

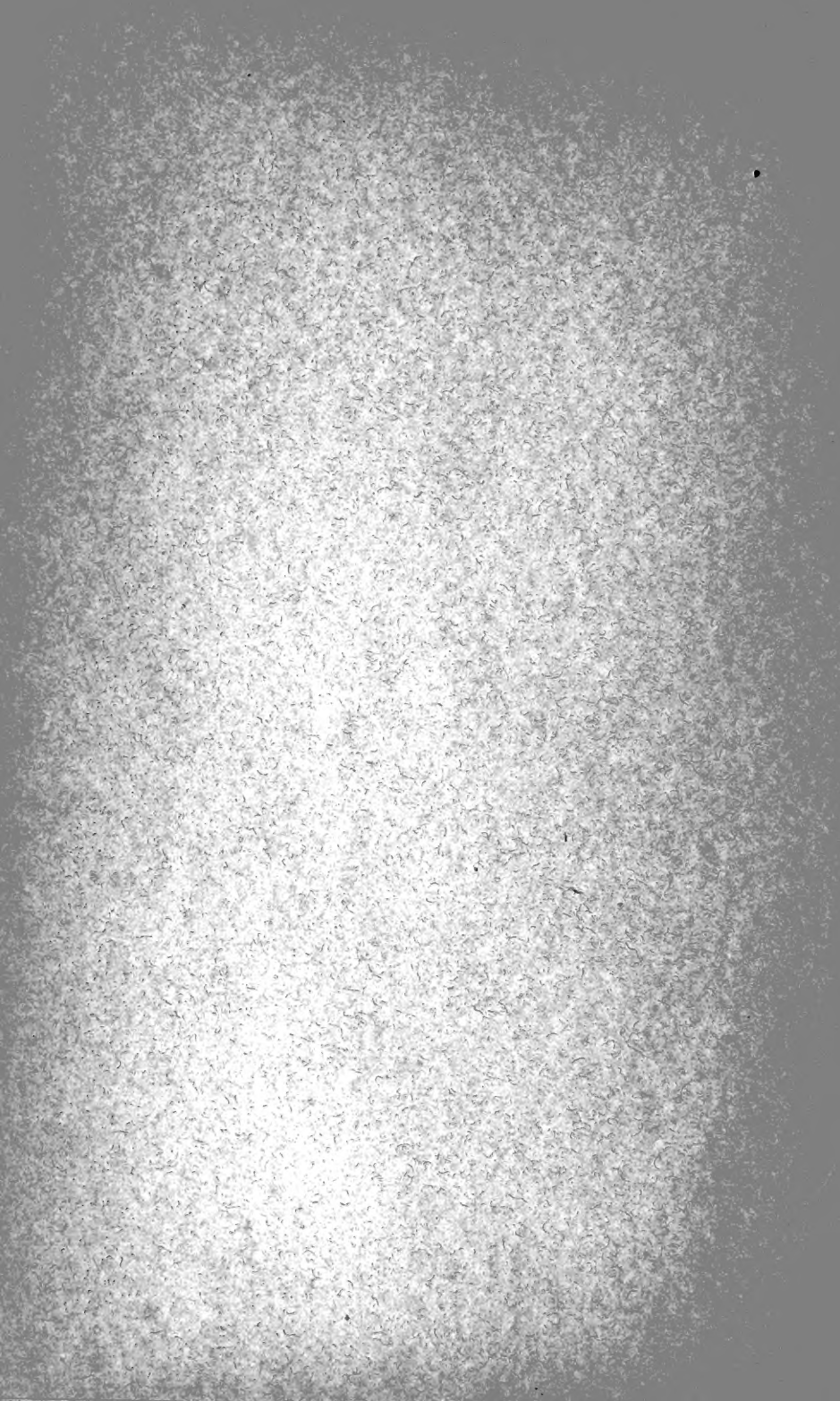


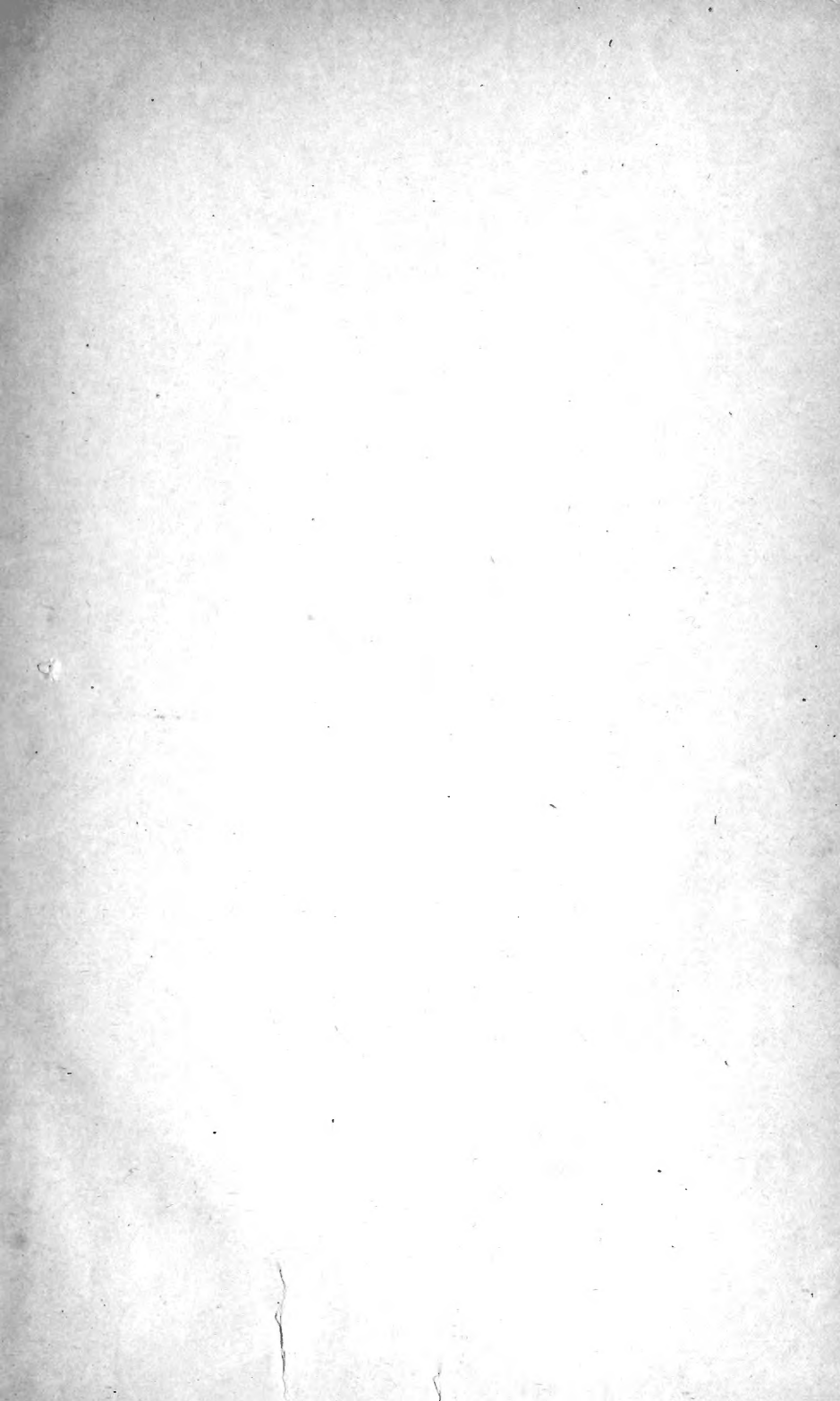


**CHAPIN**

*From J.D. Hood, II, 1919.*

Division of Coleoptera  
Department of Entomology  
U. S. National Museum







The Pselaphidae of  
North America/  
BULLETIN

FROM THE

# LABORATORIES OF NATURAL HISTORY

OF THE

STATE UNIVERSITY OF IOWA.

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VOLUME I.

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PUBLISHED

BY AUTHORITY OF THE REGENTS.

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IOWA CITY, IOWA.

1888-1890.



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P8B74

1890

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acter which makes the young appear proportionately much narrower than the adults; the anterior slope of the shell is long and strongly convex, the posterior being short and concave.

The surface is marked by fine lines of growth. The largest specimen which was secured has the following dimensions: length, 3.5 mm.; width, 1.8 mm.; height, 1.5 mm. The average dimensions are: length, 2.7 mm.; width, 1.7 mm.; height, 1.2 mm. The radula is rather narrow, the dental formula being 12-1-12. A rachidian tooth and one of the innermost laterals will be figured on a plate in our next BULLETIN.

The animal is of a uniform bluish-white color; the foot is ovate, wider anteriorly, and rather narrow for an *Ancylus*.

This species occurs, not uncommonly, about five miles east of Lincoln, Neb., in Dead Man's Run, a streamlet with numerous pond-like enlargements. Specimens were found by the author at all seasons of the year, adhering to shells of *Anodonta plana*, sticks, leaves, etc. Though diligent search has been made, no specimens have thus far been found in any other than the above-mentioned locality.

The only other specimen of the genus which has been found by the author in the vicinity of Lincoln is *A. rivularis*, Say, which is rather rare in Oak Creek, west of Lincoln.

A more complete description and representation of the dentition will be made in a subsequent issue of this BULLETIN, in a paper on the comparative dentition of the species of *Ancylus*.

## THE PSELAPHIDÆ OF NORTH AMERICA.

A MONOGRAPH BY

EMIL BRENDEL, M. D., AND H. F. WICKHAM.

In preparing this monograph the authors hope to aid students of this large and interesting family, by sufficiently minute descriptions and synoptical tables, to recognize any species known to the fauna of the United States and British America, and to see the affinities of American species to members of this family in other lands.

Far from believing this to be a perfect work, the authors submit it as a contribution liable to future revision. Even if the ideas herein set forth are not accepted, the present compilation of hitherto scattered descriptions will, it is hoped, be of value.

The descriptions of early authors were sufficiently minute to differentiate the small number of species then known. At present many of those descriptions are applicable to quite different forms, and synoptical tables based upon the old descriptions have become an impossibility. Up to the time of Jno. L. Leconte, the number of species was very limited. In 1817 Say described but three species—*Tmesiphorus carinatus*, *Bryaxis dentata* and *Batrisus riparius*. Aubé in 1834 added three or four, some not now recognizable, and Motschulsky in 1845 two or three more—ill described. Leconte followed with eighty-four species.

Although the number of descriptions is now quite considerable, their insufficiency has been a great difficulty, and ocular comparison of specimens is often necessary to determine a species. By exactness of description and by carefully drawn figures we hope to relieve the student henceforth from the necessity of such direct comparison.

As to classification, it is a matter of comparatively small moment whether we call a particular group genus or subgenus, provided only the group be recognizable. Any variation in nomenclature or classification will, however, be noticed appropriately in the proper place.

As to the natural sequence of genera, now apparently continuous, future discoveries in the Pacific region will perhaps necessitate some changes. If we take into account the fauna of other countries, the difficulties are greater, and will not be solved until more exhaustive investigation shall supply some forms now lacking.

Having collected in different parts of the United States and obtained by exchange specimens from elsewhere, we have been enabled to compare most of the species described. Of the species not in our possession some have been borrowed for description here; the descriptions of such as we have not handled are inserted in their original form. Names not accompanied by sufficient description are merely mentioned.

In the genus *Bryaxis* the section *Reichenbachia* is most incomplete. Among the forms near to *B. rubicunda* are many which cannot be kept asunder. In this case the extreme members of the series are described. We approve the separation of *Actium* from *Trimium*, and of *Trimiopectus* from *Euplectus*. The new genera present salient differences from the old ones, both in general form and in minor diagnostic characters. These changes may meet with criticism. We have exercised our best judgment, and shall be first to welcome any arrangement that can be shown to be better.

“ . . . . *dum loquimur fugerit invida*  
*Ætas.*”

We shall always thankfully consider ourselves under obligations, for valuable information and specimens, to Dr. David Sharp, London, Eng.; to Capt. Thos. L. Casey, U. S. A., for various assistance and contributions; to Charles and Marie Fuchs, of San Francisco, California, for many important contributions.

It is proper to say in conclusion, that in bringing out the monograph, the plan of the enterprise, the descriptions of the species, and the delineation of all the plates have been the work of the senior author, while the preparation of the matter for the press, its final redaction, belongs to the junior.

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The family Pselaphidæ, with which is here included the Clavigeridæ, ranges next to the Staphylinidæ from which it differs by the prosternum invariably narrow, the large metasternum and by the palpi always four-jointed. The abdomen has five or six flexible corneous ventral segments, the dorsals not, or very slightly, movable upwards but to a certain extent retractile; the middle coxæ are rounded, the posterior transverse; the tarsi two or three-jointed. In the Staphylinidæ the prosternum is variable in form, the metasternum smaller, the palpi four or five-jointed, the abdomen with seven or eight freely movable segments. The middle coxæ are conical, the posterior variable in form, and the tarsi four or five-jointed except in the Oxytelini where they are three-jointed, and which group presents the nearest affinities to the Pselaphidæ.

On the other hand this family approximates the Scydmanidæ, and shows also some relations with the Silphidæ. The Scydmanidæ differ chiefly in the conical, distant posterior coxæ, the longer elytra and the five-jointed tarsi.

The Clavigeridæ bearing in general the same characteristics as the Pselaphidæ, are distinguished by their imperfect embryonic forms, the antennæ with six or less articulations, and by the structure of the abdomen. They are here treated as a subfamily.

The Pselaphidæ present the following characters: mentum corneous, ligula membranous, with large paraglossæ, labial palpi hardly visible. Maxillæ partly membranous and ciliated, their palpi always four-jointed, usually long. Antennæ moniliform or clavate, not more than eleven-jointed. Prothorax with

the side pieces not distinct, ankylosed, prosternum very narrow, often not visible between the coxæ. Mesosternum very short, metasternum very broad. Elytra truncate, subtriangular. Abdomen with five dorsal and five or six ventral segments. The anterior coxæ are prominent, conical, nearly contiguous, the intermediate rounded and near together, the posterior ones transverse, not prominent.

The Pselaphidæ proper are divided into three sections, the Pselaphini, Bryaxini, and Euplectini which sections become almost yearly more indefinite by the discovery of intermediate forms, thus demonstrating the unity of the present family.

The Pselaphini were formerly considered a well defined section, but later discoveries such as the Bythinoid forms of *Machærodes*, *Eutrichites* and *Scalenarthrus* link them with the Bryaxini. The genera *Pselaptus*, *Verticinotus*, and *Eupsenius* on one hand and *Arthmius* on the other lead from Bryaxis to *Batrisus* and the general form of the latter is repeated in *Trimium*. For want of a better place, the *Trogasterini* are placed between *Trimium* and *Euplectus*, as they exhibit radiating affinities.

The species of the second section of Capt. Casey's synoptical table are in our opinion not *Euplecti*. They stand between *Euplectus* and *Trimium*, nearer the latter, and have received the name *Trimiopectus*.

The forms of *Eutyphlus*, *Thesium* and *Faliscus* approach the *Faronii* which latter we leave intact under the old genus *Faronus* for want of a more complete knowledge of the foreign members of this section.

All of the Pselaphidæ live on animal substances, and the comparatively powerful mandibles and maxillæ together with long palpal members seem to indicate that they capture fleet and hard-shelled prey. As a rule the Pselaphini live mostly in pairs while all the others are gregarious at least during the period of copulation when so-called "rare" species may be found in numbers.

The Clavigeridæ live seemingly solitary; the construction and smallness of the oral organs seem to indicate that their nourishment is taken in liquid form.

Of the larvæ nothing is known, our own investigations yielding doubtful results.

### I. CLAVIGERIDÆ.

Antennæ and tarsi two-jointed, anterior coxæ contiguous, posterior ones distant. Two genera are represented in our fauna:

Eyes wanting.	- . - . -	<i>Adranes, Lec.</i>
Eyes present.	- - - - -	<i>Articerus, Dahlm.</i>

#### ADRANES (from ἄδρανῆς, imbecile).

Prothorax, when viewed from above, conical; head cylindrical. Length, 1.8 mm.	- -	<i>cæcus.</i>
Prothorax campanulate; head obconical. Length 2.5 mm.	- - - -	<i>lecontei.</i>

A. CÆCUS, *Lec.* Orange yellow, pubescence in regular rows of short, recumbent setæ. Length, 1.8 mm. Plate I., Figs. 4 and 5.

*Head* variolate, frontal margin straight, antennal foveæ large, extending to the middle of the clypeus and leaving a narrow septum connecting the frontal margin with the labium. The last antennal joint is rounded at the base, longer than one-half the length of the head, squarely truncate and narrower at the distal end. Palpi small, hidden inside of the circular oral opening. *Prothorax* as long as wide near the base, where the width equals the length of the head, neck half as wide as the base. Sides, at base, rounded, arcuate, straight towards the neck. Disk variolate, with a deep median sub-basal, circular fovea. *Elytra* with the suture as long as the prothorax, which they very slightly exceed in width at base, middle depressed, sides straight, divergent, longer than the suture, posterior margin of each elytron triangularly lobed; disk without impressed lines, apex of lobe tufted with hairs.

*Abdomen* broader than the elytra, convex, polished, impunctate, the first dorsal segment very large, longer than wide, broadly margined, margin convolute at base, hairy, diminishing in width posteriorly, basal fovea extending from the suture two-fifths of the length of the segment. Two posterior dorsals very short. Mesosternum arrow-shaped, anterior coxæ cylindrical, contiguous, their trochanters arcuately conical, half as long as the femora; intermediate coxæ small, rounded, posterior transverse, femora angulate, the ridges setigerous, grooved externally at the distal end for the reception of the cylindrical, two-jointed tarsus.

In the male the end of the middle trochanter has a curved claw as long as that member.

Habitat. Pennsylvania, Georgia, Illinois. Long Island

A. LECONTEI, *Brend.* Honey yellow, pubescence in regular rows. Length, 2.5 mm. Plate VI., Figs. 1 and 2.

*Head* twice as long as broad, broadest along the inter-antennal line, base only two-thirds of that width. Frontal margin and sides straight as seen from above; vertex with two entire, shallow, longitudinal impressions. Last antennal joint slightly arcuate, otherwise of the same form as in *A. cæcus*. *Prothorax* bell-shaped, a little longer than the head, base twice as wide as the neck, sides slightly arcuate, disk transversely convex, with a transverse sulcus one-fifth from the base, which is interrupted in the middle by an oval tubercle. Space between the sulcus and the base ring shaped, convex, with a flat, circular plane in the middle bearing a center-point. *Elytra* as in *A. cæcus*. Basal abdominal segment wider than the elytra, margin arcuate and convolute near the base, thence divergent in a nearly straight line to the posterior limit of the segment. Disk trapeziform, convex, foveæ similar in form to those of *A. cæcus*, which it also resembles in the sexual characters.

Habitat. Mississippi Valley.

ARTICERUS, *Dahlman* (ἀρτι, short, κέρασ, horn).

Antennal foveæ not reaching the eye, head wider,  
last antennal joint with lateral outlines arcuate.  
Length, 1.5 mm. - - - *californicus*.

Antennal foveæ reaching the eye, head narrower,  
last antennal joint with lateral outlines straight.  
Length, 1.66 mm. - - - *fuchsii*.

A. FUCHSII, *Brend.* (*Fustiger, Lec.*) Dark yellow, translucent, pubescence setiform, in regular rows. Length, 1.66 mm. Plate VI., Fig. 6.

*Head* much variolate, flattened above, sides subangular near the eyes, which are situated about one-third of the length from the base. Frontal margin and base nearly equal in width to each other and to three-fourths of the length of the head; frontal margin slightly impressed at middle, frontal septum narrow, antennal cavities very large. On the occiput are seen two small, shining points (also present in the European species), which have the appearance of ocelli. The eyes have eight facets. *Antennæ* with the basal joint small, quadrate, root-pulp partly exerted, second joint straight, tuba-shaped, tip truncate and three times wider than the base. *Prothorax* variolate, equal to the head in length, as long as wide, subglobular, truncate at base and apex, with a deep, median, sub-basal, variolate scar. *Elytra* at the base as wide as the prothorax; no humeral tubercles, suture not longer than the head, width across the tips equal to one and three-fourths times the length of the suture. Posterior limit of each elytron angularly lobed near the lateral limit, and having a tuft of hair; disk slightly depressed along the suture, with sutural lines and about six rows of recumbent setæ. Posteriorly the elytra are declivous to the deep, transverse abdominal fovea. *Abdomen* wider than the elytra, the basal segment longer than wide, deeply transversely foveate, evenly convex posteriorly, lateral margin convolute near the base, where it is widest and retuse, gradually narrowing behind. First ventral transversely impressed on either side. Legs prismatic, the



thighs slightly compressed laterally, grooved for the reception of the tibiæ, which latter are thicker at the distal end and grooved externally for the reception of the tarsi. Tarsi cylindrical, joints connate (three in number?) with a single strong claw. The male has the last ventral segment sinuate in the middle and the venter more concave.

Found in eastern Tennessee by Fr. Fuchs in 1866. Also occurs at Williams, Arizona. (Wickham).

A. FUCHSII, var. CALIFORNICUS, *Brend.* This differs in the form of the head, which is just perceptibly wider and seemingly shorter. The antennal foveæ are limited anterior to the eye, while in the specimens from Tennessee they are drawn up backward above the eye, gradually becoming shallower. The funicle of the antennæ is darker in *A. californicus*, the first joint constricted near the base, with the root partly exposed, discernible in the bottom of the fovea; second joint as in *A. fuchsii*, but with the outlines concave. Discovered by my friend Carl Fuchs at Los Angeles, California. Occurs in March.

#### SYSTEMATIC OUTLINE OF THE FAMILY PSELAPHIDÆ.

I. Antennæ approximate, inserted beneath prominent, porrected, contiguous, tubercles. (*Pselaphini*).

*a*<sup>1</sup> Posterior coxæ, distant, tarsi with two equal claws.

*b*<sup>1</sup> Maxillary palpi with the last two joints similar in form like the cotyledons of an acorn, without appendages.

Antennæ robust moniliform the last two joints of the maxillary palpi compressed, fusiform. - - - CEOPHYLLUS, *Lec.* 226

Antennæ with the last three joints forming a club, the last two joints of maxillary palpi lunate, the terminal one longer.

CEDIUS, *Lec.* 228

*b*<sup>2</sup> Antennæ clavate, maxillary palpi with the last three joints bearing lateral setiform appendages.

Last three joints of maxillary palpi triangular, appendages short.

TMESIPHORUS, *Lec.* 230

Last three joints of maxillary palpi oval-transverse, appendages very long. - - - CTENISTES, *Reichenb.* 234

*b*<sup>3</sup> Maxillary palpi without appendages.

Antennæ moniliform maxillary palpi minute, the basal joints hidden, the last two connate, together forming a globular club. - - - - - CHENNIUM, *Latr.* 232

Last three joints of antennæ forming a club Last joint of maxillary palpi elongate with a terminal seta. - TYRUS, *Aubé.* 237

Last joint of antennæ enormously enlarged, last joint of maxillary palpi cylindroid, rounded at tip. - HAMOTUS, *Aubé.* 240

*a*<sup>2</sup> Tarsi with a single claw, posterior coxæ distant.

Maxillary palpi excessively long, third joint small, globular, second and fourth pedunculate-clavate, very long.

PSELAPHUS, *Hbst.* 243

Maxillary palpi with the second joint tuberculate-clavate, the third quadrate, fourth broadly securiform.

PSELAPTRICHUS, *Brendel.* 242

Maxillary palpi with the second joint clavate, pedunculate, the third triangular, the fourth long, securiform. TYCHUS, *Leach.* 245

*a*<sup>3</sup> Posterior coxæ approximate. Tarsi with a single claw. Body linear depressed. - - - - - RHINOSCEPSIS, *Lec.* 251

II. Antennæ distant, inserted on the sides of the head, beneath short, distant, not porrected tubercles.

*a*<sup>1</sup> Posterior coxæ distant, only one claw fully developed.

*b*<sup>1</sup> Body broad transversely (cylindrical) in cross section. Abdomen more or less broadly margined. *elliptical*

*c*<sup>1</sup> Abdominal margin retuse, narrow, dorsal segments unequal. Two basal ventrals longer, elytra narrow-shouldered very long, vertex bifoveate. (*Bythinini.*)

*d*<sup>1</sup> Last palpal joint cultriform antennal club three-jointed. First antennal joint very long, vertex differently sculptured in the sexes.

MACHÆRODES, *Brendel.* 252

*d*<sup>2</sup> Last palpal joint acuminate-ovate.

Penultimate joint of antennæ small, lenticular, the last ovate.

EUTRICHITES, *Lec.* 256

Penultimate joint of antennæ larger trapezoidal, the last long fusiform. - - - - - SCALENARTHUS, *Lec.* 256

*c*<sup>2</sup> Abdominal margin broadly retuse the basal segments of the dorsum and venter much longer, tarsi with a single claw. Elytra flat, last palpal joint fusiform. (*Bryaxini.*)

Vertex bifoveate, prothorax with lateral edge rounded, unifoveate, antennæ ten-jointed with a three-jointed club. Body broad, sexual marks on the intermediate thighs, elytral lines and abdominal carinæ long, parallel, and distant.

DECARTHON, *Brendel.* 260

- Vertex not foveate prothorax faintly trifoveate, under surface of head bicarinate body broad, antennal club three-jointed, only four ventral abdominal segments visible. - NISAXIS, *Casey*. 257
- Vertex and pronotum trifoveate, body broad, each elytron with a long discal line, antennæ with a three-jointed club, under surface of head unicarinate. - - - BRYAXIS, *Leach*. 266
- Vertex bifoveate with a transverse frontal impression and ~~also~~ <sup>obsoletely</sup> ~~circumambient~~ sulcus, prothorax trifoveate, only the last antennal joint enlarged, body elongate. EUPSENIUS, *Lec*. 1
- ♂<sup>2</sup> Body convex abdominal border narrow, prothorax without, or with one basal fovea, base of the abdominal dorsum without carinæ, or only indications of them, mutually far distant.
- Pronotum not foveate, elytral lines wanting vertex impressed in front. - - - - - PSELAPTUŠ, *Lec*. 2
- Pronotum unifoveate, elytral lines present, the discal ones very short, vertex and antennæ differently sculptured in the sexes.
- VERTICINOTUS, *Brendel*. 2
- Vertex with four faint foveæ different in the sexes; prothorax bifoveate, with a shallow basal transverse sulcus; elytral discal lines obsolete or wanting, sutural lines present, abdominal border on each segment not triangular, basal carinæ present. Sexual differences in the vertex, antennæ and anterior tibiæ, tarsi with two unequal claws. ARTHMIUS, *Lec*. 4
- ♂<sup>3</sup> Body circulo-cylindrical, narrow, elongate, very convex; abdominal margin with the edges not parallel, triangular on each segment, the external edges obsolete; vertex arcuately impressed. Prothorax with two or three longitudinal grooves, claws two, unequal. BATRISUS, *Lec*. 5
- a<sup>2</sup> Posterior coxæ approximate.
- d<sup>3</sup> Body circulo-cylindrical, narrow, vertex arcuately impressed, prothorax without longitudinal sulcus, the last antennal joint only enlarged, tarsi with a single claw (*Trimini*).
- Elytral base bifoveate, no subhumeral fovea, head larger.
- TRIMIUM, *Aubb*. 32
- Elytral base trifoveate, with a subhumeral fovea, head smaller.
- ACTIUM, *Casey*. 39
- d<sup>4</sup> Body elliptico-cylindrical, convex, broader, the last three antennal joints enlarged, head transverse, prothorax with sharp, straight, linear longitudinal and basal sulci crossing each other, tarsi with two unequal claws (*Trogasterini*).
- e<sup>1</sup> Prothorax at sides not spinous. Elytra with four basal punctures, each with a line, the discal ones abbreviated. - - RHEXIDIUS, *Casey*. 41
- e<sup>2</sup> Prothorax at the sides spinous.
- Prothorax armed at the sides with a single sharp tooth, elytra with three discal lines. - - - - - OROPUS, *Casey*. 43

Prothorax twice as wide as long, armed at sides with three recurved spines, elytra with one discal line, antennæ geniculate.

RHEXIUS, *Lec.* 46

*d*<sup>5</sup> Body depressed, antennæ thicker towards the apex.

*f*<sup>1</sup> Tarsi with a single claw, antennal club three-jointed, vertex arcuately impressed, not produced in front.

Body broader, lateral margin of the pronotum crenate, prosternum carinate, fourth dorsal segment not prolonged.

THESIUM, *Casey.* 48

Form convex, not depressed, dorsal abdominal border moderate, slightly retuse, dorsal segments five, subequal, the fourth not prolonged, visible ventral segments five, the two basal ones longer. - - - - - TRIMIOPLECTUS, *Brendel.* 50

Form depressed, linear, abdominal border wide, retuse, the three basal segments equal in length, the fourth prolonged, consisting of two segments united, ventrals six in female, seven in male, of equal length. - - - - - EUPLECTUS, *Leach.* 53

Form depressed like Euplectus, prosternum carinate, the fourth dorsal segment not prolonged, eyes of female rudimentary.

EUTYPHLUS, *Lec.* 72

Body slender, pronotum with lateral longitudinal grooves, prosternum carinate, fourth dorsal not prolonged.

FALISCUS, *Casey.* 74

*f*<sup>2</sup> Tarsi with two equal claws, body linear, antennal joints gradually slightly larger towards the apex. - - - - - FARONUS, *Aubé.* 75

### CEOPHYLLUS, *Leconte* (κέω, I hide, φύλλον, a leaf).

Antennal tubercles transverse, contiguous, antennæ eleven-jointed, palpi with the two terminal joints lamellate. Pubescence short, appressed. Tarsi with two equal claws, anterior femora each with three strong spines. Body elongate, not compact.

*C. MONILIS*, *Lec.* Cinnamon-brown, impunctate; length, 3.3 mm. Plate VI., Figs. 7, 8 and 9. *Head* from base to frontal margin as long as the prothorax; width between (but excluding) the eyes, three-fourths that of the prothorax. Base evenly rounded, tempora not prominent, as long as the eyes. Frontal tubercles transverse, divided by a fine fissure which ends in a deep, oblong impression one-third the length of the head. Eyes not prominent, facets fine. Disk evenly vaulted.

Clypeus swollen, convex, subangulate anteriorly. Antennæ robust, one-half as long as the beetle, first joint about two-thirds as long as the frontal margin, cylindrico-conical; second smaller, of the same shape, two-thirds the length of the first, third and fourth equal, shorter than the second, and nearly as wide. Fifth and sixth, in the male, globose, wider than the fourth. Seventh, eighth, ninth and tenth, globose, the last two each equalling the third, which slightly exceeds the seventh, this being again exceeded by the eighth; eleventh subglobular a little wider than the tenth, and bluntly pointed. In the female these joints are subequal, subglobose, a little longer than wide, and becoming almost imperceptibly larger towards the tip. *Palpi* with the first joint very small, quadrate, second more than half as long as the head, small at base gradually increasing in width, sigmoid; third pedunculate, lamellate, fourth with the lamella opposite, and as long as, that of the third, the two resembling the cotyledons of a bean. *Prothorax* campanulate length and width equal to that of the head including the eyes, sides evenly arcuate, becoming straight and parallel posteriorly, base a little less than twice as wide as the neck, with a fine impressed line around it; disk evenly vaulted, pubescence radiating from the center. *Elytra* across the shoulders one-half wider than the base of the prothorax; at the widest point which is just two-thirds of the length from the base they are just one-half wider than the breadth of the shoulders. Anterior half of the disk flat, tip and sides obliquely declivous, sutural lines nearly parallel, discal lines sulciform with flat bottoms, and evanescent near the middle of the elytral length. Shoulders prominent. *Abdomen* at base one-eighth narrower than the greatest width of the elytra, and as long as the width at the shoulders, very convex, broadly margined. First segment one-fourth as long as the basal width, sides divergent, a deep transverse impression near the middle of each half of the base. Ventral segments equal in length with no perceptible sexual differences. Legs long, slender, anterior femora with three spines. Tarsi

slender, half the length of the tibiæ, which are longer than the femora, joints two and three equal in length. Claws equal in length but not in strength.

Habitat. Ohio river to the Great Lakes.

CEDIUS, *Leconte*. (κηφειος, careful).

Antennal tubercles transverse contiguous, antennæ eleven-jointed. Palpi with the last two joints unequal, cotyledonous, the third triangular or lunate acuminate inside; fourth thick, oblong or triangular free angles rounded. Tarsi with the last two joints equal, claws two, equal, anterior femora strongly tri-spinous. Body robust compact.

C. ZIEGLERI, *Lec*. Umber brown, punctate, pubescence appressed, short and dense. Length 2.7 mm. Pl. VI., Figs. II and II<sup>a</sup>.

*Head* from base to frontal margin equal in length to the width just behind the eyes, tempora not prominent, nearly straight, convergent, shorter than the large prominent coarsely faceted eyes; frontal tubercles transverse, half as long as wide, separated by an ample sulcus which extends half way to the base. Disk between the eyes convex, punctured, with two circular foveæ in the line of the posterior margins of the eyes and twice as distant from one another as from the eyes. On the under surface of each side behind the eyes is a strong prominent spine. Clypeus convex, rounded anteriorly. *Palpi* with the second joint as long as the third or fourth, curved, fusiform; third triangular, the basal and free angles acute, the sides including the latter angle longest, apical angle rounded. Fourth joint fusiform sides arcuate. *Antennæ* nearly half as long as the body, robust, the first joint as long and wide as the frontal tubercles; second, third, and fourth equal, as long as wide; fifth smaller, subglobular; sixth and seventh globular subequal; eighth shorter, transverse, and differing in the sexes, that of the male having the inside prolonged into a very long, sharp, flat tooth, reaching to the base of the tenth joint. Ninth obconical, twice as wide as the

eighth, tenth obconical, truncate at base, twice as wide as long, eleventh ovate, base truncate, wider than the tenth and a little wider than long. *Prothorax* equal in length to the width of the head with the eyes included, a little wider in the middle for about one-sixth of the length. At this point the sides are strongly arcuate, anteriorly and posteriorly becoming nearly straight, neck half as wide as the base. Disk coarsely and deeply punctured with two slightly marked circular impressions one-sixth of the distance from the neck, and a deeper fovea on each side near the base connected with its fellow by a straight conspicuous sulcus. Basal margin just perceptibly raised in a sharp ridge. *Elytra* coarsely punctured, rather depressed anteriorly, the width across the shoulders equal to the length of the suture, and one-eighth more than that of the prothorax. They are widest one-fourth of the length from the tip and here the width is one-third greater than at the shoulders, which are prominent as a rounded, elevated ridge. Disk not very convex, sutural lines straight, nearly parallel, suture depressed, discal lines rather sulciform at base, evanescent near the middle. *Abdomen* very broadly margined, first dorsal as wide as the elytra, widening behind, length, one-fourth of the width, and with two entire longitudinal carinæ including about one-half of the segmental surface; posterior segments very convex, the margins converging. Ventral segments equal, the last, in the male with a small digital impression. Legs strong, anterior femora strongly tri-spinous. Tarsi half as long as the tibiæ the second joint just visibly longer than the third. Claws equally strong.

Habitat. East and west of the Alleghenies, along the Ohio river to Missouri and Southern Iowa.

