essay, I have concluded that it is better to consider it a *Fornax* than to make a new generic name.

Occurs in Florida.

PHAENOCERUS Bonv.

Form oblong, very slightly depressed; antennæ shorter than the head and thorax, gradually clavate; head convex, deeply inserted, the eyes oval entire, distinctly encroaching upon the antennal groove; clypeus broad at base, as wide as the distance to the eyes, apical margin arcuate; prothorax gradually narrowed in front, very little wider than long; scutellum oval; elytra distinctly striate; prosternal striæ rather deep, straight, divergent, the propleural triangle a little longer than wide at base, the antennal groove deep, sharply limited on each side and open behind; metasternal episterna narrow, wider behind, the epimera not visible; hind coxal plates gradually wider internally; legs moderate.

The unique before me is in very bad state of preservation, being entirely deprived of tarsi, but after a renewed study, thirteen years having elapsed since my original description I can see no reason for changing the generic position of the species. The flattened clavate form of the antennæ leaves but little choice of position, but were the antennæ slender there could be no hesitation in placing it in *Fornax*,

One species is known in our fauna.

P. americanus Horn.—Form oblong, slightly depressed, black, feebly shining, sparsely clothed with very short black pubescence; antennæ dark brown, scarcely reaching the hind angles of the thorax, gradually clavate, first joint short, second and third equal in length, but distinctly longer than wide, fourth and fifth equal, a little longer than the third, six to ten broader than long, and gradually wider, eleventh narrower oval; head coarsely, densely punctured; thorax a little wider than long, sides gradually narrowing to the front and very slightly arcuate, disc convex, a vague depression at middle of base and a shallow, broad depression near the lateral margin, surface densely and coarsely punctured; elytra parallel, narrowed at apical third, surface striate, intervals flat, densely punctate; prosternum coarsely but sparsely punctured, more shining, the triangle more densely and opaque; metasternum coarsely, sparsely punctate; abdomen densely and much more finely. Length .30 inch; 7.5 mm.

In form this species resembles a small *Fornax orchesides*, but is much more depressed.

One specimen, Vancouver.

ADELOTHYREUS Bonv.

Form elongate, narrower posteriorly; antennæ half the length of the body, second joint very small, third as long as the next two, joints four to ten gradually shorter and more strongly serrate, joint eleven elongate oval; episterna narrow at base; propectus with a short juxta-sutural groove, limited externally in front by a feeble carina; lateral supplementary carinæ distinct, the posterior very long, the anterior short and directed arcuately downward; posterior coxal plates nearly parallel; tarsi slender, the fourth joint slightly dilated and excavated above, beneath very feebly lobed, the first joint of the posterior tarsi as long as the next three; claws very slightly broader at base.

This genus has all the essential characters of *Microrhagus*, excepting that the juxta-sutural groove is here merely feebly indicated in front, while in that genus the groove is entire and limited externally by a well defined carina. It is, however, probable that this character may not long remain valid, as it will be seen that in *M. humeralis* the outer carina of the groove is obliterated posteriorly, and in that and *Bonvouloiri* the coxal plates are parallel, while the tarsal structure also more nearly resembles *Adelothyreus*.

One species is known in our fauna.

A. Dejeani Bonv.—Slender, elongate, gradually narrower posteriorly, piceous, feebly shining, sparsely clothed with very short yellowish cinereous pubescence; head densely, roughly punctate; epistoma at base narrower than the space between it and the eye; antennæ piceous, joints four to ten serrate and gradually shorter, the eleventh elongate oval; thorax slightly longer than wide, sides rounded near the front angles, hind angles slightly divergent and with a short carina, disc convex, a slight median depression, a slight oblique depression on each side of the middle of the base, surface densely, roughly, submuricately punctate; anterior supplementary carina arcuate, directed downwards, tending to become parallel with the anterior margin, posterior supplementary carina long, extending three-fourths to the front; propectus with large but shallow punctures, the rudimentary antennal groove smooth; elytra narrower than the thorax, gradually attenuate posteriorly, disc vaguely striate, the surface closely and submuricately punctate; body beneath and abdomen rather coarsely and closely punctate; femora piceous, tibiæ and tarsi paler; last ventral segment obtuse. Length .14–.16 inch; 3.5–4 mm.

This insect seems to be very rare, I have seen but one specimen collected in Maryland and kindly loaned me by Mr. Ulke.

MICRORHAGUS Esch.

Form elongate, usually narrower posteriorly; antennæ at least half as long as the body, second joint small, third usually nearly as long as the next two, four

to ten serrate, sometimes pectinate in the male; epistoma variable, usually very narrow at base; propectus with an entire juxta-sutural sulcus limited externally by an entire carina (except in *humeralis*); lateral supplementary carina distinct, variable between the species; posterior coxal plates variable, usually narrower externally, in two species parallel; tarsi slender, the first joint of the posterior pair usually as long as the next three, the fourth joint usually broader and lobed beneath (except in two); claws variably dilated at base.

Before presenting the table of species and entering upon their description it is well to explain the meaning of several terms originated by Bonvouloir, and which I have retained for the sake of uniformity.

The *anterior supplementary carina* is an elevated line connected with the apical marginal ridge near the front angles and directed backward. This carina is short in all the species except *pectinatus*, in which it extends to the middle of the side of the thorax.

The *posterior supplementary carina* begins at the tip of the hind angle beneath and extends forward more or less sinuously, it is rarely long, in two species very short (*audax* and *imperfectus*) and in another (*pectinatus*) entirely wanting. This carina is really the true lateral margin of the thorax, as in some *Cardiophorini*.

The *juxta-sutural sulcus*, to receive the antennæ when at rest, follows nearly the line of the prosternal suture, it is limited externally by a well defined ridge, which is entire except in *humeralis* and *imperfectus*.

The other terms are such as are commonly used, and need no explanation.

There seems to be a tendency in our species to show the gradual obliteration of the characters which separate *Adelothyreus* and *Microrhagus* by the disappearance of the posterior portion of the outer carina of the sulcus, the wide coxal plates and the simple tarsi.

In his tabular arrangement of the species Bonvouloir prefers to start with characters drawn from the supplementary carinæ. The form of the coxal plates seems to me of far greater importance (it has more than generic value in some parts of the series) in enabling us to show more clearly the relationship between *Microrhagus* and *Adelothyreus*.

In a paper entitled "*Throscides et Eucnémides Gallo-Rhénane*," by A. Fauvel (*Rev. d'Entomologie* iv, p. 338) the name *Dirrhagus Latr.* is adopted in lieu of *Microrhagus*.

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

Posterior coxal plates dilated internally, narrow externally.....	2.
Posterior coxal plates parallel, not dilated internally; posterior supplementary carina very nearly entire.....	8.

- 2.—Anterior supplementary carina of prothorax long, extending from the apex to the middle, the posterior carina entirely wanting.....**pectinatus**.
Anterior supplementary carina short, not reaching the middle of thorax.....3.
- 3.—Posterior supplementary carina very short.
Outer carina of juxta-sutural sulcus entire; middle of disc of thorax impressed**audax**.
Outer carina of juxta-sutural sulcus much abbreviated posteriorly; disc of thorax not impressed.....**imperfectus**.
Posterior carina extending at least to the middle of thorax, sometimes longer4.
- 4.—Metathoracic episterna very narrow in front, broader posteriorly.....5.
Metathoracic episterna broad and parallel.....7.
- 5.—Pronotum without ante-scutellar carina, the median line impressed posteriorly**subsinuatus**.
Pronotum with distinct ante-scutellar carina, without median impressed line.....6.
- 6.—Pronotum narrowed in front, the sides distinctly sinuate.....**oblitus**.
Pronotum with parallel sides, or even slightly wider in front.
triangularis.
- 7.—Disc of thorax impressed, posterior supplementary carina very nearly entire.
impressicollis.
- 8.—Prosternum obtuse at tip, outer carina of the juxta-sutural sulcus entire.
Bonvouloiri.

Prosternum prolonged and acute at tip, outer carina of juxta-sutural groove obliterated posteriorly.....**humeralis**.

M. pectinatus Lec.—Piceous, moderately shining, form elongate, slightly narrower posteriorly, surface sparsely clothed with a very short cinereous pubescence; antennæ piceous, two-thirds ♂, or one-half the length of body ♀, pectinate from the third joint ♂, or acutely serrate ♀; head coarsely and rather closely punctate, a distinct longitudinal impression between the eyes, the occiput carinate, supra-antennal ridges distinct; clypeus very narrow at base; prothorax wider than long, sides parallel, rounded in front, disc moderately convex, moderately coarsely, but not densely punctured, a slight ante-scutellar carina with a slight depression each side, hind angles finely carinate; anterior supplementary carina of the thorax long, reaching the middle of the thorax, posterior carina extremely short, almost entirely absent; juxta-sutural sulcus slightly wider posteriorly, the outer carina entire extending to the hind angles of the thorax; elytra as wide at base as the thorax, slightly narrowed posteriorly, disc vaguely striate, densely and more coarsely punctured than the thorax; prosternum coarsely punctured, propleuræ more coarsely punctured; metasternum and abdomen at sides coarsely closely punctate, at middle and apex more finely and sparsely; metasternal episterna slightly wider posteriorly; legs brownish, tibiae and tarsi paler; fourth joint of tarsi dilated and lobed beneath, claws simple, hind coxal plates distinctly narrower externally. Length .18-.20 inch; 4.5-5 mm.

This species is known by the pectinate male antennæ, the long anterior supplementary carina and the almost total obliteration of the posterior. The latter character has been passed in silence by Bonvouloir, who states, by mistake, that the metasternal side pieces are parallel.

The only variation observed is in one specimen in which the median line of the thorax is slightly impressed.

Occurs in Canada, New York, Pennsylvania and Virginia.

M. audax n. sp.—Form moderately elongate, gradually narrower behind, piceous, feebly shining, sparsely clothed with short fulvous pubescence; elytra pale brown; antennæ and legs bright rufo-testaceous; antennæ two-thirds the length of the body, strongly serrate from the fourth joint; head coarsely, densely and roughly punctate, vertex with three vague impressions arranged in a triangle; clypeus slightly wider at base than the space between it and the eye; prothorax a little wider than long, sides parallel, rounded only at the front angles, hind angles not divergent, distinctly carinate, disc convex, densely and rather coarsely punctured, a moderately deep median impression extending from the base to the middle and two vague oblique impressions each side; anterior supplementary carina short, one-fifth the length of the thorax, oblique, posterior carina extremely short; juxta-sutural sulcus deep and smooth, slightly wider posteriorly, the outer carina entire, extending to the hind angles; elytra as wide as the thorax, narrowing at apical third only, disc vaguely striate, moderately densely punctured, rather less dense than on the thorax, a little finer near the apex, somewhat rugose on the basal depression; body beneath rather coarsely and closely punctate, more coarsely on the prosternal parapleuræ; metasternal episterna very narrow, slightly broader posteriorly; posterior coxal plates much narrower externally; fourth tarsal joint dilated and lobed beneath, claws dilated at base. Length .14 inch; 3.5 mm.

Having seen but one specimen of this species it is impossible to say with certainty that the pale reddish brown color of the elytra is a constant character. It is, however, remarkable among our species in having both the supplementary carinæ very short and the median depression of the thorax rather deep.

Pennsylvania. Cabinet of Mr. H. Ulke.

M. imperfectus Lec.—Form moderately elongate, slightly narrower behind, piceous, feebly shining, sparsely clothed with very short fulvous pubescence; antennæ reddish brown, the basal joint darker, half as long as the body, feebly serrate; head coarsely and moderately densely punctured, front slightly concave; clypeus at base narrower than the distance from it to the eye; thorax as long as wide, sides parallel behind, arcuate at apical third, disc moderately convex, coarsely not densely punctured, a finely impressed line from the base to the middle, hind angles obtusely carinate; anterior supplementary carina straight, extending nearly one-third to base, posterior carina extremely short; juxta-sutural sulcus deep, punctured posteriorly, the outer carina extending barely more than one-half from the apex; elytra substriate, surface coarsely and rather closely punctured, the punctures coarser than on the thorax and quite rough at base; body beneath rather densely punctured; prosternal episterna narrow, slightly broader posteriorly; hind coxal plates narrower externally; legs brown, tarsi paler, the fourth joint broader and lobed beneath, the claws dilated at base. Length .20–.22 inch; 5–5.5 mm.

This species resembles the females of *pectinatus* and *subsiniuatus*, but may be known from any of the species with narrowed hind coxal plates by the obliteration behind of the outer carina of the juxta-sutural sulcus.

Occurs in New York, Massachusetts and Maryland. I am indebted to Mr. Fred. Blanchard for the only one I possess.

M. subsiniuatus Lec.—Form moderately elongate, slightly narrower behind, more so in the male, piceous or nearly black, moderately shining, very sparsely clothed with very short brown pubescence; antennæ piceous, feebly serrate, three-fourths the length of the body ♂, or a little shorter than that ♀; head coarsely and moderately densely punctured, a slight depression above the base of the clypeus; clypeus narrow at base, not more than half as wide as the distance between it and the eye; prothorax wider than long ♂, a little less broad ♀, narrower in front, the sides sinuate at middle ♂, or nearly straight ♀, the hind angles carinate, at tip incurved; disc moderately convex, slightly depressed at the hind angles, a distinct median impression extending from the base to the middle, surface moderately, not densely punctured; anterior supplementary carina at a right angle to the apical margin, extending nearly one-third toward the base, posterior carina very long, reaching nearly three-fourths to apex; juxta-sutural sulcus deep and smooth, its external carina entire, reaching the hind angles; elytra obsoletely striate, moderately densely and roughly punctured, the punctuation rougher and denser than on the thorax; body beneath rather coarsely and densely punctured; metasternal episterna narrow, slightly wider behind; hind coxal plates narrower externally; legs piceous, tarsi rufous, fourth joint broader and distinctly lobed, claws distinctly dilated at base. Length .14–.20 inch; 3.5–5 mm.

In this species I have observed no special variation beyond that of color due to various degrees of maturity. The marginal ridge of the apex of the thorax is less developed than usual, and the posterior supplementary carina very long.

The female of *substriatus* resembles, superficially, *imperfectus*, but the character of the posterior supplementary and the juxta-sutural carina serve to separate them. *M. substriatus* seems to have been unknown to Bonvouloir, his description being nearly entirely quotation. The measurement given is, however, incorrect, and should be .2 inch; 5 mm.

Occurs in Canada, Nova Scotia, Ohio, D. C. and Virginia.

M. oblitus Bonv.—Form moderately elongate, slightly narrower posteriorly, piceous, hind angles of thorax rufescent; elytra dark reddish brown, sparsely clothed with very short yellowish pubescence; antennæ pale reddish brown, serrate from the fourth to tenth joints, two-thirds as long as the body; head moderately, coarsely and densely punctate, slightly rugose, a slight carina on the vertex; clypeus at base much narrower than the space between it and the eye; prothorax a little wider than long, distinctly narrowed from the base to the apex,

sides slightly sinuate, basal region slightly depressed, a small ante-scutellar carina not quite reaching the middle in front, surface rather coarsely but not densely nor roughly punctate; clytra indistinctly striate, the punctuation well marked and slightly rugose. Length .18 inch; 4.5 mm.

This species is unknown to me, and the above description is from Bonvouloir. It apparently resembles *subsiniuatus* more closely than any other of our species. It is to be regretted that Bonvouloir has omitted special mention of the supplementary carinae in nearly all his specific descriptions as they seem important, not only in the manner he uses them in his synoptic table, but for the separation of closely related species.

One specimen from Illinois (Museum at Stockholm).

M. triangularis Say.—Form moderately elongate, narrower behind, piceous, or nearly black, feebly shining, very sparsely clothed with short yellow-brown pubescence; antennae piceous, feebly serrate, extending one-half ♀, or three-fourths the length of body ♂; head rather coarsely, closely punctate, a slight depression above the base of the clypeus, vertex feebly carinate or not; clypeus narrower at base than the distance between it and the eye; prothorax with the length and width nearly equal, sides straight and parallel, arcuate at the front angles, hind angles carinate; disc moderately convex, a distinct ante-scutellar carina terminating in a slight median depression; anterior supplementary carina short, oblique, the posterior long, reaching the middle of the thorax; juxta-sutural sulcus smooth and deep, nearly parallel, the outer carina entire; surface of thorax moderately, coarsely and densely punctured; elytra obsoletely substriate, closely and roughly punctate; body beneath coarsely and moderately closely punctate; metasternal episterna nearly concealed in front, slightly wider behind; hind coxal plates distinctly narrower externally; legs brownish; fourth joint of tarsi broader and slightly lobed beneath, tarsal claws dilated at base. Length .12–.16 inch; 3–4 mm.

In some specimens the thorax is impressed on each side, otherwise there is no notable variation except in size, and somewhat in color.

Occurs from Canada to Georgia.

M. impressicollis Bonv.—Form elongate, subcylindrical, slightly narrower behind, rufo-ferruginous, feebly shining, sparsely clothed with very short fulvous pubescence; antennae a little longer than half the body, joints four to ten distinctly serrate; head coarsely, densely and rather roughly punctured; clypeus broad at base and nearly twice as wide as the space between it and the eye; prothorax a little wider than long, slightly narrower in front, sides posteriorly parallel, anteriorly arcuately narrowing, hind angles short, acute and distinctly carinate; anterior supplementary carina short, slightly arcuate, the posterior very long and almost joining the apical margin; disc convex, a median impressed line starting from the base and reaching the middle, where it becomes deeper and broader, surface densely, coarsely and somewhat roughly punctured; juxta-sutural sulcus moderately deep, but relatively narrow, the outer carina well marked but feebler in its basal extension outwardly; elytra distinctly striate,

the punctuation less dense and finer than on the thorax; body beneath more shining than above, the punctuation moderate, but not dense; metasternal episterna rather broad and parallel; posterior coxal plates much narrower externally; last ventral segment with a large pubescent fovea ♂, or simple ♀, the tip prolonged in an obtuse point ♂, or rounded ♀; fourth tarsal joint dilated and lobed beneath, the claws slightly broader at base. Length .22 - .26 inch; 5.5 - 6.5 mm.

This is the largest species in our fauna. It is easily known by the deep impression of the middle of the disc of the prothorax and the very long posterior supplementary carina. The juxta-sutural sulcus is relatively narrow, so that the space exterior between it and the supplementary carina is at least three times the width of the sulcus.

After a careful study of a specimen in the cabinet of Dr. LeConte in comparison with the descriptions of Bonvouloir, I feel constrained to unite *mucidus* Bonv. and *impressicollis*. The former differs merely in the absence of the pubescent fovea in the last ventral segment, the latter being obtuse at tip. The differences seem purely sexual, *impressicollis* being probably the male. I am indebted to Mr. Sallé for a typical male.

Occurs in Florida, Louisiana and Texas.

With this species Bonvouloir has associated *M. Sahlbergi* Mann., a rare species of Europe, which has on the penultimate ventral segment a pubescent fovea. I do not find this character mentioned by any other European author. It would be interesting to learn if it is merely sexual.

M. Bonvouloiri n. sp.—Form moderately elongate, narrower behind ♂, or nearly parallel ♀, piceous, moderately shining, sparsely clothed with very short fulvous pubescence; antennæ rufo-ferruginous, longer than half the body, the joints three to ten distinctly longer than wide and slightly serrate ♂, or not serrate ♀; head coarsely and closely punctate, front above the epistoma depressed, vertex with a fine impressed line ♂; clypeus as broad at base as the distance to the eye; prothorax as long as wide, sides parallel, rounded near the front angles, hind angles carinate; disc of thorax convex, a distinct oblique depression within the hind angles, surface coarsely, densely and very roughly punctured; anterior supplementary carina short, slightly arcuate, posterior carina long, nearly reaching the apical margin; juxta-sutural sulcus moderately deep, parallel, the outer carina entire, extending obliquely to the hind angles but less elevated in this posterior portion; elytra vaguely striate, surface coarsely and roughly punctured, but less densely than on the thorax; body beneath coarsely and closely punctate, rather roughly on the last ventral segment; prosternum at tip obtuse and rounded; metasternal episterna very narrow in front, wider posteriorly; hind coxal plates wide and parallel; femora piceous, tibiae and tarsi rufo-ferruginous, fourth tarsal joint narrow, not lobed beneath, claws slightly dilated at base. Length .12 - .18 inch; 3 - 4.5 mm.