C. SPINOSUS, *Lec.* UMBER brown, punctate, pubescence short, appressed. Length, 1.9 mm. Plate VI., Fig. 10.

*Head* broader than long, tempora as long as the eye, which has coarse facets. Frontal tubercles more than twice as wide as long, separated by an ample sulcus, which is faintly pro-

longed backward, as a shallow impression, to a line between the foveæ. These latter are circular, separated by a space three times as great as that intervening between each one and the eye, and are situated on a line passing from center to center of the eyes. Below and posterior to either eye is a strong spine. *Palpi* with the first joint gradually curved, increasing in thickness toward the third, which it exceeds three times in length. Third joint triangular, with the free angle produced into a spine; fourth triangular, free angles obtuse. *Antennæ* with the first joint cylindrical, not so long as the width of the adjoining frontal tubercle; second to sixth oblong-subglobular, gradually shorter, the seventh small, globular, eighth as long as the third, drawn out on the inner side into a long, concavo-convex tooth reaching the base of the tenth joint. Ninth and tenth transverse, the latter three times as wide as the seventh, last joint wider than the tenth, ovoid, slightly truncate at base, and longer than the two preceding. *Prothorax* convex, widest at the middle, where the sides are strongly arcuate, but they become straight in front of and behind the point. Neck half as wide as the greatest width, and not quite two-thirds that of the base. Disk punctulate, without anterior circular impressions, and with small basal foveæ connected by a fine linear sulcus. *Elytra* depressed anteriorly, breadth at the shoulders a little less than the length of the suture, tip one-fourth wider. Disk punctulate, shoulders prominent, subangulate, sutural lines entire, parallel, suture depressed, discal lines sulciform, bottoms flat, reaching half-way to the tip. *Abdomen* convex, wider across the posterior margin of the first segment, which has no carinæ, the posterior segments rapidly decreasing in width. *Legs* with anterior femora tri-spinous, joints two and three of the tarsi equal in length.

Habitat. Same as for *C. ziegléri*.

TMESIPHORUS, *Leconte*: (Τμησις, a fissure, φέρειν, to carry).

Antennæ clavate, frontal tubercles not transverse, palpi with the second joint pedunculate-triangular, third equilateral-tri-



angular, fourth triangular, free side emarginate, appendages setiform, short. Body variolate.

*T. COSTALIS*, *Lec.* Piceous, shining, pubescence short, appressed. Length, 3.3 mm. Plate VI., Fig. 13.

*Head*, exclusive of the eyes, two-thirds as long as broad, eyes very prominent, facets coarse. Frontal fissure deep, branching behind the frontal tubercles toward the foveæ, which are situated on a line passing through the centers of the eyes. Occiput convex; below and behind the eyes is found a small, horizontal spine. *Antennæ* of the male more than one-half the length of the body, first joint cylindrical, as long as the frontal margin and not quite half as thick; second, one-third as long and two-thirds as wide as the first, cylindrical; third, fourth and fifth globular, as thick as the second; sixth and seventh smaller, also globular; eighth, ninth and tenth gradually larger, obconical, the eighth as thick as the first, the tenth twice as thick; eleventh thicker and as long as the ninth and tenth conjointly, emarginate on one side near the base. Pubescence denser on the club. Female antennæ shorter, less robust, and without the basal emargination on the last joint. *Prothorax* campanulate, widest at middle, as wide and long as the head, convex, neck half as long as the base, sides rounded at middle, straight towards the neck and base. Disk with two slightly impressed foveæ on the anterior fourth, and an ample one on each side near the base; lateral margin depressed, subsulcate by the convexity of the disk. *Elytra* convex posteriorly, half as long again as the head, breadth at the shoulders four-fifths the length of the suture, at the tip one-third more than the shoulders. Humeri high, prominent, discal lines in the form of a broad, flat-bottomed sulcus, abbreviated at middle, sutural lines parallel, curving outward at the base. *Abdomen* broadly margined, first dorsal segment wider posteriorly, this and the second carinate, the latter a little longer. Ventrals subequal, flattened in the male, metasternum longitudinally impressed in the middle. Legs very long, slender, tibiæ slightly increasing in thickness toward the

end, anterior ones in the male dilated outside in the middle, straight inwardly. Female the same, except that the middle is slightly thicker.

Habitat. Found over the entire extent of our territory east of Kansas and the Missouri River and south of the Great Lakes.

*T. CARINATUS*, *Lec.* Brown, densely punctate, pubescence short, appressed. Plate VI., Fig., 12.

Form of body, sculpture and sexual characters same as in *T. costalis*, except that the vertex has the median frontal fissure broader, abbreviated one-third of the length from the frontal margin and not connected by branches with the foveæ. The anterior prothoracic foveæ are wanting, and the abdomen has a medial carina extending backward over the third dorsal, besides the lateral ones. Length, 2.5 mm.

Habitat. Same as *T. costalis*.

CHENNIUM *Latreille.* (Derivation unknown.)

*Biotus*, Casey. *Atimus*, Horn.

Palpi very small and short, basal joints invisible, the two last joints connate, forming a globular club, the last covering the penultimate one in the shape of a cone of large area and little height. Antennæ moniliform. Pubescence short, appressed, setiform, clypeus prominent, uniformly convex, rounded anteriorly, prothorax wider than the head, tri-foveate. Elytral impressed lines very long, nearly entire, second dorsal longer than the first.

CH. MONILICORNE, *Brend.* Cinnamon-brown, strongly punctate, pubescence short, dense, appressed, prothorax as long as wide. Length, 2.8 mm. Plate VI., Fig. 15.

*Head* conical, punctured, widest between the eyes, which are prominent, with fine facets; distance from frontal margin to base, one-half longer than the width between the eyes and about equal to the width of the head, eyes included; tempora not prominent, convergent, frontal tubercles together half as

wide as the head and eyes, divided by a sharp cut running backward to the inter-ocular line. Immediately behind the tubercles the head is constricted to less than two-thirds of the width of the frontal margin, and thence the sides diverge to the eyes. Between the eyes are two large pubescent foveæ, and on the occiput at the base a small obsolete tubercle. *Antennæ* moniliform, except the first joint, which is cylindrical, nearly twice as long as thick. The second and third are longer than wide, joints four to eight shorter, equal in length, subequal in thickness, the fourth very slightly transverse; the ninth and tenth are very little larger, equal, globular; eleventh slightly longer than thick. *Prothorax* uniformly convex, slightly transverse, widest one-third of the length from the base, which is nearly twice as wide as the neck and as wide as the length, or four-fifths the greatest width. One-sixth from the base are three sharply impressed foveæ, the lateral ones partly hidden from above. *Elytra* across the shoulders broader than the prothorax, and nearly as wide as the suture is long. The humeral width is about two-thirds that of the tip. The sides are divergent from the shoulders and nearly straight, disk not, or very little convex; lines entire, deeply impressed, suture depressed, humeri forming a prominent ridge. *Abdomen* rather convex, broadly margined, edge of margin curved, segments uniformly vaulted from side to side; first dorsal shorter than the second, ventrals subequal, diminishing slightly in length. Legs long and slender, femora cylindrical, tibiæ thicker toward the end, or, in the male, the intermediate ones slightly bent inward at the lower third, and the posterior very much dilated, tapering at the distal third to the compressed tarsus.

Habitat. Mountains of Virginia and Tennessee.

CH. (?) FORMICARIUM, *Casey*. (*Biotus formicarius*, *Cas.*)

Cinnamon red, faintly punctulate, polished, prothorax transverse, wider than long. Length 2.8 mm. Plate VI., Fig. 14.

*Head*, including eyes, slightly longer than wide, eyes large, distant about their own length from the base and from the constriction behind the frontal tubercles which are small, longer than broad, and divided by a fine sharply defined line. Vertex convex; between the eyes are situated two large pubescent foveæ mutually a little more distant than they are from the eyes. *Antennæ* one-half the length of the body, joints at base and tip oblique, parallel, the first cylindrical, equal in length to the width of the frontal tubercles taken together, second smallest, rounded, transverse. Joints three to ten nearly equal, very little broader than long, eleventh cylindrical tapering for the last third to a point, and about as long as the two preceding. *Prothorax* about equal in width at the middle to the length of the head and two-thirds as long. Sides evenly rounded in the middle and straight toward the neck and base. The latter is one-third wider than the neck and slightly narrower than the disk in the middle. Lateral foveæ small, circular, one-third the length from the base, middle one oblong, shallow. *Elytra*, across the rounded, not very prominent humeri, one-fifth wider than the prothorax, suture twice as long as the prothorax and one-eighth shorter than the greatest width of the elytra. Basal foveæ deep sutural lines converging on the posterior half, discal lines divergent, obsolete near the tip. *Abdomen* broadly margined, sides uniformly arcuate, edges of each segment slightly so, each segment uniformly vaulted from side to side, the first shorter than the second. Legs long slender, tarsi one-third the length of the tibiæ, claws equal, small. Sexual differences unknown.

Habitat. Middle California.

CTENISTES *Reichenb.* (Κτενίστης—a hair dresser.)

CT. PULVEREUS, *Lec.* Piceous brown, pubescence scaly, gray. Length 2.3 mm. Plate VI., Fig. 16.

*Head* (including eyes) longer than wide, frontal tubercles

one-third the width of the head, broad, divided by a fine line which is prolonged backward and dilated into a broad shallow sulcus reaching to a line drawn through the anterior margin of the eyes. The posterior foveæ are small and deep, placed in semicircular impressions, open towards the eyes, and leaving in the middle a narrow ridge which connects the elevated occiput with the two ridges running alongside the frontal sulcus to the frontal tubercles. The palpal joints are very transverse, bottle-shaped, terminating in long setæ. *Antennæ* in female half as long as the body, in the male longer, the first joint more than half the width of the frontal margin, concave anteriorly. The second is as thick as the first and half as long, third and fourth equal, longer than the second but not thicker; fifth to tenth equal in width, decreasing in length, tenth perceptibly longer than wide. Eleventh very little thicker and as long as the four preceding joints. In the female it is thicker and shorter. *Prothorax* barrel-shaped, convex, evenly vaulted, same length as the head, as wide as long, widest behind the middle, the median basal fovea oblong, reaching one-third from the base and thickly filled with pubescence; lateral foveæ ample, pubescent, lateral depression shallow. *Elytra* one-third longer than the prothorax, width across shoulders equal to the length, tips one-fourth wider; humeri moderately prominent, discal lines abbreviated near the tip. *Abdomen* along the posterior margin of the first segments wider than at base, broadly margined, margins of the segments arcuate, equally convex, the two basal segments nearly equal in length. Legs very long the second tarsal joint longer than the third.

Habitat. California. Arizona. (Wickham).

CT. PICEUS, *Lec.* Dark piceous, elytra, antennæ, and legs reddish brown, palpi paler. Length 1.9 mm. Plate VI., Fig. 18.

*Head*, including eyes, as wide as long, frontal tubercles, narrow posteriorly, not transverse, the dividing line scarcely

perceptible, frontal fovea rounded, occipital foveæ in depressions which are not open towards the eyes and which leave between them a narrow ridge connecting the occiput (which is not elevated) with the anterior part of the vertex. *Palpi* with the second joint pedunculate, somewhat triangular at the thick end, the last two transversely ovate, the appendages three times as long and hooked at the free end. *Antennæ* of the male three-fourths the length of the body, joints nearly equal, cylindrical, twice as long as thick, scarcely larger towards the end, last joint as long as the three preceding, flattened on the inside. Females with joints 7, 8, 9, and 10 transverse, short, last joint shorter, oblong oval. *Prothorax* wider than long, and as wide as the head is long; the basal median foveæ reach the middle of the disk, the lateral ones are smaller, lateral sulcus or depression fully separating the margin which is strongly arcuate. *Elytra* more convex than in *Ct. consobrinus*, the discal and sutural lines though deep nearest the base, leave the intervals not very convex. *Abdomen* convex, margin broad, the edges arcuate. Legs long.

Habitat. Territory east of the Mississippi. Iowa.

*CT. CONSOBRINUS*, *Lec.* Usually uniformly dark piceous or with paler elytra, legs, and antennæ, pubescence very dense giving a rather rough appearance. Length, 1.75 mm. Plate VI., Fig. 17.

*Head* with the frontal incision reaching the oblong fovea, the occipital foveæ are small, the depression continuous from side to side and very shallow causing the occiput not to appear elevated. Otherwise the same as in the preceding species. *Prothorax* as long as wide, the basal median fovea shorter, the lateral sulcus separating a narrow slightly arcuate margin. *Elytra* more depressed, flat, the linear impressions deeper and the shoulders more prominent than in *Ct. piccus*.

Habitat. Same territory as the preceding.

*CT. ZIMMERMANNI*, *Lec.* Pale brown or testaceous, not densely pubescent. Length, 1.65 mm.

*Head* with the frontal incision reaching the oblong frontal fovea, occipital foveæ large, farther apart and nearer the eye, tubercles on each side of the frontal foveæ conspicuous, occiput elevated. *Prothorax* as long as wide, narrower anteriorly than in the other species, widest a little behind the middle; the median fovea is nearly circular the lateral ones small, the lateral sulcus is a fine line not perceptibly separating the narrow margin. *Elytra* more convex, the lines not deeply impressed, shoulders more rounded, otherwise as in *Ct. piceus*. *Habitat*: Southern States

TYRUS, *Aubé*.

Antennæ clavate, palpi with first joint minute, second long, arcuate, clavate, third short, obovate, the last joint longer than the third and mucronate at apex. Third tarsal joint longer than the second, with two equal claws. Form robust, compact. Pubescence long, not squamiform.

T. HUMERALIS, *Aubé*. Piceous-black, pubescence fine, short, appressed; elytra, antennæ and legs reddish, palpi paler. Length, 1.6 mm. Plate VI., Fig. 19.

*Head*, eyes included as long as broad, frontal tubercles transverse, divided by a sharply cut line, faintly connected with the oblong anterior fovea. Between the eyes are two small foveæ not connected by a depression. *Palpi* with the second joint long, strongly clavate at the end, third obovate as large as the club of the second, fourth joint larger, ovate, mucronate at the apex. *Antennæ* with joints one and two cylindrical, the first larger, three to seven rounded, gradually becoming smaller, eighth and ninth larger, globular, tenth twice as long and thick as ninth, rounded obconical, eleventh the largest, ovate in the male; in the female the joints three to nine are subequal, tenth larger, less rounded, eleventh oval. *Prothorax* bell-shaped, wider near the middle, where it is as wide as long, sides behind the middle straight or very slightly sinuate, base nearly as wide as the middle, neck a little more than half as wide, evenly vaulted. One-fifth of the length

from the base is a fine transverse sulcus; a rounded fovea is in the middle; lateral foveæ small. *Elytra* one-fourth longer than the prothorax across the high, prominent shoulders, and not quite double the length across the hips. Disk finely punctulate, impressed lines and two basal foveæ deep, the sides slightly arcuate. *Abdomen* but little longer than the elytra, and narrower at the base than across the posterior margin of the first segment, which is almost imperceptibly longer than the second. Margins very broad, retuse, a minute tubercle in the middle of the base. Legs strong, middle trochanters with a strong, blunt spine at the ends, anterior tibiæ with a short, spinulate submedian carina. Male with the last dorsal emarginate at tip, last ventral slightly impressed, punctured, these characters being wanting in the female. The male has also the posterior tibiæ more arcuate.

Habitat. Eastern slope of the United States.

T. CORTICINUS, *Casey*. Brown, elytra red, abdomen piceous-black, pubescence fine, short, appressed. Length 2 to 2.2 mm. Plate VI., Fig. 20.

*Head*, eyes included, slightly longer than wide, frontal tubercles quadrate, separated by a fine line which is connected with an oblong frontal fovea. There are also two small foveæ between the eyes. *Antennæ* more than half as long as the body, joint one long and conical, two smaller, of the same form, three to seven subequal, only very slightly decreasing in size. The eighth joint is the smallest and is quadrate, the ninth is as long as the two preceding together, obconical, longer than wide, the tenth is larger, of the same form as the ninth. The eleventh is ovate, one-half wider and twice as long as the tenth. *Palpi* with the second joint long, clavate, arcuate, third shorter, obovate, as thick as the club of the second; fourth not thicker than the third and twice as long, fusiform, pointed at both ends with a long terminal seta. *Prothorax* about as wide as long, widest one-third from the neck, where the sides are rounded; from this point the sides are nearly straight



anteriorly and posteriorly. Base very little narrower than the width of the disk; one-fourth from it are three small foveæ, the lateral ones on the declivity of the sides and connected with the middle one by a fine, nearly straight sulcus. *Elytra* one-third longer than the prothorax across the high, prominent shoulders, twice as wide as the head behind the eyes and twice as wide as the base of the prothorax across their tips; lines and basal impressions deep, disk slightly more convex than in *T. humeralis*. *Abdomen* of the same form as in the preceding species, the median basal tubercle elongate, visible. Legs stout, intermediate trochanters bluntly spinose, anterior tibiæ rough near the middle. The last dorsal is truncate in the male and pointed in the female.

Habitat. Western slope of the Sierra Nevada, Montana. (Wickham).

*T. ELONGATUS*, *Brend.* n. sp. Slender, brownish-red, elytra and legs brighter, impunctate, pubescence long and abundant. Length, 1.95 mm. Plate VI., Fig. 21.

*Head* sessile, as long as its width behind the eyes, occiput evenly transversely convex, base sharply edged. *Tempora* as large as the eye, convergent, eyes large, supra-antennal process rhomboidal, the upper surface declining to the median sulcus, frontal fovea large, interocular foveæ small, deep, obliquely elongate. *Antennæ* longer than the head and prothorax; joints one to three longer than wide, subcylindrical, decreasing in size, four to eight transversely oval, half as wide as the first and little narrower than the third. The ninth and tenth are trapezoidal, the base of the former being equal in width to that of the second; the eleventh is as long as the ninth and tenth together, ovate, the truncate base half as wide again as that of the ninth. *Palpi* dirty yellow, second joint sigmoid, clubbed, as long as the last, third rounded, quadrate; the last is fusiform, nearly four times as long as wide and furnished with a terminal seta. *Prothorax* widest in the anterior third, length and breadth nearly equal, sides straight from middle to base and more convergent than in *T. humer-*

*alis*. The disk is very convex, middle fovea large, hidden by a bunch of long, convergent hairs, giving the appearance of a sharp-pointed tubercle; transverse sulcus very fine, lateral foveæ small. *Elytra* equal in length to their width across the shoulders, which are not prominent; disk rather convex, base bifoveate, sutural lines parallel, converging in the posterior fourth, discal lines none, replaced by an ample but shallow basal impression. *Abdomen* longer than the elytra, convex in both directions, border wider, retuse, the basal segment shorter than the second or third, which are equal, longitudinally very convex and depressed at the base; no median basal tubercle visible. Legs long, the anterior trochanters of the male with a long, bluntly-pointed spine, anterior thighs with a small, sharp thorn on the basal, and a minute sharp tubercle on the second third. Posterior tibiæ spurred, tarsi with long hair on the sole.

One specimen ♂. Williams, Arizona. H. F. Wickham.

We have placed this species in *Tyrus*, but the form of the prothorax and head resembles more closely *Hamotus batrisioides* while the antennæ, palpi and locomotive organs are those of *Tyrus*, thus demonstrating the close affinity of these two genera.

### HAMOTUS, *Aubé*.

(*Cercocerus*, *Motsch.*)

Pubescence loose, coarse, and long; head not constricted behind the frontal tubercles, eyes finely faceted. Elytra and abdomen very convex. Palpi with the second joint fusiform, third compressed subglobular, fourth elongate fusiform. Second and third tarsal joints equal, claws two, equal.

H. BATRISIOIDES, *Lec*. Umber brown, elongate, convex, polished pubescence long, coarse, yellow, not appressed; punctuation faint, irregular, punctures large. Length, 1.8 mm. Plate VII., Fig. 22.

*Head* as broad as long, very convex; eyes large moderately

prominent, finely faceted; tempora convergent, little longer than the eyes, not convex, frontal tubercles rather short, not constricted posteriorly, scissure sharp and ending in a small elongate fovea one-fourth the length from the frontal margin. There are two small, round, well-defined foveæ in a line with the anterior quarter of the eyes, separated from each other by twice as great a distance as from the eyes. Clypeus with the anterior margin rounded, labrum bilobed. *Antennæ* not quite half the length of the body, the first joint cylindrical, arcuate below, as long as the eye and half as thick; second joint quadrate, as wide as the first, third to fifth gradually smaller, quadrate, sixth to tenth gradually wider, tenth as wide as the second, twice as thick as long. The last joint is pear-shaped, compressed, half as long as the preceding portion of the antennæ, and one-third from the apex the width is equal to the length of the first three joints together; pubescence sparse, surface faintly punctulate. *Palpi* with the first joint small, cylindrical; second fusiform; third irregular globular; fourth longer than the preceding joints together, cylindricofusiform. *Prothorax* as wide as long, widest a little before the middle, very convex transversely, sides evenly arcuate, becoming straight and convergent near the base. One-fifth from the base is a small triangular fovea connected with the very small, rounded, lateral foveæ by a well defined and very thin slightly arcuate line. *Elytra* one-fifth longer than the pronotum, length equal to the humeral width, shoulders with small, not prominent humeral tubercles, one-fourth wider across the middle than the length of the suture, disk convex. pubescence coarser than on the anterior part of the body: Sutural striæ well defined anteriorly originating from transverse basal impressions and obsolete posteriorly; discal impressed line short, foveate at base, becoming obsolete one-third before the middle. *Dorsal segments* subequal in length, the basal one-fourth as long as wide, wider behind, convex, slightly impressed at the sides of the base, and, compared with the other species of this group, very moderately mar-

gined. Venter flattened along the middle, anterior trochanters with a hair-like spine contiguous to the surface of the femur. Legs moderately strong, tibiæ nearly straight. No reliable sexual marks have been discovered in any species of this genus.

Habitat. *Mississippi Valley, south of 36°*

#### PSELAPTRICHUS, *Brendel.*

Antennal insertions approximate, front prolonged narrow, sulcate. Maxillary palpus very long, the second joint sigmoid-clavate and coarsely tuberculate, the third small quadrate, the fourth broadly securiform, as long as the second with short erect pubescence.

P. TUBERCULIPALPUS, *Brendel.* Yellowish brown, pubescence in regular rows, form slender, slightly convex. Length, 1.66 mm. Plate VII., Fig. 24.

*Head* flat above, longer than wide, widest between the eyes, which are small and situated at the angles of a pentagon forming the discus of the vertex posterior to the oblong frontal prolongation; the latter nearly quadrate, arcuate in front, sulcate in the middle, the lateral half with the surface plane and inclined toward the sulcus; just before the eye-line are two small foveæ, mutually twice as distant as either from the eye and connected by a straight angular shallow sulcus with the frontal fissure; occiput slightly elevated with a fine carina in the middle, labrum small transverse, clypeus anteriorly trisinate; antennal cavities large, from the middle of the eyes to the middle of the posterior limit of the antennal cavities a fine carina, and between those cavities a narrow frontal septum. *Antennæ* as long as the head and prothorax conjoined, first joint cono-cylindrical, half as long as the head, second oval, as wide as the first, third and seventh less than half as wide as the preceding joints, globular, eighth wider, not longer, ninth transversly oval, tenth twice as wide as long, eleventh oval, twice as wide as the second joint and one-half longer, with long pubescence. *Prothorax* as long as wide,

and one-half wider than the head, widest behind the anterior third where the sides are acutely rounded and toward the neck and the base nearly straight; disk moderately convex, near the base with an angulated transverse sulcus, ending on the sides in an ample impression, containing a small fovea. *Elytra* across the shoulders as wide as the prothorax, widest behind the middle, where it is one-half wider and along the suture one-third longer than the shoulder-width; disk rather depressed near the base, sutural lines slightly impressed, basal foveæ small, the sutural ones near a transverse elevation of the base, the discal ones in the anterior part of a shallow oblong depression, below the humeral ridge a fovea connected by an oblique line with the lateral margin. *Abdomen* as wide as the elytra, slightly convex, without the basal impressions, segments subequal, border narrow. The pubescence of the elytra and the dorsal segment arranged in regular rows. Anterior coxæ contiguous, posterior ones distant, trochanters short triangular, legs slender, anterior femora crenate below, tarsi with one claw, second joint twice as long as the third, metasternum not impressed. ♂ anterior tibiæ arcuate with a deep notch inside on the distal fourth of its length, clypeus with a medial ridge. ♀ tibiæ and clypeus simple.

Habitat. Alameda county, California.

This singular insect unites some of the characters of *Bythinus* (*Machærodes*) *carinatus* and *Pselaphus longipalpus*, the antennæ and the palpi belonging to the European *Machærites* group of the *Bythini*, the form of the head approaching that of *Pselaphus*. According to the testimony of Dr. David Sharp, there is no genus known, with which it can be united.

PSELAPHUS, *Hbst.* (*ψηλαφάω*, I feel my way—referring to the very long maxillary palpi.)

Head longer than broad, eyes large, prominent. Prothorax as long as the head, barrel-shaped, polished, nearly twice as long as thick. Elytra conjointly forming nearly an equilateral

triangle with the anterior angle but little truncate; abdomen with the first dorsal as broad as the tip of the elytra, and half as long, the sides parallel, broadly margined. The other segment is short and retractile. Legs long, antennæ more than half as long as the body, palpi with the second and fourth joints longer than the head, the first and third being small and globular.

*P. ERICHSONII*, *Lec.* Red or reddish-brown, polished, not punctured. Length, 1.75 mm. Plate VII., Fig. 23.

*Head* larger before the eyes, narrow, frontal tubercles oblong-quadrate, divided by a fine incision which is dilated behind into a deep sulcus running through an ample median groove to the occiput. On each side of the groove is a hollow, bladder-like organ, yellow in color, which commonly shrinks after death to a triangular form. Occiput narrowed to the width of the neck. *Prothorax* twice as long as thick, with a nearly imperceptible puncture near the base. *Elytra* depressed, flat, dorsal lines sharp, entire, base angulate toward the suture, the shoulders closely adjoining the base of the prothorax. Sutural striæ dilated behind the middle, deeply sunk below the general level. The posterior margin is declivous except on the outer angles, from which it is separated by a short oblique ridge. *Abdomen* depressed at base, convex from side to side, broadly margined, the other segments together shorter than the first, declivous and very retractile. *Antennæ* with the first joint three times as long as thick, cylindrical, second to eighth obconic, gradually smaller; ninth and tenth oblong, rounded, larger, the eleventh twice the length and thickness of the ninth, oblong-ovate, acute at the tip. *Palpi* with the last joint clavate from the distal fourth, the club covered with rasp-like teeth and ending in a terminal seta.

Legs long, femora clavate, tibiæ dilated in the lower half, tarsi with the second joint dilated.

Habitat. Eastern States.

*P. LONGICLAVUS*, *Lec.* Blackish-brown elytra blood-red,

legs, antennæ and palpi reddish-brown. Club of the fourth antennal joint longer than the peduncle. Length, 1.8 mm.

Besides the difference in size, form and color of the last palpal joint, this species differs from *P. erichsonii* in the prothorax being more convex at sides, and thicker, the elytra less depressed on each side of the sutural lines, the interval not dilated behind the middle, more convex from base to tip, and the first dorsal segment more depressed at the base. The males of both this and the preceding species have the middle of the postpectus angularly impressed lengthwise.

Habitat. Mississippi Valley from Iowa to Louisiana.

### TYCHUS, *Leach*.

The characters given in the synopsis of genera will sufficiently distinguish this genus.

#### TABLE OF SPECIES.

1<sup>1</sup> Elytra depressed, prothorax without median basal puncture, sutural lines parallel.

Palpi with the second, third and fourth joints nearly equal in length. Color testaceous. Length, 1.17 mm. *longipalpus*.

1<sup>2</sup> Elytra more convex, sutural lines arcuate.

2<sup>1</sup> Base of pronotum with five punctures; basal dorsal segment not longer, third palpal joint triangular, shorter than the fourth. Vertex with two punctures.

3<sup>1</sup> Black with red extremities. Antennal joints 3-6 quadrate, 7-10 transverse, rounded, obconical. - - - - - *minor*.

3<sup>2</sup> Color testaceous or light brown, free angle of the third palpal joint rounded.

Elytra broadly convex, antennal joints oblong, slightly diminishing in size, eighth smallest, the ninth twice as large, both subglobose, tenth transversely oval. ♂ with the anterior trochanters spined. Length, 1.5 mm. - - - *testaceus*.

Elytra very convex, antennal joints 8-10 transverse, 3-6 equal, quadrate. Punctures on the vertex obsolete. Tarsi with a thin second claw. Length, 1.3 mm. - - *cognatus*.

2<sup>2</sup> Color, black with red extremities and elytra. Abdominal basal segment longer, base of pronotum punctured.

3<sup>3</sup> Head without the usual two punctures.

Base of pronotum with three punctures, third palpal joint shorter than the fourth. Antennal joints 8-10 transverse. - *tenellus*.

Base of pronotum with five punctures, third palpal joint fusiform, nearly as long as the fourth, which is cultiform. ♂ anterior trochanters and middle coxæ spined. - - - *puberulus*.

*T. LONGIPALPUS*, *Lec.* Yellowish-brown, impunctate, subdepressed, pubescence long, erect. Plate VII., Figs. 25 and 26.

*Head*, including the eyes, as long as wide, tempora slightly arcuate, convergent, not prominent, longer than the eyes, which are prominent, coarsely faceted, lateral margin straight between the eyes and the frontal tubercle, edge rounded. Frontal tubercles quadrate, separated by a fine impressed line prolonged backward, disk transversely convex, longitudinally not so; half-way between the eye and the frontal tubercle on each side is a sharp tubercle pointing outward. The declivous frontal surface and the concave clypeus are perpendicular to the vertex; labium three times wider than long, not emarginate. *Palpi* with the second joint arcuate, clavate beyond the middle, extending from its insertion to the posterior margin of the eye. Third joint more than half as long, cultriform, widest at the base, fourth securiform, shortly pedunculate, widest at middle and as long as the second. *Antennæ* longer than the head and prothorax, first joint obconical, flattened above, twice as long as the second, which is oval and not so thick; third to eighth subequal, the fifth being but slightly stronger and the eighth the smallest; ninth globular, twice as wide as the eighth, tenth larger, globular, eleventh ovate, twice as long as the tenth. *Prothorax* widest near the middle, slightly wider than long, convex, base double the width of the neck, median fovea small and rounded. Lateral foveæ situated in shallow longitudinal impressions, no intermediate ones. *Elytra* depressed, one-half longer than the prothorax, the distance across the prominent shoulders being the same. They are broadest one-third from the tip, disk slightly broadly arcuate at the sides, sutural lines deep, discal lines abbreviated near the middle. Shoulders rounded, prominent, the declivous lateral portions punctured. *Abdomen* narrowly margined, segments subequal, the first longest, one-third as long as wide. The fourth is also longer than its neighbors. Legs with the third tarsal joint longer than the second.

*Habitat.* United States east of the Rocky Mountains.



*T. MINOR*, *Lec.* Black, polished, convex, coarsely pubescent; antennæ, palpi, frontal tubercles, legs, and fourth and fifth abdominal segments reddish brown. Length, 1.4 mm. Plate VII., Fig. 27.

*Head* polished, as long as broad, tempora as long as the eyes, frontal tubercles transverse, incision conspicuous. Nearer to the frontal tubercles than to the eyes on each side is an acute tubercle pointing outward, behind which is a punctiform impression. Occiput higher than in *T. longipalpus*, longitudinally plane, transversely convex. *Palpi* with the third joint triangular, the sides enclosing the free and tufted angle equal, shorter than the third, which is more than half the length of the last joint. This joint is securiform, shortly pedunculate, more than half as long as the head, broadest in the middle. *Antennæ* slightly longer than the head and prothorax, the two basal joints more robust; the first obconical, flattened above, the second smaller. Joints three to seven are only about half as wide as the preceding, cylindrical, very little longer than wide, eighth globular, ninth and tenth subglobular, slightly transverse, eleventh twice as thick as the ninth, rounded ovate, and as long as the two preceding. *Prothorax* polished, wider than long, and as long as the head, widest slightly before the middle, where it is strongly arcuate; anteriorly and posteriorly it is nearly straight, slightly sinuate, disk very convex, the base twice as wide as the neck. Lateral foveæ rather large, basal foveæ five in number, placed in a transverse row very near the base, the middle one larger, along the sides anterior to the lateral foveæ almost imperceptibly impressed, the impression visible only in a certain light. *Elytra* faintly reticulate, as wide across the shoulders as the prothorax, and, near the tip, two-thirds wider. Shoulders elevated, not prominent laterally, disk convex both ways, sutural lines fine, not deeply impressed except near the base; interval flat. The basal and discal lines each originate in a fovea, the latter deep, reaching beyond the middle. The declivous lateral portion of the elytra is very broad, polished, impunctate.

*Abdomen* proportionately more broadly margined than in *T. longipalpus*, segments subequal, the basal ones just perceptibly longer, the fourth equal to or very slightly longer than its neighbors and one-fourth as long as wide. Legs proportionately longer than in *T. longipalpus*.

Habitat. Found between the Ohio River and the Great Lakes. Pennsylvania. New York.

*T. TESTACEUS*, Casey. Convex, impunctate, brown or paler, pubescence fine, sparse, erect. Length 1.5 mm. Plate VII., Fig. 28.

*Head* from the frontal tubercles to the base slightly longer than wide. Eyes prominent, finely faceted, tempora equal in length to the eyes, convergent, nearly straight, not prominent; occiput high, convex, obliquely declivous forwards towards the impression behind the frontal tubercle; sides convergent from the eyes to these tubercles. Between the frontal tubercles and the eye the lateral margin is expanded into a minute, sharp, horizontal tubercle overhanging the lateral declivity, and close behind this is a minute puncture. *Antennæ* as in *T. longipalpus*. *Palpi* with the second joint longest, a securiform pedunculated club. Third joint half as long as the second, exteriorly straight, interiorly arcuate, widest in the middle, half as wide as long,. Fourth joint one-half longer, securiform with a terminal seta. *Prothorax* widest at middle where it is arcuate, nearly straight toward the neck and base. Disk more convex than in *T. longipalpus*, near the base is an oblong median fovea and on each side between the median and lateral foveæ is a small puncture. *Elytra* very convex, as wide across the shoulders as the prothorax and two-thirds wider at tip. Sides divergent, slightly arcuate, disk impunctate, discal line abruptly ending at middle, sutural interval convex. *Abdomen* broadly margined the segments subequal in length the basal one-sixth as long as wide. Legs, antennæ and palpi not paler than the body.

Habitat. Found in the country around the Great Lakes.

*T. COGNATUS*, *Lec.* Form more robust and convex than in any other species known to us. Color, bright umber brown, pubescence fine, body impunctate. Length, 1.25 mm. Plate VII., Fig. 29.

*Head* with the eyes narrower than the prothorax, the usual lateral punctures and triangular projection quite obsolete, the frontal tubercles punctured. *Antennæ* longer than the head and prothorax, first joint three times longer than wide, second oval. Third to eighth globular, slightly decreasing in size, the eighth slightly transverse, ninth to eleventh rapidly increasing in size, ninth and tenth transverse, eleventh joint oval, as long as the first and three times thicker. *Palpi* with the first joint slender, cylindrical, sigmoid in the distal half, clubbed; third half as long as the second, triangular, the free angle rounded. Fourth half as wide as long equal in length to the second, finely pubescent and with a terminal seta. *Prothorax* very convex, one-third wider than the head, widest in the middle where the sides are arcuate, and thence straight toward the neck and base. Neck two-thirds as wide as the base, disk with five basal punctures, the lateral foveæ large. *Elytra* as long as the head and prothorax, very convex, sutural lines not parallel, curved, dorsal parallel to the sutural ones and half as long. *Abdomen* shorter than the elytra, segments equal in length. Legs slender.

Habitat. Vancouver Island.

*T. TENELLUS*, *Lec.* Black, polished, impunctate, elytra black or red, antennæ, legs and palpi, red. Length, 1.4 mm. Plate VII., Fig. 30.