When fully colored this species is entirely piceous, but specimens occur with the apical and basal margins of the thorax much paler, as in *humeralis*.

This species is closely related to *humeralis*, but differs in coloration, the thorax is also longer, the prosternum at tip of different form and the outer carina of the sulcus is entire. In one ♂ specimen, however, that carina becomes very feeble posteriorly, but the oblique portion is well developed.

Regarding this species there seems to be an amount of confusion difficult to explain. From Bonvouloir's statement LeConte sent him a specimen of this species as a type of *humeralis*, and Bonvouloir has so described it. I suspect that LeConte sent one of those entirely piceous specimens mentioned by him (Trans. Amer. Philos. Soc. x, p. 420) in a paragraph not quoted by Bonvouloir.

While in Paris, in 1874, my friend Sallé gave me from his cabinet one of three specimens from Louisiana labeled by Bonvouloir "*arduus*," and on asking recently for information from Sallé I have been informed that Bonvouloir has also written on the label "se place après humeralis," which is true of the specimen, but not of "*arduus*." Moreover, *arduus* belongs to the series with the coxal plates narrower externally.

As Bonvouloir has certainly given wrong names to this and the following species, I have been compelled to change the name to *Bonvouloiri*.

Occurs in Pennsylvania, D. C. and Louisiana.

M. humeralis Say.—Form cylindrical, moderately robust, slightly narrower behind, piceous, subopaque, elytra at base reddish, surface very sparsely clothed with extremely short fulvous pubescence; antennæ rufo-ferruginous, as long as half the body ♂, shorter ♀ joints four to ten longer than wide and distinctly serrate ♂, or not longer than wide and not serrate ♀; head coarsely, closely and roughly punctate, smoother at middle, slightly impressed above the base of the clypeus, supra-antennal ridges well marked; clypeus at base wide, equal to the distance to the eye; thorax longer than wide, sides parallel, arcuate near the front angles, hind angles short, carinate; disc convex, a feeble median impressed line, surface densely, coarsely, roughly punctate; anterior supplementary carina short, oblique, the posterior long and very nearly reaching the apical margin; juxta-sutural sulcus moderately wide, slightly broader and punctate posteriorly, the outer carina abbreviated, extending to a point opposite the front of the coxæ; elytra vaguely striate, the intervals often slightly convex, surface densely and roughly punctate; body beneath piceous or brown, densely punctate; metasternal episterna narrow in front, slightly broader behind; hind coxal plates broad and parallel; last ventral segment obtusely prolonged; prosternal

process prolonged and acute; legs ferruginous, fourth basal joint narrow and not lobed beneath, the claws very slightly broader at base. Length .12-.24 inch; 3-6 mm.

In this species the apical and basal margins of the thorax are often pale, and the extent of red at the base of the thorax varies from a narrow space until it covers very nearly the basal half. The under side of the body also varies in color from piceous to pale brown.

This species is especially noteworthy from the abbreviation of the outer carina of the juxta-sutural sulcus showing a tendency toward *Adelothyreus*, which is further illustrated by the wide coxal plates and the narrow fourth tarsal joint.

By some inexplicable error Bonvouloir has described this species as new, under the name *meticulosus*. The descriptions by Say and LeConte are so clear as to the color, and this in connection with the types in LeConte's cabinet leaves no doubt as to the species they both had in view.

Widely distributed over the United States from Canada southward, and Bonvouloir reports it from Cordova, Mexico.

ENTOMOPHTHALMUS Bonv.

Antennæ slender, nearly as long as the entire body, the second and third joints very small, together shorter than the fourth.

The other characters are as in *Microrhagus*. The emargination of the eye, from which Bonvouloir derives the generic name, is variable in extent and does not form a character separating the two genera as traces of a similar structure are observed in *M. impressicollis*.

In our species the third antennal joint is smaller than the second, while in his description Bonvouloir, by a *lapsus calami*, compares the third joint with the fourth.

There is but one species known in our fauna.

E. rufiolus Lec.—Form moderately elongate, slightly narrower behind, ferruginous, moderately shining, sparsely clothed with very short fulvous pubescence; antennæ slender, feebly serrate, nearly as long as the entire body; head coarsely not densely punctate, eyes feebly emarginate in front; clypeus at base a little wider than the space between it and the eye; prothorax a little wider than long, sides straight and parallel, scarcely at all rounded at the front angles, hind angles feebly carinate; disc moderately convex, obliquely depressed each side within the hind angles, a feeble ante-scutellar carina terminating in a feeble median depression extending two-thirds to apex; surface coarsely not densely punctured; anterior supplementary carina very short, the posterior extending three-fourths to apex; juxta-sutural sulcus deep, slightly wider posteriorly, the outer carina well developed and entire; elytra vaguely striate with coarse, mod-

erately closely placed punctures substriately arranged, the intervals with finer punctures; body beneath rather coarsely and closely punctate; prosternum narrow between the coxæ, prolonged and acute; metasternal episterna narrow; hind coxæ much dilated internally; fourth tarsal joint dilated and slightly lobed beneath, claws slightly dilated at base. Length .16 inch; 4 mm.

In its form this species resembles *Micr. triangularis*, but the color is pale ferruginous.

Occurs in Canada, Illinois and Tennessee, but seems very rare.

XYLOBIUS Latr.

Form elongate, cylindrical; antennæ a little shorter than half the body, joints four to ten quadrate, equal, joint eleven narrower at apex, a little shorter than the two preceding together; head deeply inserted, eyes small, round and feebly convex; clypeus trisinate along the apical margin, base narrow, less than half the distance to the eyes; thorax narrower only at apical third, lateral margin line entire; scutellum oval; prosternal sutures straight, but divergent, under side of prothorax without trace of antennal grooves; metasternal episterna parallel, the epimera concealed; hind coxal plates nearly parallel, the posterior margin slightly sinuous; legs rather short, tarsi compressed, gradually attenuate toward the apex, the first joint of the posterior pair as long as the next two, the fourth obliquely truncate and slightly excavate above so as to appear lobed beneath, claws slightly broader at base.

One species is known in our fauna.

X. cylindriformis Horn.—Elongate, cylindrical, narrower at apical third; color variable; antennæ ferruginous, fourth joint longer than third or fifth, third longer than that portion of the second seen from the front; head coarsely, closely and deeply punctured, fourth slightly impressed; thorax a little wider than long, sides parallel, arcuately narrowing at apical third, hind angles acute, very slightly divergent, carinate, disc convex, coarsely, deeply and rather closely punctate; elytra very indistinctly striate, with coarse, deep punctures closely placed, the intervals very narrow, with a few finer punctures; prothorax beneath with very large punctures, not closely placed; metasternum less coarsely but more densely punctured, abdominal punctures still less coarse, but more sparsely placed; legs ferruginous. Length .18–.26 inch; 4.5–5 mm.

The two specimens before me vary in color in the following manner: "Head piceous, anterior margin ferruginous; thorax piceous, apical and basal margins rather broadly, the lateral margin narrowly red; elytra piceous, entire limb, base and suture paler; body beneath brownish red, the metasternum piceous (*typical specimen*).

"Above and beneath almost entirely piceous, the base, apex and sides of thorax narrowly paler."

This species resembles the two European forms, but is more robust than either, with the thorax more densely and coarsely punctate.

Occurs in California and Nevada.

HYLOCHARES Latr.

Form cylindrical, robust, slightly narrower behind; antennæ not passing the hind angles of the thorax, third joint twice as long as the second or fourth, joints four to ten equal, as broad as long, very vaguely serrate, eleventh longer; head deeply inserted, eyes oval entire; clypeus narrowed at base, trilobed in front; thorax broader than long, lateral margin entire; under side without antennal grooves, prosternal sutures straight, divergent in front; metasternal episterna moderately broad, narrower in front, the epimera slightly visible; hind coxal plates parallel; legs moderate, first joint of hind tarsi as long as the next two, fourth lobed beneath, claws dilated at base; last ventral segment more or less prolonged at middle.

This genus is closely related to *Xylobius* and *Sarpedon*, but may be known by the trilobed clypeus. I do not find the metasternal episterna entirely concealed as stated by Bonvouloir.

But one species occurs in our fauna.

H. nigricornis Say.—Cylindrical, slightly narrower behind, black, feebly shining, the apical, and sometimes the basal margin of the thorax reddish; head coarsely, densely and deeply punctured, front marked with a deeply impressed line which divides in front; clypeus a little wider at base than the distance to the eyes; thorax broader than long, arcuately narrowing at apical half to the front, median line deeply and broadly impressed, a moderately deep transverse impression at middle, an oblique impression within the hind angles, the latter small, not carinate; surface coarsely, closely and deeply punctured; scutellum oval, acute, as wide as long; elytra deeply striate, striæ coarsely punctured, intervals convex, more finely punctured than the thorax, but quite rugose; prosternum coarsely and closely punctate, the pleuræ more coarsely but less closely; metathorax less coarsely and less densely punctured than the prosternum; abdomen similarly but more closely punctate; last ventral segment slightly prolonged at middle and sinuate each side; legs brownish. Length .32–.38 inch; 8–9 mm.

Occurs in Ohio.

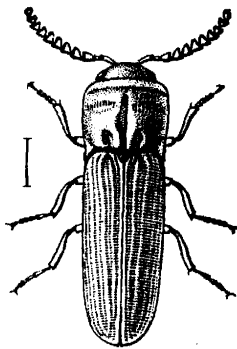
SARPEDON Bonv.

Form cylindrical, moderately robust, slightly narrower behind; antennæ slightly passing the hind angles of the thorax, joints three to ten bipectinate in the male, deeply bilobed in the female; head deeply inserted as far as the eyes, these oval entire; clypeus with the anterior border arcuate, with a slight emargination at middle, at base narrowed to one-half; prothorax nearly quadrate, lateral marginal line acute and entire; under side without antennal grooves, prosternal sutures straight, divergent in front; scutellum rather broad, oval at tip; metasternal episterna moderately broad, broader posteriorly, the epimera distinctly visible; plates of the hind coxæ slightly sinuous on the posterior border and slightly wider externally; legs rather short, posterior tarsi with the first joint as long as the next three, the fourth joint slightly broader and excavate above, slightly lobed beneath; claws simple; last ventral segment slightly prolonged in an obtuse point.