*Head* as in *P. puberulus*, no punctures. *Antennæ* with the last three joints shorter, more rounded, obconical much more transverse than in the preceding species. Last joint ovate, acute, twice as thick as the tenth and scarcely longer, widest behind the middle. *Palpi* with the second joint bent, peduncle as long as the club, reaching backward to the anterior border of the eye. Third joint only one-third as

long, triangular, free angle rounded, half as wide as long. Fourth pedunculate, three-fourths the length of the second, securiform, widest in the basal third, the width here equal to one-third of the length. *Prothorax* shaped as in *T. puberulus*, with five basal foveæ, of which the middle one is larger. Lateral foveæ inconspicuous. Posterior margin thin and finely elevated. *Elytra* as long as the prothorax and half the head, width across the high, prominent shoulders less by one-fifth of that measure. At the widest part, just behind the middle, they are one-fourth wider; sides of the disk more arcuate, otherwise as in *T. puberulus*. *Abdomen* rather short. Legs slender. ♂ with the venter longitudinally bent downward at the tip. ♀ elytra slightly shorter.

Habitat. California.

*T. PUBERULUS*, Lec. Black, polished impunctate, elytra, antennæ, palpi, and legs, red-brown. Length, 1.6 mm. Plate VII., Fig. 31.

*Head* very convex from side to side, occiput elevated, sloping evenly to the frontal tubercles which are square, the dividing incision deep, no punctures or foveæ on the vertex. Eyes prominent, rather coarsely faceted. *Antennæ* with the first joint obconical, longer than the adjoining frontal tubercle and half as thick as long; second a little smaller, rounded oval; third to eighth subequal, rounded, the eighth smallest; ninth and tenth obconical, longer than wide, of the same form, the tenth being at the tip, four times the width of the eighth. Last joint ovate, truncate at the base, one-half wider near the middle than the tenth joint, and as long as the two preceding, thinly pubescent. *Palpi* with the first joint small cylindrical, second clavate in the distal third, length equal to the distance separating the eyes. Third more than half as long again as the second, fusiform, more arcuate inside, widest near the middle, width equal to one-third of the length; fourth securiform, pedunculate, nearly as long as the second, widest one-third from its base. *Prothorax* longer than the head, of equal diameter, widest just behind the middle, somewhat more

than half as wide near the neck as at the base, convex, equally vaulted, basal median fovea small, no additional basal punctures. *Elytra* as long as the prothorax and half the head; the width across the high prominent acutely rounded shoulders is four-fifths of this measure, and across the tip one-fifth greater. Disk convex, discal lines very deep at the base, abbreviated near the middle. Sutural lines straight, deep, especially near the base, leaving an interrupted transverse basal elevation. Sides from the shoulders to the posterior fourth almost imperceptibly arcuate. *Abdominal segments* subequal, the first dorsal depressed along the base, border narrow. Legs long, femora clavate, tibiæ angular lengthwise, tarsus thicker at the articulation of the second and third joints, tapering towards base and claws. ♂ anterior trochanters provided with a long slender spine at base, intermediate coxæ with a straight thinner spine.

Habitat. California.

#### RHINOSCEPSIS, *Lec.*

R. BISTRIATA, *Lec.* Body elongate, gradually and slightly widening from the base of the elytra to the end of the third abdominal segments, apex of prothorax and base of the head transversely dilated, scabrous or densely pubescent. Color, brown, lustreless. Length, 1 mm. Plate VII., Fig. 32.

*Head* triangular, the lateral angles behind the eyes truncate, parallel, acutely rounded to the nearly straight very slightly sinuate base, arcuate towards the eyes, anterior to the parallel tempora, thence abruptly narrowed and produced into a parallel-sided frontal protuberance, which has at the tip a conspicuous elongate impression. Vertex with two rounded foveæ in a transverse line one-third from the base, mutually separated by a distance as great as that separating them from the parallel tempora. Eyes small, at about the middle of the sides of the head, scarcely visible from above. *Antennæ* slightly shorter than the head and prothorax, first

joint thick, twice as long as wide, nearly cylindrical, second half as long, third to eighth rounded, from globular becoming gradually transverse. Club irregular, the transverse lenticular ninth and tenth joints thicker externally, last joint conical, as long as the three preceding, length one-third greater than the width which is equal to that of the tenth. *Prothorax* obcampanulate, slightly longer than the head, and, near the anterior margin, about one-fourth wider; base one-fourth narrower than the head. Anterior edge nearly straight, parallel to the base of the head, three times as wide as the neck, anterior angles acutely rounded, sides convergent, behind the anterior third slightly sinuate. Basal angles acute, base subangularly arcuate; disk rather flat with a broadly impressed median sulcus reaching from the neck to the posterior fourth where it is strongly dilated and connected with the lateral foveæ by a finer obliquely transverse straight groove on each side. *Elytra* with the sides divergent, evenly arcuate from the base, one-third wider across the tip than the prothorax. Suture as long as the prothorax, base and tips broadly sinuate, disk depressed, tri-foveate at the base, foveæ small, sutural lines arcuate near the base; from the middle fovea runs a slightly arcuate discal line, the outer fovea being simple. Shoulder forming an obliquely longitudinal ridge. Lateral deflexed margin with a deep, entire line. *Abdomen* at base as wide as the elytra and slightly increasing in width to the fourth segment, broadly margined and without basal carinæ or impressions. Legs slender, tarsi with a single claw. ♂ with the anterior tibiæ enlarged at the middle, last ventral longitudinally impressed.

Habitat. Florida. An anomalous form presenting distant affinities to *Trogasterini*.

#### MACHÆRODES, *Brendel*.

This genus is closely related to Reitter's subgenus *Machærites*, differing from it in the lack of tuberculations on the

second palpal joint; the form of the head offers sexual differences in the vertex, but none in the eyes. Like *Machærites* it has a rudimentary second claw, short, nearly equal dorsal segments, the two basal ventral segments prolonged, the abdominal border narrow, and the first antennal and fourth palpal joints cylindrical or four times longer than thick. Two species are known to us.

M. TYCHOIDES (*Tychus bythinoides*, Brend.) Chocolate-brown, punctured, sparsely pubescent, antennæ, palpi and legs dark yellow. Length, 1.2 mm. Plate VII., Fig. 35, ♀.

*Head* strongly punctured, as wide as long, tempora shorter than the large eyes, convergent, sides of the head anterior to the eyes convergent; a fine line, parallel to the rather sharp edge of the vertex, separates the middle part of the point from the supra-antennal portion, and ends posteriorly in an irregular fovea. The strip between this line and the lateral edge is flat and roughened by transverse marks. Occiput and interocular space evenly convex, the convexity limited by a line from the less convex inter-antennal space; there is no median carina; the frontal margin is transverse, slightly arcuate, suddenly declivous anteriorly. The declivity is excavated on each side of the median septum, forming cavities for the insertion of the antennæ; the clypeus is divided by the septum, and has a semicircular anterior margin. The last palpal joint is securiform, more than three times longer than its median width, the antennæ not differing from those of the next species. *Prothorax* punctate, widest in the middle, but little wider than long, arcuately angled, with the sides nearly straight from the middle to the neck and to the base. Base twice as wide as the neck, near it being a faintly impressed transverse line connecting the small lateral foveæ. *Elytra* punctured, as wide across the shoulders as the prothorax, and two-thirds wider across the tip. The suture is one-half longer, sides anteriorly nearly straight, sutural lines parallel, discal lines very short, faintly impressed. *Abdomen* shorter than the elytra, dorsal segments equal, thighs clavate. Only the female is known.

*M. CARINATUS*, *Brend.* Dark brown, strongly punctured, pubescence thin, recumbent. Length, 1.66 mm. Plate VII., Figs. 33 ♂, 34 ♀.

*Head* ♂ broader than long, eyes very prominent, coarsely faceted, tempora much convergent, nearly transverse, little shorter than the eye. Sides anterior to the eye convergent, frontal margin transverse, triangular, antennal tubercles flat, slightly elevated, separated from the median portion of the frontal margin by a fine, slightly impressed line, terminating posteriorly in small, very deep foveæ, which are situated on a line with the anterior margins of the eyes and are mutually three times farther distant than either is from the eye. The median part of the front is plane, not punctured, triangularly produced from the antennal tubercles to the middle, where it is narrowed into a septum separating the lateral surfaces of the clypeus. The plane triangular surface just described shows two pairs of deep punctures, one behind the other. The region between this and the occiput and between the occipital foveæ is very strongly elevated, convex, and crowned with a sharp longitudinal crest. The head of the ♀ differs greatly, and shows better the characters exhibited by the European *Bythinini*; the frontal margin between the tubercles is slightly convex, not at all triangular, the region between the occipital foveæ convex, but little elevated, and just visibly separated from the anterior portion by an arcuate line. The crest is not high, only just visible. The eyes and other parts of the body offer no differences. *Palpi* with the first joint very small, second half as long as the head, pedunculate-clavate, third globular, fourth as long as the second, cultriform, one-fourth as wide as long. *Antennæ* distant, as long as the head and prothorax together, first joint as wide as the last palpal joint, nearly one-third of the entire length of the antennæ. Second globose, as thick as the first, third to eighth very small, from globular becoming gradually transverse; ninth and tenth lenticular, the tenth three times as wide as long, eleventh as long as the three penultimate ones. Near



the base it is thicker, and is conically pointed near the middle. *Prothorax* as wide as long, widest slightly behind the middle, evenly vaulted, the neck as wide as the base. Sides slightly impressed before and behind the middle, basal foveæ small, situated at the bottom of these impressions. Middle foveæ very small, the transverse sulcus conspicuous. *Elytra* across the shoulders very slightly wider than the prothorax, sutural lines parallel, sharply turned aside near the base, leaving there a narrow elevated ridge. In the place of a discal line is a broad basal depression, leaving a basal and a humeral ridge. Disk very convex, sides strongly arcuate. *Abdomen* of ♂ convex, shorter, as long as the prothorax, segments nearly equal in length, margin narrow. Legs long, slender, posterior tibiæ arcuate in ♂, straighter in ♀. The punctures and form of the elytra very strongly resemble those of *Bythinus burelli*.

Habitat. Alleghany Mountains. Canada. Mountains of Virginia.

#### SCALENARTHURUS, *Leconte*.

S. HORNII, *Lec*. Reddish brown, impunctate, pubescence, very fine sericeous. Length, 0.7 mm. Plate VII., Fig. 36 ♀.

*Head* wider than long, eyes large, prominent, disk of the vertex as wide as long, frontal margin triangularly produced and not separated from clypeus by a transverse impression, supra-antennal elevations very inconspicuous, each one being two very minute, black-pointed, sharp-pointed tubercles. Disk behind the inter-antennal line flat, quadrate, with rounded angles, between the eyes are two hardly visible punctures mutually four times farther distant than from the eye. Between the posterior limits of the eyes are two faint transverse elevations. *Antennæ* longer than the head and prothorax, the first and second joints nearly equal cylindrical, third to sixth half the size of the second, cylindrical. Seventh to tenth gradually increasing in size, the tenth nearly as wide as the second, the eleventh is fusiform, sharp-pointed, truncate at the base and half as wide as long. *Palpi* with the

last joint sessile on the penultimate, with a broad base. *Prothorax* one-fifth shorter than its width, nearly globose, truncate at the neck and base, the latter one-fourth the wider; disk very convex without sculpture excepting a zone of punctures near the base. *Elytra* across the faint humeral ridge as wide as the prothorax, the suture being one-half longer. They are much the widest in the middle, sides evenly and strongly arcuate, disk very convex. Each elytron bears at the base three minute acu-punctures, the sutural lines very faint, parallel, dorsal lines wanting. *Abdomen* one-fifth narrower than the elytra, very convex, basal segment half as long as wide, border very narrow, two minute carinæ at base. First ventral of the same length, with a longitudinal carina on each side one-fifth from the margin. Legs long and slender, tarsi with the second joint twice as long as the third, posterior tibiæ with a long spur; the basal joint of the posterior tarsi is obliquely truncate and the trochanters are small. ♂ differs in the form of the last antennal joint which is larger, pointed at both ends, and the front is impressed. This singular form belongs between *Bythinus* and *Eutrichites*, differing from the latter in the form of the antennal club and the larger basal abdominal segment.

Habitat. Arizona.

#### EUTRICHITES, *Leconte*.

Head with two occipital foveæ and a frontal impression. Antennæ with the joints small, only the last being very large, inserted in front of the antennal tubercles. Palpi with the second joint clavate, the third small, globular, fourth ovate, acuminate, more convex internally. Prothorax globose unifoventate. Elytra convex, very long, discal lines wanting. Abdomen short, narrowly margined, dorsals equal or nearly so in length, first and second ventrals longer, tarsi long with a single claw.

E. ZIMMERMANNI, *Lcc.* Reddish yellow, shining, convex, pubescence short. Length, 0.9 to 1.0 mm. Plate VII., Fig. 37.

*Head* smooth, as wide as long, tempora longer than the eye, arcuate, not prominent. Eyes not very prominent, front concave between the antennal tubercles, vertex convex, with two small, widely distant foveæ in a line with the posterior margin of the eye, these foveæ being connected with the frontal tubercles by a fine line. *Antennæ* as long as the head and prothorax, first and second joints stronger, subequal in length. Third to ninth transverse, moniliform, equal, tenth broader, not longer, eleventh very large, ovate-acute. *Prothorax* nearly globose, truncate at the base, polished, smooth, with a zone of basal punctures and a deeper median puncture. *Elytra* twice as long as the prothorax, which they slightly exceed in width across the low shoulders. Across the tip they are as wide as long, convex, sutural lines close, punctured like the disk, discoidal basal impressions faint. *Abdomen* short, segments nearly equal in length, convex, margin narrow. Legs strong, thighs clavate. ♂ last ventral deeply impressed, posterior tibiæ curved.

Habitat. Virginia, Georgia, Texas.

This species was previously described as *Bythinus zonatus*, Brend.

#### NISAXIS, Casey.

This genus was established by Capt. Thos. L. Casey, by reason of Reitter's division of the genus *Bryaxis*. In the opinion of many, this should be regarded as only a section of *Bryaxis*, but it seems to us entitled to recognition. It presents the following characters:

Vertex without foveæ, the frontal margin obliquely declivous, gula bicarinate. The ventral segments are four, the two basal ones very large, the third hardly visible except at the sides. The fifth may be ankylosed to the preceding, or wanting.

N. TOMENTOSA, Aubé. Reddish-brown throughout, pubescence fine, long, especially on the posterior part of the abdomen, body coarsely punctate. Length, 1.2. Plate XII., Fig. 128.

*Head*, exclusive of the large, coarsely-faceted eyes, as wide as long, trapezoidal, nearly quadrate, coarsely but not densely punctured, rather convex above, without occipital foveæ. There is an impression on each side of the convex middle portion of the front inside the supra-antennal tubercles; the sides are not carinate; gula bicarinate, tempora rounded, nearly as long as the eye. *Antennæ* with long pubescence, as long as the head and thorax, first joint cylindrical, flattened, above, more than twice as long as thick. Second a little shorter, equally thick, cylindrical, rounded at the tip; third to eighth smaller, narrower, obconical, gradually and slightly increasing in thickness, ninth and tenth evenly increasing in width, trapezoidal, the tenth twice as wide as long; eleventh oval, truncate at the base, one-half longer than wide. *Prothorax* wider than the head with the eyes, widest before the middle, sides convergent and very slightly sinuate toward the neck, less convergent but strongly sinuate near the base, which is twice as wide as the neck. Disk convex, coarsely and deeply punctured, the median basal punctures not at all conspicuous, the lateral foveæ impressed on the declivous impressed space near the basal angles. *Elytra* broad-shouldered, wider than the prothorax at the base, and with this width and length equal; beyond the middle they are one-third broader. Disk moderately evenly convex, less strongly punctured, bifoveate at base, sutural lines not very close, parallel, but convergent near the tip, not deeply impressed; discal lines one-half the length, fine, parallel to the suture. *Abdomen* short, strongly declivous behind, basal segment twice as wide as long, punctured, carinæ divergent, one-third the length of the segment and including half its width. The third segment in the ♂ has large impressions on each side of the middle converging forward, leaving an oblong median elevation bearing long hairs, legs slender.

Habitat. Northern Atlantic States. More rare in the West.

N. CINCINATA, *Casey*. Reddish-brown, pubescence moderately long and dense. Length, 1.0 mm.

*Head* as in *N. tomentosa*, but less deeply and densely punctured, especially in the middle, where it is to be seen in a certain light as a small, fine, linear, longitudinal impression. *Antennæ* with the ninth and tenth joints less trapezoidal, more rounded, the eleventh less truncate at the base and more ovoid than oval in comparison with the preceding species. *Prothorax* less impressed at the sides near the basal angles, punctation feeble and sparse, the median basal puncture more conspicuous. *Elytra* as in *N. tomentosa*, inconspicuously punctulate, and not as wide across the shoulders. *Abdomen* sparsely punctulate, the basal segment rather shorter and the carinæ farther apart than in the preceding species. The sexual characters of the ♂ on the third segment are similar, but the median elevation is smaller, and the fourth segment is narrowly produced at the middle of the tip. The ninth and tenth joints of the antennæ are longer than in the ♀.

*Habitat.* Southern States and north to Illinois and Nebraska. We regard it as a more southern variety of *N. tomentosa*.

*N. MARITIMA*, Casey. Dark red, pubescence not dense. Length, 1.0 mm.

*Head* sparsely punctured near the eyes, impunctate in the middle. *Antennæ* as in *N. cincinnati*. *Prothorax* minutely punctulate, strongly sinuate near the basal angles, basal median fovea minute, the lateral ones deep, larger at one-fourth of the length from the base. *Elytra* wider than long, and at the apex four-fifths wider than the prothorax; disk strongly convex, discal lines long, two-thirds of the elytral length. *Abdomen* with the basal carinæ short, including one-half of the segmental width. ♂ basal segment behind, deflexed in the middle, the deflected part transversely excavated, its lower margin reflexed, having in the middle a small tubercle; second segment short, with an anteriorly arcuate excavation in the middle third surrounding a strongly elevated carinate tubercle which bears two setæ. Its posterior surface is feebly and minutely tuberculate, the surface each side of the central

excavation a transverse groove not connected. The third segment bears before the middle, two tubercles mutually distant one-half its width.

Habitat. Texas. Unknown to us.

DECARTHON, *Brendel*.

Disk of the vertex longer than wide, quadrate, or less narrowed in front than in *Bryaxis*, the frontal foveæ wanting. Antennæ ten-jointed, the joints entirely rounded, excluding an ankylosis of any two. The prothorax is subglobose, the sides rounded, a single rude funnel-shaped fovea being situated near the middle of the base. The elytra are very broad shouldered, the base bifoveate, the sutural lines always straight, parallel, the discal lines divergent from the base and parallel in the posterior half. Abdomen short and wide, the basal dorsal segment not less than one-third as long as wide, the carinæ distant, parallel, almost entire. The intermediate thighs of the male are dilated, constricted in the distal half.

The following table will serve to separate our species:

*a*<sup>1</sup> Form of body, broad, robust.

*b*<sup>1</sup> Pubescence long, erect.

Occipital foveæ large, front depressed, connected with the foveæ by faint convergent sulci. Length, 1.4 mm. Color, black.  
♂ femoral mark small near the end. - - - *abnorme*.

Occipital foveæ small, lateral grooves parallel, dividing the front, which is not depressed, from the superantennal tubercles, the interval punctured. Length, 1.6 mm. Color, dark red.  
♂ femoral mark large spinous near the middle. - *exsectum*.

*b*<sup>2</sup> Pubescence short. Male femoral marks small.

Occipital foveæ none, lateral groove interrupted, frontal space plane, punctured. Length, 1.7 mm. Color, brown, *brendelli*.

Occipital foveæ faint, pubescence very dense, hiding the sculpture of the entire upper surface. Length, 2 mm. Color, brown. - - - - - *strenuum*.

*a*<sup>2</sup> Form, slender elongate, occipital foveæ present.

*c*<sup>1</sup> Prothorax impunctate.

Abdominal carinæ including more than one-half the segmental width. Color deep yellow. ♂ femoral spine short, near the distal end. - - - - - *longulum*.

Abdominal carinæ separated by not more than one-half the segmental width. Color, dark brown, elytra and base of antennæ bright red. - - - - - *discolor.*

c<sup>2</sup> Prothorax punctulate.

Abdominal carinæ including less than one-half the segmental width. ♂ femoral spine excessively long and sharp, in the middle of the thigh. - - - - - *formiceti.*

D. ABNORME, *Lec.* Black compact, not very visibly punctulate, pubescence long, dark, erect. Elytra varying from black to dark red, legs palpi and antennæ dull red. Length, 1.5 mm. Plate VIII., Fig. 40.

*Head*, excluding the eyes, quadrate above, frontal margin slightly and broadly emarginate inter-antennal space concave, occipital foveæ large, connected with the frontal concavity by faint convergent sulci, one on each side, which are sometimes absolute. Eyes prominent, facets coarse. *Palpi* with the third joint very stout, one-half longer than thick, acutely pointed. *Antennæ* as long as the head and prothorax, the joints nearly equal rounded, the basal ones more oblong. The fifth to the eighth are more transverse, ninth and tenth gradually increasing in width, also transverse, eleventh ovate, not acuminate, one-third longer than wide. *Prothorax* fovea small. *Elytra* one half longer than the prothorax, the width across the high prominent shoulders but little less than the sutural length; across the tip they are one-fourth wider. The discal and sutural lines are very deep the intervals evenly convex. *Abdomen* short, first dorsal three times as wide as long, the carinæ nearly entire including one-half of the entire width, borders broad, parallel. Legs strong, intermediate thighs with a rounded gouged channel from the upper edge posteriorly to the distal end, leaving a small sharp spine.

Habitat. Northern States east of the Missouri river. Canada.

D. EXSECTUM, *Brend.* Reddish-piceous, robust, somewhat more slender than *D. abnorme*, pubescence semi-erect, grayish-brown. Length 1.7 mm. Plate VIII., Fig. 41.

*Head* quadrate, eyes large, prominent, occipital foveæ small, grooves deep, dividing the frontal margin from the frontal tubercles, the intermediate space with nine punctures in three rows. In some specimens there is a round median impression on the vertex. *Antennæ* slightly longer than the head and prothorax, red; first joint obconical, half as thick as long, second oblong, slightly smaller, third to fifth gradually shorter becoming globular, the succeeding four gradually wider, not longer, obconical, tenth ovate, not acuminate, twice as thick as the ninth. The last palpal joint is twice as long as wide, conical, pointed from the middle. *Prothorax* with the basal foveæ longer than in *D. abnorme*. *Elytra* convex, suture one-fourth longer than the prothorax, width across the high prominent shoulders the same; tip one-fourth wider. Discal lines sharp, intervals not convex, sloping, highest next to the discal lines, sides arcuate. *Abdomen* with the first dorsal longer in the middle than at the sides, half as long as the elytra, carinæ including one-half of the entire width. ♂ with the intermediate thigh grooved from the middle above to the distal end below, the spine consequently more prominent. Dark ♀ specimens may be mistaken for large ♀♀ of *D. abnorme* with damaged pubescence.

Habitat. Northwestern States east of the Missouri river.

*D. STIGMOSUM*, *Brend.* Brown, pubescence short, appressed, thin, yellow. Length, 1.7 mm. Plate VII., Fig. 39.

*Head* nearly plane, but slightly convex, without occipital fovea, the lateral grooves interrupted, frontal margin straight. inter-antennal space very slightly depressed, densely punctured. *Antennæ* as long as the head and prothorax, joints one and two oblong, obconical, third to ninth gradually increasing in width, not in length, the third smaller than the second. The ninth joint is twice as wide as the third, the tenth oval, somewhat more roundly pointed in the middle, wider than the ninth. *Palpi* with the second joint clavate from near the middle, the third globular, as thick as the last which is three times longer and pointed at each end. *Pro-*



*thorax* finely punctulate, fovea large. *Elytra* one-third longer than the prothorax and the same width across the shoulders which are moderately prominent. Across the tips they are one-fourth wider. Lines deep near the base, intervals slightly and evenly convex. *Abdomen* punctulate, first segment nearly as long as wide, arcuate behind, carinæ reaching to the middle, enclosing one-half the total width. ♂ intermediate thigh grooved from the lower third to near the knee, spine not prominent.

Habitat. Eastern States.

D. BRENDILLII, Casey. Piceous-brown, elytra red, antennæ and legs paler brown. Length, 1.4 mm. Plate VIII., Fig. 43.

*Head* quadrate, eyes prominent, very near the base, tempora straight, entirely transverse; occipital foveæ deep, very far apart, lateral grooves convergent, dilated anteriorly and lost in the plane of the depressed middle portion of the front. The frontal margin anterior to the median plane is very narrowly retuse, the antennal tubercles more prominent than in the other species. *Antennæ* scarcely as long as the head and prothorax, first joint obconical, as thick as the tubercle, second oval, slightly smaller, third to seventh subequal, gradually becoming more transverse, eighth and ninth transversely oval, tenth three times as thick as the eighth and one-half longer than its width, ovate, truncate at the base. *Prothorax* finely punctulate, slightly wider than long, fovea oblong, deeper at the base. *Elytra* one-half longer than the prothorax, measure across the shoulders the same, across the tips one-fifth wider. All impressed lines parallel, the basal fovea sharp, rounded, sides slightly arcuate, the intervals evenly and very broadly convex. *Abdomen* with the first dorsal half as long as the width between the borders, straight, cylindrical longitudinally, evenly convex from side to side, carinæ three-fourths the length enclosing one-half the entire width. Legs strong, ♂ intermediate thigh with the usual gouge mark near the distal

end, and a rather deep oblong fovea near the middle and widest part of the thigh.

Habitat. Texas.

D. STRENUM, *Brend.* Cinnamon-brown, robust, pubescence dense, gray, appressed, antennæ, palpi and legs paler than the body. Length, 2.0 mm. Plate VII., Fig. 38.

*Head* quadrate, nearly plane, but slightly convex, foveæ faintly discernible beneath the very dense pubescence, frontal margin straight, eyes large. *Antennæ* very stout, longer than the head and prothorax, first joint thick, obconical, second and third gradually narrower, as long as broad, fourth and fifth slightly longer, sixth heavier, globular, seventh smaller, of the same form; eighth and ninth transverse, gradually larger, tenth ovate, bluntly pointed. *Palpi* rather thick and short. *Prothorax* transverse, as long as the head and more than one-fifth wider, foveæ large, covered with dense pubescence. *Elytra* one and one-half times the length of the prothorax, width across the high, prominent shoulders the same. One-fourth from the tip they are one-fourth wider. Discal lines distinct, abbreviated before the tip. *Abdomen* as long as the elytra, length of the first dorsal equal to one-third of the width, carinæ half the length enclosing less than one-half the width, the border rather narrower than in the other species and not quite parallel. Legs stout.

The specimen from which the above description is made up is ♀, the ♂ being unknown to us. Leconte collection, Cambridge.

Habitat. Pennsylvania.

D. LONGULUM, *Brend.* Elongate, punctulate, depressed, red-brown, pubescence short, sparse. Length, 1.5 mm. Plate VIII., Fig. 42.

*Head* sulcate from the foveæ to the subangular frontal margin, eyes prominent. *Prothorax* nearly globose, as long as wide, widest before the middle, sinuate near the neck, the basal fovea nude, deep, funnel-shaped. *Elytra* one and one-

half times as long as the prothorax, shoulders high, width of elytra across the tip a little more than twice the length of the head. Disk slightly convex, dorsal and sutural lines sharp, not deeply impressed, faintly punctulate, sides suddenly declivous, very slightly arcuate. *Abdomen* broadly margined, first segment two and one-half times as broad as long, the long carinæ including nearly one-half the width. *Antennæ* as long as the head and prothorax, first and second joints subcylindrical, third to sixth subequal, globular, seventh to ninth gradually increasing in width, tenth one-half longer than wide, ovate. Legs slender, the ♂ intermediate thighs slightly gouged on the lower fourth, leaving an inconspicuous spindle, the tibia slightly dilated from the middle, tarsi thicker than in the other species.

Habitat. United States south of the Ohio river.

D. DISCOLOR, *Brendel*, n. sp. Elongate, piceous-brown, impunctate, abdomen darker than the head and prothorax, elytra bright red, antennæ red at base, the club brown. Legs reddish-yellow, palpi sulphureous. Pubescence fine and scanty. Length, 1.5 mm.

*Head* with the vertex quadrate, evenly convex, inter-ocular foveæ large, nude, mutually three times as far distant as is either from the eye. Between them is a small punctiform impression. A very shallow longitudinal impression originates in the lateral foveæ each side and separates the middle of the front from the sides. Eyes large, very near the lateral margin of the vertex. Clypeus margined anteriorly. *Antennæ* as large as the head and half the prothorax, the two basal joints equal in width, the second shorter, third to seventh obconical, subequal, the third as long as the second; seventh half as long, transverse, eighth and ninth transverse, trapezoidal, rapidly increasing in width, last joint ovate, as long as the three preceding. *Prothorax* very convex, little wider than long, sides rounded, arcuate, basal foveæ nude, very large. *Elytra* with the shoulders moderately prominent, the width across them equal to the length of the suture and one-

third less than the greatest discal width, discal lines fine, one-third shorter than the suture. *Abdomen* with the base segment half as long as wide, carinæ slightly divergent, of the usual length and including one-half of the segment.

Habitat. New Mexico (Albuquerque). H. F. Wickham.

*D. FORMICETI*, *Lec.* Elongate, punctulate, more slender than *D. longulum*, red-brown, pubescence short, sparse. Length, 1.2 mm. Plate VIII., Fig. 44.

*Head* with the occipital foveæ nearer together, the grooves convergent, dividing the frontal margin. Antennal tubercles more prominent, inter-tubercular space smooth, depressed. *Antennæ* shorter than head and prothorax, rather stout, second joint globular, second to seventh rounded, equal in length, scarcely perceptibly increasing in width, eighth longer, transverse, obconical, ninth twice as wide but little longer, transversely oval, last joint as wide as the ninth at base. Base truncated, tip rounded. *Palpi* with the last joint thick. *Prothorax* nearly circular, foveæ deep. *Elytra* depressed, punctulate, basal foveolæ deep, lines entire, sutural intervals flat, punctured, shoulders high, the humeral width equal to the sutural length. The apical width is one-fourth more, the suture being slightly shorter than the head and prothorax together. *Abdomen* with the first dorsal one-third as long as wide, carinæ entire, including more than one-third of the surface. ♂ with the intermediate thighs very broad, gouged from the middle to near the knee, leaving an excessively strong, sharp, spine above.

Habitat. Southern States.

### BRYAXIS, *Leach.*

#### SYNOPSIS OF THE SPECIES OF BRYAXIS.

- I. Elytra each with two basal foveolæ. Prothorax with three equal, pubescent foveæ.
  - A. Prothorax with three basal foveæ connected by an arcuate groove, elytra with a subhumeral fovea and longitudinal groove. Sexual marks on the anterior tibiæ and antennæ. - (*Rybaxis*, Saulsby). c/

- 1<sup>1</sup> Median fovea large, pubescent; abdominal carinæ including one-third of the segmental width. ♂ antennæ very long, the club slender. Length, 2.0-2.2 mm. Penna., New York, Ill.

(*sanguinea* ? Leach) *valida*. 272

- 1<sup>2</sup> Median fovea small, nude.

Basal abdominal foveæ including one-fourth of the segmental width, antennal club loose, the penultimate joints not elongate nor compressed. Anterior trochanters blunt. Length, 1.8-2.0 mm. New York to Missouri. - - - *conjuncta*. 273

Basal abdominal carinæ including one-third of the segmental width, antennal club three-jointed, dilated, compressed in ♂, densely covered with black pubescence. Anterior trochanters with a sharp-pointed tubercle. Length, 1.7-1.8 mm. Penna., Ill. - - - - - *brendelii* 274

- B. Prothorax with three equal, small, pubescent foveæ, connecting groove wanting. Last three joints of the ♂ antennæ contorted in various ways. (*nisa*, Casey).

- 1<sup>1</sup> Prothorax as long as wide, convex, abdominal carinæ wanting.

The pubescent basal abdominal lines equal in length to one-third of the segmental width. Length, 2.0 mm. Virginia.

*luniger*. 275

Basal pubescent patch not wider than the distance between the sutural lines. Length, 1.8 mm. Ill. - - - *perpunctata*. 276

- 1<sup>2</sup> Prothorax wider than long, less convex.

Abdominal carinæ including two-fifths of the segmental width. Length, 2.2 mm. Virginia. - - - - - *cavicornis*. 275

Abdominal carinæ including one-third of the segmental width. Length, 1.8 mm. Arizona. - - - - - *elegans*. 276

- C. Prothorax with three large, equal, pubescent foveæ, sexual marks on the dorsal segments. (*Bryaxis*, Sauley).

- 1<sup>1</sup> Elytra impunctate, lateral margin and declivous sides nearly parallel, not divergent posteriorly.

Prothorax widest just before the middle, not very convex longitudinally, ♂ with three of the dorsal segments sculptured, the fourth produced over the fifth. Length, 2.0 mm. East of Alleghanies. - - - - - *abdominalis*. 278

Prothorax widest just behind the middle, longitudinally convex, ♂ with two segments sculptured, the third produced over the fourth. Length, 1.8 mm. Florida, Georgia, Tennessee.

*floridana*. 278

- 1<sup>2</sup> Elytra with the sides divergent.

- 2<sup>1</sup> Occipital foveæ open toward the eyes or very near them.

- 3<sup>1</sup> Impunctate, ♂ with two dorsal segments sculptured. Length, 1.9 mm. Tennessee, Virginia. - - - - - *intermedia*. 279

- 3<sup>2</sup> Punctulate.

A faint linear impression from the occipital foveæ to the corresponding frontal tubercle. ♂ with two segments sculptured,

the second produced into a narrow, laterally emarginate lobe.

Length, 1.8 mm. Virginia. - - - - *ulkei*. 280

Occipital foveæ smaller than in *ulkei*, mutually more distant, ♂ with the first segment acutely bilobed, the second one broad, lobe overhanging the third segment. Length, 1.7 mm. Illinois, Iowa. - - - - *illinoensis*. 281

2<sup>2</sup> Occipital foveæ isolated from the eyes.

4<sup>1</sup> Posterior limit of each elytron arcuate in the middle, sinuate externally, ♂ first dorsal triangularly produced in one broad lobe. Color brown. Length, 1.66 mm. Pennsylvania. - - - - *dentata*. 282

4<sup>2</sup> Posterior limit of the elytra straight, pronotum impunctate.

Black, legs, antennæ and palpi dusky yellow, occipital foveæ small; abdominal carinæ including one-third of the segmental width; ♂ first dorsal broadly arcuated lobed, elevated in the middle of the posterior limit, second transversely convex, foveate at the middle posteriorly. Length, 1.2-1.3 mm. Michigan, Illinois, Iowa. - - - - *perforata*. 282

Brown, head paler, all the foveæ on head and pronotum excessively large, ♂ posterior margin of first segment emarginate in the middle: second with a circular impression. Length, 1.3 mm. California. - - - - *foveata*. 283

Yellowish-brown, foveæ normal, abdominal foveæ including more than one-third of the width; ♂ first dorsal flattened, slightly deflexed, and foveate at the tip, second transversely convex. Length, 1.5 mm. Texas, Louisiana. (♂ *infinita*, Casey). - - - - *belfragei*. 284

Yellowish-red, prothorax sinuate at the sides behind the middle; ♂ first dorsal as long as wide, quadrate, carinæ including two-fifths of the width. Length, 1.3 mm. Texas, Arizona.

*texana*. 285

II. Elytra each with three basal foveolæ. Prothorax with large, pubescent lateral foveæ and a small, <sup>nude</sup>~~wide~~ median one. (*Reichenbachia*, Leach).

D. Abdominal carinæ including less than one-third of the segmental width. No secondary sexual marks on the antennæ.

1<sup>1</sup> Abdominal carinæ separated by a distance not exceeding that between the sutural lines, and including a rounded, pubescent pad, often covered by the elytra.