In the above description there will be observed two differences from that by Bonvouloir, who says the metasternal epimera are invisible, and in the form of the antennæ. In the female the antennal joints somewhat resemble those of *Prionus*, while in the male they are distinctly bipectinate, the branches being as long as the joint, the front branch arising from the distal end of the joint, while the posterior arises from the basal end. *Sarpedon* is closely related to *Hylochaeres*, but the two differ in the form of the clypeus and the structure of the antennæ.

One species is known.

***S. scabrosus* Bonv.**—Black, subopaque, apical margin of the thorax reddish brown, the pubescence extremely short and sparse; head coarsely, densely



and roughly punctured, front triangularly impressed above the base of the clypeus and with a moderately deeply impressed line extending to the occiput; clypeus much narrower at base than the distance to the eyes; thorax quadrate, as long as wide, sides straight, slightly arcuate near the front angles alone, hind angles not carinate, disc convex, a median rather broad depression, a transverse depression on each side in front of middle and one on each side at base oblique, surface densely and very roughly punctate; elytra striate, the intervals convex, roughly densely punctate; body beneath more shining than above, densely punctate, the punctures of the prothorax large and variolate, of the pectus large and coarse, on the abdomen dense and gradually

finer to the apex; legs piceous, the tarsi ferruginous. Length .22–.26 inch; 6.5 mm.

The length of this species as given by Bonvouloir is 10 mm., but the line on the plate as drawn by Migneaux is 5 mm., the former is certainly incorrect.

Occurs in Canada, Tennessee, Nebraska, but is very rare.

NEMATODES Latr.

Form elongate, cylindrical, more or less attenuate posteriorly; antennæ filiform, usually slightly thicker externally; head deeply inserted, convex, eyes slightly convex; clypeus narrowed at base, apex arcuate at middle, on each side slightly sinuate; mandibles rather broad and coarsely punctured; prothorax usually longer than wide, the sides straight at posterior two-thirds, the lateral marginal line entire, the prosternal sutures straight, the propleuræ of elongate triangular form with vague antennal depressions; metasternal episterna narrow, parallel, the epimera not visible; hind coxal plates widely dilated internally; last ventral segment more or less prolonged in a point; legs rather slender, the first joint of the hind tarsi as long (or nearly so) as the following joints together, fourth joint excavate-emarginate and slightly lobed beneath; claws simple.

The antennæ differ in the proportions of their joints in our species and will be described in their proper places.

While *Nematodes* is evidently more related to *Schizophilus*, *Epiphanis* and *Hypocœlus*, the resemblance in many important respects to *Dromæolus* must not be lost sight of, as there are several species of the latter genus in which the antennal grooves are rather shallow and not as sharply limited as in the majority.

The species known in our fauna are as follows:

- Color piceous or dark brown; last ventral segment distinctly prolonged; size 6 - 9.5 mm 2.
- Color ferruginous, form slender; last ventral not prolonged, but not obtuse; size 3.5 mm **teres.**
- 2.—Joints 4-5-6 of the antennæ small, not longer than wide, the following joints equal, rather abruptly longer..... **penetrans.**
- Joints 4-5-6 longer than wide and very little shorter than the following joints.
- Elytra gradually narrowed posteriorly from the humeri; antennal depression near the middle of the propleural triangle..... **atropos.**
- Elytra gradually narrowed posteriorly; antennal depression smooth, extending along the entire outer margin of the propleural triangle.
- punctatus.**
- Elytra parallel, narrowed only at apical third; antennal depression adjacent to the margin..... **pavidus.**

N. atropos Say.—Subcylindrical, elongate, attenuate posteriorly, subopaque, very dark brown, almost black, sparsely clothed with a short grayish pubescence; antennæ paler brown, a little shorter than half the body, slightly shorter in the female than the male, second joint longer than the fourth, third nearly equal to the next two, four to eleven gradually longer, each longer than wide, joints six to eleven a little wider than the preceding joints; head coarsely, densely and vaguely punctured, a vague triangular impression above the base of the clypeus with a vaguely impressed line on the front; clypeus a little narrower than the distance to the eye; prothorax distinctly longer than wide, widest one-third from apex, the sides from this arcuately narrowing to the front, behind nearly straight, slightly convergent, hind angles acute, not carinate, slightly divergent, disc convex, slightly flattened at middle, median line impressed, extending very nearly to the apical margin, on each side a fovea more or less impressed, surface densely and rugosely punctate; elytra gradually narrowed posteriorly, surface striate, the intervals flat, densely rugosely punctate, but less coarsely than the thorax; prosternum sparsely punctate, triangle of propleuræ more densely punctate, the antennal depression along its middle; metasternum coarsely punctate; abdomen sparsely punctate at middle, more densely at the sides and very roughly on the last segment, the apex of which is prolonged in a point; legs reddish brown. Length .24 - .36 inch; 6 - 9 mm.

This species is, as a rule, larger than the next, and differs in the structure of the antennæ.

Occurs from Canada to Louisiana.

N. penetrans Lec.—Elongate, subcylindrical, narrower posteriorly, dark brown or piceous, feebly shining, sparsely clothed with short cinereous pubescence; antennæ ferruginous, not as long as half the body, second joint longer than the fourth, third fully as long as the next two, four, five and six short, as wide as long, seven to eleven wider, equal in length, each as long as the third; head densely and roughly punctured, a slight depression above the base of the clypeus, above which is a slightly elevated smooth line; thorax distinctly longer than wide, sides at apical third arcuately narrowing to the front, posterior two-thirds straight and parallel, hind angles acute not carinate, disc convex, at middle slightly flattened, a distinct median impression extending two-thirds to the front, on each side a fovea more or less distinct, surface densely, roughly punctate; elytra distinctly striate, the intervals flat, densely but not rugosely punctate; prosternum moderately closely punctate, the propleural triangle more densely, the antennal vague impression median; metasternum and abdomen densely punctate, the last ventral segment rough and acutely prolonged; legs rufo-ferruginous. Length .24 inch; 6 mm.

In this species the median line of the thorax is less depressed and shorter than in *atropos*, the antennæ otherwise formed and the under side of the body more densely punctured.

Occurs from Canada to Georgia.

N. punctatus Lec.—Form moderately elongate, gradually narrower from the humeri posteriorly, ferruginous brown, feebly shining, sparsely clothed with fulvous pubescence; antennæ slender, as long as half the body, joint two a little longer than the fourth, third very little longer than the entire second, joints four to eleven gradually increasing in length; head convex, very coarsely and roughly punctured, a slight depression above the base of the clypeus, the latter a little narrower than the distance to the eyes; thorax not longer than wide, widest between the hind angles, sides nearly parallel posteriorly, arcuately narrowing to the apex, hind angles acute, very little prolonged; disc convex, without median depression, surface coarsely, densely and very roughly punctured; elytra gradually narrower from the humeri, striate, intervals slightly convex at base, coarsely asperately punctate, especially in front; prosternum coarsely, obsoletely punctured, the triangle more coarsely, the antennal depression extending along the entire outer border and smooth; metasternum and abdomen densely punctate, the last ventral segment roughly at apex, the tip obtusely prolonged; legs brown. Length .21 – .26 inch; 5.5 – 6.5 mm.

It is very evident that the description by Dr. LeConte has been made partly from two distinct species, and I assume that the specimen in his cabinet bearing his label must be accepted as the type of the species. In *punctatus* the third antennal joint is very little longer than the entire second and not longer than the fifth, while in the next species the third joint is decidedly longer than both the third and fifth. In *pavidus* the antennal groove is visible only in front, while in *punctatus* it is much smoother and extends the entire length of the outer margin.

Occurs in Florida.

N. pavidus n. sp.—Cylindrical, narrower at apical third, dark brown, very slightly shining, sparsely clothed with very short fulvous pubescence; antennæ a little shorter than half the body, paler brown, joint two a little longer than the fourth, third a little longer than the second, but not as long as the fourth and fifth together, fourth very little longer than wide, five to eleven gradually more elongate and very little wider; head convex, very coarsely, roughly punctured, a distinct depression above the base of the clypeus, which is as wide at base as the distance to the eye; thorax a little wider than long, sides at apical third arcuately narrowing to apex, posteriorly parallel, hind angles acute, very little prolonged, not carinate, disc convex, a vague median impression, surface very coarsely and roughly punctured; elytra striate, the intervals flat, slightly convex near the base, moderately, densely, coarsely punctured, much less coarse than on the thorax, slightly rugose near the base; prosternum shining, rather finely sparsely punctured triangle of propleuræ much more coarsely and densely except near the margin; the antennal depression is adjacent to the lateral margin in front; metasternum and abdomen moderately densely and coarsely punctate, the last ventral very rugose, its apex subacute, but not prolonged; legs pale brown. Length .26 inch; 6.5 mm.

The above description has been made from one of the two specimens used by Dr. LeConte. By the table given by Bonvouloir (Mon. p. 647) this species seems most closely related to *cuneatus* and *infuscatus*, from both of which it differs in form and the mode of punctuation of the prosternum. It has also a pronounced superficial resemblance to *Microrhagus impressicollis*. In several of the species already described (*Biarti* and *suspectus*) the thorax has the width equal to the length, but the present is the only one known to me with the width greater.

This species has for its type the Texas specimen referred to by Dr. LeConte (Proc. Am. Philos. Soc. 1878, p. 404), which differs not only by the slight antennal variation, but also in general form and by the antennal depression visible only near the front of propleural triangle.

One specimen, my cabinet, Texas.

N. teres n. sp.—Form slender, cylindrical, narrower behind, pale rufo-ferruginous, feebly shining, sparsely pubescent; antennæ less than half the length of the body, second joint as long as the fourth, third longer, joints four to eleven very gradually increasing in length, each about one-third longer than wide; head convex, punctuation coarser, rough and variolate, front not impressed; clypeus at base as wide as the distance to the eye; prothorax longer than wide, the sides straight and parallel, arcuate slightly at the front angles, disc convex, without impressions, the surface coarsely, deeply, densely and roughly punctured; hind angles very little prolonged, not carinate; elytra parallel, narrowed only at apical third, striate, the intervals flat, with a single series of coarse and deep, but irregularly placed punctures; prosternum coarsely not closely punctured, the mucro short, sulcate between the coxæ, the propleural triangle more closely punc-

tured and without trace of antennal depression; metasternum very coarsely and closely punctured; abdomen less coarsely and more sparsely punctate, the last segment rugose, the apex not prolonged in a point. Length .14 inch; 3.5 mm.