2<sup>1</sup> Pronotum punctured.

Pronotum evenly thinly punctulate, abdominal carinæ short; color at time of copulation, pale umber brown, elytra yellowish-red. Later in the year this color darkens. Length, 1.2 mm. - - - - *gemmifer*. 287

Pronotum evenly densely punctate, elytra and dorsal segments regularly punctulate, abdominal carinæ very long. Color at time of copulation, dark piceous, elytra slightly paler. Length, 1.3-1.4 mm. Canada, Iowa. - - - - *canadensis*. 286

2<sup>2</sup> Pronotum impunctate.

Abdominal carinæ long, color ferruginous, ♂ last ventral concave, with a median longitudinal elevation. Length, 1.5 mm. Illinois. - - - - - *radians*. 289

Abdominal carinæ short, elytra punctured, color piceous, antennæ and legs yellowish-red. Length, 1.2 mm. Massachusetts.

*divergens*. 288

Abdominal carinæ somewhat farther apart, not very short, median fovea of pronotum very small, occiput slightly impressed in the middle. Color ferruginous. Length, 1.3 mm. Florida, South Carolina near the coast. - - - - - *atlantica*. 289

1<sup>2</sup> Pubescent pad at the base between the abdominal carinæ transverse, not broader than one-fifth of the abdominal width.3<sup>1</sup> Pubescence very long, pronotum and elytra longitudinally very convex, nearly gibbous, median fovea very small.

Prothorax not punctured, abdominal carinæ very long, parallel, slightly divergent at the end and fully one-fifth of the abdominal width apart. Length, 1.33 mm. Louisiana, Illinois, Iowa. - - - - - *gracilis*. 290

Varieties of this species from Louisiana, with traces of punctures on the pronotum, are called *gracilicornis*, Casey. Others from Iowa, with shorter carinæ, constitute the typical *gracilis*.

3<sup>2</sup> Pubescence short, pronotum and elytra normal, not so convex.4<sup>1</sup> Pronotum decidedly punctate.

Head and pronotum with closely placed, large, deep punctures, abdominal carinæ including one-fifth of the segmental width. Color black, elytra piceous, legs yellow. Length, 1.0 mm. New York, Long Island. - - - - - *scabra*. 291

Head punctulate, pronotum polished, with deep, evenly-distributed, abundant punctures; abdominal carinæ long, parallel, slightly divergent posteriorly, including one-fifth of the abdominal width. Length, 1.5 mm. Illinois, Iowa.

*cribricollis*. 291

(Varies slightly in the strength of puncture).

4<sup>2</sup> Head and pronotum impunctate, or with a few irregular, minute punctures. Abdominal carinæ divergent from the base onward.

Pale ferruginous or lighter, abdominal carinæ including one-sixth of the abdominal width. Length, 0.9 mm. New York, Virginia. - - - - - *congener*. 292

Piceous-black or dark-brown, with red or darker elytra, legs and antennæ yellowish-red or brown. Abdominal carinæ including from one-sixth to one-fifth of the segmental width, strongly divergent, disk of pronotum and elytra with a few minute, scattered punctures, or impunctate. Pubescence short, suberect. Length, 1.2-1.4 mm. Atlantic region, Illinois, Kansas. - - - - - *rubicunda*. 293

Ferruginous, abdominal carinæ divergent, springing from a triangular pubescent pad. ♂ last ventral with a deep, sharply defined, small, oval fovea. Length, 1.8 mm. Missouri.

*trigona*. 294

(Unknown to us).

Reddish-piceous or brown, head and prothorax brighter red, elytra piceous-black, pronotum polished, obsoletely punctured with distant, ample, shallow punctures; lateral foveæ small, median very conspicuous. Abdominal carinæ feebly divergent. Length, 1.1 mm. Iowa. - - - - *bicolor*. 294

1<sup>3</sup> Pubescent pad linear, as long as one-third or more of the segmental width.

5<sup>1</sup> Pronotum punctured.

Head and pronotum evenly but not densely punctured, punctures varying in strength, especially in females. Lateral pronotal foveæ large, in full view from above; abdominal carinæ short, not perceptibly divergent, sometimes covered by the elytra in the ♂. Color, dark piceous or paler, elytra red or darker, legs and antennæ red. Length, 1.0-1.2 mm. Region east of the Missouri and Mississippi rivers. - *puncticollis*. 295

Head smooth, pronotum polished, with scattered, irregularly distributed, faint punctures. Lateral foveæ plainly visible from above. Color invariably a uniform dull orange, or ferruginous. Abdominal carinæ moderately long. Length, 1.2 mm. Lowlands from Texas to Pennsylvania, not occurring in the Mississippi valley. - - - - *litoralis*. 296

Head and pronotum scarcely perceptibly punctulate, pronotal lateral foveæ impressed on the sides and not fully visible from above. Color black, elytra, legs, antennæ and palpi dull red, not polished. Length, 1.3 mm. Nevada.

*nevadensis*. 296

5<sup>2</sup> Pronotum decidedly impunctate.

Form slender with narrow shoulders, elytra short, abdomen long, convex, highly polished, pubescence thin; abdominal carinæ including two-fifths of the total width, divergent. No sexual marks on the antennæ. ♂ with the last two ventrals impressed at base. Color dark grayish brown or piceous. Length, 1.2 mm. New York. - - - - *polita*. 297

E. Abdominal carinæ separated by more than one-third of the segmental width. Antennæ different in the sexes.

1<sup>1</sup> Frontal foveæ larger than or equal to the interocular foveæ.

2<sup>1</sup> Dark brownish red or milky coffee colored; legs commonly paler, sometimes darker.

Frontal fovea very large, ♂ antennæ with the fourth joint widely dilated, fifth to eighth small, closely united, transverse, ninth and tenth nearly as wide as the last. Length 1.2 mm. Southern California. - - - - *sagax*. -



Frontal fovea normal. ♂ antennæ in some specimens with the 4th joint very small, triangular, fifth more than twice as wide as the first, transverse, hemispherical or cup-shaped, sixth of the same form but a little smaller, seventh to ninth subequal, smaller of the same shape, tenth as large as, and like the sixth, the last obovate and as wide as the tenth. In others the fourth joint is larger, the fifth only one-half wider than the first, sixth to ninth a little narrower, tenth and eleventh in proportion. The posterior tibiæ are more or less flattened. Two forms are recognized by authors. Elytra more red; Washington, Idaho, Vancouver's Island, British Columbia. - - - - - *albiflora*. 298  
Elytra usually darker. Manitoba, Canada, and adjoining regions. - - - - - *propinqua*. 298

2<sup>2</sup> Orange or ferruginous.

Dark red, elytra red, antennæ and legs paler, prothorax and elytra minutely feebly punctuate, foveæ very small impressed on the sides. ♂ antennæ with joints two and five equal, larger, fourth and eighth smallest, sixth to ninth subequal, decreasing in size and obliquely truncate. Eleventh obliquely pointed. Length 1.4 mm. - - - - - *informis*. 299

Ferruginous foveæ very small, length 1.2 mm. (♀) - *subtilis*. -  
(Unknown to us—perhaps identical with *informis*.)

Piceous elytra red, legs and antennæ darker, punctulate, male antennæ with joints one to three obconical, decreasing in size, fourth to seventh transverse, differently formed, increasing in width, the seventh widest. Eighth joint transverse, equal to the fifth. Ninth joint equal to the second, obconical like the tenth; eleventh long. Length, 1.2 mm. *tumidicornis*. -

Red, elytra, and legs paler, impunctate. ♂ antennæ with the fourth joint four times wider than long, fifth and sixth gradually narrower, seventh equal to the first, eighth smallest, quadrate. The remaining three joints gradually increase in size, the ninth and tenth being obconical, the eleventh long. Length, 1.4 mm. - - - - - *tumorosa*. -

Frontal fovea normal, (♂?) antennæ with the fifth and sixth joints stouter, elongate oval, ninth and tenth nearly as wide as the last joint. Hind tibiæ curved and flattened. May be identical with *tumida*. - - - - - *complectens*. -

1<sup>2</sup> Frontal fovea at the bottom of a transverse impression; in the male it is very minute or entirely wanting.

Elytra and prothorax densely punctured, pubescence long, dorsal lines convergent, basal abdominal carinæ not visible, antennæ stout; in the ♂ the joints sixth to eighth are narrower than the fourth and fifth. Color, light brown, legs paler. Length, 1.2 mm. California. - - - - - *compar*. 301

- Elytra and prothorax very indistinctly punctuate, pubescence very fine; color, dark piceous, elytra, legs and palpi red, antennæ darker, not straight. In the male the second joint is very large, third and seventh lenticular, transverse, third and fourth smaller, the fifth wider than the first; eighth joint smallest, ninth, tenth and eleventh forming a connate club. Length 1.2 mm. California. - - - *deformata*. 300
- Piceous-black, elytra red, pubescence fine, plentiful, antennæ dark brown, legs lighter. Prothorax very convex, the lateral foveæ not in full view from above, punctate near the base; abdominal carinæ separated by one-third of the segmental width. ♂ with the frontal fovea wanting, the first antennal joint transverse, truncated, pyramidal. The fifth, sixth and seventh are larger and thicker than the four preceding them. Length, 1.2 mm. California, Washington. - *fundata*. 301
- Black, elytra dark red, antennæ and legs dark brown, pubescence fine, conspicuous; head distinctly, elytra sparsely, prothorax densely punctulate, abdominal carinæ distant, one-fourth of the segmental width. Antennæ of ♂ with the fifth joint larger than the second, sixth smaller, fourth and seventh equal, still smaller, all irregularly rounded. Length, 1.3 mm. California. - - - - - *franciscana*. 302
- Clear yellowish brown, pubescence fine, prothorax impunctate, elytra and abdomen sparsely punctulate, lateral foveæ of prothorax in full view from above, abdominal carinæ enclosing one-third of the segmental width. Antennæ of ♂ long, fifth and sixth joints larger, longer than wide, one-half wider than the first, fourth and seventh smallest, equal, seventh to tenth gradually wider, eleventh as wide as the fifth and one-third longer. ♀ with the frontal fovea conspicuous, fifth and sixth joints not quite so large. Resembles *B. complectens* and may be identical with it. Length, 1.2 mm. Texas. - *tumida*. 303

### SECTION I. (RYBAXIS, *Saulcy*. BRYAXIS, *Thoms.*)

In addition to the characters given in the synopsis, the males have a strong tooth on the anterior tibiæ. Descriptions are appended of our three species and also of a European specimen of *sanguinea* which has been listed as a member of our fauna, probably through an error in determination.

*B. SANGUINEA*, *Leach*. (♂ *LONGICORNIS*, *Aubé*, var. *LAMINATA*, *Mots.*) Frontal margin straight, inter-antennal space slightly concave, surface of vertex quadrate. Antennæ of ♂ more

than half the length of the body; joints are twice as long or longer than thick, ninth and tenth obconical, the last three times longer than thick. Elytra with the posterior limit arcuately lobed. Abdominal carinæ distant more than one-third of the segmental width. Length, 2.0 to 2.2 mm. Europe.

*B. VALIDA*, n. sp. Dark piceous-brown, elytra and antennæ red, legs paler or yellow.

*Head* trapezious, inter-antennal space deeply impressed, ♂ antennæ not half as long as the body, the first joint nearly as long as the third and fourth together; second shorter, oblong, rounded, third to sixth narrower not twice as long as thick, seventh and eighth gradually shorter and narrower, the latter quadrate. Ninth and tenth trapezoidal, suddenly increasing in size, wider than long, eleventh thicker and as long as the two preceding together, more convex outside. *Prothorax* deeply depressed each side near the base, *Elytra* with the shoulders slightly wider and the suture slightly shorter than in *B. sanguinea*, abdominal carinæ not including one-third of the segmental width, the segments less convex than in the European specimens. This species is the one called *B. sanguinea* in our cabinets. New York, Illinois. Length, 2.2 mm.

*B. CONJUNCTA*, *Lec.* Black, polished, impunctate, elytra red or darker, antennæ and legs brownish red, palpi yellow. Plate VIII., Fig. 46.

*Head* with the frontal margin emarginate, inter-antennal space very concave. *Antennæ* less than one-half the length of the body, first joint strong, obconical, second a little smaller, oval, third and fourth smaller, obconical, fifth to seventh larger, oval, eighth smaller, globular, ninth twice as wide as the eighth, trapezoidal, tenth wider, nearly quadrate, eleventh as long as the three preceding together, truncate at the base, acute at tip, as wide as the tenth. In the ♀ the intermediate joints of the antennæ are equal in length and width, cylindrical, eighth to tenth more or less globular, the last not so long

in the male and not more convex outside. *Prothorax* with the basal sulcus sharply defined, the median fovea small. *Elytra* widest near the tip, which is one-fourth wider than the high prominent shoulders; posterior margins straight, fringed with yellow hair, discal lines more deeply impressed in the darker specimens. Abdominal carinæ short, more than one-fourth of the segmental width apart. Trochanters not spinous, anterior tibiæ emarginate inside from the upper third to the tarsus. Variable in color and size, also in the antennæ.

*a.* VARICORNIS. Last antennal yellow. Canada.

*b.* TRUNCATICORNIS. Tenth joint flattened on the inside, convex outside, last joint with a recumbent tooth. Iowa.

This species has a wide range. It occurs over the territory east of the Mississippi and as far west as Idaho.

*B. BRENDELII*, *Horn*. Black, polished, impunctate, legs, antennæ and palpi brown, elytra varying to piceous-red. Length, 1.7 to 1.8 mm. Plate VIII., Fig. 47.

*Head* with the frontal margin nearly straight, less concave between the frontal tubercles, the foveæ larger. *Antennæ*, ♂ with the first joint obconical, not half as long as the frontal margin, flattened above, second smaller, oval. Third and fourth smaller, obconical, equal, fifth, sixth, seventh and eighth, equal in length and thickness, conspicuously larger than the preceding, subglobular, with darker pubescence; ninth and tenth oblique-transverse outside, rounded inside, pointed forward, equal and connate with one another and with the last joint which is obliquely ovate-acuminate. These last three joints have a velvety black, densely pubescent club, three times as thick as the eighth, and as long as the five preceding joints together. ♀ with the third to eighth joints equal, cylindrical, the last three forming a slightly smaller club with the joints not oblique, ninth and tenth trapezoidal, the pubescence not so dense as in the male. *Elytra* and *abdomen* as in *B. conjuncta*. ♂ anterior tibiæ toothed on the upper third, anterior trochanters armed with a slender spine.

*Habitat.* Region of the Great Lakes.

B. LUNIGER, *Lec.* Umber brown, punctulate, pubescence long, recumbent, elytra red, antennæ dark red, last four joints fuscous, legs uniform red-brown. Length, 2.0 mm. Plate VIII., Fig. 50.

*Head* hexagonal, frontal margin concave, foveæ large, eyes prominent. *Antennæ* longer than the head and prothorax, joints first to seventh cylindrical, gradually decreasing in length, less so in thickness, the fifth a little longer than its neighbors, eighth transverse. Club regularly thickened in the ♀; in the ♂ the eighth joint is wedge-shaped, transverse, the ninth bowl-shaped, tenth resembling a screw, eleventh oval, concavo-convex. Last joint of palpi rather long. *Prothorax* as long as wide, convex, punctulate, the rather small pubescent foveæ equal in size, the lateral ones impressed on the sides, therefore not fully visible from above. *Elytra* punctulate, shoulders high, discal lines straight, convergent, sutural interval elevated, highest in the middle. *Abdomen* punctulate, first segment as long as one-third its width, no carinæ, but with a transverse ciliated pad, one-third as wide as the segment. ♂ with the metasternum concave, anterior and intermediate trochanters with a short, strong spine.

Habitat. Low, swampy ground in Maryland and Virginia.

B. CAVICORNIS, *Brend.* Length, 2.2 mm. Plate VIII., Fig. 49.

Differs from *B. luniger* in the wider, less convex and punctulate prothorax, with the foveæ all in full view from above; the abdominal carinæ are visible, and include one-fifth of the segmental width. The ♂ antennæ have the last three joints different in form, the seventh, eighth and ninth transverse, the ninth wedge-shaped, the tenth screw-shaped, the eleventh triangular, resembling the last palpal joint of *Tmesiphorus*; ♂ anterior and posterior trochanters spinous.

Habitat. Maryland and Virginia.

B. PERPUNCTATA, *Brendel.* Brown, polished, punctate. thinly pubescent. Length, 1.8 mm. Only the ♀ known.

*Head*, excluding the eyes, longer than wide from base to frontal margin, trapezoidal, widest behind the eyes. Tempora slightly arcuate, very convergent, as long as the eyes, frontal tubercles high, rounded, space between them concave, foveæ moderately large. Vertex impunctate, occiput convex, labrum deeply emarginate, margin crenate. *Palpi* with the last joint cylindrical, acuminate, not thicker than the globular third joint. *Antennæ* as long as the head and prothorax together, first joint cylindrical, half as long as the frontal margin, second to fourth gradually smaller, oblong, rounded, second half as long as the first and nearly as thick; fifth stronger than its neighbors, sixth and seventh small, globular; eighth not wider, transverse, ninth and tenth gradually larger, obconical, eleventh truncate at the base, not wider than the tenth, widest before the middle, bluntly rounded at the tip and as long as the first. *Prothorax* not wider than the head with the eyes, nearly globose, base arcuate, one-half wider than the neck, foveæ small, filled with pubescence, the middle one very near the base, lateral ones invisible from above. *Elytra* reddish, convex, slightly wider than the prothorax across the high, prominent shoulders, and three-fourths wider across the tip. The suture is darker and one-third longer than the prothorax, the sutural interval is roof-shaped, discal lines fine, sharp, convergent, abbreviated near the tip. *Abdomen* as strongly punctured as the prothorax, first segment three times as wide as long, very broadly convex, carinæ indicated by a very small rounded, pubescent patch. Legs slender, thighs slightly clavate, posterior tibiæ slightly arcuate, thicker at the distal end. Tarsi not half as long as the tibiæ, joints two and three equal, rather thick. ♂ unknown to us.

Habitat. Georgia.

B. ELEGANS, *Brendel*, n. sp. Red-brown throughout, impunctate, covered with abundant, recumbent pubescence. Length, 1.8 mm. Plate VIII., Fig. 48.

*Head*, from the frontal ridge to the base, as long as the width between the eyes, tempora as long as the eye, the latter

being large and prominent. Sides anterior to the eyes convergent, slightly sinuate, supra-antennal tubercles quadrately rounded, the front depressed in the middle, slightly arcuate, as wide as the neck; frontal fovea small, interocular foveæ twice as distant from one another as from the eye, connected with the frontal impression by an inconspicuous, interrupted depression. Occiput convex. *Antennæ* longer than the head and prothorax, first and second joints cylindrical or barrel-shaped, subequal, third and fourth smaller, subequal, fifth larger than the fourth, sixth and seventh smaller, obconical; eighth smallest, quadrate, ninth and tenth trapezoidal, rapidly increasing in size. Base of eleventh as wide as the tenth, middle twice as wide as the second; it is twice as long as wide and acuminate at tip. *Palpi* rather long, the first joint and the base of the second of a much darker brown than the rest, the last joint fusiform, four times longer than wide. *Prothorax* one and one-fifth times as long as the head is wide, sides from the neck to the middle divergent, thence convergent, slightly arcuate to near the base, where they are sinuate. Disk convex, with three small, equal, pubescent foveæ situated in slight depressions one-fourth from the base. *Elytra* little wider than the prothorax across the low shoulders, sutural length equal to this width; across the tip they are one-third wider. Sides divergent, slightly arcuate, the declivous part narrower than usual, disk with a nearly plane area in the neighborhood of the end of the suture and the shoulders. Base bifoveate, the respective lines sharply defined, the sutural ones parallel, the interval roof-shaped, discal lines parallel near the base, convergent behind the middle and abbreviated in the posterior fourth. *Abdomen* longer than the elytra, border wide, slightly retuse, first segment twice as wide as long, the carinæ parallel, reaching the middle and including one-third of the segmental width. Second and third dorsals equal in length, not quite half as long as the first. Legs long, the second and third tarsal joints subequal.

Williams, Arizona. H. F. Wickham.

B. ABDOMINALIS, *Aubé*. Uniform red-brown, impunctate, pubescence very fine, pruinose. Length, 1.9–2.0 mm. Plate VIII., Fig. 51 ♂.

*Head*, eyes excluded, nearly quadrate or slightly wider behind, fovea isolated, large, variolate, frontal margin wavy, slightly concave. *Antennæ* half as long as the entire body, first to eighth joints subequal, obconical, the first one-third as long as the frontal margin and half as wide as long. The eighth is nearly quadrate, ninth to eleventh gradually wider, ninth and tenth obconical, as long as the three preceding joints, eleventh ovoid-acute, as long as the eighth and ninth together. *Prothorax* as broad and as long as the head, including the eyes, widest at middle, not very convex, foveæ large and in full view from above. *Elytra* not very convex, sutural length much less than the humeral width, shoulders high, prominent. Across the tip the width is one-fifth greater than the sutural length. Suboral lines deep, straight, discal lines fine, arcuate, deeper near the base. *Abdomen* rather long, sides parallel, basal dorsal segment three times as wide as long, the obsolete carinæ including a space equal to the length of the segment, without sculpture in the ♀. ♂ abdomen with three modified dorsal segments, the first much depressed at the lateral basal angles. Next to the margin on each side is a large ovoid tumor. This gives the tip the appearance of being bilobed. The second segment is depressed at the sides of the base and in the middle is a deep, circular, punctured fovea. The third is produced, emarginate laterally, bilobed in the middle at the base, transversely depressed; the fourth is of nearly the same form, the two middle lobes, however, being united into one. Legs and under surface without sexual peculiarities. *Antennæ* of ♂ longer than in ♀. There is some variation in the sculpture of the first dorsal segment.

Habitat. Atlantic States.

B. FLORIDANA, *Brendel*. Uniformly reddish-brown, impunctate, pubescence very fine, pruinose. Length, 1.8 mm. Plate VIII., Fig. 53.



Head and elytra as in *B. abdominalis*, the impressions deeper. *Prothorax* widest slightly behind the middle and more convex toward the base, the lateral foveæ not in full view from above. *Antennæ* not quite half as long as the entire body, the fifth joint a little longer. *Abdomen* slightly divergent to the tip of the first segment, the obsolete carinæ including one-half the segmental width in the female. In the male the two basal segments are sculptured, the first much depressed at the lateral basal angles, posterior margin produced, emarginate at the sides, broadly gouged in the middle, leaving each side a blunt-pointed lobe. In the middle of the surface is an X-shaped elevation. The second segment is concave from side to side at the base, and in the middle is a large, deep, punctured fovea; the posterior margin is produced backward, broadly emarginate laterally, concave in the middle, leaving an oblong longitudinal elevation on each side. The third segment is of much the same general outlines as the second, but without visible sculpture. Legs and under surface not exhibiting any peculiarities. This insect represents the southern form of *B. abdominalis*.

Habitat. From the Gulf to the Ohio river.

*B. INTERMEDIA*, *Brendel*. Uniform brownish-red, impunctate, pruinose, more shining than *B. abdominalis*. Length, 1.9 mm. Plate VIII., Fig. 52.

*Head* and *prothorax* smaller, more deeply impressed, the occipital fovea large, open toward the eyes, the latter more convex, lateral fovea not in full view from above. *Elytra* more convex, the suture two-thirds, the shoulder-width one-half, and the width at tip not quite twice greater than the length of the prothorax. *Abdomen* with the margins of the basal segments parallel, carinæ including rather less than one-third of the segmental width. ♂ with the basal dorsal segment obliquely oblong-ovoidal, impressed from the anterior external angle to the posterior middle third of the segment, the impression limited inside by an obliquely arcuate ridge, which terminates posteriorly in a declivous sharp edge. The

posterior margin is slightly produced, not emarginate laterally, semicircularly emarginate at middle between the oblique ridges; in the middle of this segment is a U-shaped elevation. The second segment is very long and narrowly produced, depressed along the base, with the usual large, punctured, median fovea. The sides of the prolongation are broadly emarginate and obliquely narrowly depressed on the surface, the middle of the segment from the basal fovea to the tip very high, elevated, flat above and as broad as one-fourth of the base of the segment, overreaching the last segments perpendicularly. Legs and antennæ presenting no peculiarities.

Habitat. Atlantic States.

*B. ULKEI*, *Brendel*. Brownish-black, punctulate, pubescence short, elytra, legs and antennæ red, palpi yellow. Length, 1.8 mm. Plate VIII., Fig. 54.

*Head*, excluding the eyes, wider at base than the frontal margin, occipital foveæ open toward the eye, a faint line connecting them with the frontal tubercles. *Antennæ* slender, half as long as the entire body, first joint very strong, second half as thick, obconical, twice as long as wide, third to eighth subequal, eighth quadrate; ninth and tenth obconical, together as long as the three preceding; eleventh oblong, equal in length to the ninth and tenth together. *Prothorax* as long as broad, widest through the middle, polished; base at the sides behind the lateral foveæ slightly transversely impressed. *Abdomen* punctured, margins of the first segment slightly divergent, carinæ visible, less than one-third of the segmental width apart. *Elytra* one-half longer than the prothorax, width at the shoulders the same, at the tip one-fourth broader; disk punctulate, sides very slightly arcuate, the discal and sutural lines parallel, deeply impressed, originating in deep basal punctures. ♂ abdominal basal segment produced from the lateral margin to the middle, the outlines oblique, converging, the middle semicircularly emarginate, leaving on each side of the emargination a long spinous process. Disk from the basal angles broadly, and towards the spines narrowly

impressed. Second segment prolonged in the form of a trapezium, sides slightly emarginate, tip transverse, half as wide as the base, which is deeply concave, a dark cavity visible in the emargination of the first segment. Surface of the posterior segments perpendicular.

Habitat. Maryland, Virginia.

B. ILLINOIENSIS, *Brendel*. Dark piceous, elytra red-brown, antennæ piceous-brown, legs and palpi dull brownish-yellow, faintly punctate. Length, 1.7 mm. Plate VIII., Fig. 55.

*Head* with the occipital foveæ rather large, very near to the eye, frontal margin arcuate in the middle. *Antennæ* less than one-half as long as the body, first joint large, cylindrical; second smaller, rounded, third to eighth still smaller than the second, equal in thickness, subequal in length; eighth subglobular, ninth obconical, longer, tenth twice as wide as the eighth, trapezoidal, the eleventh oblong-ovoid, twice as thick as the ninth. *Prothorax* punctulate, visibly wider than long, the greatest width being attained at the middle, where it exceeds that of the head, convex, the lateral foveæ in nearly full view from above. *Elytra* punctulate, one-third longer than the prothorax, the width at the shoulders equal to the sutural length. Across the tip they are one-fifth broader. Shoulders moderately prominent, sutural and discal lines parallel, the latter deep near the base, convergent behind the middle, and abbreviated one-fifth from the tip. *Abdomen* with the first dorsal one-third as long as wide, the carinæ including more than one-third of the segmental width, and extending along one-fourth of the length. ♂ first dorsal produced behind into two acutely-pointed triangular lobes, depressed laterally from the apex to the basal marginal angle. Between the two cusps is a declining, posteriorly depressed, nearly level surface. Second segment arcuately produced, depressed at the base, and with a large punctate median fovea. Legs slender, the posterior tibiæ with a long terminal spine, the intermediate trochanters with a small sharp one.

Varies in brightness of colors and strength of punctuation.

Habitat. From the Atlantic coast to the Missouri river, north of the latitude of Tennessee.

*B. DENTATA*, Say. Brownish-black, minutely punctulate, pubescence dense, elytra and legs paler, reddish, palpi red. Length, 1.8 mm. Plate IX., Fig. 56.

*Head* with the frontal margin arcuate in the middle, the antennal tubercles sharply angulate laterally, occipital foveæ mutually three times as distant as either is from the eye. *Antennæ* less than one-half as long as the body, first, second and third joints cylindrical, gradually smaller, fourth, fifth and sixth a little larger, seventh and eighth again smaller, ninth and tenth much larger, the tenth joint is twice as long and thick as the ninth which is obconical and as thick as the second. The eleventh is double the length of the tenth and for one-third thicker, not very acutely pointed. *Prothorax* wider than long, widest at middle where it exceeds the head, convex, the lateral foveæ not in full view from above. *Elytra* evenly arched, the discal lines slightly convergent near the base; the sutural lines are parallel, the shoulders low, not prominent. Sides evenly arcuate, posterior margin of each elytron arcuate in the middle, sinuate at the sides. Sutural length and humeral width equal, width at tips less than one-third greater. *Abdomen* with the segment one-fourth as long as wide, the carinæ including one-fourth of the dorsal surface and not very conspicuous. ♂ basal abdominal segment produced in one triangular lobe, the sides of the triangle from the posterior lateral angle converging in straight lines toward the blunt pointed middle. Disk with a slight depression in the lateral quarters. The second segment is slightly swollen, perpendicular with the rest of the segments and impressed at the base, just beneath the lobe of the first segment with the usual fovea. Legs slender, posterior ♂ tibiæ arcuate.

Habitat. Atlantic States.

*B. PERFORATA*, Brendel. Black, impunctate, polished, pubes-

cence inconspicuous. Antennæ, palpi, and legs reddish-brown. Length, 1.3 mm. Plate IX., Fig. 58.

*Head* small, frontal margin arcuate, depressed in the middle. *Antennæ* not as long as the head and prothorax, first joint cylindrical, second oblong, rounded, as thick as the first, third to fifth smaller, nearly globular, the sixth slightly larger. Seventh and eighth smaller, globular, ninth, tenth, and eleventh forming a club half as long as all the others taken together. The ninth is obconical, double the length and thickness of the eighth, tenth of the same form, the last oval not acute at tip. These three terminal joints gradually increase in thickness, the eleventh being three times as thick as the ninth and as long as the preceding ones. *Prothorax* as long as the head (including the eyes) is wide, and about one-sixth broader, very convex, the lateral foveæ not in quite full view from above. *Elytra* one-half longer than the prothorax, nearly the same across the prominent shoulders, and the apical width exceeding by one-third the sutural length. Sutural lines parallel, discal lines deep near the base, fine behind, entire, slightly arcuate, convergent from the base to the tip. *Abdomen* short, the basal segment one-fourth as long as wide, the carinæ conspicuous, including nearly one-half of the segmental width. ♂ with the basal abdominal segment depressed laterally next to the broad margin, elevated and broadly lobed posteriorly; in the middle of the posterior limit it is minutely foveate. Second dorsal depressed at base, with a large rather shallow semicircular fovea at middle, enclosing five deep perforate dark punctures arranged in a semicircle, the center of which is occupied by a much larger dark fovea. The third segment shows only two small dark punctures. The last is roundly impressed and tuberculate at base. Legs short.

Habitat. New York, New Jersey, Long Island.

B. FOVEATA, *Lec.* Umber brown, polished, impunctate. Length, 1.9 mm.

*Head* with the frontal margin arcuate, tubercles rounded outside, space between them concave, foveæ very large, the

occipital ones near the eye. *Antennæ* more than one-half the length of the body, joints first to eighth cylindrical, the first large, second slightly smaller, third to eighth gradually shorter. Ninth transverse, obconical, tenth transverse cuneiform, last oval, somewhat oblique. *Palpi* yellow. *Prothorax* convex, widest behind the middle, highly polished, foveæ very large, the lateral ones partially hidden from view from above, and having the appearance of a longitudinal ellipse. *Elytra* convex, shoulders low, rounded, discal lines deeply impressed, abbreviated behind the middle, before which they are nearly parallel to the sutural lines. *Abdomen* convex, pubescent, the basal segment lacking visible carinæ. *Legs* slender, paler brown. ♂ first dorsal similar to that of *B. perforata*, emarginate in the middle behind, the second convex in the middle and with a flat circular impression at base.

Habitat. Pacific States, Southern California.

*B. BELFRAGEI*, *Lec.* Dark red-brown, polished, pubescence short, elytra red, antennæ and legs dark ferruginous. Length, 1.5 mm. Plate IX., Fig. 57.

*Head* wider than long, eyes large, prominent, foveæ equal, large. *Antennæ* longer than the head and prothorax, first joint thicker than the second, nearly quadrate, second longer than wide, third shorter, obconical, fourth to eighth equal, longer than wide. Ninth a little larger, rounded, tenth rounded, as long as wide, a little wider than the ninth. Last joint ovoid, obliquely acute, wider than the penultimate. *Prothorax* as wide as the head, much wider than long, sides very convergent behind the middle, disk convex with equal pubescent foveæ. *Elytra* across the shoulders wider than the prothorax and near the tip twice as wide; disk rather flat, slightly longer than the width at the humeri, sutural lines deep, parallel. Discal lines also deep, slightly convergent, turned outward near the posterior end. *Abdomen* broad, flattened, the basal carinæ short, including more than one-third of the segmental width, border strong. ♂ with the basal segment deflexed posteriorly, unifoveate in the middle; the second more convex,

impressed at the base on each side, and with a posterior median fovea. Legs long. The ♀ is described by Casey as *B. infinita*.

Habitat. Louisiana, Texas.

*B. TEXANA*, Casey. Uniformly pale reddish-brown, polished, pubescence short, not appressed. Length, 1.3 mm. Plate IX., Fig. 59.

*Head* small, impunctate, frontal margin nearly straight, sides from the eye more convergent anteriorly than usual; eyes large, prominent, occipital foveæ in a line anterior to the eyes, deep, three times more distant from one another than is either from the eye. Frontal foveæ small, situated inside a conspicuous inter-antennal depression. *Antennæ* half the length of the body, first and second joints cylindrical, the second smaller; the following joints to the seventh are narrower, cylindrical, gradually shorter, the eighth square, ninth and tenth obconical, rapidly increasing in width. The eleventh is oblong-ovate, thicker and equal in length to the three preceding. *Prothorax* wider than long, and in the middle a little wider than the head including the eyes; sides convergent anteriorly, emarginate posteriorly, disk very convex, lateral foveæ one-third from the base, impressed at the sides, median foveæ very near the base which has a row of oblong foveolæ. *Elytra* as long as the head and prothorax, apical width one-fifth greater than the sutural length. Humeral width one-fourth greater than that of the prothorax. Sides just visibly arcuate, disk réticulate, slightly convex, the lines, five, strongly arcuate, convergent, abbreviated one-fourth from the tip; sutural lines very slightly arcuate, rather far apart. ♂ abdomen with only the basal segments visible from above, nearly as long as wide, margin broad, strongly retuse, convergent posteriorly, the disk more convex, behind impunctured. Carinæ very short, including two-fifths of the entire width. Legs long, posterior tibiæ slightly arcuate.

Habitat. West Texas, New Mexico.

*B. CANADENSIS*, *Brendel*. Piceous-brown or piceous-black, pubescence moderately long, recumbent. Elytra sanguineous. Legs and antennæ ferruginous.

*Head* as long as wide, the eyes excluded, punctured, more strongly at the sides behind the tempora, the later convergent, little longer than the eyes, feebly arcuate; foveæ large, equal in size, the posterior ones mutually three times as distant as either from the eye; antennal tubercles prominent, with a few coarse punctures; frontal margin convex, the space between the antennal tubercles concave, bearing the frontal fovea, and here more conspicuously pubescent; eyes coarsely faceted, by their own length distant from the frontal margin. *Antennæ* from the first to the eighth joint sub-cylindrical, decreasing gradually in length and thickness, except the fifth, which is a little longer than its neighbors; the eighth smallest, quadrate. *Prothorax* uniformly very conspicuously and deeply punctured, one-third broader than long, widest in the middle, where it is strongly arcuate, from there to the anterior and basal margin straight; anterior margin one-half the length of the base; middle fovea nude, about double as large as the discal punctures; lateral fovea large, fully visible from above and situated with the anterior margin just behind the middle; the base is garnitured with oblong punctures. *Elytra* across the shoulders as broad as the prothorax, sides arcuate, diverging, suture one and one-half times as long as the prothorax and three-fourths as long as the width across the tip; disk strongly punctured, all the impressed lines entire, the sutural ones arcuate near the tip and finely punctured, the discal lines convergent toward the tip; basal foveæ three, large, the sutural one farther from the base than the middle one. *Abdomen* moderately convex, more feebly punctured, the pubescence as long as on the elytra, first segment as long as one-third its width, the lateral reflexed margin not broader and the lateral basal impression much larger than in *B. rubicunda*, the basal striæ strongly divergent more than half as long as the segment, including at base a space not broader than the



interval between the sutural striæ of the elytra; behind the intermediate coxæ on the metasternum is a deep, sharply defined fovea. ♂ antennæ longer, elytra less convex, punctuation and pubescence stronger, intermediate tibiæ spurred, first ventral near the posterior margin transversely impressed, last ventral with a somewhat transverse, nearly circular, well defined, but not deep impression. Length, 1.5 mm.

Habitat. Canada. Differentials are: the strong punctuation, the long, divergent and very approximate abdominal striæ.

B. GEMMIFER, *Lec.* Ferruginous to red-brown or darker, pubescence very fine and short. *Head* from base to frontal margin as long as the width across the tempora, impunctate, except on the antennal tubercles, foveæ equal in size, small, mutually twice as distant as either from the eye and in a line with them; frontal margin slightly convex, antennal tubercles small, but well defined, space bearing the frontal fovea slightly concave. Eyes longer than the tempora, gemmate. *Antennæ* half as long as the body, second joint as long as the first, not as thick; third longer than the second, obconical-cylindrical, thinner; third to seventh cylindrical, subequal; eighth as thick as the seventh, of equal dimensions; ninth little longer and thicker, obconical; tenth subglobular, larger; eleventh nearly double as thick as the tenth, in length equal to the three preceding conjointly, from the middle strongly conical and somewhat oblique. *Prothorax* more convex than in *B. rubicunda*; middle foveæ small, deep, conspicuous, lateral ones not larger than the occipital foveæ, not fully in view from above, and situated one-third from the base. Disk conspicuously punctulate (magnified thirty diameters); base double as wide as the anterior margin. *Elytra* across the shoulders wider than the prothorax, sides arcuate behind the middle, where the disk is one-fourth wider than the length of the suture, convex; tip and sides very declivous, posterior margin laterally slightly sinuate. Disk (magnified sixty diameters) scarcely perceptibly punctulate, except on the posterior decliv-

ity, where it is distinctly punctured; sutural lines convergent from behind the middle to a spinous sharp point on each elytron; discal lines strictly parallel and but slightly convergent near the tip; basal fovea small and near the base. *Abdomen* not punctured, first segment not longer than one-fourth its width, striæ very short, one-sixth of the length of the segment, very divergent, and not further apart than the elytral sutural lines; last ventral punctured. ♂ last ventral inside of a nearly circular space, rather flattened, but not impressed. Length, 1.4 mm.

There are varieties in color and the strength of the punctuation of the prothorax and elytra.

This seems to be the most common species in Iowa. It differs from *congener* and *rubicunda* by the punctuation of the prothorax, the two latter species being impunctate, and in the abdominal striæ, which are farther apart in those two species. *Congener* is much smaller, leather-colored, and does not occur in the West.

B. DIVERGENS, *Lec.* Impunctate, piceous, antennæ, palpi and legs yellowish-red, pubescence short, sparse. Length, 1.3 mm.

*Head*, including the prominent eyes, nearly as wide as the prothorax, the foveæ of equal size and alike in form. *Antennæ* with the first and second joints larger, the first as thick as the tenth; second as wide as the ninth and as long as the third; third to sixth cylindrical, half as wide as the first, seventh and eighth gradually shorter, eighth as long as wide; eighth, ninth and tenth regularly increasing in length and width, each one as long as wide, the eleventh twice as much so, ovoid-acuminate. *Prothorax* transversely convex, a little wider than long, the lateral foveæ circular, not in full view from above; median puncture oblong. *Elytra* moderately convex, very minutely and confusedly punctured, disk near the tip more than half as wide again as at the humeri, shoulders tumefied but not laterally prominent, the lines sharp, not deep, the discal ones arcuate, approaching the suture and

traceable to very near the posterior margin. *Abdomen* short, the first segment not more than one-fourth as long as wide, carinæ very close together, about half as long as the segment and divergent. The male has the elytral sculpture more plainly marked.

Habitat. New York, Iowa.

Judging from the author's description, *B. facilis*, Casey, may be identical with this species.

*B. RADIANS*, *Lec.* Ferruginous, impunctate, abdominal lines long, ♂ last two ventrals concave, with an elongate medial elevation. Length, 1.5 mm. (Leconte's description).

Sexual variations are found in the elytral punctuation; the coloration is unstable; these facts, together with the vague statement of the carinæ being long, lead us to regard it as a doubtful species.

*B. ATLANTICA*, *Brendel.* Robust, elongate, impunctate, polished, very thinly pubescent, deep honey-yellow ferruginous throughout; occipital impressed in the middle. Length, 1.5 mm.

*Head* comparatively smaller than in *B. rubicunda*, narrower in front of the eyes than behind them, occiput triangularly impressed in the middle, antennal tubercles small, prominent, space between them narrow, very concave, foveæ as usual. *Antennæ* shorter than the head and prothorax, rather robust, the last joint more elongate than in *B. rubicunda*. *Palpi* yellow, resembling in form those of the above mentioned species. *Prothorax* one-third longer than the head and one-fifth wider than long, less convex, sides more evenly rounded, the median fovea smaller, punctiform, in some specimens scarcely visible, lateral foveæ large, in full view from above. *Elytra* impunctate but somewhat uneven, the lustre however not being impaired; the shoulders are less prominent and the pubescence inconspicuous, otherwise they are like those of *B. rubicunda*. *Abdomen* rather narrower, transversely less convex than longitudinally, the basal carinæ divergent, nearer together at base and longer than in *B. rubicunda*.

The sexual differences consist of the usual impression on the last ventral, and the more elongate last antennal joint in the ♂. This singular species is easily distinguished by the sulcate occiput, the oblong intermediate basal foveæ of the elytra, and the long, divergent basal abdominal carinæ.

Habitat. Southern States near the sea-coast.

*B. GRACILIS*, Casey. Dark piceous-red, convex, pubescence very long, yellowish-white, elytra blood-red. Antennæ and legs rust-red, palpi yellow. Length, 1.4 mm. Plate IX., Fig. 60.

*Head*, from the frontal margin to the base, as long as wide, and from the labrum to the base much longer, impunctate, the lateral margin above the eyes wavy, bisinuate, tempora as long as the eye. Frontal margin very slightly arcuate, foveæ deep, equal, vertex and occiput convex. *Antennæ* longer than the head and prothorax, first three joints uniformly decreasing in length and thickness, third to seventh equal, slender, cylindrical; eighth quadrate, smaller, ninth trapezoidal, not transverse, thicker; tenth also trapezoidal, wider than long, eleventh compressed, twice as wide as the ninth and as long as the three preceding, and furnished with long hairs. *Prothorax* wider than long, very convex, more so on the posterior half, and declivous toward the base, impunctate, polished, hairy, sides evenly and strongly arcuate; lateral foveæ large, circular, not in full view from above; median foveæ nude, minute, near the base. *Elytra* as wide across the shoulders as the prothorax, one-eighth longer, and not quite three-fourths wider across the posterior third; they are very convex, sides divergent, arcuate, discal lines sharp, nearly entire. *Abdomen* convex, pubescence longer and denser than on the elytra, basal carinæ one-third the length of the first segment, including nearly one-fourth of its width. Last dorsal with the emargination at tip very small, last ventral transversely oval, slightly impressed.

Varies in the length of the abdominal carinæ.

Habitat. Michigan, Illinois, Iowa, Louisiana.

B. CRIBRICOLLIS, *Brendel*. Piceous-black, elytra dark piceous-red or black, legs, antennæ and palpi red, or darker. The body is punctured all over, more deeply on the pronotum, punctures on the elytra oblong. Pubescence short, appressed. Length, 1.2 to 1.3 mm.

*Head*, from the frontal margin to the base, equal to the width between the eyes; frontal margin but slightly produced in the middle, foveæ equally distant, the lateral ones half the mutual distance from the eye. Disk punctulate, eyes circular, tempora arcuate, as long as the eyes. *Antennæ* longer than the head and prothorax, first and second joints equal in thickness, the first cylindrical, twice as long as wide, second oval, shorter; third to eighth equal in thickness, much narrower than the basal joints, third and fifth longer, equal, fourth, sixth and seventh equal in length, eighth quadrate, ninth and tenth obconical, truncate at their bases, strongly increasing in thickness, closely united. Last joint twice as long as wide, ovate-acute, truncate at base. *Prothorax* convex, lateral foveæ circular (elliptical when viewed from above), middle fovea oblong. *Elytra* broadly convex, shoulders high, protuberant, discal lines deep, convergent, sutural lines slightly arcuate, the interval roof-shaped elevated, with two rows of punctures on each side of the suture. *Abdomen* regularly punctured, the basal carinæ nearly parallel, half as long as the segment, ventrals punctulate. ♂ last dorsal broadly emarginate, last ventral flattened, with a short, conspicuous, transverse impression at its base. Legs darker in the specimens with darker elytra, second tarsal joint longer than the third. ♂ middle tibiæ with a short terminal spur.

Varies in the strength of the punctuation, especially among the females.

B. SCABRA, *Brendel*. Black, antennæ, palpi and legs red, elytra brownish-black. Length, 1.33 mm. Plate IX., Fig. 62.

*Head* punctate, large, subquadrate, not very convex, frontal margin arcuate, foveæ equal and equidistant, the occipital ones in a line with the centers of the prominent, finely-faceted

eyes; antennal tubercles somewhat oblique, the space between them depressed. *Antennæ* as long as the head and prothorax, first and second joints obconical, nearly equal, third to seventh cylindrical, the fifth longer in the male; seventh quadrate, eighth, ninth and tenth gradually larger, obconical, the last ovate, truncate at the base, as long as the two preceding, two-thirds as wide as long. *Prothorax* very densely covered with coarse, deep punctures, lustreless, broadest in the middle, wider than the head and eyes; base one-half wider than the neck, sides sharply rounded in the middle, sinuate anteriorly, nearly straight behind. Disk convex, the lateral foveæ large, not in full view from above, basal foveæ small, but very conspicuous. *Elytra* similar to those of *B. polita*, polished, as wide across the prominent shoulders as the prothorax, across the tip slightly less than one-half wider, and the suture exceeding by one-fifth the breadth of the prothorax. Disk convex, depressed outside of a line drawn from each shoulder to the outer third of the tip of each elytron. Sutural lines not straight, interval roof-shaped, discal lines more widely separated near the shoulders, then convergent or parallel, with a short divergence near the tip. Basal punctures three, approximate. *Abdomen* short, narrower than the tips of the elytra, the carinæ including one-fifth of the surface, slightly divergent. Legs simple, slender. ♂ with the intermediate coxæ acute, last ventral with the usual impression.

Varies in the color of the elytra, which are reddish-brown in some (probably immature) specimens.

Habitat. Sea-coast of the Northern Atlantic States. Region of the Great Lakes.

B. CONGENER, *Brendel*. Pale brownish-yellow throughout, impunctate, lustreless (on account of the short, appressed, tomentose pubescence). Abdominal carinæ divergent, very short, including one-sixth of the basal width. Length, 1.1 mm. Plate IX., Fig. 61.

*Head* with the occipital foveæ circular, separated from the eyes by a distance equal to their own width, and mutually

four times as distant. *Prothorax* more convex from side to side, the lateral foveæ slightly less in full view from above. *Elytra* with the sutural interval not punctured. *Abdomen* with the first dorsal four times as wide as long. The structure otherwise resembles that of *B. rubicunda*. There are no variations in color.

Habitat. New York, near the sea-shore.

B. RUBICUNDA, Aubé. Piceous-black, impunctured, elytra, legs, and antennæ red, palpi yellowish. Length, 1.5 mm.

*Head* including the eyes, broader than long, and, excluding the eyes, longer than wide from the frontal margin to the base. Clypeus, porrected; foveæ equal, mutually three times as distant as either from the eye, frontal margin roundly produced in the middle. *Antennæ* not half as long as the body, first joint cylindrical, robust, second oblong, nearly as thick as the first. Third to seventh cylindro-obconical, nearly equal, twice as long as wide, eighth globular, not thicker, ninth as long as the third, obconical and twice as wide; tenth subglobular, more than one-half thicker than the ninth; eleventh as long as the seventh, eighth and ninth together, ovate-conical, one-half wider than the tenth. *Palpi* with the second joint clavate, pedunculate by halves, third globular, fourth twice as thick as the third ovate-acuminate, twice as long as wide. *Prothorax* broadly convex, one-third longer than the head, widest in the middle and more than one-fourth wider than long. The lateral foveæ are very large, in full view from above, situated just behind the middle, median fovea punctiform, conspicuous. *Elytra* convex, as wide as the prothorax across the high prominent shoulders; across the tip they are one-half wider, and the sutural length is greater by one-sixth. Base tripunctate, the sutural puncture farther from the base than the others, sutural interval, slightly dilated in the posterior third; discal lines slightly arcuate, convergent, abbreviated at the posterior third. *Abdomen* broadly margined, first segment more than one-fourth as long as wide, last segment broadly emarginated at the tips, last ventral impressed. The abdom-

inal basal carinæ are divergent from the base, never very long including from more than one-sixth to less than one-fourth of the abdominal width. Legs slender, posterior tibiæ of ♂ arcuate.

*Bryaxis rubicunda* is described as having the prothorax impunctate, broadly convex with large lateral foveæ fully in view from above, the basal abdominal carinæ divergent from the base and including one-fifth of the width. But on other specimens of the same form, differing slightly in size faint punctures may be detected with a magnifying power of sixty diameters on the pronotal disk. The abdominal carinæ include also from one-sixth to one-fifth of the width. I take them to be all varieties of the same species excluding all others with evenly distributed punctures and less divergent carinæ though not otherwise materially different.

Habitat. Atlantic Coast to Missouri river.

B. TRIGY<sup>ON</sup>A. *Lec.* Length, 1.8 mm. Ferruginous, tubercle on first dorsal segment triangular, the carinæ approximate and divergent. ♂ last ventral with a deep sharply defined oval fovea (Leconte's description).

Habitat. Missouri. Unknown to us.

B. BICOLOR, n. sp. Dark red-brown, antennæ, palpi and legs yellowish red, elytra piceous-black, punctulate, moderately long. Length, 1.7 mm.

*Head* impunctate, surface between the front and base an equilateral triangle; the foveæ equal; eyes small, not prominent, the lateral limits of the vertex not carinate, clypeus simple, thinly margined in front, labrum entire, twice as wide as long. *Antennæ* robust, hairy, scarcely as long as the head and prothorax together; first and second joints square, not perceptibly longer than wide; third obconical, narrow, as long as the second and equal to the fifth. Fourth, sixth and seventh equal in length and width, as wide as the fifth; eighth lenticular very short, three times as wide as long, ninth and tenth trapezoidal twice as wide as long, increasing in width. Eleventh three-fourths as wide as long, equal in length to the three pre-



ceding, truncate at base, acute at tip. *Prothorax* polished, evenly and very obsoletely variolate, transverse, much wider than the head; lateral foveæ small, fully visible from above, the middle one very conspicuous, deep, and naked. *Elytra* piceous-black, punctulate, discal lines deep, converging, humeral callus prominent. *Abdomen* piceous-brown on the dorsum, dark red-brown on the venter where it is darker than the head and prothorax, first dorsal three time wider than long, the basal carinæ very near together, very fine divergent, one-third of the segmental length. Legs brownish-yellow, rather short and slender.

Found under stones near Cedar Rapids, Iowa.

B. PUNCTICOLLIS, *Lec.* Piceous-black, shining, pubescence short, recumbent, elytra, palpi, and legs rust-red. Length, 1.4 mm.

*Head* from base to frontal margin longer than the width behind the eyes, trapeziform; frontal tubercles strong, margin between them slightly arcuate around the frontal foveæ. Face protruding, occipital foveæ mutually twice as far distant as either from the eye. *Antennæ* as long as the head and prothorax, first and second joints nearly equal in length and width, cylindrical, rounded; third and fourth narrower, more than twice as long as wide; fifth slightly longer, sixth and seventh shorter, obconical, longer than wide. Eighth and ninth gradually wider, shorter than the seventh, rounded, obconical, tenth double the length and width of the ninth; eleventh oblong-oval, one-half wider than the tenth, and as long as that and the ninth together. *Palpi* with the last joint not longer than the second, thick, ovate acuminate. *Prothorax* as long as the head, broader than long, deeply punctulate, lateral foveæ in full view from above. *Elytra* punctulate as broad across the low but prominent shoulders as the suture is long, and across the tips one-third broader. The sutural interval is roof-shaped, punctulate, discal lines deep, slightly convergent nearly entire. *Abdomen* scarcely punctulate, first segment rather flat in the middle, the carinæ distant more than

one-third of the segmental width and not one-fifth of the length, slender. ♂ elytra often covering the basal abdominal carinæ, last dorsal emarginate at tip, last ventral with a shallow rounded impression. There are no variations in color in mature specimens, the punctuation of the prothorax in the ♀ often not as strong but evenly distributed.

Habitat. East of the Mississippi from Canada to the Gulf.

B. LITORALIS, *Brendel*. Ferruginous, impunctate, pubescence short, abundant, legs and antennæ slightly paler. Length, 1.3 mm.

*Head* with regular, short pubescence, disk of the vertex as long as wide, clypeus and mouth protruding, labrum quadrate, eyes large, prominent, tempora rounded, shorter than the eye, foveæ equal, large, the lateral ones only twice as far apart as from the eye. *Antennæ* longer than the head and prothorax, the joints sub-cylindrical, third to seventh three times longer than wide, eighth quadrate, ninth and tenth obconical, as long as thick, the last joint proportionately wider, and twice as long as thick, truncate at the base, ovate-acute. *Prothorax* polished, with a few irregularly scattered, obsolete acupunctures laterally, sides very evenly arcuate, lateral foveæ in full view. *Elytra* not so much polished, impunctate, the sides strongly divergent, finely and narrowly margined from the base all around to the tip of the suture; disk broadly convex, the lines sharp, not deep, sutural interval darker colored. Abdominal with the basal dorsal segments rather short, one-fourth as long as wide, carinæ one-third of the length and including more than one-fourth of the width. Hind tibiæ slightly arcuate, inferior surfaces somewhat flat, brush-like. ♂ last dorsal truncate, ventral with a longitudinal impression, not circumscribed.

Habitat. Texas to Virginia, more common in the latter state.

B. NEVADENSIS, *Casey*. Piceous-brown, punctulate, elytra red, legs dark brown, antennæ red-brown, pubescence short, coarse. Length, 1.3 mm.

*Head* with the eyes near the base, tempora short, arcuate to the nearly straight base, occipital foveæ in a line with the anterior part of the eyes, large, twice their own width apart, inter-antennal space transversely depressed and punctured, containing a smaller rounded fovea, supra-antennal tubercles large. Antennæ shorter than the head and prothorax, first and second joints subequal, conic-cylindrical, third to eighth subequal in width, fourth and seventh quadrate, equal; third, fifth and sixth longer than wide; ninth and tenth trapezoidal, transverse, eleventh a little longer than wide, obliquely pointed. *Prothorax* with the sides arcuate on the anterior third, converging to the neck and slightly so towards the base, the posterior part of the sides nearly straight. Base three-fourths as wide as the disk, the latter convex, punctulate, median fovea a small rounded puncture, lateral foveæ pubescent, small. *Elytra* near the tip nearly twice as wide as the prothorax, the length being one-sixth less than the width; sutural lines parallel, discal ones arcuate, sharp. *Abdomen* with the basal carinæ short, slightly divergent, including one-third of the segmental width. Posterior tibiæ clavate, arcuate, in the male; the elytra are longer in the female, and the last ventral simply flattened in the middle.

Habitat. Western Nevada and the adjoining parts of California.

B. *POLITA*, *Brendel*. Grayish-brown or darker, highly polished, impunctate, pubescence inconspicuous, fine, sparse, legs and antennæ dark brown. Length, 1.2 mm.

*Head* very slightly vaulted on the vertex, the disk as long as wide, clypeus and mouth not very much protruding, eyes small, not very prominent, tempora rounded longer than the eyes, occiput evenly convex the base-line straight. Foveæ equal, mutually three times as distant as either lateral one from the eye. *Antennæ* robust, not longer than the head and prothorax, the first two joints strong, sub-equal, sub-cylindrical. Third narrower obconical, fourth small quadrate, fifth and sixth a little thicker than the fourth, slightly longer than wide.

Seventh quadrate, smaller, eighth to tenth transverse, increasing in width, trapezoidal, more loosely jointed than the preceding which are compact; eleventh ovoid, one-half thicker than the tenth and twice as long as wide. *Prothorax* very convex, brightly shining, slightly wider than long, lateral foveæ, not in full view from above. *Elytra* short, one-half longer than the pronotum, as wide as the pronotum across the shoulders, two-thirds of this width near the tip: discal lines deep parallel, turned outward posteriorly. *Abdomen* very convex, the basal segment one-third as long as wide, elevated in the middle posterior carinæ including two-fifths of the width. Last dorsal of the ♂ notched for the reception of a corresponding part of the last ventral which bears on oval impression. Penultimate ventral with a transverse 'impression. ♀ antennæ more slender, elytra shorter, the divergent carinæ more exposed to view.

Habitat. New York. This species was confounded with *B. propinqua* until the several differences in the antennæ of the latter were recognized. The figure of *B. scabra* (Plate IX., Fig. 62) will give a good idea of the outlines of the species.

*B. PROPINQUA*, *Lec.* Piceous-brown, abdomen paler, legs and antennæ yellowish-brown. Body elongate, pubescence long. Length, 1.4 mm. Plate IX., Figs. 63, Figs. 66, a, b, c, antennæ.

*Head* impunctate, trapezoidal, tempora arcuate, longer than the eye, frontal tubercles oblique, not prominent, rounded, frontal margin slightly arcuately produced in the middle, inter-tubercular space triangularly depressed, containing the circular frontal fovea; lateral foveæ very near the prominent eyes. Y-shaped, elevation pronounced, not contiguous with the frontal tubercles.

*Antennæ* of female with joints one to four rapidly increasing in width, fifth nearly twice as long as the fourth, the succeeding three equal in width, gradually shorter. Ninth and tenth trapezoidal, the latter at tip double the width of the eighth;

eleventh wider, ovate, as long as the ninth and tenth together. *Antennæ* of male with the first to third joints sub-equal in width, nearly all of the same length, fourth very small, triangular, fifth transverse in some specimens, three times as wide as the length, which equals that of the second. Sixth to ninth of similar form gradually shorter, transverse, tenth wider, one-third as long as wide, eleventh ovate-acuminate as long as the first and second together. The posterior tibiæ of the ♂ are dilated. *Prothorax* impunctuate, widest at or behind the middle, evenly carinate, lateral foveæ somewhat less than in full view from above, median puncture conspicuous. *Elytra* a little more than one-third longer than the prothorax, the same across the high shoulders, and about one-third more across the tips. They are faintly reticulate, uneven, discal lines slightly arcuate, nearly parallel, basal intermediate puncture conspicuous. Sutural lines nearly parallel. *Abdomen* with the basal carinæ one-fourth the length and including one-third the width of the segment.

Habitat. Eastern States. The form with red elytra from the Pacific Coast is described as *albionica* by Motschulsky.

B. INFORMIS, Casey. Dark red, elytra brighter, legs and antennæ testaceous, polished, hardly punctulate, pubescence short. Length, 1.4 mm. Plate IX., Fig. 69. Antenna of ♂ after Casey.

*Head* more visibly punctured at the sides, foveæ not large, equal, eyes prominent, distant about their own length from the base, frontal margin broadly angulate. *Antennæ* not longer than the head and prothorax, the three basal joints longer than wide, nearly equal in length, gradually decreasing in width; fourth wider than long, small, fifth thicker, a little longer than wide, sixth with the length and breadth equal, as wide as the fifth, obliquely truncate; seventh to ninth slightly transverse, as wide as the fifth, tenth twice the width of the ninth, half as long as wide; the eleventh joint is three times as wide as the ninth, not much longer, and truncate at base. *Prothorax* slightly broader than long, transversely convex,

lateral foveæ small, impressed on the sides, median fovea elongate. *Elytra* three-fourths longer than the prothorax, wider than the prothorax near the shoulders and twice as wide near the tips; discal lines fine, slightly impressed, sutural lines straight, parallel. *Abdomen* elongate, carinæ divergent, enclosing not quite one-third of the segmental width. Posterior tibiæ slightly dilated.

Habitat. Mendocino county, California. Resembles in description Leconte's *B. subtilis*.

B. DEFORMATA, *Lec.* Dark piceous-brown or black, not conspicuously, very indistinctly punctulate, pubescence very fine, inconspicuous, elytra, legs and palpi red, antennæ dark piceous-red. Length, 1.2 mm.

*Head* finely pubescent, much wider than long, the disk of the vertex nearly quadrate, eyes coarsely faceted, tempora slightly arcuate, convergent, occiput longitudinally convex, frontal margin straight; between the rectangular, very slightly elevated supra-antennal tuberculations and near the frontal margin, transversely impressed, is the fovea, an indefinite acupuncture in ♂; occipital foveæ small, in a line through the middle of the eyes, mutually more than four times as distant as either from the eye, with a shallow sulcation or opening anteriorly. *Antennæ* not straight (♂), joint first short, quadrate, robust; second sub-quadrate for one-half of the first, thicker, outside nearly straight, inside hemispherical, enlarged, deeply foveate beneath; third and fourth transverse, sub-lenticular, much narrower than the first; fifth, sixth and seventh subequal, decreasing in width; fifth slightly wider than the first joint, all transversely lenticular; eighth smallest, obliquely trapezoid, outside longer, transverse; ninth and tenth gradually larger, regular, trapezoid, connate with the base of the eleventh, which latter is as thick as the second, obliquely pointed inward, externally arcuate, inside sinuate at the base, thence straight to the tip. In the female the antennæ are similar, curved, with simple joints, second joint smaller than first; second to seventh subequal, longer than wide, obconical;

eighth smallest, eighth, ninth and tenth gradually much larger, trapezoidal, the last joint not connate, oblong-ovate. *Prothorax* impunctate, polished, as long as wide, widest through the middle, convex, lateral foveæ small, not in full view from above; the median basal puncture very small. *Elytra* indefinitely punctulate, shoulders not prominent, their width equal to that of the prothorax; suture one-fifth longer, across the tip one-third wider, sutural lines parallel, the interval not punctured, discal lines parallel, obsolete in the posterior fourth, sides and posterior margin of each elytron arcuate. *Abdomen*, punctation doubtful, first segment three times wider than long, the carinæ one-third as long as the segmental length, divergent, and including one-half of the total width. Legs slender, stronger in the male, posterior tibiæ arcuate, ♀ frontal margin produced in a tubercle, behind which is a perceptible acupuncture.

Habitat. California, San Diego, Lake county (Carl Fuchs). Plate IX., Fig. 70, antennæ ♂ and ♀.

B. COMPAR, *Lec.* "*Elongata, punctata, pubescens, thorace subangulata, elytris punctatis, abdominis segmento primo striis nullis*"—Leconte's original description. Front transversely impressed, dark ferruginous, antennæ (♂) stout, joints sixth to eighth narrower than fourth and fifth. Length, 1.2 mm. Unknown to us; may be identical with Casey's *B. franciscana*.

B. FUNDATA, *Casey*. Black, elytra red, darker at the base and posterior limits, antennæ and legs dark piceous, pubescence dense, short. Length, 1.3 mm.

*Head* convex at the occiput, evenly punctulate, foveæ small, frontal foveæ wanting; front declivous, on the declivity bearing an oval spot with short, dense, erect setæ. *Antennæ* longer than the head and prothorax together, slender, the basal joint irregular, large, truncate, wedge-shaped, transverse; the second, smaller; third, narrower, obconical; fourth, a little smaller and transverse; fifth, longer than wide, regular, more than one-half wider than the fourth; sixth and seventh, of nearly the same

size, inside more convex than outside; eighth, narrower, as wide as long; ninth and tenth, larger, truncate, obconical; the last as long as the three preceding together, more than twice as long as its width, *Prothorax* wider than long, convex punctured along the base, lateral foveæ small, median oblong. *Elytra* across the shoulders a little wider than the prothorax, twice as wide near the posterior limits, disk convex, sparsely punctured, discal lines fine, arcuate, sutural ones parallel. *Abdomen* broadly convex, basal segment with the carinæ very short, more than one-third of the segmental width apart. Legs, the posterior tibiæ slightly arcuate. ♀ antennæ shorter, regular. Plate IX., Fig. 72, antennæ, ♂ and ♀.

California (Sonoma Co). Spokane Falls, Washington. Idaho.

B. FRANCISCANA, *Casey*. Slender, black, elytra red; legs and antennæ dark brown, polished; pubescence, dense, short. Length, 1.3 mm.

*Head* feebly convex, punctuate, genæ shorter than the eye, foveæ small, frontal foveæ wanting, frontal declivity bearing an oval spot with setiform, short hair. *Antennæ* stout, hardly as long as the head and prothorax together, the basal joint short, as thick as the tenth, the second rounded, half as thick, the third narrower, obconical, longer than wide, the fourth like the second, the fifth wider than the fourth and twice as long, the sixth and seventh smaller, as long as wide, eighth very small, transverse, ninth and tenth rapidly increasing in width, trapezious, the last one-half wider than the tenth, as long as the three preceding ones together, truncate at the base, pointed. *Prothorax* very little wider than the head, wider than long, transversely convex, densely punctate, lateral foveæ large, median very small. *Elytra* slightly wider than the prothorax across the shoulders, across the posterior third not quite twice as wide and a little wider than long; sutural lines deep, discal sharp, arcuate. *Abdomen* broadly convex, basal carinæ fine, divergent including one-fourth of the segmental width. Legs short, stout, intermediate, tibiæ with a terminal spur.



Habitat. California (San Mateo Co.,) Plate IX., Fig. 17, antenna. ♂.

This may be identical with *B. compar* of Leconte, which is described as having similar antennæ, densely punctured pronotum and brown color.

*B. TUMIDA, Lec.* Clear brownish-yellow, pubescence fine, very short, plentiful, appressed, elytra and dorsal surface of the abdomen extremely fine, punctulate. Length, 1.2 mm.

*Head*, exclusive of the eyes, as wide as the length from the tip of the frontal margin to the base; front tubercles not prominent, foveæ in a line through the middle of the eyes about four times as distant as either from the eyes, occiput evenly convex, frontal margin produced to a point, frontal foveæ very small, slightly impressed on the nearly flat inter-antennal space. *Antennæ* ♂ half as long as the entire body, joints one to four rapidly decreasing in size, quadrate; first, one-half the width of the fifth; fourth, one-third of the first; fifth and sixth oval, longer than wide, and as wide as the length of the eye; seventh and ninth, gradually increasing; seventh, equal to fourth, and half as wide as ninth, which is slightly transverse; tenth, larger, not as wide as fifth or sixth, the last as wide as fifth, ovate, one-third longer. Clypeus and labrum prognathous, the latter rounded with a small fovea near the lateral margins. *Prothorax* as long as the head and one-third wider, evenly convex, middle foveæ small punctiform, lateral ones in full view from above, not much larger than the occipital foveæ, base with a transverse row of small punctures. *Elytra* one-half longer than the prothorax and equal to the shoulder width; across the posterior fourth, one-third wider, disk evenly convex, sutural lines straight, parallel, interval not roof-shaped, discal lines arcuate, convergent, obsolete in the posterior fifth. *Abdomen*, first segment one-fourth as long as the width, lateral anterior corner roundly depressed, carinæ including one-third of the segmental width. Legs rather long and robust.

♂. Distinguishing marks are the above mentioned form of

the antennæ, and the more dilated tibiæ, the posterior ones arcuate, the last ventral slightly impressed.

♀. Antennal joints longer than wide, the fifth and sixth slightly larger and longer than their neighbors, and the frontal foveæ more conspicuous.

Habitat. Texas. Plate IX., Fig. 73, antennæ, ♂ and ♀.

I can not find any difference between the female and *B. complectens* according to the description of Leconte except the size, which is often deceptive.

[CONTINUED IN BULLETIN, VOL. II, NO. I.]

## THE PSELAPHIDÆ OF NORTH AMERICA.

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A MONOGRAPH BY

EMIL BRENDEL, M. D., AND H. F. WICKHAM.

[CONTINUED FROM PAGE 304 OF VOL. I.<sup>1</sup>]

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### EUPSENIUS, *Leconte*.

Antennæ clavate, the last joint very large, ninth and tenth lenticular, transverse; last joint of the maxillary palpi large, ovate; mentum narrow at the base; abdomen narrowly margined; posterior coxæ distant; tarsi with a single claw.

E. GLABER, *Lec.* Yellow, very smooth, without pubescence or punctures. Length, 1.0 mm.

*Head* bifoveate in a line between the eyes, wider than long; eyes moderately prominent. *Antennæ* with the first two joints larger, cylindrical, one-third longer than wide; joints three to seven equal, small, transverse; eighth twice as wide as long; eighth to tenth equal in length, rapidly increasing in width; the tenth four times wider than long; eleventh ovate, wider in the middle than the tenth and one-half longer. *Prothorax* slightly wider than the head, widest near the middle, the neck half as wide as the base, sides evenly rounded. Base angulate in the middle. Near the base is a median puncture, and on each side a large fovea connected with the middle one by an arcuate impressed line. *Elytra* as wide across the shoulders as the prothorax, one-half wider before the tip, sutural line slightly impressed, the base bifoveate, no discal lines. *Abdomen* short, the first dorsal segment as long as the third part of its width, without carinæ. Legs strong, the

<sup>1</sup> For some verbal corrections and emendations of the former part of this work, see concluding page of the present section.

thighs clavate. The form of the whole body resembles that of *Decarthron longulum*.

Habitat. Louisiana, South Carolina.

*E. RUFUS*, *Lec.* Larger than *E. glaber*, differing in the form of the prothorax, which is described as less narrow behind and less sinuate at the sides near the base. Length, 1.25 mm. Alabama. Unknown to us.

#### PSELAPTUS, *Leconte*.

*Head* broadly excavated in front obtusely elevated each side above the distant antennal foveæ, front not retuse, convex, (produced). *Antennæ* eleven jointed, first and second joints a little stouter and longer, cylindrical; third to eighth shorter; ninth and tenth a little broader and slightly longer; eleventh pointed, oval, one-half longer than wide, and double the width of the tenth, outer part pubescent, with long hairs. *Maxillary palpi* as in *Bryaxis*, second joint long, clavate, third rounded, fourth elongate oval, acute, with a terminal seta. *Prothorax* very convex, campanulate, feebly transversely impressed near the base, without foveæ. *Elytra* convex, wider behind, without striæ or punctures. *Abdomen* with dorsal segments convex, finely margined, the first longer, with two short parallel carinæ not very widely separated, intermediate ventral segments short.

*P. BELFRAGEI*, *Lec.* Rufous, pubescence fine, sericeous; head broadly impressed in front, prothorax without foveæ. *Elytra* impunctate without striæ. First dorsal segment with two parallel lines. Posterior tibiæ long, slightly curved. The frontal impression is less deep at the middle than at the sides. Length, 1.0 mm.

Habitat. Texas.