This species differs from all our other species in the absence of prolongation to the last ventral segment, a character which seems rather of feeble value inasmuch as in *penetrans* I have observed a gradual diminution of the spine and its almost total obliteration. In other genera species have been admitted with and without the acute tip of the last ventral.

From the table of species as well as by the description this species seems very closely related to *liliputanus*, which is similar in color and even smaller in size.

Occurs at Columbus, Texas.

HYPOCÆLUS Esch.

Form oblong, slightly narrowed posteriorly; antennæ filiform, not dentate; head convex, deeply inserted in the thorax; clypeus narrowed at base, apical margin arcuate; thorax a little wider than long; elytra striate, their spaces obtuse; prosternal sutures straight, divergent, propleural triangle but little longer than wide and with a slight antennal depression in front; metathoracic episterna parallel, the epimera not visible; hind coxal plates dilated within; last ventral segment very obtuse at tip; legs moderate, tarsi filiform, the first joint of the posterior pair as long as the next three, the fourth not dilated nor lobed beneath; claws slender.

Hypocælus is very closely related to Nematodes, and is distinguished by the simple fourth tarsal joint and the very obtuse terminal ventral segment.

Two species are known in our fauna, separated as follows:

Terminal joint of the antennæ very little longer than the preceding; a distinct transverse ridge on the front, clypeus concave..... **frontosus.**

Terminal joint of the antennæ longer than the preceding, in the ♂ as long as the ninth and tenth together; front with a fine longitudinal carina, clypeus flat **terminalis.**

H. frontosus Say.—Form oblong, slightly attenuate posteriorly, piceous black, subopaque, clothed with fine yellowish cinereous pubescence; antennæ ferruginous, shorter than half the body, filiform, second joint shorter than the fourth, third longer, joints four to ten very gradually longer and slightly broader, eleventh oval, acute at tip, very little longer than the tenth; head densely and rather roughly punctate, front with a distinct, transverse, slightly arcuate carina, beneath the front is slightly concave; clypeus concave, narrower at base than the distance to the eyes; prothorax a little wider than long, slightly narrower in front, sides straight and slightly convergent posteriorly, slightly arcuate at apical third, hind angles acute, not carinate, lateral margin entire; disc convex, median line distinctly impressed in its entire length and on each side in front of

base two vague impressions, surface very densely subrugosely punctate; elytra distinctly striate, the intervals flat, densely subrugosely punctate; prosternum opaque, very densely punctate, propleuræ more coarsely, less densely punctate, more shining; metasternum and abdomen more densely and less coarsely punctured than the propleuræ; legs ferruginous, femora darker. Length .18-.22 inch; 4.5-5.5 mm.

In addition to the characters of the table this species is distinguished from *terminalis* by the distinct median impressed line of the thorax.

Occurs in Canada, Pennsylvania and Missouri.

H. terminalis Lec.—Form moderately elongate, slightly narrower behind, piceous black, subopaque, sparsely clothed with cinereous yellow pubescence; antennæ ferruginous, nearly as long as half the body, joints two and four nearly equal, third a little longer, joints four to ten very gradually longer and broader, the eleventh equal to (♀) or longer than the two preceding (♂); head convex, densely rugosely punctate, front finely carinate, the carina extending nearly to the occiput; clypeus rather flat, narrower at base than the distance to the eyes; thorax wider than long, gradually narrower in front, sides nearly straight, slightly arcuate near the front angles, disc moderately convex, densely subrugosely punctate, median line feebly impressed at base, a slight rounded impression on each side of the middle; elytra striate, the intervals very slightly convex and densely rugosely punctate; prothorax beneath opaque, the sides more coarsely punctate; metasternum and abdomen rather densely finely punctate; legs brownish, femora darker. Length .16 inch; 4 mm.

This species is usually smaller than the preceding and resembles it closely in facies. Specimens have been reared from small branches of Hickory.

Occurs in Canada.

SCHIZOPHILUS Bonv.

Form oblong, subdepressed, slightly narrower posteriorly; antennæ much shorter than half the body, the outer joints subserrate, first joint stout, second one-third as long, third one-half longer than the second and nearly equal to the next two, joints four to ten very gradually longer and broader, eleventh one-half longer than the tenth, acute at tip; head deeply inserted, but prominent in front; clypeus broad at base, deeply obliquely impressed each side, truncate at middle, deeply sinuate each side so as to appear trilobed; prothorax narrower in front, lateral margin entire, prosternal sutures straight well marked, slightly excavated in front as in *Elater*, prosternum slightly lobed in front, sinuate each side near the suture; metasternal episterna parallel, the epimera invisible; hind coxal plates broad, triangular; legs moderate, tarsi slender, the fourth joint obliquely truncate, the first joint of the posterior pair as long as the next three; claws slender, slightly broader at base.

This genus is easily known from any other in our fauna by the form of the clypeus. But one species is known.

S. subrufus Rand.—Color pale ferruginous, feebly shining, very inconspicuously pubescent; antennæ passing slightly the hind angles of the thorax; head coarsely and densely punctured; clypeus not wider at base than half the distance to the eye; thorax as wide as long, slightly narrowed in front, sides straight, arcuate at the front angles, hind angles acute, not carinate, disc moderately convex, a slight median depression posteriorly, surface coarsely and densely punctate; elytra finely striate, the intervals flat, sub-biseriately rugosely punctate; body beneath moderately densely punctate. Length .32 inch; 8 mm.

This is rather an inconspicuous species, resembling, at first sight, some of the paler varieties of *Dolopius lateralis*. It seems to be extremely rare. I have seen but two specimens.

Occurs in Canada and New York.

EPIPHANIS Esch.

Form rather elongate, parallel at middle, narrowed at each extremity; antennæ slender, not serrate, the last four joints abruptly longer, varying in length in the sexes, joints four to seven small, not longer than wide; clypeus arcuate in front, as wide at base as the distance to the eyes; eyes round, feebly prominent, limited in front by a slight groove; prothorax wider than long, narrower in front; scutellum truncate at tip; prosternal sutures straight, well defined in their whole extent, the propleuræ vaguely grooved near the side margin, the marginal ridge acute and entire; metathoracic episterna parallel, the epimera invisible; hind coxal plates very broadly dilated internally, very narrow externally; legs moderate, tarsi slender, the fourth joint obliquely truncate, but not lobed beneath; the first joint of the hind tarsi as long as the next three, claws broader at base.

From the description of the antennæ Bonvouloir seems to have known only the female.

There is but one species known, and which seems very widely distributed.

E. cornutus Esch.—Form elongate, parallel at middle, attenuate at either extremity, piceous, feebly shining, sparsely clothed with brownish pubescence; antennæ ferruginous, a little longer than half the body ♂ or shorter ♀; head coarsely and densely punctured, carinate at middle, the carina more elevated in front; prothorax wider than long, gradually arcuately narrowed in front, hind angles not carinate, disc convex, with a feeble median impression posteriorly, surface moderately, coarsely, but not densely punctured; elytra striate, intervals slightly convex, densely but not rugosely punctate; body beneath more shining than above, rather finely, densely punctate, the propleural triangle comparatively smooth; legs brownish. Length .14–.24 inch; 3.5–6 mm.

Male.—Antennæ a little longer than half the body, second joint longer than the third, third nearly square, four to seven subequal, a little shorter than the third and broader than long, joint eight a little wider than the seventh and nearly as long as the preceding four, joints nine, ten and eleven successively, a little longer.

Female.—Antennæ a little shorter than half the body, joints one to seven as in the male, joints eight, nine and ten equal, each equal to joints six to seven together, joint eleven slightly longer.

This insect resembles, at first glance, some of our smaller *Melanoti*, and is easily known among all our *Eucnemidæ* by its antennal structure and the frontal crest.

Occurs from Alaska to the mountain regions of Pennsylvania, also in New Mexico.

PHLEGON Laporte.

Form oblong, elongate; antennæ a little shorter than half the body, first joint moderately thick, second small, third shorter than half the first and nearly as long as the next two, four to eight small, but at least a little longer than wide, last three joints abruptly much longer and broader, the last joint longest; eyes round, moderately prominent; clypeus inflexed, rather broad at base, apical margin entire, arcuate; prothorax wider than long, lateral marginal line nearly entire, beneath without antennal grooves; scutellum longer than wide, truncate at tip; elytra striate; prosternum arcuate at tip, acute; metathoracic episterna moderately wide, parallel, the epimera not visible; posterior coxal plates very broad internally; tarsi slender, the first joint of the middle and posterior pairs as long as the next three, the joints not lobed beneath; claws slender, simple.

In Bonvouloir's description the fourth joint is said to be "excavate-emarginate," which is not true of our species. *Phlegon* may be readily known by the suddenly elongate last three joints of the antennæ.

Two species are known to me.

Thorax arcuately narrowed from base to apex; hind coxal plates at the widest portion at least one-half as wide as the length from the side to the middle.

heterocerus.

Thorax parallel behind, sides arcuate in front; hind coxal plates less than half the width of the coxa.....**Ulkei.**

P. heterocerus Say.—Form oblong-elongate, a little more obtuse in front, gradually narrower posteriorly, ferruginous brown, feebly shining, sparsely clothed with fulvous pubescence; antennæ nearly reaching the middle of the body ♂, shorter ♀; head coarsely and densely punctured, front broadly impressed, a feeble impressed line on the vertex; thorax one-third wider than long, arcuately narrower from base to apex, hind angles not carinate; disc convex, a vague median impressed line posteriorly, surface with moderate punctuation, rather closely placed; elytra narrower posteriorly, surface distinctly, but finely striate, the intervals slightly convex, densely punctate, the punctures finer than on the thorax but rougher; body beneath more shining than above, punctuation, dense and rather fine. Length .40 – .44 inch; 10 – 11 mm.

Male.—First joint of antennæ as long as the next three, second small, partly concealed behind the first, half as long as the third, third as long as the next two, which are nearly equal, six, seven and eight equal, quadrate, nine and ten equal, together as long as the preceding six, eleventh joint long, equal to the preceding two, obliquely impressed at its anterior two-thirds.