#### VERTICINOTUS, *Brendel*.

Elongate, polished, thinly pubescent, prothorax subglobose, without lateral foveæ, elytra without basal foveæ, abdomen not broadly margined, with a linear transverse bar at the

base, half as long as the width of the segment. Sexual differences confined to the structure of the vertex, the antennæ, and the last ventral segment. Palpi with the third joint globular, fourth oblong ovate, yellow.

V. CORNUTUS, *Brendel*. Dark yellow, faintly punctulate, thinly pubescent with recumbent hair.

*Head* square, corners rounded, eyes with coarse facets. *Prothorax* subglobose. *Elytra* slightly flattened at the base, without basal punctures, the discal lines indicated by very short impressions, the sutural entire, straight. First abdominal segment one-fourth as long as wide, with a transverse linear bar at the base. Legs long, simple. ♂ *head*, occiput elevated, produced into two horizontal horns which are separated by a deep emargination, and overhang the surface of the vertex. The plane of the vertex is uneven, pubescent, with six punctures arranged in a circle; in the frontal angles, posterior to the slightly elevated antennal tubercles are two small spinulæ. *Antennæ* ten-jointed, first joint sub-cylindrical, half as long as the frontal margin; second similar, slightly smaller; third short, rounded, half as long as the second; fourth as long and thick as the first; fifth, sixth, and seventh, obconical, shorter, as thick as the third; eighth and ninth obconical, rounded. *Prothorax* as long and wide as the head, eyes included, and with a small puncture at the base. Last ventral segment with a deep circular impression. ♀ *head* slightly convex, eyes less prominent, vertex with two small punctures between the eyes, mutually three times as distant as either from the eye, and two smaller punctures near the antennal tubercles, a faint line connecting the four punctures. Frontal margin straight. *Antennæ* eleven jointed, first joint half as long as the frontal margin, obconical; second as wide as the first and half as long, obconical; third to eighth small, nearly globular; ninth and tenth gradually larger, trapezoidal; eleventh as long as the three preceding joints, and twice as wide as the tenth, oblong ovate; the fourth joint of the ♂ shows a transverse line indicating ankylosis of two joints.

The ♂ of this insect was formerly described by Dr. Brendel under the name *Decarthron cornutum*, and the ♀ as *Bryaxis inornata*. Afterwards finding them in large numbers with ants, he recognized them as sexes of one species.

Plate IX, Fig. 74, ♂; 75 ♀. Habitat. Iowa.

A second species of this genus was discovered by Mr. Schwarz, in Florida, and is thus far unknown to me. It is said to differ chiefly in the ankylosed antennal joints.

#### ARTHMIUS, *Leconte*.

Head quadrate, differently sculptured in the sexes. Antennæ regular and straight in the ♀, irregular in the ♂. Prothorax globose. Elytra much wider than long; abdomen short. The line of junction of the ventral and abdominal segments is straight, not serrate as in *Batrisus*; first segment one-third as long as wide, with four basal impressions, not convex longitudinally but very much so laterally, margin broad but not retuse. Fourth segment longer than its neighbors, first ventral very long. Legs slender, the anterior in the ♂ dilated and armed with a strong tooth near the middle.

A. GLOBICOLLIS.<sup>Leconte</sup> Deep yellow. Length, 1.7 mm.

*Head*, sides without the eyes parallel, occiput elevated, vertex convex, two small foveæ between the eyes, and two more behind the frontal tubercles. These tubercles are oblique and prominent, the frontal margin is transverse and emarginate in the middle. *Antennæ* with every joint of a different form and presenting a different appearance according to point from which it is seen. First and second joint cylindrical or obconical; third small, obconical, geniculate with the second; fourth undefinable; fifth large, semi-spherical; sixth small and globular; seventh subglobular, truncate, very large; eighth transverse, acute-ovate; ninth small, globular; tenth obovate; eleventh large, acutely ovate. *Prothorax* globular, with a straight flat transverse sulcus near the base, and at the base is a linear slightly elevated margin. *Elytra* twice as wide as

the head, including the eyes, very convex both ways, widest in the middle; sides strongly and evenly arcuate, shoulders not prominent. Disk narrowly elevated at the base, with three very small punctures on each elytron, sutural interval punctured, discal lines wanting. *Abdomen* with the last segment rounded at tip, last ventral with a deep transverse triangular cavity, slightly elevated in the middle at the bottom. Anterior tibiæ of ♂ gradually dilated from the knee to the anterior third and emarginate above from this point to the end, leaving a strong sharp tooth. Tarsi with the second and third joints equal in length, intermediate tibiæ with a terminal spine, posterior tibiæ arcuate. ♀ with head evenly convex posteriorly, somewhat roof-shaped anteriorly, the highest part rounded, the foveæ as in the ♂, the antennal tubercles nearly obsolete, the frontal margin triangularly produced from the margin to the middle. Elytra very convex longitudinally, shoulders less prominent and the disk much shorter than in the ♂; the first abdominal segment is slightly longer than in the ♂, the last aculeate, the last ventral semi-circular at the base. The genital slit is straight at the sides, angulate at the middle, and in the middle of the area is a large flat-bottomed, triangular depression, leaving large, oval, convex, oblique elevations at the sides. Antennæ and legs simple and straight.

Plate IX, Fig. 76 ♀; 77 ♀, a. b. c.

For a knowledge of the ♀ I am indebted to Mr. Henry Ulke, who found them in considerable numbers near Washington. It seems to be confined to the Atlantic States.

#### BATRISUS, *Aubé*.

Form of the body circulo-cylindroid, narrow, elongate, abdominal margins not parallel to each other, the outer edge rounded not reflexed; the inner one oblique, causing the border of each elytron to appear triangular; the base of the dorsum is trifoveate, the elytra very convex, the discal lines never reaching beyond the middle. Prothorax with two or

three longitudinal grooves and a transverse binarcuate groove near the base connecting the three foveæ; the head is longitudinally oblong; the eyes small, smaller in the ♀; the vertex elevated above the level of the eyes, and an arcuate groove connects two occipital foveæ on the disk. The antennæ are inserted on the sides beneath lateral tumefactions of the frontal margin; the clypeus is variously sculptured; the labrum transverse; the maxillary palpi have the first joint small, cylindrical; the second long arcuate-clavate; the third small, globular; the last fusiform, more convex externally. Antennæ with the three terminal joints always enlarged; the legs long, with clavate thighs and slender tarsi which bear two unequal claws; the trochanters are commonly long, obliquely jointed to the thighs; the anterior coxæ are conical and contiguous, the posterior pair transverse.

## TABLE OF SPECIES.

- I. Posterior tibiæ without a terminal process; intermediate basal elytral fovea obsolete; occipital fovea nude.
- 1<sup>3</sup> Vertex not carinate in the middle, occiput tumefied, posteriorly overlapping the neck; ♂ intermediate thighs with a curved spine near the trochanters. Length 2.66 mm. Georgia. - - - - *ionæ*. 9
- 1<sup>2</sup> Vertex with three convergent carinæ on the occiput; ♂ anterior tibiæ with a strong recurved spine near the middle, the intermediate femora notched above.
- 2<sup>2</sup> Occiput tumefied; ♂ posterior tarsi with the second joint dilated. Length 2.4 mm. Pennsylvania. - - - - *armiger*. 10
- 2<sup>1</sup> Occiput not tumefied, ♂ posterior tarsi simple.  
Elytra punctulate, sides of prothorax abruptly sinuate behind; ninth and tenth antennal joints sub-equal, the eleventh wider than the tenth, ovate. Length 2.4 mm. Virginia.  
*ferox*. 11
- 1<sup>1</sup> Vertex with one occipital carina (doubtful) - . - . *confinis*. 12
- II. Posterior tibiæ with a long terminal process, base of the elytra trifoveate.
- 1<sup>2</sup> Head prognathous, front not separated from the clypeus by an interantennal excavation in either sex. ♂ last antennal joint with an erect basal tooth.



2<sup>2</sup> Prothorax without discal crests; ♀ last segment pointed, vertical fovea nude. (Pacific coast species).

3<sup>3</sup> Shoulders hanging, obsolete, intermediate elytral basal fovea confluent with the internal one.

Vertex with a central impression, occiput with a rounded tubercle; prothorax with the median sulcus merely indicated near the median fovea. Length 1.9 mm. British Columbia.

*albionicus*. 16

Vertex not impressed in the center, prothoracic median sulcus nearly entire. Length 1.9 mm. Middle California.

*occiduus*. 17

3<sup>2</sup> Shoulders moderately prominent, rounded; ♂ last ventral with a large crater shaped fovea.

Black, legs and antennæ brown, occiput carinate; prothorax without a trace of median sulcus, elytral basal foveæ separate, conspicuous. Length 2.2 mm. Middle California.

*monticola*. 14

Rust-red or piceous-red, elytra brighter, occiput carinate, prothorax with an anteriorly abbreviated sulcus; intermediate elytral basal foveæ nearly obsolete. ♂ with the fovea on the last ventral, large, crater shaped. Length 2.2 mm. Washington, Oregon, California, Vancouver Island.

*zephyrinus*. 13

3<sup>1</sup> Shoulders angular, armed with a minute, blunt tubercle; elytra with shallow, irregular, scar-like impressions; elytral basal foveæ separate, conspicuous. Length 1.8 mm. Middle California. - *cicatricosus*. 15

2<sup>1</sup> Prothorax with discal crests. ♀ last abdominal segment rounded. (Eastern species.)

Elytra strongly punctate, shoulders acutely angulate, ♂ last antennal joint toothed at the base; occipital foveæ nude. Length 1.0 mm. Pennsylvania, Illinois. - - - *schaumii*. 18

1<sup>1</sup> Frontal margin in the ♂ separated from the clypeus by a sulcus or excavation; in the ♀ continuous with the clypeus. (Atlantic slope.)

4<sup>2</sup> Frontal margin produced (♂) beyond the inter-antennal line.

5<sup>4</sup> Vertex slightly scabrous, vaulted and carinate; ♂ last antennal joint long, with an erect tooth; elytra punctate, shoulders not armed; vertical foveæ nude. Length 1.5 mm. Pennsylvania, Illinois. *riparius*. 19

5<sup>3</sup> Vertex coarsely scabrous, not vaulted, occiput carinate, circumambient sulcus obsolete, prothorax trisulcate; ♂ last antennal joint without a tooth.

6<sup>2</sup> Frontal margin (♂) notched in the middle, overhanging the clypeus; occiput carinate, occipital foveæ nude; shoulders angulate; head orthognathous. Length 2.2 mm. Pennsylvania, Illinois. *scabriceps*. 19

- 6<sup>1</sup> Head very flat, vertex slightly carinate, frontal margin triangular, declining to the clypeus and but slightly separated from it by a linear sulcus.

Prothorax with conspicuous discal crests and deep grooves, giving the disk the appearance of having five lines; occipital foveæ pubescent. Length 2.2 mm. Pennsylvania, Iowa.

*lineaticollis.* 20

Prothorax without discal crests and median sulcus; vertex smoother in the middle. Virginia, Pennsylvania. *bistriatus.* 22

- 5<sup>2</sup> Vertex smooth, not carinate, front, behind the very retuse ( $\delta$ ) margin, deeply excavated; ♀ front declivous, not retuse; occipital foveæ pubescent, antennæ alike in the sexes.

Vertex, sulcus deep; prothorax without crests or spines; shoulders high, prominent, rounded. Totally impunctate, elytral basal foveæ two, the intermediate wanting. Length 2.2 mm. Illinois. - - - - - *frontalis.* 22

Vertex finely scabrous outside of the shallow circumambient sulcus; prothorax with four basal spines. Length 1.9 mm. Michigan, Iowa. - - - - - *simplex.* 23

- 5<sup>1</sup> Vertex high, roof-shaped, smooth, carinate throughout, foveæ nude, border broad, flat, very densely punctured; tenth antennal joint ( $\delta$ ) globose, larger than the last, shoulders spinous. Length 1.7 mm. Pennsylvania, Illinois, Iowa. - - - - - *globosus.* 23

p. 23 for  
nal species.

- 4<sup>1</sup> Frontal margin not produced beyond the inter-antennal line, perpendicularly declivous above the sub-frontal excavation; tenth antennal joint ( $\delta$ ) very large.

- 7<sup>2</sup> Occipital foveæ nude, shoulders blunt, rounded, head orthognathous.

Reddish-brown, median prothoracic sulcus nearly entire;  $\delta$  tenth antennal joint large, globose, with a small perforate fovea at the base. Length 2.1 mm. Virginia. - - - *virginia.* 25

Black, antennæ and legs red, median sulcus entire, obsolete.  $\delta$  tenth antennal joint large, globose, foveate beneath. Length 1.6 mm. Virginia. (*B. luculentus*, Casey.) - *spretus.* 26

Var. a.; median sulcus of the pronotum indicated; fovea of the tenth antennal joint very large - - - *foveicornis.* 27

Var. b.; median sulcus short, more distinctly visible; tenth antennal joint very little larger than the ninth; last joint larger than usual. - - - - - *punctifrons.* 27

- 7<sup>1</sup> Occipital foveæ pubescent, shoulders spinous.

Reddish-brown or black, with red elytra, antennæ and legs; vertex feebly carinate behind;  $\delta$  antennæ with the basal joint bluntly toothed below, the tenth large, globose, with a small perforate puncture at the base below. Length 2.1 mm. Virginia, Iowa. - - - - - *denticornis.* 27?

Black, with reddish antennæ and legs; vertex with a fine, entire carina; ♂ antennæ with the basal joint spinous, triangular; third joint in both sexes longer and stouter than the second or fourth; tenth obconico-globular, large, not perforate. Length 2.0 mm. Long Island. (*B. spinifer* Brend. preoccupied.)

*triangulifer.* 28

Black, with reddish antennæ and legs; occiput carinate; ♂ basal joint not modified; the third longer than the second or fourth, very much tumefied on one side; tenth joint large, globular, not perforate beneath. Length 2.0 mm. Georgia.

*nigricans.* 30

Black, with reddish antennæ and legs; occiput carinate, vertex with a central transverse puncture; basal antennal joints in both sexes subequally decreasing in size; tenth long, globular, not perforate beneath. Length 2.0 mm. New York to Illinois. - - - - - cephalotes. 31

## I.

Posterior tibia without a terminal spur. Frontal margin concave.

*B. IONÆ, Lec.* Reddish, polished, punctulate, pubescence thin scattered, recumbent. Length, 2.66 mm. Plate X., Fig. 79.

The *head* is longer than broad, occiput tumid, overlapping the neck; vertex declining from the occiput to the frontal margin and separated from the lateral and frontal margins by a slightly impressed circumambient sulcus. Eyes not prominent. The last palpal joint is three times longer than thick. *Prothorax* bell-shaped, widest in the middle, but little narrower at the base, with three longitudinal sulci of which the middle one is nearly entire and ends near the base in a small fovea. Between this fovea and each side of the median sulcus is a small, acute tubercle; the sides of the prothorax outside of the lateral sulci are depressed, and the space between the lateral and median sulci is smooth, not carinate. *Elytra* punctulate, pubescent, with low rounded shoulders; dorsal lines abbreviated before the middle, more deeply impressed at the base; sutural interval impressed. *Abdomen* very convex, slightly depressed at the base, punctured, pubescent. *Antennæ* not half as long as the body; joints first to eighth grad-

ually shortened and thinner; the ninth is as thick as the second, somewhat transverse; the tenth large, globular; the last oblong-ovate, much thicker in the ♂, and with a small tooth inside. Legs long, the intermediate femora in the ♂ provided with an acute curved spine below, near the trochanter. In the ♀ the last two joints of the antennæ are not so strong, the last without a tooth, and the legs are unarmed.

Habitat. Georgia.

B. ARMIGER, *Leconte*. Reddish brown, thinly pubescent. Length, 2.4 mm.

*Head*, eyes included, about as wide as long, quadrate; tempora acutely angled with the base; frontal tubercles obliquely oblong, rounded, the space between them strongly concave; occiput elevated, slightly produced over the neck, tricristate; the carinæ convergent to the middle; vertex broadly elevated, obsoletely scabrous; the circumambient sulcus broad, not deep, lost in the frontal concavity; foveæ rather large and shallow, pubescent. Eyes moderately large. *Antennæ* half the entire length of the body; first joint oblong obconical; the second slightly longer and narrower than the first; the last slightly wider, and as long as the five preceding together, (♂) truncate at the base, slightly tumid on the inner side; apex obliquely pointed. *Prothorax* as wide as long, widest before the middle, of the same width as the head including the eyes, and minutely dentate before the middle. The longitudinal grooves are very deep and nearly entire; basal tubercles acute; carinæ with three curved spines. *Elytra* impunctate; slightly wider than long; shoulders not spinous, rounded; discal striæ abbreviated at the middle, base trifoveate. *Abdomen* simple, the marginal triangle rather elongate, sides nearly parallel. Legs long, thighs clavate, tibiæ angulate. ♂, anterior tibiæ in front twisted, dilated about the middle into a large acute spine, twisted near the base, with a minute spine; intermediate thighs emarginate near the distal end. ♀, legs simple.

Habitat. Allegheny mountains. Pennsylvania.

*B. FEROX*, *Lec.* Reddish brown, rather densely pubescent, punctulate. Length, 2.4 mm. Plate X., Fig. 78.

*Head* transversely quadrate; posterior angles broadly arcuate, convergent; base elevated in an equilateral triangle limited by two anteriorly convergent carinæ, and with a third carina in the middle; foveæ small, in a line through the posterior third, laterally anterior to the elevated triangle; the vertex is declivous, anteriorly smooth, polished, the excavation limited by the nearly straight frontal margin. The sulcus originating in the occipital fovea is faint; the lateral margin is punctured; the frontal tubercles acute, dentiform, roofing the antennal cavity. The middle of the frontal margin is minutely carinate longitudinally. Eyes of the ♂ moderately large, not prominent, rounded. *Antennæ* half the length of the body; first joint cylindrical, emarginate above for the articulation of the second joint which is slightly narrower, oblong-obconical; joints three to nine gradually cylindrical, then quadrate, rounded, and slightly decreasing in width; tenth larger, globose in the ♂, obconical in the ♀; the last joint is as long as the two preceding, thicker, oblique, truncate, rounded at the base. *Palpi* dark brown, the last joint cylindrico-fusiform, lighter at the tip which is bent inward, and as long as the first antennal joint. *Prothorax* widest at the anterior third, where the width equals that of the head; sides strongly arcuate, somewhat sinuate behind the middle; base two-thirds of the greatest width; neck half as wide as the base. The length is slightly less than the width; the disk very convex; median sulcus fine, obsolete in the anterior fourth; lateral carinæ spinous, basal foveæ deep, nude, lateral ones irregular. The lateral sulci are slightly impressed, parallel to the sides, basal tubercles acute. *Elytra* convex, one-sixth wider across the shoulders than the thorax; sides very divergent; the greatest width is across the tips, where it is nearly one-half greater than at the shoulders. The length of the suture in the female is slightly greater than the width at the shoulders; in the male it is still

longer. The sides in the female are nearly straight, arcuate near the tip; in the male more evenly arcuate from the shoulders. Disk regularly punctulate, shoulders spinous, discal lines abbreviated in the anterior third. *Abdomen* longer than the elytra, the basal segment three times as wide as long and as wide behind as the elytra; basal carinæ very short, one-fifth of the segmental width apart; the fourth segment is longer than its neighbors, the ventrals sub-equal, the first longer. Legs long, tibiæ flat and angular inside, gradually stronger towards the distal end, and more densely pubescent. ♂, intermediate thighs emarginate above near the tip, anterior tibiæ twisted near the knee joint and with a very small spine, dilated and compressed in the middle. The upper half of the dilatation is emarginate, so as to form a large, strong, blunt spine; the distal end is again twisted. ♀, thighs simple, the eyes very small, situated far down on the sides of the head near the antennal foveæ, not rounded, rather irregular, with a spinous attachment posteriorly, which is in some specimens very small, in others quite conspicuous. Varies in the sculpture of the head and in the interval between the prothoracic carinæ being sometimes less smooth.

Habitat. Northern States east of the Mississippi.

*B. MONSTROSUS*, *Lec.* This species differs from *B. ferox*, according to the description, by the antenna having the last joint longer; from *B. armiger* it differs in the broader and shorter tooth of the anterior tibiæ. The description is not sufficient for a diagnosis, even if it be not a variety of *ferox*.

Unknown to us.

*B. CONFINIS*, *Lec.* The brief description is as follows:—Rufus, capite lævi, vertice elevato, 1-cristato, sulco circumcincto; thorace obsolete lineato, antennis gracilibus, articulo ultimo ovato. Thoracis spinis sub-basalibus, minoribus differt.

Unknown to us.

## II.

Posterior tibiæ with a long terminal process, base of the elytra trifoveate.

B ZEPHYRINUS, *Casey*. Red, elytra brighter, or piceous with dark red head and prothorax and red elytra; legs, antennæ and palpi, yellowish brown, highly polished, pubescence coarse. Length, 2 mm. Plate X., Fig. 82. Plate XII., Fig. 141.

*Head* as wide as long, eyes prominent, neck slender, feebly carinate; occiput feebly carinate on a line passing through the middle of the eyes; two small, nude, oblong foveæ, mutually twice as distant as either from the eyes, are connected by an arcuate sulcus. The frontal margin is depressed between the coarsely punctured supra-antennal tuberculations and continuous with the simple clypeus; the vertex inside of the circumambient sulcus impunctate and bears a faint punctiform impression in the center at the end of the occipital carina. *Antennæ* longer than the head and prothorax; first joint longer than wide; second smaller; second to eighth obconical; eighth slightly transverse; ninth and tenth gradually wider, the latter ( $\delta$ ) obliquely truncate at the tip; eleventh larger, rounded at the base, conical at the tip, obliquely pointed, and with an erect cylindrical tooth at the base. *Prothorax* widest before the middle, as wide as long, sides arcuate, sinuate behind, converging to the base, which is three-fourths as wide as the disk and one-fourth wider than the neck; disk convex, median basal foveæ deep, rounded; median sulcus feeble, sometimes reaching to one-third the length from the neck, but occasionally hardly perceptible; on each side of the median fovea is a pointed, leaf shaped elevation, limited anteriorly by the arcuate, transverse, sulcus connecting the median with the lateral foveæ. In the center of these leaf shaped elevations and near the base each side is a deep puncture; the lateral longitudinal grooves are arcuate outwardly. *Elytra* in some very feebly and sparsely punctulate, in others smooth, trifoveate at the base; sutural lines parallel at the base; the interval

punctured; shoulders prominent, not acute; discal lines short, indefinite. *Abdomen* as wide as the elytra; the first segment three times wider than long; the basal carinæ nearer to each other than to the margin, variable in length, but always short. Legs long, slender, the posterior tibiæ with a terminal process which is straight in the ♂, contorted in the ♀. The ventral sexual marks consist of a large deep fovea near the apex, which has straight or convex anterior limits. Eyes (♀) lunate, small; the apex of the abdomen pointed, produced.

*Habitat.* A common species, occurring in the northern half of California, and in Oregon and Washington, as well as in the British possessions.

*B. MONTICOLA, Casey.* Black, shining, impunctate, antennæ, legs and palpi red, pubescence coarse. Length 2.2 mm.

*Head* as wide as long, eyes finely granulate, sides of the head behind them convergent, feebly arcuate, occiput carinate, occipital foveæ nude, elongate, situated on a line passing through the eyes, circumambient sulcus well impressed, the portions of the vertex outside of the sulcus with large shallow punctures, and carinate on the lateral declivity. Frontal margin deeply depressed between the broad and pubescent supra-antennal tuberculations. *Antennæ* not longer than the head and prothorax together; first joint slightly arcuate and cylindrical, twice as long as thick; second to eighth subequal, conico-cylindrical; ninth slightly transverse; tenth wider, transverse, not longer than the ninth and obliquely truncate, (♂) cuneate; eleventh slightly wider than the tenth and as long as the three preceding together, rounded at the base, obliquely conical toward the end, not acuminate. *Prothorax* widest near and before the middle, as wide and as long as the head, strongly arcuate, sinuate to the base behind; disk convex, smooth; median fovea large, prolonged for a short distance anteriorly; the lateral small, with lateral parallel longitudinal grooves; transverse sulcus arcuately limiting the leaf shaped anteriorly pointed elevation with its central puncture on each side of the median fovea and the basal median carina; the posterior



angles of the pronotum are deeply foveate. *Elytra* without visible punctures; shoulders prominent longitudinally, not acuminate; sutural lines parallel, interval with a row of very small punctures; discal lines short, obsolete. *Abdomen* very convex, the lateral basal pits very deep, feebly punctulate. Sexual differences are the same as in *B. zephyrinus*; the ventral fovea very large, crater shaped, with evenly concave bottom.

Habitat. Eldorado county, California.

*B. CICATRICOSUS*, *Brend.* Male, umber brown, elytra, legs, and last joint of the antennæ red, pubescence long. Length 1.9 mm. Plate X., Fig. 83.

*Head* quadrate, carinate at the sides over the eyes; vertex moderately convex, the carina of the collar scarcely continued to the base of the occiput, in the center inconspicuously compressed and surrounded by a deep sulcus, which is posteriorly continued to the base, running straight forward outside of the deep, nude, fovea, and connects with the sulcus of the other side by the deep transverse portion of the frontal impression; the border separated by the sulcus is coarsely but not densely punctured; front continuously declivous with the clypeus. Eyes rather prominent, small, with a lunate base. *Antennæ* as long as the head and thorax together; first joint cylindrical, concave above, convex beneath, deeply emarginate above at the tip; second shorter, as thick as the first, oval, longer than wide; third to eighth sub-equal, conico-cylindrical, inconspicuously longer than wide; ninth and tenth not longer but gradually wider, slightly transverse; eleventh nearly as long as the three preceding together, scarcely truncate at the base, with a tooth proceeding from the distal third, which, however, is not erect; pubescence long. *Prothorax* impunctate, widest across the anterior third; slightly longer than wide; sides irregularly sinuate behind, basal margin elevated in the shape of a sharp transverse carina; discal median sulcus a conspicuous, merely impressed line, originating in the deep, nude,

median basal fovea and extending one-fourth of the length from the neck. The arcuate transverse sulcus limits each side of the median fovea, a leaf-shaped elevation, inclining backwards, and surmounted anteriorly by a sharp-pointed tubercle; behind, and between this and the base is a small fovea. The lateral foveæ are deep, funnel shaped, near the margin, with the usual outwardly arcuate sulcus; behind and outside of the lateral fovea is a pointed tubercle, causing the irregular situation of the lateral margin. *Elytra* convex, coarsely, but not densely, punctured, the punctures shallow but conspicuous. The shoulders are remarkably high and angular, with a blunt tubercle; sutural lines parallel, sharp, the discal lines short, very fine, one-fourth long, on a slight, longitudinal depression. The basal foveolæ are three in number on each elytron. *Abdomen* impunctate, the basal fovea deep, carinæ obsolete, short; the basal segment is slightly longer than the fourth, and as long as the second and third together. Last ventral with deep rounded impression.

Habitat. Placer county, California. Discovered by Mr. Charles Fuchs.

B. ALBIONICUS, *Aubé*. Slender, narrow-shouldered, convex, body piceous-black or brown, elytra red, legs and palpi paler. Length 1.7 to 1.9 mm. Plate X., Fig. 84.

*Head* as wide as long, front concave between the prominent antennal tubercles, and anteriorly continuous with the clypeus, posteriorly limited by the circumambient sulcus, which ends near the base in a large, round, nude, fovea; vertex with a conspicuous oblong impression in the center, a minute hemispherical tubercle at the base; edge of lateral border rounded, not carinate, the frontal tubercle crossed obliquely by a short channel. *Antennæ* as long as the head and thorax; first joint cylindrical, slightly concave above, and convex beneath; second not narrower, obconical; second to sixth rounded, oblong, gradually smaller; seventh and eighth as wide as long, obconical; ninth and tenth transverse, obconical, rounded; gradually wider, not longer; eleventh as long as the three

preceding together; basal half nearly globular; apical half conical, subulate. *Palpi* yellow; second joint clavate; third globular; fourth fusiform, pointed at both ends, sharply acuminate, as long as the first and second antennal joints together. *Prothorax* longer than wide, median sulcus wanting; median fovea deep, connected with the lateral ones by an arcuate sulcus each side; lateral sulcus sharp, separating the convex disk from the convex marginal lobe; behind the fovea and basal margin is a small carina, and on each side a punctiform fovea. *Elytra* convex, scarcely wider across the shoulders than the base of the prothorax; suture one-fourth longer; the width across the tip is one-half greater than that of the prothorax; sides divergent, arcuate behind the middle; shoulders low, not prominent; sutural lines not close, straight, punctate; discal lines short, not reaching one-fourth the length; disk extremely minutely and faintly punctulate. *Abdomen* nearly as wide as the elytra; basal segment more than one-third as long as wide; carinæ short, separated by one-third the segmental width; lateral depression ample. Tarsi with the second and third joints equal in length. ♂, last antennal joint with a basal tooth; last ventral with a round shallow impression. ♀, last dorsal acutely produced behind.

Habitat. British Columbia.

*B. OCCIDUUS*, Casey. Brownish-red; slender, polished; pubescence coarse. Length 2 mm. Plate X., Fig. 85.

*Head* impunctate, broadly convex, eyes small, foveæ large, deep, and nude, frontal lateral tubercles large. *Antennæ* as long as the head and thorax together, with the ninth joint slightly transverse, the tenth strongly transverse; the last twice as wide as the ninth and as long as the three preceding ones together, truncate at the base, oblong-oval, obliquely acuminate. *Prothorax* as long as wide, with a deep, nearly entire median sulcus. *Elytra* with narrow shoulders, obsoletely punctulate. *Abdomen* as wide as the elytra, the basal segment slightly longer than one-third its width, with three equal transverse pubescent basal foveæ, and without carinæ. ♂, last

antennal joint with a short basal tooth; last ventral with a shallow transverse oval impression.

Habitat. Humboldt county, California.

*B. SCHAUMII*, *Aubé*. Piceous black, coarsely punctate, pubescence long; antennæ and legs paler than the body; palpi red. Length 2.1 mm. Plate X., Fig. 81. Plate XII., Fig. 136.

*Head* as wide as the prothorax, smooth on the vaulted vertex, without carinæ, two deep nude foveæ between the prominent eyes, and with a well impressed parabolic sulcus separating the broad lateral border from the vertex; edge of the lateral border carinate, and between it and the eyes is a longitudinal carina; front concave, frontal tubercles prominent; clypeus simple, continuous with the declining part of the concave front and bearing in the middle a retuse tooth. *Antennæ* longer than the head and thorax together, robust, the three basal joints thick, nearly quadrate, subequal; the three succeeding ones are oblong, rounded; seventh joint transverse, eighth smallest, rounded; ninth and tenth obconical, gradually larger, as long as wide; eleventh as long as the two preceding, twice as wide as the ninth, acute-ovate; ♂ with the last joint bearing a strong tooth at the base, seventh with the tooth outside. *Prothorax* as long or slightly longer than the head, widest in the middle; median sulcus sharply cut near the base, shallow anteriorly, evanescent before the middle; median fovea deep, limited behind by the acute end of a basal carina; the lateral crests not interrupted, ending before the middle, and limited near the base by a small acute tubercle: lateral sulcus issuing from the lateral fovea, lost anteriorly in the depressed border, and limited with the fovea behind by another very acute tubercle, making in all five basal spines. *Elytra* very coarsely punctured, widest behind the middle, the sutural length equal to the elytral width, sides divergent, disk very convex posteriorly. *Abdomen* less strongly punctured, the marginal basal triangle very broad, basal carinæ conspicuous, lateral depression wide and deep; the fourth dorsal segment longer than the third. Legs punctured. ♂, interme-

diate trochanter with a slender spine; posterior tibia arcuate.  
Habitat. Pennsylvania and Illinois.

*B. RIPARIUS*, *Aubé*. Bright red, slender, strongly punctured, pubescent. Length 1.4 to 1.6 mm. Plate X., Fig. 80. Plate XII., Fig. 140.

*Head* a little wider than long, finely scabrous; margin broad, flat, produced in front, and minutely emarginate above the insertion of the antennæ; vertex vaulted, the crest not more than indicated, the lateral foveæ small, deep and nude. In the ♀ the front is declivous anterior to the interantennal line. *Antennæ*, ♂, half the length of the body the first joint cylindrical; second to eighth gradually smaller and rounded; ninth much larger than the eighth and irregularly transverse, toothed outside; tenth larger, globose; the eleventh not as thick, but more than twice as long, straight inside, convex outside, with a large tooth inside of the base, which is turned backwards. ♀, antennal joints regular, the last joint not as long as the two preceding ones, regularly acute-ovate, not toothed. *Prothorax* little longer than broad, punctured; the impressed longitudinal lines fine, sharply cut; the basal fovea small but conspicuous; the basal tubercle and the linear discal crests not prominent but easily discernible. *Elytra* very convex, punctured, longer than broad; shoulders blunt, discal lines none, sutural line straight, the interval darker, sculptured. The abdominal dorsal basal impressions are deep, nearly equal; elytra in the female less deeply punctured. Legs deep orange, punctured; the spur of the posterior tibia is very long in perfectly preserved specimens, but may be broken or entirely lost in others.

Habitat. Country along the Ohio river.

*B. SCABRICEPS*, *Lec*. Piceous, legs, antennæ, and palpi paler. Length 1.9 mm. Plate X., Fig. 86. Plate XII., Fig. 138.

*Head* scabrous, broader than long; vertex slightly convex, carinate on the occiput, with the sulcus very faint, or indicated

by four punctiform impressions. The front is produced, emarginate at the apex, bilobed, the declivous portion perpendicular; in the middle is a nearly round excavation with sharp edges, from which emerges a small horizontal tooth. Clypeus a transverse vaulted elevation without further sculpture; labrum transverse, emarginate. *Antennæ* half as long as the entire body, the joints cylindrical, decreasing in size; the seventh longer than its neighbors, the eighth much smaller; ninth obconical, larger; tenth globular, as thick as the last, one-half longer than wide, and very acutely pointed. *Prothorax* slightly longer than wide, widest before the middle, where the sides are arcuate; from this point the sides are nearly straight to the neck and slightly sinuate posteriorly to the base; the disk is convex, the middle sulcus shallow, nearly entire, discal crests not prominent, basal tubercles acute; posterior to the median basal is a small carina running to the base; the lateral foveæ are irregular, lateral sulcus a slightly impressed line, leaving the marginal part of the disk continuous with the vaulted discal surface. *Elytra* convex, punctured, one-fourth longer than the prothorax, slightly narrower across the high prominent unarmed shoulders, and one-fourth wider across the disk behind the middle; sutural lines straight, close to the suture, interval punctured, shallow, discal impressions scarcely one-fourth of the elytral length. *Abdomen* with the basal lateral impressions very deep and large, the middle one small, the carinæ conspicuous and sharp, the marginal triangle broad at the base; the last ventral of the ♂ has a deep circular impression. Legs strong; spine of the posterior tibiæ very long. ♀ *antennæ* shorter, tenth joint obconical, front not produced, continuous with the clypeus.

Habitat. Pennsylvania, Illinois, Iowa.

B. LINEATICOLLIS, *Aubé*. Dark piceous, coarsely pubescent, antennæ and palpi dark red. Length 2.2 mm. Plate X., Fig. 87.

*Head* very flat, compressed between the vertex and the under surface, width, including the eyes, equal to the

length. Sides parallel from the obliquely transverse tempora to the antennal tubercles; front produced into a triangle; eyes conical; occiput not elevated, with a short carina at the base; between the eyes are two slightly impressed foveæ; the sulcus scarcely visible; the triangular part of the front, anterior to the inter-antennal line, is obliquely declivous in a line with the porrected clypeus; the whole upper surface scabrous. *Antennæ* pubescent, robust, as long as the head and prothorax together; first joint obconical, twice as long as the second and of equal width; second to fourth joints equal, wider than long; fifth to eighth equal, as thick as the preceding, rounded, as long as wide; ninth wider, obconical; tenth (♂) large, globose, as wide as the last joint, which is ovate; tenth (♀) oval, transverse, wider than the ninth; the last ovate, thicker than the tenth, pubescent, with short, coarse hair. *Palpi* with the last joint straight inside, arcuate outside. *Prothorax* as wide as the head, length and width equal, widest before the middle, evenly convex from side to side, punctate, base twice as wide as the neck, carinate in the middle to the deep median fovea; median sulcus deep, nearly entire, the transverse sulcus interrupted by the discal carinæ and the acute tubercles each side of the median fovea; discal carinæ entire, crenulate, and continued to the base behind the spinous tubercle; lateral sulcus entire, ending behind in a large lozenge-shaped fovea. *Elytra* thinly punctulate, length equal to that of the prothorax plus one-half the head; the width across the low spinous shoulders is one-sixth greater, and across the tip two-thirds greater than that of the prothorax. Basal foveæ three, small, deep, conspicuous, discal lines very fine and sharp, but inconspicuous, not reaching beyond the humeral elevation; sutural lines straight, convergent, the intervals very regularly punctured. *Abdomen* densely pubescent, very convex, the basal segment much depressed at the base, the triangular margin broad at the base; the carinæ are one-third the length of the segment and one-fifth of the width; the fourth dorsal is longer, the last (♀) acute at the tip, not produced.

Legs long, robust, the tibiæ longitudinally carinate, the thighs below longitudinally sulcate.

Varies in the punctuation, being sometimes very faint.

Habitat. Pennsylvania.

**B. BISTRIATUS, Lec.** Dark red-brown or dark piceous, polished; legs and antennæ dark red. Length, 2.1 mm.

*Head* flat, as long as wide, not convex above, occiput slightly carinate, occipital foveæ small, the connecting sulcus shallow, the enclosed space smooth, the excluded margin broad, scabrous; the frontal margin is triangularly produced and continuous with the clypeus; eyes prominent, conical. *Antennæ* as long as the head and prothorax together, third to eighth joints equal, quadrate, ninth and tenth obconical, gradually larger, the last ovate, acuminate. *Prothorax* punctulate, the median sulcus obsolete, no carinæ. *Elytra*, angulate at the shoulders, convex, punctured. Legs long, ♂ with a spur at the end of the intermediate tibia.

Habitat. Pennsylvania.

**B. FRONTALIS, Lec.** Brownish-red thinly pubescent, impunctate. Length, 2.4 mm. Plate X., Fig. 88. Plate XII., Fig. 134.

*Head* of ♂, from the apex of the triangularly produced frontal margin to the base, as long as the width of the head including the eyes; in the ♀ it is shorter and the frontal margin is straight between the antennæ. Two small foveæ between the eyes are connected by a sulcus running along the margin; vertex and occiput elevated behind, depressed toward the frontal margin; face, below the overhanging front, with a horizontal spine, and two acute tubercles on the carinated clypeus; antennal foveæ small. *Palpi* yellow, third joint triangular. *Prothorax*, length and width equal, broadest before the middle, tri-sulcate near the base; at the posterior end of the groove are three foveæ, between which are two blunt pointed tubercles; disk smooth, not carinate. *Elytra* and abdomen not perceptibly punctured, thinly pubescent, the former,



when taken conjointly, broader than long, narrow-shouldered, arcuate behind the middle, sutural lines entire, dorsal lines well impressed at the base, abbreviated before the middle; shoulders rounded, unarmed. *Abdomen* with the first dorsal three times as wide as long, bearing three transverse basal impressions, of which the middle one is smaller; the triangular margin is very narrow. Legs long, posterior tibiæ with a long, needle like spur; the ♂ tibiæ are thicker and slightly curved; antennæ with the joints cylindrical, decreasing in thickness from the first to the seventh; the eighth, ninth, and tenth, obconical, gradually larger, the eleventh acute-ovate. ♀ antennæ of the same form but shorter.

Habitat. Between the thirty-sixth parallel and the lakes.

B. SIMPLEX, *Lec.* Red or reddish yellow, polished; pubescence sparse. Length, 1.9 to 2 mm.

*Head* of ♂ longer than wide, the frontal margin produced, retuse, front concave behind the margin; vertex broadly convex, smooth, foveæ small, nearly nude, the circumambient sulcus very shallow at the sides and in front; the part outside of this sulcus is finely scabrous. In the ♀ the frontal margin is not produced and the entire vertex is smooth. *Antennæ* regular, with no sexual marks. *Prothorax* with the middle and lateral grooves deep, the two tubercles near the base stout, acute, and on each side near the basal angles are two small acute teeth; the lateral margin is flat from the bottom of the lateral groove outward. *Elytra* indistinctly punctulate, the shoulders acutely angulate, disk convex, sutural lines parallel, the discal ones hardly more than shallow, longitudinal, short impressions, from the third or external basal puncture. *Abdomen* polished, impunctate, the three basal, pubescent, transverse impressions equal in width, the median separated by two distinct short carinæ. Legs slender, the posterior tibiæ with a long terminal spur.

Habitat. Northern Illinois, near Lake Michigan.

B. GLOBOSUS, *Lec.* Red brown, polished, punctulate; pubes-

cence long, not dense. Length, 1.7 mm. Plate X., Fig. 89. Plate XII., Fig. 135.

*Head* convex, vertex roof-shaped, cristate at the top, smooth, interocular foveæ deep, round, nude, circumambient sulcus conspicuous, margin broad, flat, strongly punctured, with the lateral edge carinate; the ♂ has the frontal margin arcuate-triangular, continuous with the lateral border, notched at the apex, overhanging the clypeus, which is separated from the frontal margin by a deep, transverse excavation, and rises from the middle of the base of the labrum as a three-sided truncate prism with the median side concave, curved upwards; the sides of the clypeus are angular, the upper external angle retuse, in appearance as lateral horns. *Antennæ* half as long as the entire margin, first joint cylindrical, thicker than the succeeding ones, roundly emarginate at the tip above for the genuflexion with the second joint, which is of the same width as the succeeding seven, obconical; third to eighth globular; ninth, thicker, transverse; tenth four times as thick as the ninth, globular, not perceptibly flattened on the lower surface and with a circular fovea near the base; eleventh narrower than the tenth, ovate, acute, obliquely impressed from the middle on the outside. *Palpi* yellow, last joint fusiform as long as the two basal joints of the antennæ. *Prothorax* slightly wider than long, widest before the middle, where it is acutely arcuate, anteriorly convergent, posteriorly very slightly sinuate; the base is very little wider than the neck, median sulcus deep, abbreviated near the neck, ending on the posterior fourth in a deep fovea, from which point the transverse sulcus branches out arcuately to the irregular lateral foveæ; the basal elevated lobes are limited anteriorly by the transverse sulcus and pointed, each with a punctiform fovea in the middle; the discal carinæ are interrupted near the sulcus; lateral sulcus short. *Elytra* very convex, punctulate, one-half longer than the prothorax, sides strongly arcuate, sutural lines close, straight, base tri-foveate, discal lines shallow, short, or absent. *Abdomen* narrower than the elytra at

the base, the transverse impression deep, the middle one the smallest, carinæ short; the basal segment is nearly twice the length of the second, the lateral triangular borders of the segments narrow. Legs long, thighs clavate, posterior tibiæ with a long spinous process, the intermediate ones in the ♂ with a short process at the end. ♀, frontal margin straight between the antennæ, declivous towards the simple clypeus. *Antennæ* shorter, the tenth joint rounded, obconical, little thicker than the ninth.

Habitat. East of the Mississippi river.

This species is the type of a series of forms which have the following characters in common: The occipital foveæ are nude, the tenth joint of the ♂ antenna, is large, globular, of similar form, more or less flattened beneath, and with a deep, sharply defined fovea near the base. The species now known of this group are as follows: *B. globosus*, *B. spretus*, *B. foveicornis*, *B. punctifrons*.

*B. VIRGINIÆ*, Casey. Black, shining; elytra dark red; antennæ and legs brown, palpi lighter; pubescence abundant. Form as in *B. denticollis*. Length, 2 mm. Plate XII., Fig. 139.

*Head* large, quadrate, eyes small, far below the surface of the nearly flat vertex; occiput with a short carina, vertex with two small, nude foveæ connected by an arcuate, slightly impressed, sulcus. The portion of the head outside the sulcus is finely and densely punctured, the frontal margin slightly elevated in the middle; antennal portion flat, declivous in front, with the usual setose, lateral, dentation; the lower part of the declivity is produced in the middle horizontally, as a triangular horn, which is notched at the tip and overhangs the deep interantennal excavation; in the middle of the anterior margin of the clypeus is a small rounded tubercle crowned with two tufts of hair; the lateral margin is angular and slightly retuse; the posterior part of the head is impunctate. *Antennæ* with the first joint arcuately cylindrical, twice as long as wide, as long as the second and third together;

second slightly thicker and longer than the third; the succeeding joints, to the ninth, are equal, quadrate, the ninth slightly obconical, transverse; the tenth is large, globular, not compressed, and with a basal fovea; eleventh as wide as the tenth and as long as the three preceding joints, obliquely acuminate. *Prothorax* longer than wide, median sulcus nearly reaching the neck, lateral foveæ large, pubescent, basal tubercles acute, anteriorly continued as feeble carinæ on either side of the median sulcus. *Elytra* feebly and sparsely punctulate, humeri not acute, prominent. *Abdomen* with the basal carinæ approximate, femora fusiform, slender, the claws of the anterior ♂ tarsi cleft.

♀ antennæ with the ninth and tenth joints gradually larger, rounded; clypeus continuously declivous with the frontal margin.

Habitat. Virginia.

*B. SPRETUS, Lec.* (*B. luculentus, Casey.*) Piceous-black, elytra often dark red; antennæ brown, paler at the tip; legs red, palpi yellow. Length, 1.7 mm. Plate X., Fig. 92.

*Head* wider than long, wider than the prothorax, slightly convex, punctulate in front, smooth behind, eyes near the base, prominent; foveæ nude, deep, mutually twice as distant as either from the eye; sulcus fine, conspicuous, but evanescent anteriorly, occiput elevated, vertex lower towards the front which is declivous between the antennæ, the declivity broadly impressed each side, hairy, bidentate in the middle below, a deep and very narrow interantennal sulcus separating it from the clypeus which is convex, granular, with simple edges similar to those of *B. scabriceps*, except that it has a small tubercle near the upper edge in the middle. Labrum emarginate. *Antennæ* as long as the head and prothorax together, basal joint obconical, more convex beneath, and as long as the two succeeding; second to eighth oblong, gradually shorter, the eighth transverse; ninth longer and wider, transverse; tenth large, quadrate-rounded, flattened beneath, twice the width of the neck, with a circular hole in the flattened surface;

eleventh narrower than the tenth, ovate-acuminate. *Prothorax* slightly longer than wide, widest before the middle, median basal fovea small, no median sulcus nor crests; lateral sulcus shallow, feeble; the basal tubercles are minute, and behind them each side is a punctiform fovea. *Elytra* convex, impunctured, the suture as long as the width behind the middle; across the low unarmed shoulders, as wide as the head. *Abdomen* with the basal lateral impression broader than the middle one, carinæ conspicuous, rather long. Legs long, ♂ intermediate tibiæ spurred, posterior feebly arcuate, also spurred. ♀ with the front gradually declivous not separated from the simple convex clypeus, the tenth antennal joint not much longer than the ninth.

Varies in color being sometimes more reddish or not fully colored.

Habitat. Virginia, Ohio, Kentucky.

*B. FOVEICORNIS*, Casey. Form, color and size as in *B. spretus*, differing in the clypeus having a very minute tubercle near the narrow sulcus below the frontal margin, which margin is again like *spretus*. *Antennæ* of the same form but with the tenth joint more flattened beneath and the fovea larger; the prothorax has a faint very short median sulcus, the discal carinæ hardly discernible, the lateral sulcus appearing as a very fine line, outside of which the surface slopes to the margin.

My material consists of six specimens of *B. spretus* and one of *B. foveicornis* from Cincinnati, Ohio, which I can hardly separate, as the *spretus* vary in the direction of Casey's *foveicornis*, the description of which answers exactly to my specimen.

*B. PUNCTIFRONS*, Casey. Not known to us, but the description indicates the same relation to *spretus*, which varies in the form of the tenth antennal joint, being in some smaller and irregularly formed and with the fovea obliterated.

*B. DENTICOLLIS*, Casey. Form and color, sculpture of

prothorax and elytra, as in *B. virginia*, but the humeri are acutely pointed, the pubescence is coarser and not so dense. Length, 1.8 mm. Plate X., Fig. 93a. Plate XII., Fig. 137.

♀ *head* wider than long, eyes small, vertex elevated above the eyes, laterally carinate, flat above, occipital foveæ large, pubescent, mutually twice as distant as either from the eye; circumambient sulcus feeble, enclosed surface, and that behind the sulcus convex; occiput carinate; supra-antennal elevation punctured, frontal margin depressed and emarginate in the middle, the lateral, pendant, lobes setose; from the lower part of the emargination emerge two small shining teeth, below which, and separated by the interantennal excavation on the clypeus, rises an elongated tubercle bearing two tufts of hair; the sides of the clypeus are reflexed, surface below the tubercle conical, with a triangular depression each side near the tubercle; labrum constricted at the base. *Antennæ* with the basal joint triangular, carinate above, emarginate at the tip, the triangular pendant lobe rounded at the free angle; second joint two-thirds as long as the first, obconical, third shorter nearly quadrate; fourth to seventh equal, eighth shorter, ninth transverse, slightly cuneate internally; tenth large, globular; eleventh as thick as the tenth, and as long as the ninth and tenth together, rounded at the base, conical, acutely pointed at the ends. *Abdomen* with two short carinæ at the base, mutually more distant than in *B. virginia*; thighs thicker, tarsi very slender, claws simple.

♀ antennæ regular, clypeus not separated from the simple frontal margin, obsoletely carinate in the middle; anterior margin finely retuse, entire, surface strongly punctured.

Habitat. Virginia; Iowa.

*B. TRIANGULIFER*, *Brend.* Shining black, densely pubescent. Elytra, marginal rounded angle of the prothorax, and supra-antennal tubercle, in sunlight blood-red, antennæ, palpi and legs rust-red. Length, 2. mm. Plate X., Figs. 91 and 93b. Plate XII., Fig. 133.

*Head* quadrate, vertex smooth, but slightly convex, with an

entire, countersunk, fine carina, circumambient sulcus conspicuous, ending posteriorly in round spongy foveæ, twice as distant as either from the eye; lateral margin overhanging the eyes by its sharp carinate edge, punctate, more so on the frontal margin. The front is narrowly concave in the middle, and divided by a fine impressed line, declivous anteriorly to the inter-antennal line, the declivity bilobed, and beset with long convergent hairs; between these hair pencils, from the depths of the emargination, two pairs of small triangular teeth emerge, the outer ones smaller, inconspicuous. Sub-frontal excavation deep, from the bottom of which a broad, triangular, horizontal tooth stretches out, resting with the acute point on the tip of the conical clypeal tuberosity, the base of which rests again on the transverse labrum; the cone is just perceptibly higher than broad at the base, and laterally separated by a groove from the lateral expansion (wing) of the clypeus, which is concave, with a retuse angulated margin. The profile of the face resembles somewhat the form of a sheep's face. *Antennæ* ♂ longer than head and prothorax, first joint as long as the third, and more than twice as long as the second, triangular, the free angle thorn-like, pendant; second transverse, just visibly broader than long; third a little thicker than the second; fourth to eighth obconical, gradually shorter; eighth quadrate; ninth transverse, truncate at the base, obconical; tenth larger, globose, as thick as the eleventh, which is conical, as long as the two preceding together, obliquely pointed. In the ♀ the frontal margin is interrupted in the middle, continuous with the clypeal surface, which is roundly margined anteriorly. The first antennal joint is convex below, the third obconical, longer than wide, longer than the second or fourth; tenth not as thick as the last joint, which is two and one-half times longer, rounded at base, pointed at tip. *Prothorax* as long as wide, median sulcus deep, ending abruptly one-fourth from the neck, which is carinate. Discal crest sharp, interrupted before the small, sharp-pointed tubercles, which are nearer to the base than

usual. Lateral sulcus entire, separating the smooth lateral margin, which is nearly horizontal on its widest part, narrowing and declining backward to the shallow lateral fovea. The discal space between the crests and the lateral sulcus is uneven with shallow longitudinal impressions. Between the lateral fovea and the tubercle is another small tooth prolonged anteriorly into a very short second crest. *Elytra* not punctured, shoulders high, with a very small spine, dorsal lines faint, very short, basal punctures indistinct, the sutural impressed lines parallel. *Abdomen* very convex, the basal depression between the short and prominent carinæ narrower than the lateral depression; last ventral in the ♂ impressed at the base, the penultimate impressed transversely at the tip; in the ♀ the last ventral is longitudinally rugose at the sides. Legs moderately long, tibiæ slightly curved, the posterior one with a thin process.

Habitat. Long Island

B. NIGRICANS, *Lec.* Black, polished, impunctate, pubescence thin, antennæ, palpi, and legs red. Length, 2 mm. Plate X., Fig. 93c.

*Head* as long as broad, narrower in front, the lateral margin with sharp edges, carinatè, front punctate, in the middle with two small teeth, vertex convex, carinate, occipital foveæ pubescent and mutually twice as distant as either from the eye, circumambient sulcus deep; occiput carinate. *Antennæ* red (♂) first joint arcuately cylindrical; second smaller, obconical, as long as wide; third thicker and longer than the second, the outer side straight, the inner convex, dilated; fourth half as wide and about as long as the third; fifth to eighth subequal, as wide as long; ninth larger, rounded; tenth nearly twice as thick as the ninth, globose; eleventh one-half longer, acute, ovate. *Prothorax* with the median sulcus very deep, the basal tubercles very acute with a short basal median carina; lateral foveæ pubescent, lateral sulcus deep, discal carinæ obsolete. *Elytra* impunctate, shoulders subacute, sutural inter-



val punctured, discal lines abbreviated before the middle. *Abdomen* impunctate, convex. Legs dark red.

♀ antennæ with the third joint not dilated, longer than the second, tenth obconical, usually not enlarged, the clypeus continuous with the declivity of the front.

Habitat. Georgia.

This is the representative of another series of species, having the occipital foveæ pubescent, the tenth joint not compressed, large, without a basal fovea. To this group belong *B. nigricans*, *B. triangulifer*, *B. denticornis* and *B. cephalotes*.

B. CEPHALOTES, Casey. Piceous-black; legs and antennæ red; pubescence long, surface polished. Length, 2 mm. Plate X., Fig. 90. Plate XII., Fig. 132.

*Head* quadrangular, with the corners rounded, somewhat wider than long, occiput convex, sometimes bearing in the middle a very faint, short, carina; the eyes are small, prominent, tempora arcuate; the occipital foveæ are pubescent, the connecting groove circumambient in the ♂, obsolete in front in the ♀, space between them polished, smooth, with a faint central impression, the separated margin broad, coarsely and sparsely punctured in front, where, in the male, it overhangs the clypeus; in the middle it is declivous and finely notched, the declivous part with a central emargination; the triangular lobes thus formed are setiferous, and separated from the clypeus by a deep interantennal excavation; from the bottom of the emargination emerges a serrate (quadridentate) plate; the clypeus bears in the middle an ovoid tubercle, provided at the apex, just beneath the tooth plate, with two divergent tufts of hair; the lateral margin of the clypeus is angulated and reflexed; the labrum is broadly emarginate. *Antennæ* stout, the basal joint strong, longer than wide, convex below, slightly transversely concave above; second oblong, smaller; third to eighth still smaller, globular, ninth transverse. Tenth very large, truncate in the ♂, subglobular; the last, at least as wide as the tenth, ovoid, acuminate; in the ♀ the tenth joint

is rounded and not so large. *Prothorax* widest before the middle, sides subangulate, sinuate towards the base, as long as wide; the disk is tri-sulcate and bicarinate, the basal tubercle on each side of the foveate posterior portion of the median sulcus sharp, lateral foveæ large, pubescent. *Elytra* very feebly punctulate, shoulders acutely angulate; disk convex, discal line short. *Abdomen* highly polished, pubescent, the basal carinæ strong and short. Legs long, thighs clavate, posterior tibiæ with a long terminal spur.

Habitat. Massachusetts to the Missouri river, north of the Ohio.

### TRIMIUM, *Aubé*.

Elytral base bifoveate, no subhumeral fovea, head larger.

#### SYNOPSIS OF THE SPECIES OF TRIMIUM

Eyes nearly in a level with the vertex; pronotal foveæ and sulcus deep, - - - - - *foveicolle, Lec.*

Eyes far down on the sides of the head.

a<sup>2</sup> Prothorax wider than long, less convex.

Head with a deep arcuate impression; antennæ not longer than the head, last joint one-third the length of the whole antenna; elytral discal lines short. Length, 1.5, mm. - *globifer, Lec.*

Head with the foveæ not connected by a sulcus; antennæ longer than the head; last joint acute; elytral dorsal line half the elytral length. Length, 1.3 mm. - *impunctatum, Br.*

a<sup>1</sup> Prothorax longer than wide, more convex.

b<sup>2</sup> Lateral foveæ and sulci of prothorax large and deep.

Occiput concave, not channelled, pronotum punctured, elytral discal lines very short. Length, 0.9 mm. - *puncticolle, Lec.*

Occiput channelled, pronotum impunctate. Length, 0.9 mm.

*discolor, Lec.*

b<sup>1</sup> Lateral foveæ small.

c<sup>2</sup> Width across the shoulders as great as that of the prothorax.

d<sup>2</sup> Transverse sulcus deep.

Occiput impressed, impunctate, head as wide as the prothorax. Length, 1.0 to 0.9 mm. - *parvulum, Lec.*

Occiput impressed, prothorax punctured, wider than the head. Length, 0.9 mm. - *thoracicum, Br.*

Occiput convex, not impressed, carinate, head as wide as the prothorax, frontal margin channelled, circumambient sulcus angulated. Length, 0.8 mm. - *convexulum, Lec.*

d<sup>1</sup> Transverse sulcus faint.

Head smooth, with a deep angulated impression, occiput convex not impressed. Length, 0.5 mm. - - - *simplex*, Lec.

c<sup>1</sup> Width of the shoulders less than that of the prothorax.

Occiput not channelled, head distinctly punctulate; in the middle, before the line of the eyes, is a rounded tubercle.

*dubium*, Lec.

Occiput impressed, sulcus angulated on the frontal margin; transverse pronotal channel deep, elytral lines faint. Length, 0.6 mm. - - - - - *americanum*, Lec.

T. FOVEICOLLE, Lec. (Leconte's description.) Elongate, bright rufo-testaceous, very slightly pubescent.

*Head* convex, smooth, with a fovea each side above the eyes, and a transverse angulated impressed line. *Prothorax* longer than wide, convex, with three sub-basal foveæ, connected by a transverse impressed line; the lateral foveæ are larger, and situated on the declivity of the sides. *Elytra* bifoveate at the base, sutural line deep, dorsal one short. *Antennæ* with ninth and tenth joints transverse. Length, 0.9 mm.

Habitat. Massachusetts. Unknown to us.

T. GLOBIFER, Lec. Yellowish brown, impunctate, form slender, pubescence thin, inconspicuous. Length, 1.5 mm.

*Head* comparatively small, with two large foveæ behind and between the eyes, the connecting sulcus semi-circular; eyes small, oblong. *Antennæ* very little longer than the head, the basal joint cylindrical, longer than the second; third to ninth very small, gradually transverse; the tenth wider, disk-shaped; the last very large, oval, nearly half as long as the funicle. The last joint of the maxillary palpi is also very large. *Prothorax* as wide as long, less convex, rounded at the sides, narrower behind, with the lateral foveæ connected by an arcuate sulcus. *Elytra* longer than wide, widest behind the middle, convex, dorsal impression short, sutural line deep. *Abdomen* not carinate at the base.

Habitat. Georgia, South Carolina.

*T. IMPUNCTATUM*, *Brend.* Red-brown, pubescence thin. Body impunctate, polished. Length, 1.3 mm. Plate XI., Fig. 98.

*Head* narrower than the prothorax, about as long as wide, tempora not prominent, convergent, eyes not prominent, sides but slightly divergent towards the tempora; occiput not impressed, convex, foveæ oblong, no circumambient sulcus, frontal margin straight, frontal tubercle flat, not prominent. *Antennæ* shorter than the head and prothorax together, first joint twice as long as wide, obconical; second quadrate narrower than the first, third to eighth very small, transverse; ninth and tenth gradually much wider, not longer than the preceding one, the last large, ovate. *Palpi* small, the third joint obliquely rounded, larger than the last joint, which is obliquely conoid with rounded sides, or truncate ovate. *Prothorax* slightly wider than long, widest across the middle, base two-thirds, neck about one-half of the median width; disk not as concave as in the other species, the basal sulcus slightly impressed, one-fourth from the base, foveæ rather shallow. *Elytra* rather high-shouldered, the sides slightly arcuate, divergent behind, slightly wider across the shoulders than the prothorax, one-fifth wider across the tip; suture slightly shorter than the apical elytra width, disk convex, bifoveate at the base, discal lines fine, half the elytra length. *Abdomen* longer than the elytra, the first three segments of nearly equal width, and subequal in length, with two short basal carinæ. Legs rather short.

Habitat. Virginia, Maryland.

*T. DISCLOR*, *Lec.* Convex, of the form of *T. dubium*, but slightly smaller, of a rich dark brown color, the abdomen piceous-brown. Length, 0.9 mm.

*Head*, as wide as the prothorax, the occipital foveæ small, connected by an arcuate sulcus, occiput channeled in the middle or with a median impression, vertex punctate. *Prothorax* longer than wide, impunctate, basal sulcus angulate in the middle, deeply impressed, terminating in large lateral foveæ

which are not in view from above. *Elytra* convex, impunctate, the basal fovea of the sutural line smaller than the rather large fovea of the discal impression. *Abdomen* not carinate at the base.

Habitat. Gulf States. Not known to us.

T. PUNCTICOLLE, *Lec.* Red-brown; convex.

*Head* with the occiput not impressed in the middle, the foveæ small, connected with the middle of the frontal margin by nearly straight grooves. *Prothorax* convex, longer than wide, widest near and before the middle line, the lateral foveæ large, connecting sulcus deep, scarcely angulate in the middle; the disk finely and distinctly punctulate. *Elytra* wider behind, with two large basal foveæ, sutural line deep, discal line very short. Length 0.9 mm.

Habitat. Arizona. Not known to us.

T. THORACICUM, *Brend.* Saturated yellow; form slender; pubescence very fine, abundant. Length, 0.9-0.95 mm. Plate XI., Fig. 95.

*Head* narrower than the prothorax, one-fifth wider than long, tempora convergent, eyes not prominent, base impressed in the middle, frontal margin straight, a little more than half as wide as the width across the eyes; the foveæ are in a line with the middle of the eye, mutually less than twice as distant as either from the eye, circumambient sulcus distinct, shallow, antennal tubercles small. *Antennæ* one-half longer than the head, the two basal joints not as strong as in *T. parvulum*; eighth to tenth equal in length, each twice as wide as the preceding one, the last one-fourth longer than its width and twice as wide as the tenth, ovate. The last palpal joint in outline securiform, but not compressed. *Prothorax* as long as wide, seemingly longer, equal to one and one-half times the length of the head, widest before the middle, sides evenly arcuate, not perceptibly sinuate near the rather small lateral foveæ which are connected with the small medial basal fovea by a straight sulcus one-fourth the length of the prothorax from the base; disk evenly convex, finely and densely punc-

ured. *Elytra*, across the rounded shoulders, as wide as the prothorax, before the tip one-third wider and the suture one-fourth longer; disk convex, base with two arcuate impressions, leaving between them a broad longitudinal ridge, which in proper light may be traced to one-third the elytral length. *Abdomen* with the first segment not longer than the second, very convex with two very short basal carinæ. Legs moderate, the intermediate thighs lunate, convex anteriorly and nearly straight posteriorly, compressed. The abundant pubescence makes the surface appear lustreless.

Habitat. Illinois, Iowa. On moist rotten wood with ants. Abundant in the time of copulation in June. Differs from *T. puncticolle* by the impression on the occiput and the presence of abdominal carinæ.

*T. PARVULUM*, *Lec.* Yellow, polished throughout, pubescence not perceptible except under a magnifying power of over sixty diameters. Length, 1.00 mm. Plate XI., Fig. 97.

*Head* one-fifth wider than long, tempora prominent, angularly rounded, transverse behind, eyes not prominent, frontal tubercles strong, intermediate margin very nearly straight but slightly wavy; lateral margin straight from the tempora to the frontal margin; in a line through the middle of the eyes are two deep foveæ, three times as distant from one another as from the eyes; circumambient sulcus deep, transverse in front; occiput convex, impressed in the middle at the base. *Antennæ* with the two basal joints stout, three times as wide as the third; third to eighth moniliform, very small; ninth and tenth rapidly increasing in width, not longer; last, twice as wide as the tenth, ovate-conical, not acuminate. *Palpi* with the last joint thick, unsymmetrical. *Prothorax* as long as wide, the width equal to that of the head; sulcus double, deep; sides arcuate one-fourth from the base, where they are slightly sinuate, otherwise nearly spherical. *Elytra* with the discal line extending one-half the length; base of abdomen bicarinate. Legs not compressed, intermediate thighs regular.

Habitat. Illinois, Iowa.

*T. CONVEXULUM*, *Lec.* Deep yellow, very convex, more slender than the other species, pubescence not visible; body impunctate, highly polished. Length 0.7 mm. Plate XI., Fig. 94.

*Head* nearly as wide as the prothorax, frontal margin arcuate between the antennæ, width across the tempora one-fourth less; foveæ and sulcus deep, the latter dilated in front; occiput carinate. *Antennæ*, from the base of the first joint to that of the last, as long as the head, last joint about half as long, oval, three-fourths as thick as long, with short pubescence. *Palpi* with the last joint more oval, oblong. *Prothorax* longer than wide, sides sinuate near the base, the transverse sulcus deep, slightly and very broadly angulated in the middle, lateral foveæ none. *Elytra* convex, bifoveate at the base, the elevations between them not so high as in *dubium*. *Abdomen* as in *dubium*, but the first dorsal segment is much longer than the second, with two short basal carinæ and lateral basal depressions as in *Batrisus*. The fourth and fifth dorsals are connate, the contiguous limits scarcely discernible; ventrals correspond in length with the dorsals. Legs slender. Sexual differences of the clypeus as in *dubium*.

Habitat. Illinois, Pennsylvania, Florida.

This species answers better to the description of the genus *Trinium* than the others, if we assume as characteristic the length of the abdominal rings, while all the other species would coincide with Mr. Reitter's genus *Trimiopsis*. Dr. Sharp considers *Trinium* and *Trimiopsis* as hardly different.

*T. DUBIUM*, *Lec.* Deep yellow, very convex, nearly circular in transverse section, no pubescence visible. Surface, excepting the head, smooth and polished. Length, 1.00 mm. Plate XI., Fig. 95.

*Head* of the form of *parvulum*, except in the frontal margin being obtusely angulate; punctulate, no occipital impression; the foveæ large but not deep, the sulcus fine in some specimens, deeper in others, and slightly foveolate next to the

frontal tubercle; the vertex has in the middle, one-third of the length from the apex, a conspicuous circular tubercle; clypeus conical, this shape being brought about by the dilated antennal foveæ, leaving a narrow septum in connection with the overhanging frontal margin, (♀.) This septum in the ♂ is not contiguous with the apex of the frontal margin. *Antennæ* as in *parvulum*; the last palpal joint is more securiform and longer than in *parvulum*. *Prothorax* not wider than the head, length and width equal, the base less than one half wider than the neck; disk widest just before the middle, sinuate behind the small lateral foveæ; transverse sulcus nearly straight, the median angulation small. *Elytra* more convex from side to side than in *parvulum*; the sculpture is the same. *Abdomen* without visible basal carinæ, rather long, and produced behind in the ♀; the basal segment is not more than visibly longer than the second, the second ventral considerably shorter than the first. Legs long, rather slender.

Habitat. Southern States.

T. AMERICANUM, *Lec.* Deep yellow, very convex, impunctate; pubescence not perceptible. Length 0.6 mm.

*Head* narrower than the prothorax, tempora prominent, rounded, frontal margin arcuate, giving a triangular appearance to the head; corners rounded; occiput impressed; foveæ and circumambient sulcus deep. *Antennæ*, excluding the last joint, as long as the head; last joint of the palpi acuminate. *Prothorax* wider just before the middle, wider than long, evenly rounded from the neck to the transverse sulcus, lateral foveæ very small. *Elytra* convex, sides strongly arcuate, widest behind the middle, rather long, and rounded at the posterior lateral angle. *Abdomen* not visibly carinate at the base, the first dorsal segment longer than the second. Legs rather short.

Habitat. Southern States.

T. SIMPLEX, *Lec.* Darker, yellowish brown, prothorax reddish brown, pubescence extremely fine and short. Form like that



of *americanum*, differing chiefly in the base of the head, which is not channelled or at most scarcely visibly impressed; the prothorax is at least as long as wide, much longer than in *americanum*, with conspicuous lateral foveæ. *Elytra* about the same as in *americanum*, seemingly not so convex from side to side. Length 0.5 mm.

Habitat. Southern States.

#### ACTIUM, Casey.

Body more robust than in *Trimium*, head smaller in proportion, the shoulders broader. The palpi are short, the last joint ovate, acuminate, thick. The elytra have three basal punctures and long, well impressed, discal lines; there is a sub-humeral fovea in connection with a deeply impressed line on the declivous lateral part of the elytra, parallel to the marginal impressed line. The marginal line is also a constant mark in *Trimium*.

A. PALLIDUM, Casey. Slender, convex, yellow; pubescence very fine, recumbent, not conspicuous; body polished, impunctate. Length 1.2 mm. Plate XI, Fig. 99.

*Head* small, much narrower than the prothorax, as long as wide, eyes finely faceted, prominent, large; tempora shorter than the eye, not prominent, occiput impressed in the middle; there are two pubescent foveæ in the eye line, mutually twice as distant as either from the eye, connected by a wide, broadly arcuate channel. *Antennæ* short, one-half longer than the head, first and second joints subequal, larger; third to seventh subequal, becoming gradually shorter and more transverse; eighth to tenth transverse, equal in length, gradually wider; tenth three times as wide as long; eleventh wider, as long as the five preceding together, ovoid. *Prothorax* nearly as wide as long at one-third of its length from the neck, where the sides are evenly rounded and nearly straight to the basal angle; the base is arcuate and thinly margined; disk very convex, transverse sulcus deep, one-fourth from the base, angulated towards the base in the middle, connecting the large

pubescent lateral foveæ. *Elytra* together as wide as long, width at the shoulders greater than that of the prothorax; disk not very convex, trifoveate at the base, sutural and discal lines parallel, the latter abbreviated just before the middle. *Abdomen* shorter than the elytra, base with two short carinæ, segments subequal, the basal one longest. The abdomen in the ♂ is more rounded at the apex.

Habitat. Middle California.

There are four more species of this genus, one, *californicum* Lec. being insufficiently described. The three other species are described from unique specimens and may perhaps suffer a reduction in number at some future time. Taking *A. pallidum*, which is before me, as the type, they differ very little as follows:

*A. POLITUM*, Casey. Probably a ♀; abdomen longer, more pointed behind, and darker. Eyes small, tempora longer than the eye; antennæ with the tenth joint twice as wide as long; eleventh twice the width of the tenth, cylindrico-conical, as long as the five preceding. *Prothorax* as wide as long, feebly sinuate toward the base, the latter two-thirds as wide as the disk and one-half wider than the neck; elytral discal line reaching a little beyond the middle; abdominal carinæ one-third as long as the segment and one-fourth of the segmental width apart. Length 1.3 mm.