Female.—Joints one to eight as in the male, joints nine to eleven together a little longer than three to eight together, joints nine and ten broader and equal the tenth more slender and a little longer.

The general aspect of this insect is that of some of our brown Elaters. As will be seen above the sexes are quite different in the form of the antennæ; the male seems rare.

Occurs in Maryland, Pennsylvania and Indiana (Say).

P. Ulkei n. sp.—Form oblong, parallel, equally obtuse before and behind, dark brown, moderately shining, sparsely clothed with short fulvous pubescence; antennæ shorter than half the body ♀; head coarsely and densely punctured, front slightly depressed, a feeble impressed vertical line; thorax one-fourth wider than long, sides behind straight and parallel, apical third arcuate, hind angles not carinate; disc convex, a feeble median impressed line, nearly obliterated at middle, surface moderately punctured, densely toward the sides and base, more sparsely at middle; elytra parallel, obtuse at apex, narrowing at apical fourth, distinctly finely striate, the intervals flat, densely punctate, the punctures finer than on the thorax, but not rugose; body beneath densely and rather finely punctate. Length .38–.40 inch; 9.5–10 mm.

Male.—Antennæ with first joint as long as the next three, second small, partly concealed behind the first, half as long as the third, third equal to the next two, which are equal sixth, seventh and eighth a little shorter, equal, ninth equal to sixth, seventh and eighth together, tenth shorter than the ninth, the eleventh longer.

Female.—Third joint of antennæ nearly as long as the next two, fourth and fifth equal, sixth, seventh and eighth subequal, longer than wide, each a little shorter than the fifth joint, ninth broader than the eighth and as long as the three preceding, tenth a little shorter, eleventh longer and more slender than the ninth.

Broader and more obtuse than *heterocerus*, with finer punctuation and pubescence, and with narrower hind coxal plates.

Occurs in Ohio; given me by Mr. Ulke.

CRYPTOSTOMA Latr.

Form oblong, parallel; antennæ varying in the sexes; head rather deeply inserted, eyes transverse; clypeus narrowed at base, narrower than the distance to the eyes, apical margin broadly arcuate, mandibles presenting a narrow face externally; prothorax a little wider than long, lateral margin distinct in its entire length; scutellum oval; elytra striate; prosternal sutures straight, well defined, very slightly divergent, propleural region triangular, the apex truncate, not sulcate for the antennæ; metasternal episterna moderately wide, parallel, the epimera not visible; hind coxal plates gradually but widely dilated internally; legs moderate; tarsi slender, the first joint as long as the next three, the fourth simple, claws simple.

The only genera in our fauna to which this is allied are *Anelastes* and *Phlegon*, from either of which it may be so easily known as not to require special comparison here.

One species is known to me, and the specimen is a female, and the following description of the antennæ applies to that sex alone:

C. Dohrni Horn.—Oblong, moderately elongate, parallel, equally obtuse at either extremity, color bright blood red, elytra black, a humeral spot and the apical fifth red, beneath red, sides of body and abdomen black, surface finely pubescent, the pubescence similar in color to the surface; antennæ piceous, the basal joint red, not passing the hind angles of the thorax, first joint stout, equaling the next two, second small, partly concealed, third nearly as long as the next two, four to eight equal in length, very gradually shorter, nine to eleven a little wider, the last joint abruptly truncate; head moderately convex, coarsely and closely punctate, a vague triangular flattening above the base of the clypeus; thorax a little wider than long, sides parallel at basal third, then arcuately narrowing to the front, hind angles very little prolonged, not carinate, disc moderately convex, a transverse, slightly oblique depression on each side near the middle, another on each side beginning at the base opposite the middle of each elytron extending in an arcuate manner forward and outward, surface densely and moderately coarsely punctate; elytra striate, the striæ entire except the second and third, distinctly punctate intervals flat, slightly convex near the base, densely and slightly roughly punctate; body beneath nearly equally punctate throughout, the punctures not dense; legs red. Length .60 inch; 15 mm.

In the other species of the genus the antennæ are otherwise constructed in the male, the third joint having a lobe or process near the base.

This species is the only brightly colored form in our fauna. The specimen in my cabinet was given me by Dr. C. A. Dohrn, who possesses another, which was said to have been collected at San Diego, Cal., but as I have found at least one other species in the same lot from Yucatan, this species may be from that region.

ANELASTES Kby.

Form oblong, convex, slightly narrower behind; antennæ extending very little beyond the hind angles of the thorax, joints four to ten short, nearly equal, submoniliform, the last joint a little longer, abruptly acuminate at tip; head deeply inserted, eyes entire, not very convex, clypeus short, arcuate in front, much narrower at base than the distance to the eyes; prothorax broader than long, slightly narrower in front, sides arcuate, lateral margin indistinct; scutellum triangular, obtuse at tip; propectus without antennal grooves, prosternal sutures straight behind, arcuate near the front; prosternum rather broad between the coxæ, obtuse at tip; metasternal episterna broad, slightly narrower in front; hind coxal plates extremely narrow externally, rectangularly dilated at inner third; legs moderate, tibiæ slightly broader at tip; tarsi slender, not lobed beneath, first joint of the posterior pair equal to the next two, claws slender.

One species is known in our fauna.

A. Druryi Kirby.—Castaneous or rufo-ferruginous, opaque or very feebly shining, sparsely clothed with almost imperceptible brown pubescence; head finely but not densely granulate, front with a finely impressed line; thorax broader than long, but variable in its extent, slightly narrower in front, sides arcuate, but variably sinuate in front of the hind angles, which are slightly di-

vergent, not carinate; disc convex, a median impressed line more distinct posteriorly, surface granulate, but not densely; elytra deeply punctato-striate, intervals convex, finely punctate and granular near the base; body beneath densely, very finely punctate, the sides of the propectus granular. Length .34–.50 inch; 8.5–12.5 mm.

Male.—Posterior tibiæ fimbriate with rather long yellowish hairs at apical third of inner edge; first joint of hind tarsi fimbriate beneath.

Female.—Posterior tibiæ and tarsi not fimbriate.

There is considerable variation in form, size and color in this insect, and specimens often occur with four depressions on the disc of thorax. It is absolutely impossible to distinguish two species in our fauna.

Bonvouloir mentions the occurrence of a specimen in Astrabad which he cannot distinguish from ours, and the differences given to separate *barbarus* seem more forced than real.

Occurs from Vancouver eastward to Canada and in the Atlantic region as far south as Georgia.

CEROPHYTINÆ.

Head flat above, front gibbous, slightly prominent; clypeus inflexed, mouth inferior; antennæ pectinate in the males, strongly serrate in the female; elytra wider at base than the thorax; anterior coxal cavities narrowly open behind, the posterior coxæ depressed without plates, the trochanters rather long, claws pectinate at base.

Bonvouloir correctly remarks that the curious characters of the genus *Cerophytum* have caused some discussion on the position it should occupy. He admits it among the Eucnémides, but as a distinct group. Lacordaire (Genera iv, p. 244) makes it the type of a distinct family, which he places between the Cebrionides and Rhipicerides. In this I think Lacordaire more nearly correct than Bonvouloir, at the same time a relationship seems to exist with the *Dasyllidæ*, especially the tribe *Artematopini* (*Macropogonini* Lec.)

One genus is known.

CEROPHYTUM Latr.

Eyes large, round, prominent; labrum not visible; mandibles slender, arcuate, prominent, acute at tip; last joint of maxillary palpi securiform; thorax transverse, the hind angles slightly prominent, the lateral margin very obtuse; scutellum triangular; prosternum lobed in front, the sutures simple, slightly arcuate, but not divergent in front, the apical process imperfectly received in the excavation of the mesosternum; metasternal episterna gradually wider behind, epimera not visible; posterior coxæ on the same plane as the ventral segments, the outer extremity in contact with the elytra; legs moderate, the anterior femora grooved

on the lower edge for the tibiæ, the trochanters of the anterior legs small, of the middle longer, of the posterior nearly as long as the femur; tibiæ slender, the spurs distinct; tarsi not elongate, rather flat, the first joint of the posterior pair as long as the next three, the fourth excavate-emarginate, claws pectinate in their basal half; body alate.

The two species in our fauna may be distinguished in the following manner:

- | | |
|--|------------------------|
| Antennæ pectinate..... | 2. |
| Antennæ serrate..... | 3. |
| 2.—The pectination beginning on the third joint..... | pulsator ♂. |
| The pectination beginning on the fourth joint..... | convexicolle ♂. |
| 3.—Third joint of antennæ a little longer than the fourth..... | pulsator ♀. |
| Third joint as long as the next two..... | convexicolle ♀. |

In addition it will be observed that the claws are thicker at base in *pulsator*, and the pectinations numerous, while in *convexicolle* the claws are slender and pectinations not more than two or three.

C. pulsator Hald.—Oblong, moderately convex, black, feebly shining, sparsely clothed with short cinereous pubescence; antennæ piceous, a little shorter than half the body; head densely punctate, rugose; clypeus narrower at base, obtusely elevated along its middle; thorax very much broader than long, sides strongly arcuate in front, slightly convergent posteriorly, the hind angles slightly everted, disc convex, coarsely and densely punctured; elytra wider at base than the thorax, the humeri distinct but obtuse, sides parallel; arcuately narrowing at apical third, disc moderately convex, deeply striate, the striæ coarsely and closely punctate, intervals flat, densely punctate and slightly rugose; body beneath densely and rather finely punctate, finely pubescent, metasternum more coarsely punctate; legs piceous, tarsi ferruginous. Length .28–.34 inch; 7–8.5 mm.

Male.—First joint of antennæ stout, second small, triangular, joints three to ten subequal, each with a clavate branch arising from the base in front, that from the third a little shorter than the others, eleventh joint clavate, a little longer than the preceding two.

Female.—First joint stout, second small, third longer than the fourth, joints four to ten dentate within, the eleventh joint a little longer than the tenth.

Occurs from Pennsylvania to Illinois and North Carolina; very rare.

C. convexicolle Lec.—Oblong, moderately elongate, black, subopaque, very sparsely cinereous pubescent; antennæ shorter than half the body, piceous; head coarsely, densely punctate; clypeus narrow at base, obtusely carinate along the middle; thorax much broader than long, sides in front arcuate, posteriorly slightly convergent, the hind angles slightly prominent, disc convex, coarsely, densely and subrugosely punctured; elytra wider at base than the thorax, the humeri distinct but rounded, sides parallel, arcuately narrowing at apical third, disc moderately convex, striæ not deep, coarsely and closely punctate, the intervals flat, finely but not densely punctured, slightly wrinkled transversely; body beneath more shining, the punctuation rather fine but not dense, coarser on the prosternum; legs brownish. Length .26–.28 inch; 6.5–7 mm.

Male.—First joint of antennæ stout, second small, third longer than the following, triangular, the apical angle very slightly prolonged, joints four to ten with a branch of clavate form arising from the base of each, eleventh joint moderately elongate, clavate.

Female.—First joint stout, second small, third elongate, triangular, nearly as long as the next two, joints four to ten broader than long, serrate within, joint eleven elongate oval, obtuse at tip and not as long as the preceding two.

This species closely resembles the preceding, but is more elongate, the elytral striæ less deep, and the intervals less densely punctured. The structure of the antennæ will readily distinguish the two species.

Of this species I have seen but two specimens, the male collected by Dr. Schaum near Sacramento, now in the cabinet of Dr. LeConte, a female collected by myself at Fort Tejon, California.

PEROTHOPINÆ.

Head moderately convex, front slightly narrowed by the insertion of the antennæ under distinct supra-antennal ridges; labrum short, transverse, connate with the front, the suture almost entirely obliterated, the clypeus very short, as in Elateridae; mandibles acute, arcuate, fimbriate on the outer side; prosternum slightly lobed in front, the mucro short; hind coxæ laminate, claws pectinate.

The difficulties which authors have realized in dealing with Perothops have already been alluded to. I can only repeat what I have elsewhere published that the genera Eucnemis, Elater, Cebrio, Perothops and Cerophytum do not represent such different types of structure as to require them to be made separate families. They are indeed very closely related, and the discussion which has prevailed is indicative of that fact. That they differ sufficiently to be separated in groups of less than a family value is evident, but they should be associated as modifications of one type, and for that aggregation I prefer the name Elateridae.

In Perothops the structure of the front of the head is practically the same as in Cebrio. In both the clypeus is quite short as in Elateridae, and to its front margin is fixed the labrum, short and transverse, immovable in both. The suture is very distinct in Cebrio, but almost obliterated in Perothops, where it is only visible in immature specimens, or those softened with solution of caustic potassa.

In the Eucnémides, however, the clypeus is of different form and the suture between it and the front is a short distance below the narrowest part between the antennæ, while the labrum is at most very small and retracted, practically invisible with very rare exception.

In both *Perothops* and *Cerophytum* the claws are pectinate, while in all the genera of *Eucnémides* they are either simple or at most broadly toothed at base.

PEROTHOPS Erichs.

Head moderately convex, clypeus short not inflexed, the labrum continuous and connate with it; mandibles prominent, arcuate, acute at tip, ciliate externally; eyes oval, moderately prominent, entire; maxillary palpi moderately long, the last joint securiform; antennæ slightly narrowing the front, arising under rather prominent ridges, the first joint elongate conical, second one-third as long, obconical, third two-thirds as long, fourth longer than second, joints four to eleven differing in the two species, the eleventh truncate at tip; thorax broader than long, the lateral margin indistinct, hind angles not prolonged; scutellum oval; elytra striate; prosternum slightly lobed in front, the mucro short, the sutures straight, slightly divergent; mesosternal side pieces diagonally divided, equal; metasternal episternum moderate, parallel; hind coxæ with plates broader internally; legs moderate, tibiæ slightly broader at tip, the spurs small; tarsi shorter than the tibiæ, slightly compressed, the joints obliquely truncate at tip, joints one to four gradually shorter, the first, however, stouter, especially on the posterior pair, claws pectinate their entire length; body winged.

Two species are known to me in our fauna.

Lateral marginal line of thorax visible only near the hind angles; antennal ridges transverse, not meeting on the front; hind coxal plates more abruptly dilated internally and wider; joints four to nine of antennæ gradually longer, ten to eleven equal and a little shorter..... **mucida.**

Lateral marginal line of thorax visible from the hind angles half way to the front; antennal ridges oblique, meeting on the front; hind coxal plates very gradually broader internally; joints four to eleven of antennæ equal in length.

Witticki.

In both species the antennæ are slightly flattened externally.

While there are but two species above, a third is in the "Catalogus" credited to California, and which is figured by Lacordaire (Atl. pl. 41, fig. 3), but not described, under the name *cervina*. This does not bear the remotest resemblance to either of our species, and I think there must be some error on the part of Lacordaire, as the species mentioned in the Dejean catalogue (third ed. p. 99) is probably our common *mucida* sent to him by Maj. LeConte. That *cervina* Dej. is *mucida* Gyll. was also the opinion of Erichson (Germ. Zeitschr. iii, p. 117).

P. mucida Gyll.—Form oblong, parallel, piceous ♂ or ferruginous brown ♀, feebly shining, sparsely clothed with cinereous pubescence; head moderately convex, the punctuation intermixed, the coarse sparse, the fine dense; antennæ as long as half the body ♂, a little shorter ♀; thorax wider than long, narrower in front, the sides feebly arcuate ♂, or more strongly ♀, with a slight sinuation

in front of the hind angles which are subacute, the lateral margin extremely feeble and slightly inferior; disc convex, a feeble depression of the median line posteriorly, the surface with an inconspicuous intermixed punctuation, somewhat rugose at the sides; elytra striate, striae punctate, intervals flat and equal ♂, or alternately slightly narrower and more convex ♀, the surface inconspicuously finely punctate, with somewhat coarser punctures intermixed; body beneath very finely and moderately densely punctate, with slightly larger punctures intermixed, which are larger on the sides of prothorax; legs similar in color to the surface. Length .42-.80 inch; 10.5-20 mm.

In addition to the fine pubescence there are sparsely placed, semi-erect, short hairs. The males are known by their usually darker color, more slender form, antennae longer, and the elytral intervals equal.

Occurs from Pennsylvania to Florida.

P. Witticki Lec.—Form oblong, parallel, rather robust, piceous or brownish, clothed with fine yellowish cinereous sericeous pubescence; antennae nearly as long as half the body ♂, a little shorter ♀; head coarsely, sparsely punctate, with fine punctures between, front vaguely longitudinally impressed, supra-antennal ridges nearly transverse, united across the front; thorax much wider than long, narrower in front, sides strongly arcuate, slightly sinuate in front of the hind angles which are subacute, lateral margin distinct from the hind angles two-thirds to apex; disc very convex, median line slightly impressed posteriorly, surface not densely punctate, the intermediate finer punctuation very indistinct; elytra very little wider at base than the thorax, parallel, narrower at apical third, striate, striae indistinctly punctate, the intervals slightly convex equal, sparsely punctate, the finer intermediate punctuation almost obsolete; body beneath densely finely punctured with coarser punctures sparsely placed, which are coarser on the prosternum, the pubescence fine, silken and moderately dense; legs similar in color to the body. Length .62-.80 inch; 15.5-20 mm.

This species greatly resembles *mucida*; it has, however, a more robust facies, the pubescence is closer and more silken. The most obvious structural differences are those given in the table.

Occurs in the middle region of California.

Synonymy and Bibliography.

EUCNEMINÆ.

MELASIS Oliv.

Olivier, Entom. ii, 30.

M. pectinicornis Mels., Proc. Acad. ii, p. 148; Lec., Trans. Am. Philos. Soc. x, p. 411; Bonv., Mon. p. 92, pl. 4, fig. 5.

M. rufipennis n. sp.

THAROPS Cast.

Castelnau, Silberm. Rev. Ent. iii, p. 168.

T. ruficornis Say (*Melasis*), Journ. Acad. iii, p. 166; edit. Lec., ii, pp. 107 and 626; Lec., loc. cit. p. 411; Bonv., Mon. p. 106, pl. 5, fig. 2.

obliqua Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 187; edit. Lec., ii, p. 626; Lec., loc. cit. p. 412; Bonv., Mon. p. 105, pl. 5, fig. 1.

T. nubila Bonv., Mon. p. 108, pl. 5, fig. 3.

DENDROCHARIS Guér.

Guérin, Ann. Ent. Soc. de Fr. 1843, p. 193.

D. flavicornis Guér., Ann. Ent. Soc. Fr. 1843, p. 193, pl. vi, figs. 60 and 61; Lec., (*Galba*) loc. cit. p. 418; Bonv., Mon. p. 802, pl. 38, fig. 7.

STETHON Lec.

LeConte, Proc. Acad. 1866, p. 386.

S. pectorosus Lec., loc. cit. p. 386; Bonv., Mon. p. 146, pl. 6, fig. 5.

S. errans n. sp.

EUCNEMIS Ahrens.

Ahrens, Neue Schr. Gesell. Halle, ii, 2, 40.

E. americana n. sp.

DELTOMETOPUS Bonv.

Bonvouloir, Monog. des Eucnémides, p. 171.

D. amœnicornis Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 189; edit. Lec., ii, p. 628; Lec., Proc. Acad. 1852, p. 48; Trans. Am. Philos. Soc. x, p. 418; Bonv., Mon. p. 182, pl. 7, fig. 5 ♀, 8 ♂.

clypeatus ♀ Say (*Elater*), Ann. Lyc. i, p. 266; edit. Lec., i, p. 399; Lec., Trans. Am. Philos. Soc. x, p. 417.

? *monilicornis* Mann., (*Eucnemis*) Eucn. gen. ins. p. 26, pl. 2, fig. 1; Bonv., Mon. p. 876.

D. rufipes Mels., (*Dirhagus*) Proc. Acad. 2, p. 150; Lec., (*Fornax*) List, p. 44; Bonv., Mon. p. 878.

DROMÆOLUS Kies.

Kiesenwetter, Naturg. der Ins. Deutschl. iv, p. 197.

D. californicus Bonv., Mon. p. 890.

D. sejunctus Bonv., Mon. p. 266, pl. 12, fig. 3.

D. salsus Bonv., Mon. p. 267.

D. nitens n. sp.

D. basalis Lec., (*Fornax*) Proc. Acad. 1866, p. 387; Bonv., Mon. p. 888.

- D. striatus** Lec., (*Fornax*) Proc. Acad. 1852, p. 47; Trans. Am. Philos. Soc. x, p. 417; Bonv., Mon. p. 253, pl. 22, fig. 6.
D. Harringtoni n. sp.
D. cylindricollis Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 188; edit. Lec., ii, p. 627; Lec., (*Fornax*) Trans. Am. Philos. Soc. x, p. 417; Bonv., Mon. p. 250, pl. 11, fig. 4.
D. Marseuli Bonv., Mon. p. 268, pl. 12, fig. 4.
D. pusillus n. sp.

FORNAX Cast.

Castelnau, Silberm. Rev. Ent. iii, p. 172.

- F. badius** Mels., (*Dirhagus*) Proc. Acad. ii, p. 150; Lec., Trans. Am. Philos. Soc. x, p. 416; Bonv., Mon. p. 339, pl. 15, fig. 6.
novitius Bonv., (*Dromæolus*) Mon. p. 270.
F. Hornii Bonv., Mon. p. 891.
F. calceatus Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 188; edit. Lec., ii, p. 626; Bonv., Mon. p. 406, pl. 20, fig. 4.
spretus Lec., (*Isarthrus*) Proc. Acad. 1852, p. 48; Trans. Am. Philos. Soc. x, p. 417.
F. bicolor Mels., (*Hylocharus*?) Proc. Acad. ii, p. 149.
luridus Chev., Ann. Ent. Soc. Fr. 1867, p. 592; Bonv., Mon. p. 490, pl. 20, fig. 1.
F. molestus Bonv., Mon. p. 376, pl. 18, fig. 4.
F. orchesides Newm., (*Onychodon*) Ent. Mag. v, p. 384; Lec., Trans. Am. Philos. Soc. x, p. 416; Bonv., Mon. p. 377, pl. 18, fig. 5.
bicolor ‡ Lec., Trans. Am. Philos. Soc. x, p. 416.
F. infelix n. sp.

PHÆNOCERUS Bonv.

Bonvouloir, Monog. des Eucnémides, p. 285.

- P. americanus** Horn, Trans. Am. Ent. Soc. 1872, p. 147.

ADELOTHYREUS Bonv.

Bonvouloir, Monog. des Eucnémides, p. 609.

- A. Dejeani** Bonv., Mon. p. 617, pl. 30, fig. 3.

MICRORHAGUS Esch.

Eschscholtz, Silberm. Rev. Ent. iv, table.

- M. pectinatus** Lec., Proc. Acad. 1866, p. 387; Bonv., Mon. p. 535.
M. audax n. sp.
M. imperfectus Lec., Proc. Acad. 1852, p. 48; Trans. Am. Philos. Soc. x, p. 419; Bonv., Mon. p. 545, pl. 26, fig. 3.
M. subsinuatus Lec., Proc. Acad. 1852, p. 48; Trans. Am. Philos. Soc. x, p. 419; Bonv., Mon. p. 547.
triangularis || Harris (*Eucnemis*), Trans. Hartf. Soc. N. H. p. 72.
M. oblitus Bonv., Mon. p. 552.
M. triangularis Say (*Elater*), Journ. Acad. iii, p. 170; edit. Lec., ii, p. 110; (*Eucnemis*) Say, Trans. Am. Philos. Soc. vi, p. 189; edit. Lec., ii, p. 628; Lec., Trans. Am. Philos. Soc. x, p. 419; Bonv., Mon. p. 551, pl. 26, fig. 6.
M. impressicollis Bonv., Mon. p. 599, pl. 29, fig. 5.
mucidus ♀ Bonv., Mon. p. 593.

M. Bonvouloiri Horn.*humeralis* ‡ Bonv., Mon. p. 607, pl. 29, fig. 8.*arduus* ‡ Bonv., in cab. Sallé.**M. humeralis** Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 189; edit. Lec., ii, p. 628; Harris, Trans. Hartf. Soc. N. H. p. 72; Lec., Proc. Acad. vi, p. 48; Trans. Am. Philos. Soc. x, p. 420.*meticulosus* Bonv., Mon. p. 604, pl. 29, fig. 6.**ENTOMOPHTHALMUS** Bonv.

Bonvouloir, Monog. des Eucnémides, p. 513.

E. rufiolus Lec., (*Microrhagus*) Proc. Acad. 1866, p. 387; Bonv., Mon. p. 523.*pallens* Bonv., Mon. p. 518.**XYLOBIUS** Latr.

Latreille, Ann. Ent. Soc. Fr. 1834, p. 124.

X. cylindriformis Horn, Trans. Am. Ent. Soc. 1871, p. 341.**HYLOCHARES** Latr.

Latreille, Ann. Ent. Soc. Fr. 1834, p. 127.

H. nigricornis Say (*Melasis*), Journ. Acad. iii, p. 165; edit. Lec., ii, p. 107; Lec., Proc. Acad. 1852, p. 47; Trans. Am. Philos. Soc. x, p. 413; Bonv., Mon. p. 770, pl. 36, fig. 3.**SARPEDON** Bonv.

Bonvouloir, Monog. des Eucnémides, p. 774.

S. scabrosus Bonv., Mon. p. 774, pl. 37, fig. 5.**NEMATODES** Latr.

Latreille, Fam. Nat. p. 248.

N. atropos Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 187; edit. Lec., ii, p. 626; Lec., (*Emathion*) Proc. Acad. 1852, p. 47; Trans. Am. Philos. Soc. x, p. 414; (*Nematodes*) List, p. 44; Bonv., Mon. p. 657, pl. 31, fig. 6.**N. penetrans** Lec., (*Emathion*) Proc. Acad. 1852, p. 47; Trans. Am. Philos. Soc. x, p. 414; (*Nematodes*) List, p. 44; Bonv., Mon. p. 666, pl. 32, fig. 2.**N. punctatus** Lec., Proc. Am. Philos. Soc. 1878, p. 404.**N. pavidus** n. sp.**N. teres** n. sp.**HYPOCÆLUS** Esch.

Eschscholtz, Silberm. Rev. Ent. iv, table.

H. frontosus Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 187; edit. Lec., ii, p. 625; Lec., (*Emathion*) Trans. Am. Philos. Soc. x, p. 414; (*Nematodes*) List, p. 44; (*Hypocælus*) Proc. Acad. 1866, p. 388; Bonv., Mon. p. 697.*canaliculatus* Lec., (*Epiphanis*) Proc. Acad. 1852, p. 46.**H. terminalis** Lec., Proc. Acad. 1866, p. 387; Bonv., Mon. p. 698.**SCHIZOPHILUS** Bonv.

Bonvouloir, Monog. des Eucnémides, p. 708.

S. subrufus Rand., (*Eucnemis*) Bost. Journ. N. H. ii, p. 38; Bonv., Mon. p. 709.*simplex* Lec., (*Nematodes*) Proc. Acad. 1866, p. 388.*trilobatus* Bonv., Mon. pl. 34, fig. 5.

EPIPHANIS Esch.

Eschscholtz, Zool. Atl. i, p. 10.

E. cornutus Esch. Thon. Arch. ii, p. 35; Zool. Atl. i, p. 10; Mann., Bull. Mosc. 1843, p. 288; Lec., Proc. Acad. 1866, p. 388; Lacord., Atl. pl. 40, fig. 4; Bonv., Mon. p. 705, pl. 34, fig. 3.

cristatus Lec., Proc. Acad. 1852, p. 46; Trans. Am. Philos. Soc. x, p. 415.

PHLEGON Cast.

Castelnau, Hist. Nat. Col. i, p. 254.

P. heterocerus Say (*Eucnemis*), Trans. Am. Philos. Soc. vi, p. 186; edit. Lec., ii, p. 624; Lec., (*Euryptychus*) Proc. Acad. 1852, p. 46; Trans. Am. Philos. Soc. x, p. 415; (*Phlegon*) List, p. 44; Bonv., Mon. p. 747, pl. 36, fig. 3.

P. Ulkei n. sp.

CRYPTOSTOMA Latr.

Latreille, Fam. Nat. p. 348.

C. Dohrni Horn, Trans. Am. Ent. Soc. 1878, p. 54; Trans. Am. Ent. Soc. 1882, pl. vi, fig. 13.

ANELASTES Kby.

Kirby, Trans. Linn. Soc. xii, p. 384.

A. Druryi Kby., Trans. Linn. Soc. xii, p. 384; Guérin-Mén., Ann. Ent. Soc. Fr. 1843, p. 177; Lec., Trans. Am. Philos. Soc. x, p. 413; Bonv., Mon. p. 713.

brunneus Latr., (*Silenus*) Ann. Ent. Soc. Fr. 1834, p. 129.

erosus Say (*Elater*), Ann. Lyc. i, p. 258; edit. Lec., i, p. 393.

Latreillei Lec., Proc. Acad. 1852, p. 47; Trans. Am. Philos. Soc. x, p. 413; Bonv., Mon., p. 713, pl. 34, fig. 7.

CEROPHYTINÆ.**CEROPHYTUM** Latr.

Latreille, Gen. Crust. et Ins. iv, 375.

C. pulsator Hald., (*Chorea*) Proc. Acad. iii, p. 150; Lec., (*Cerophytum*) Proc. Acad. vi, p. 230; Trans. Am. Philos. Soc. x, p. 421; Bonv., Mon. p. 81.

C. convexicolle Lec., Proc. Acad. 1867, p. 383; Bonv., Mon. p. 83.

PEROTHOPINÆ.**PEROTHOPS** Erichs.

Erichson, Germ. Zeitschr. iii, p. 116.

P. mucida Gyll., (*Elater*) Schönh. Syn. Ins. iii, app. p. 133; Erichs. loc. cit. p. 117; Lec., Trans. Am. Philos. Soc. x, p. 424.

muscidus Say (*Elater*), Ann. Lyc. i, p. 256; (*Eucnemis*) Trans. Am. Philos. Soc. vi, p. 186; edit. Lec., ii, p. 624.

nuicolor Say (*Elater*), loc. cit.; (*Eucnemis*) loc. cit.; edit. Lec., ii, p. 624.

P. Witticki Lec., Pacific R. R. Rep. 47th par. Ins. p. 45, pl. i, fig. 18.