*A. CALIFORNICUM*, Lec., may be identical with *A. politum*, but the elytra are said to be sparsely punctulate.

*A. ROBUSTULUM*, Casey. ♂ tempora longer than the eye; tenth antennal joint twice as wide as long, eleventh elongate, acuminate, as long as the four preceding joints together. *Prothorax* sinuate at the base, wider than long; base four-fifths of the pronotal width and one-half wider than the neck; disk laterally depressed, anterior to the lateral foveæ; there is a trace of a median impressed line near the center; elytral discal line reaching beyond the middle; abdominal carinæ one-

third as long as the segment and separated by one-fourth of the width. Length 1.4 mm.

*A. TESTACEUM*, Casey. ♀ abdomen more pointed, head longer than in *A. robustulum*, elytral discal line one-half the length; abdominal basal carinæ one-third of the segmental length and separated by one-third of the width; otherwise like *A. robustulum*. Length 1.2 mm.

*RHEXIDIUS*, Casey. (Euplectus Lec.)

*Head* very transverse, frontal margin crenate, prothorax with linear grooves, antennæ straight, their insertion distant, posterior coxæ contiguous, tarsi with two unequal claws. Elytra with three abbreviated discal lines and a subhumeral fovea.

*R. GRANULOSUS*, Casey. Depressed, of the color of new leather, pubescence thin, short, coarse, the body granulated over the entire surface with minute tubercles. Length 1 mm. Plate XI, Fig. 100.

*Head* twice as wide as long; base slightly sinuate, occiput feebly impressed in the middle, tempora straight, convergent; eyes coarsely granulated, distant from the lateral margin of the vertex, frontal margin broadly arcuate and crenulated by fine longitudinal impressions; occipital foveæ far apart, near the tempora, connected by a fine arcuate sulcus parallel to the frontal margin. *Antennæ* slightly shorter than the head and prothorax together, first and second joints cylindrical, as long as wide; second smaller, more rounded; third to eighth narrower, transverse; eighth twice as wide as long; ninth and tenth gradually larger, transverse, trapeziform; eleventh as long as the five preceding together, scarcely wider than the tenth, conical from the middle of its length, base truncate. *Prothorax* widest in the middle, as wide as the head, sides nearly straight toward the base and the neck, arcuate in the middle; base arcuate, two-thirds as wide as the disk, and one-half wider than the neck; disk as wide as long, median sulcus

linear, fine, reaching the base, not the apex, and crossed by a straight, fine, linear sulcus, ending in a small, deep, pubescent, lateral fovea, less than one-fourth the length from the base. *Elytra* one-fifth longer than the prothorax, as long as the width across the low-hanging shoulders, and three-fourths as wide here as at the tip; disk depressed at the base, with four foveæ and three abbreviated discal lines, of which the middle one is longer, reaching the middle; the sutural lines are deep, slightly arcuate, sculptured; the discal tubercles are smaller than those on the head and prothorax. *Abdomen* slightly wider than the elytra, convex, more so posteriorly, borders strongly retuse, evenly arcuate toward the tip, transversely depressed in the middle third at the base between short obsolete carinæ, tubercles very minute. Legs slender; mesosternum bicarinate.

Habitat. Middle California.

R. CANALICULATUS, *Lec.* (*Euplectus*, *Lec.* *Conoplectus*, *Brend.*) Form compact, conoidal, tapering towards the head; pubescence fine, dense; surface polished, punctulate; color, pale brown. Length 1.2 mm. Plate XI, Fig. 101.

*Head* broader than long, eyes not prominent, tempora convergent, transverse, occiput canaliculate in the middle, convex above, foveæ small, very near the eyes; circumambient sulcus convergent for a short distance, thence parallel, connecting with the corresponding one by a broad transverse impression; frontal margin broad, divided by three fine, longitudinal, grooves into five low tuberculations, the external one,—supra-antennal—crossed by a short oblique cut; the median tuberculation ( $\delta$ ) bears a very small acute tubercle. Under surface behind the mentum densely pubescent with erect clubbed hair. *Antennæ* robust, one-half longer than the head, first and second joints sub-equal, cylindrical, as long as wide; third to eighth narrower, rounded, slightly transverse; ninth transverse, twice as wide as long; tenth transversely oval, twice as wide as the ninth, and one-half wider; eleventh ovate, slightly wider than the tenth, and as long as the two preced-

ing together. *Prothorax* one-third longer than the head, widest two-fifths from the base, where it is slightly wider than long, evenly and continuously arcuate to the base, and convergent and slightly arcuate toward the neck, which latter is half as wide, and the base four-fifths as wide as the width of the prothorax; sides minutely crenate posteriorly; disk very convex, imperceptibly and sparsely punctulate, with a narrow, linear, median sulcus, extending from the neck to the base, crossed by a similar, straight, linear, transverse sulcus, ending each side in a small, pubescent, fovea. *Elytra* from side to side very convex, longitudinally nearly straight; across the shoulders they are as wide as the prothorax, and equal to the length of the suture; across the tip they are one-fifth wider; shoulders rather prominent, sides nearly straight; sutural lines slightly arcuate, interval punctulate, base trifoveate, the two outer foveæ with shallow longitudinal impressions in the place of the discal lines, of which the outer ones are one-half longer than the inner ones, and may be traced to two-thirds of the elytral length from the base. *Abdomen* very convex, the segments sub-equal, border narrow, flat, the basal dorsal with two carinæ including less than one-fourth of the total width. Legs long, slender, tarsal claw with a fine hair-like appendage; anterior coxæ conical, pointed, posterior coxæ flat, transversely oval. Besides the transverse oval impression on the last ventral in the ♂, the acute tubercle of the frontal margin is prolonged backward so as to interrupt the transverse sulcus.

Habitat. East of the Mississippi River.

OROPUS, Casey.

O. STRIATUS, Lec. (*Trichonyx striatus* Lec.) Yellowish brown, uniformly colored; pubescence moderately dense and long, abundant; body sparsely punctulate. Length 2 mm. Plate XI, Fig. 102.

*Head* wider for one-half its length, eyes not prominent, large, not as long as the tempora, which latter are but slight-

ly arcuate, nearly transverse; base sinuate; occiput longitudinally impressed in the middle, much elevated on either side and abruptly declivous to the base; sides of the head very convergent from the posterior limit of the eye to the supra-antennal tubercle, the latter being rectangular outside, elevated; the angles are mutually distant about one-half the width of the head, frontal margin slightly convex anteriorly and depressed between the tubercles; vertex slightly convex and declivous to the front; foveæ small, mutually five times farther distant than either from the eye; circumambient sulcus broadly arcuate, deeper in front. *Antennæ* as long as the head and prothorax together, first joint as long as the eye, robust, impressed above; second, half as long, globular; third smallest; fourth to ninth increasing in width, but not in length; ninth and tenth gradually a little longer, trapezoidal, twice as wide as long; eleventh acuminate, ovoidal, truncate at the base, one-half longer than wide. *Palpi* with the second joint slender, third triangular, fourth fusiform, equal in length to the second and more than twice as thick. *Prothorax* a little wider than long, widest in the middle where the sides are evenly and strongly arcuate; in the middle third of the length they are nearly straight, convergent anteriorly and posteriorly, slightly sinuate near the neck and base; the base is arcuate, neck a little less than half of the pronotal width; disk roundly convex, punctulate, evenly pubescent, strongly punctured around the neck; lateral foveæ behind the middle third, deep, outside of them is a minute, black, sharp spine; transverse sulcus linear, nearly straight, the longitudinal sulcus crossing the transverse one, not quite reaching the base, widest one-fourth of the pronotal length from the neck, where it terminates abruptly. *Elytra* slightly longer, the width of the shoulders slightly narrower, and near the tip one-third wider than the width of the prothorax, punctulate, evenly pubescent, the hairs on the posterior third convergent to the end of the suture; disk convex, the declivous sides broad, with a longitudinal median carina; base of each elytron quadri-foveate, the outer one broader,

shallower, with its discal lines short; the other three foveæ are sharp and deep, the discal lines of the two middle ones nearly equal in length, reaching beyond the middle; sutural line deep, slightly arcuate, humeral tubercles strong, but not prominent. *Abdomen* narrower than the elytra, border broad, arcuately convergent; first segment one-fourth as long as wide, depressed at the base in the middle third; the fourth segment ( $\delta$ ) similar at the base to the first, with two lunate depressions, which meet in the middle. Mesosternum ( $\delta$ ) deeply impressed, anterior coxæ conical, contiguous, with a minute sharp tubercle on the exterior tip. Head punctured beneath, with a fine carina in the middle.

Habitat. California. (Alameda County.)

*O. CONVEXUS*, Casey. Form the same as in *striatus*. Length 1.9 mm.

Eyes their own length from the base. *Antennæ* with the first and second joints cylindrical, last joint as long as the five preceding ones. *Prothorax* as wide as long, base two-thirds of the width, longitudinal sulcus very slightly dilated near the middle. *Elytra* with the two middle lines equal, two-thirds of the elytral length.

Habitat. California. (Sonoma County.)

*O. ABBREVIATUS*, Casey, differs from *convexus* by the base of the prothorax being three-fourths of the pronotal width, the longitudinal sulcus fine, not dilated. *Elytra* with the middle lines unequal in length; the inner four-sevenths, the other three-sevenths of the elytral length. Length 1.9 mm.

The difference between these two is very slight. In *O. striatus* the length of the elytral lines vary, and the pronotal longitudinal sulcus does not always end so abruptly anteriorly. Repeated examination of many specimens prove to us beyond doubt the identity of *O. striatus*, *convexus* and *abbreviatus*.

*O. MONTANUS*, Casey. Form more slender, depressed. Length 1.8 mm.

The basal joints of the antennæ are smaller than in the other

species, third to eighth transverse, ninth and tenth twice as wide as long; eleventh three-fourths longer than wide. *Prothorax* widest in the middle, base two-thirds of the greatest width, sulcus fine, linear. *Elytral* lines, the second uniting with the sutural line one-third from the posterior elytral limits; the third is two-thirds, the fourth one-half of the elytral length.

Habitat. California. (Placer County.)

O. INTERRUPTUS, *Casey*. *Antennæ* as long as the head and prothorax together, third to eighth joints transverse and decreasing in length, ninth and tenth abruptly wider and longer, transverse; eleventh as long as the four preceding ones together. *Prothorax* widest one-third from the neck. *Elytral* lines, the middle ones close together, two-thirds of the elytral length, the external one one-third of the length. Length 1.9 mm.

Habitat. California. (Sonoma County.)

#### RHEXIUS, *Lec.*

(From *ρήγνυμι*, *I break*, referring to the geniculate antennæ.)

Head and prothorax transverse; antennæ geniculate; tarsi with two equal claws.

R. INSCULPTUS, *Lec.* Pale brown, body depressed, pubescence abundant, erect. Palpi small, last joint thick, ovate. Length 1.2 mm. Plate XI., Fig. 103.

*Head* transverse, punctate, twice as wide as long, sides parallel to the middle, thence strongly convergent; frontal margin one-half of the width across the roundly angulated tempora; antennal tubercles very prominent; just behind them is a small oblong fovea, the space between them concave; the base is emarginate, the occiput carinate, the neck slender, one-fourth the width of the head; eyes prominent. *Antennæ* as long as the head and prothorax together, first joint cylindrical, as long as the frontal margin, and one-third as thick; second as long as thick, not thicker than the first, obconical; third to



eighth equal, transverse, seventh, eighth and ninth gradually wider; ninth as wide as the second, and twice as wide as the third; tenth of the same form larger both ways; eleventh conical-ovate, slightly wider and truncate at the base, as long as the two preceding ones. *Prothorax* widest on the anterior third, as wide as the head, anterior, edge broadly arcuate, transverse, base not quite three times wider than the neck; sides, with the base, forming a broad arch, nearly semicircular; the sides bear three recurved spines, the disk is depressed-convex, with a linear median sulcus crossing a transverse linear one, which ends at the sides in a longitudinal arcuate depression, with a small round fovea. *Elytra* as wide across the high, spinous, prominent shoulders as the suture is long; in the middle they are slightly broader, sides slightly arcuate, depressed, impunctate, disk narrowly elevated; sutural lines straight, well impressed, discal lines deep at the basal fovea, evanescent before the middle; from the humeral spine to the tip, near the lateral margin, is a sub-marginal sharp ridge. *Abdomen* strongly margined, convex, tumid in the middle, first segment depressed at the base with two short carinæ one-fourth of the total width apart. Legs rather short. ♀ second tarsal joint dilated, the ventral segments longitudinally concave, the last ventral transverse; at the tip is a deep funnel-shaped fovea situated in a lunately depressed area.

Habitat. East of the Mississippi River from north to south.

*R. SUBSTRIATUS*, *Lec.* Brown, less convex than *R. insculptus*.

*Head* of the same form and sculpture as in the preceding species. *Prothorax* with a longitudinal linear sulcus and three large impressions near the base. *Elytra* with the basal margin elevated (as in *R. insculptus*), basal fovea deep, each elytron with four faint striæ, of which the sub-sutural one is longer and more distinct, the others extending only about to the middle. Antennæ with the ninth and tenth joints less suddenly larger than in *R. insculptus*. Length 1.2 mm.

Habitat. Florida.

THESIUM, *Casey*.*(Apothinus Sharp (?)).*

Form comparatively short and broad, depressed, the eyes large, the disk of the vertex narrowed on the frontal margin; the antennal joints from the sixth upward gradually wider; prothorax much wider than the head, widest before the middle, and sinuate toward the base, the lateral margin crenate; elytral disk broad, nearly quadrate; abdomen broad, margin broadly retuse, the fourth segment not prolonged; the prosternum is carinate.

T. CAVIFRONS, *Lec.* Color uniform reddish-brown or darker, legs, antennæ, and palpi, paler. Pubescence pale, abundant. Length 0.8 mm. Plate XI., Fig. 104.

*Head* small, broader than long, eyes large, coarsely faceted, behind the middle, therefore, the tempora are short, nearly transverse; occiput convex, not impressed, and, in a line behind the eyes, twice as wide as the frontal margin; vertex abruptly elevated above the eyes, with two small pubescent foveæ in a line through the middle of the eyes, connected by a broadly impressed sulcus, parallel to the lateral margin of the disk, shallow near the fovea and very deep behind the frontal margin; the surface between the foveæ has an impressed puncture in the center. Supra-antennal tumefactions strong, externally angulated, the frontal connecting ridge fine and sharp; clypeus and labrum prominent, the latter very broad, with the anterior margin straight, and narrowed at its base. Antennæ as long as the head and prothorax together, first and second joints sub-cylindrical, equal in width; third to fifth gradually smaller, obconical; sixth to ninth sub-equal in length, rapidly increasing in width; the ninth two and one-half times wider than long; tenth nearly as long as the two preceding together and twice as wide as long; the last, large, ovate, truncate at its base, as long as the three preceding joints together. The last palpal joint is rather long, of the same form as the last antennal joint. *Prothorax* widest just before the middle where it is

one-fifth wider than the head with the eyes included; the sides are strongly arcuate, slightly sinuate anteriorly toward the neck, strongly sinuate posteriorly to the base and crenate; the base is twice as broad as the neck; the disk broadly convex, polished, indefinitely and imperceptibly punctulate; near the anterior margin is a comma-shaped longitudinal fovea with its attenuated end not reaching one-third of the pronotal length; one-third the length from the base is a deeply impressed, slightly arcuate groove, connecting the lateral, pubescent, rather irregularly shaped foveæ with the triangular median impression; the slightly elevated space between the transverse sulcus and the thinly elevated basal margin has on each side of the middle a small rounded impression (or perhaps a tubercle), and, near the basal angle, a deep puncture. *Elytra* as wide across the rather prominent shoulders as the prothorax, the sides evenly arcuately divergent; the length of the suture is equal to the width of the shoulders, the sutural lines are nearly parallel, fine, and close, the lateral one-half of the elytral length, fairly conspicuous; the base of the elytra is slightly elevated, the basal impression transversely dilated. *Abdomen* short and broad, sides of the three upper segments parallel, the four segments sub-equal in length; the base of the first segment has three transverse depressions, of which the middle one is twice as wide as the lateral one. Legs slender, weak. The sexual differences are not very prominent, consisting of the rounded form ( $\delta$ ) of the last ventral which is broader than in the  $\text{♀}$ , and the transverse impression on the penultimate ventral segment.

Habitat. Mississippi Valley.

T. LATICOLLE, *Casey*. Variety of the preceding; darker in color, nearly piceous-black, the elytra in some reddish, in others greenish brown, legs and antennæ paler. The prothorax is more strongly sinuate at the sides near the base and the median oblong fovea is shorter, being in some a mere comma-shaped puncture.

Habitat. Louisiana. Iowa.

TRIMIOPECTUS, *Brendel.*

## TABLE OF THE SPECIES OF TRIMIOPECTUS.

Prothorax narrowing toward the base, to the width of the rather thick neck.

Vertex with the sulcus wanting or but faintly indicated; occipital foveæ small, isolated. - - - - *obsoletus* n. sp.

Vertex with deep foveæ connected by a deep, arcuate, sulcus. - - - - *arcuatus.*

Prothorax slightly narrowed toward the base.

Prothorax transverse, sides parallel in the middle; posterior angles broadly rounded; head as wide as the prothorax. - *ruficeps.*

Prothorax wider than long, sides convergent posteriorly; basal foveæ smaller, and connected by a conspicuous sulcus. Head very much narrower than the prothorax - *capitulum.*

**T. OBSOLETUS**, n. sp. Yellow, pubescence fine, sparse; surface impunctate or with obsolete punctures visible only under a magnifying power exceeding sixty diameters; body convex. Length 1.2 mm. Plate XI., Fig. 105. Plate XII., Fig. 123.

*Head*, including the mouth, forming an equilateral triangle with arcuate corners; vertex flat, with two round foveæ in a line before the middle of the eye, the latter situated far down on the sides; frontal margin straight with an obsolete transversely impressed line between the small antennal tubercles, not connected with the foveæ; occiput sinuate. *Antennæ* twice as long as the head, first and second joints thicker, cylindrical; ninth transversely oval, as wide as the second; the tenth larger, one-third wider than long; last joint twice as wide as the tenth and as long as the three preceding together. *Prothorax* very convex, very little longer than wide, sides arcuate to the lateral foveæ, thence straight to the base; the transverse sulcus is one-fourth from the base, deep, straight, connected with a triangular impression in the middle. *Elytra* convex, sutural lines straight, recurrent at the base, discal lines recurrent for half the length, no intermediate basal punctures. *Abdomen* convex, border moderate, basal dorsal segment longer than any of the others; at the base is a transverse, pubescent, linear, depression including one-half of the seg-

mental width; fourth dorsal not prolonged. The first and second ventrals longer, the second half as long as the first. ♂ anterior thighs strongly clavate, last ventral transversely impressed, otherwise like the ♀.

Habitat. Cedar Rapids, Ia. One pair sifted from rotten wood in September.

T. *ARCUATUS*, *Lec.* Yellowish brown, highly polished, impunctate; legs and antennæ pale; pubescence inconspicuous. Length 1.2 mm.

*Head* slightly wider than long, tempora parallel, angles rounded, eyes small; vertex impunctate, with two small pubescent foveæ between the eyes, mutually twice as distant as either from the eye; sulcus feeble, wider and somewhat deeper behind the frontal ridge; supra-antennal tubercles obliquely oblong crossed by a short impressed line; labrum emarginate anteriorly, with a transverse row of setæ. *Antennæ* one-half longer than the head, funicle moniliform, ninth and tenth joints gradually wider, transverse, eleventh as long as the four preceding together, one-half longer than wide, conical, acuminate. The last joint of the maxillary palpi is fusiform, twice as long as thick. *Prothorax* widest across the middle, as wide as the head and imperceptibly longer, sides evenly and strongly arcuate anteriorly, and very slightly sinuate toward the base; the neck is nearly as wide as the base; disk very convex, basal foveæ one-fourth from the base, nude, the middle one punctiform, the lateral ones large, connected by an arcuate line. *Elytra* slightly wider across the shoulders than the pronotum, length one-third greater than the width of the shoulders; sides strongly arcuate; disk convex, sutural lines arcuate, discal lines deep, one-third of the elytral length. *Abdomen* convex, wider across the third segment than at the base, the first segment longer; no carinæ. Legs long, tarsi slender, the second joint twice as long as the last. The under surface of the head, behind the mentum, is hairy, each hair ending in a small globule. The metasternum has a deep fovea near the middle. ♂, intermediate femora thicker.

Habitat. Middle and Southern States.

The length and width of the prothorax in this species is very deceptive; seemingly it is longer than wide but drawing and measuring prove the dimensions to be nearly equal.

*T. RUFICEPS*, *Lec.* (*T. integer*, *Lec.*) Dark brown, elytra darker; surface polished, impunctate, pubescence short and fine. Length 0.7 mm.

*Head* large, longer than wide, occipital foveæ mutually as far distant as either from the eye, connecting sulcus arcuate anteriorly. *Antennæ* short, not one-third longer than the head, the last joint as long as the five preceding, acuminate at the apex. *Prothorax* as wide as the head, slightly wider than long, anterior and posterior limits arcuate, angles broadly rounded; the sides are parallel in the middle, disk moderately convex; near the base, in the middle, are two large, pubescent, circular, foveæ, separated by a short, longitudinal, carina; on the sides, near the middle of the length, is an equally large pubescent fovea; transverse sulcus interrupted. *Elytra* slightly wider across the shoulders than the head, sides nearly parallel, feebly arcuate near the posterior limits; suture one-fourth longer than the base is wide, and one-half longer than the pronotum; disk polished, sutural lines deep, slightly arcuate, two elongated impressions near the base, of which the outer one is the larger. *Abdomen* without carinæ, narrower than the elytra at the base. Legs slender, tarsi short, somewhat thicker in the middle, claws minute.

Habitat. Michigan, Illinois, Texas, Florida.

*T. CAPITULUM*, *Casey*. Red throughout, pubescence fine, short, close. Length 1.5 mm.

*Head* small, as wide as long, tempora acutely rounded, much smaller than the large eyes, occiput sinuate, vertex polished, impunctate; in the eye line are two circular, pubescent, foveæ, connected by a parabolic, equally deep, sulcus, the enclosed surface convex; supra-antennal tubercles elongate, prominent, the frontal margin broad, depressed in the middle. *Antennæ* short, not more than one-third longer than the head,

slender, third to seventh joints moniliform; eighth to tenth gradually wider, equal in length; tenth twice as wide as long; eleventh much wider, a little longer than wide, truncate at the base, ovate, obtuse. Maxillary palpi with the last joint nearly twice as long as wide. Space behind the mentum hairy. *Prothorax* widest at the middle, length and width equal, wider than the head; sides, anteriorly, strongly arcuate toward the neck, convergent and perceptibly sinuate to the base; the neck is about three-fifths as wide as the base; disk very convex, impunctate, sulcus narrow in the middle where it touches a deep oblong fovea, nearly reaching the base, and connecting with the deep lateral pubescent foveæ. *Elytra*, across the prominent shoulders, slightly wider than the prothorax, the length being about one-half greater; very convex, impunctate; sutural lines close together, nearly straight, the discal lines narrow, more than one-half as long as the elytra. *Abdomen* narrower than the elytra, convex, impunctate, sides anteriorly parallel, with two short carinæ at the base; the three basal segments are gradually shorter. Legs long. On each side of the anterior limit of the metasternum is a transverse, pubescent, fovea; prosternal fovea large, transverse. ♂, intermediate femora enlarged, lunate; antennal club more robust. Habitat. Florida.

EUPLECTUS, *Leach*.

## TABLE OF THE SPECIES OF EUPLECTUS.

1 <sup>2</sup>	Pronotum without longitudinal sulcus.	
2 <sup>2</sup>	Abdominal dorsals not carinate.	
	Head longer than wide, last antennal joint acuminate.	Length
	1.6 mm. - - - - -	<i>leviceps</i> . 55
2 <sup>1</sup>	Two dorsals carinate.	
3 <sup>2</sup>	Pronotal foveæ connected by a transverse sulcus.	
	Head wider than long; terminal antennal joint elongate, acuminate. Length 1.6 mm. - - - - -	<i>crinitus</i> . 55
	Head longer than wide, the terminal antennal joint obtuse-ovate, penultimate joints sharp-edged disks. Length 1.4 mm.	
	- - - - -	<i>decorus</i> . 56

- 3<sup>1</sup> Pronotal foveæ very large, not connected, the longitudinal sulcus indicated by an excessively fine line. Length 1.4 mm. - *cavicollis*. 57
- 1<sup>1</sup> Pronotum longitudinally impressed in the middle.
- 4<sup>3</sup> Head narrower than the prothorax.
- 5<sup>2</sup> First dorsal segment without carinæ; elytral discal lines short; sculpture of the head feeble. - - - - - *debilis*. 58
- 5<sup>1</sup> Two dorsal segments with short carinæ.
- 6<sup>2</sup> Elytra convex, sutural lines deeply impressed.  
Elytral discal lines one-half of the length of the elytron; impressions on head and prothorax very deep. - *fossulatus*. 59  
Elytral discal lines short, impressions on head and prothorax not deep. - - - - - *pumilus*. 59
- 6<sup>1</sup> Elytra depressed, plane, sutural and discal lines sharp, fine, and long. - - - - - *pluvipennis*. 60
- 4<sup>2</sup> Head as wide as the prothorax; shoulders wider than head or prothorax.
- 7<sup>2</sup> Occiput sinuate, sides of the pronotum broadly, evenly, arcuate; sides of elytra nearly straight, divergent.
- 8<sup>2</sup> Occipital foveæ large, nearer together, sulcus deep. - *rotundicollis*. 61
- 8<sup>1</sup> Occipital foveæ smaller, farther apart, ♂ with two spines emerging from under the third ventral segment.  
Pubescence inconspicuous. Length 1.3 mm. - - - *spinifer*. 62  
Pubescence coarse, erect. Length 1.6 mm. - - - *sexualis*. 63
- 7<sup>1</sup> Occiput convex, not sinuate; sides of pronotum sinuate behind the middle; sides of elytra arcuate. - - - - - *interruptus*. 64
- 4<sup>1</sup> Head wider than the prothorax.
- 9<sup>3</sup> Prothorax longer than wide. - - - - - *longicollis*. 65
- 9<sup>1</sup> Prothorax not longer than wide.
- 10<sup>2</sup> Shoulders slightly wider than the head, prothorax narrower.  
Prothorax wider than long, base of abdomen as wide as the elytra. - - - - - *difficilis*. 66  
Prothorax as wide as long, base of abdomen narrower than the elytra. - - - - - *congener*. 67
- 10<sup>1</sup> Shoulders as wide as the head, sides of elytra parallel; form linear, depressed.
- 11<sup>2</sup> Pronotum with a fusiform median canaliculation.  
Occipital foveæ widely separated; head not punctured. Length 1.6 mm. - - - - - *linearis*. 68  
Occipital foveæ nearer together; head strongly punctured. Length 1.5 mm. - - - - - *confluens*. 69
- 11<sup>1</sup> Pronotum with a small, elongate, median puncture.  
Occipital foveæ near together, head strongly punctured. Length 1.3 mm. - - - - - *californicus*. 70  
Occipital foveæ three times farther apart than either from the eye; head impunctate. Length 1.6 mm. - *longissimus*. 71  
Occipital foveæ very near together. Length 0.95 mm. - *pertenuis*. 70



*E. LEVICEPS*, Casey. Brown, legs, antennæ, and palpi yellowish red; pubescence short, conspicuous. Length 1 mm.

*Head* small, as long as wide, eyes large, tempora not longer than the eyes; vertex impunctate, occipital foveæ small, pubescent, mutually not more distant than either from the eye, and connected by a parabolic, feebly impressed sulcus, frontal margin depressed, with the lateral tubercles rounded, prominent. *Antennæ* one-half longer than the head, slender, the club robust, slightly wider than the eighth; eighth, ninth and tenth equal in length; tenth twice as wide as the eighth; eleventh a little wider than the tenth and as long as the four preceding together. *Prothorax* slightly wider than the head, widest one-third the length from the neck, arcuate toward the neck, very feebly sinuate to the base, not quite as long as wide; disk convex, polished, indistinctly, minutely, punctulate; base three-fourths as wide as the prothorax, with a well defined, transverse, sulcus one-third from the posterior limit, triangularly dilated in the middle, connecting the lateral, rounded, pubescent foveæ; the median dilatation is connected with the base by a distinctly visible carina. *Elytra* slightly wider than the prothorax, slightly longer than wide, sides arcuate, disk somewhat depressed, impunctate; shoulders prominent, the sutural lines slightly arcuate, discal lines scarcely indicated. *Abdomen*, above impunctate, beneath finely punctulate, the dorsal base not carinate; metasternum ciliate behind, in the middle with yellow hair. Legs long.

Habitat. Maryland.

*E. CRINITUS*, Brend. Brown, punctulate; pubescence very dense, giving an opaque aspect to the surface. Length 1.6 mm. Plate XI., Fig. 106. Plate XII., Fig. 123.

*Head* broader than long, eyes moderately prominent, large, tempora as long as the eye, slightly arcuate, convergent; occiput sinuate, with a deep indentation in the middle, sides convergent before the eyes, supra-antennal tubercles very prominent; frontal margin anteriorly convex, or obtusely angulate, frontal impression between the antennal tubercles shall-

low; occipital foveæ near the middle of the length, and mutually twice as distant as either from the eye; sulcus obsolete near the frontal tubercle, the middle part of the vertex very convex. *Antennæ* as long as the head and prothorax together, the two basal joints stouter; seventh and eighth slightly larger than the preceding; ninth and tenth increasing in length and twice as wide as long; eleventh slightly wider than the tenth, twice as wide as long, and equal in length to the three preceding joints, ovate, acuminate. *Prothorax* slightly wider than long, slightly wider than the head, widest before the middle, broadly arcuate to the neck, sinuate behind, base three-fourths of the greatest width; disk convex, transverse sulcus deep, posteriorly angulate in the middle, where it is deeper; lateral foveæ small, pubescent. *Elytra*, across the prominent shoulders, slightly wider than the prothorax, suture one-half longer than the prothorax; sides slightly arcuate, depressed, sutural lines arcuate, discal ones one-third the length, wide at the base; intermediate basal puncture very small. *Abdominal* segments widest at the base, diminishing in width, the three basal ones each with two carinæ.

Habitat. Northern States.

E. DECORUS, Casey. Reddish brown, elytra, legs, and antennæ, yellowish red, polished, translucent; pubescence short, fine, inconspicuous. Length 1.4 mm.

*Head* large, slightly longer than wide, tempora as long as the large eyes, slightly arcuate, convergent, frontal margin arcuate anteriorly, depressed in the middle, supra-antennal tubercles large, rounded, prominent; vertex flat above, declivous on the sides, elevated far above the eyes, sparsely punctulate; there are two pubescent, circular, foveæ in a line with the posterior margin of the eyes, mutually one-half more distant than either from the eye; sulcus very convergent, thin, and obsolete anteriorly. *Antennæ* very short, slightly longer than the head, second joint sub-globular, thicker than the first; the other joints transverse; the tenth more than four times wider than long, lenticular; the last as long as the four pre-

ceding together, ovoid, obtuse at the apex, and very hairy. *Prothorax* widest in the middle, slightly wider than the head and one-fourth wider than long, sides, anteriorly, arcuately convergent, less so posteriorly, and feebly sinuate; disk moderately convex, evenly punctulate, with a nearly straight, deeply impressed sulcus one-fifth of the length from the base, connecting the round, pubescent, lateral foveæ with the nude puncture of the middle. *Elytra* nearly quadrate, the sides evenly arcuate, a little wider across the shoulders than the prothorax; disk closely punctulate, convex, darker at the base and tip, sutural lines straight, fine; base with two punctures; from the external one emerges an ill-defined line, arcuate externally, and converging toward the suture; one-fifth of the length from the tip it becomes obsolete. *Abdomen* with the sides nearly parallel, convex, closely punctulate, the first two dorsals each with short, divergent, widely distant carinæ. Legs long. Last palpal joint large, conical.

Habitat. Texas.

E. CAVICOLLIS, *Lec.* Reddish brown, abdomen paler, elytra, legs, and antennæ, red; surface polished, punctate, pubescence coarse, conspicuous. Length 1.4 mm.

*Head* large, slightly wider than long; eyes large, tempora slightly arcuate, very convergent; occipital foveæ wanting, the circumambient sulcus deep, straight, convergent, arcuate behind the frontal margin, the enclosed surface very convex; occiput punctate at the sides, carinate at the middle, antennal tubercles strong, angulated. *Antennæ* robust, as long as the head and prothorax together; third to eighth joints moniliform; ninth slightly transverse; tenth twice as wide as long, not longer than the ninth; the last is as long as the three preceding together, slightly longer than wide. *Prothorax* widest at about one-third the length from the neck, slightly wider than the head, and wider than long; sides arcuately convergent, strongly sinuate anteriorly, nearly straight and less convergent posteriorly; neck about two-thirds as wide as the base; disk punctulate, the punctures deep and far

apart; the median longitudinal impressed line is obsoletely indicated, and, near the base, is a very large, nude, transverse, fovea; lateral impressions deep, irregular, no transverse sulcus. *Elytra*, across the large, prominent, shoulders, a little wider than the prothorax, sides arcuate, nearly parallel; disk one-half longer than the prothorax, punctured in rows near the suture; sutural lines strong, straight, the basal punctures deep, the outer two nearly behind one another; discal lines short, obsolete. *Abdomen* at the base, slightly narrower than the elytra, the first three segments increasing in width, impunctate, strongly margined; first two segments with two distant, divergent, basal carinæ. Legs short and strong, tarsi stronger in the distal half, and with a long curved claw.

Habitat. Florida.

E. DEBILIS, *Lec.* Slender, light brown or darker, elytra darker, pubescence short. Length 0.8 mm.

*Head* small, wider than long; eyes small, convex; tempora small, acutely rounded, shorter than the eye; base very slightly sinuate, not impressed in the middle, vertex impunctate, sides declivous; foveæ mutually as distant as either from the eye, deep, connected by a parabolic, slightly impressed, very narrow sulcus or line; frontal margin convex, feeble; supra-antennal tubercles small, angulate, not prominent. *Antennæ* two-thirds longer than the head, eighth to tenth joints gradually and uniformly wider, sub-equal in length, last joint ovate. *Prothorax* widest just before the middle, as wide as long, slightly wider than the head, nearly straight posteriorly, base two-thirds and neck one-half as wide as the prothorax; disk strongly convex, median sulcus fusiform; one-fourth from the base is a transverse, narrow sulcus, angulated in the middle, and terminating in two large, lateral foveæ. *Elytra*, across the shoulders, distinctly wider than the pronotum, longer than wide, sutural line deep, discal line rudimentary. *Abdomen* narrower than the elytra, basal half with the sides parallel, no basal carinæ. Legs short, slender. Habitat. Florida.

*E. FOSSULATUS*, *Brend.* Dark brown, polished, sparsely pubescent. Length 1 mm. Plate XII., Fig. 124.

*Head* wider than long, or, excluding the eyes, as wide as long; eyes prominent, tempora nearly straight, convergent toward the base, neck as wide as the front; sides anteriorly, very slightly sinuate, convergent to the supra-antennal tubercles; frontal space between the tubercles depressed; frontal margin, a thin, convex ridge; disk uneven, the impression very deep, the foveæ circular, mutually as far apart as either from the eye; the grooves are wide, parallel, ending in the large frontal depression; intervening space high, convex between the foveæ. *Antennæ* from the first to the tenth joint, as long as the head; first and second joints respectively as large as the tenth and ninth, intervening joints equal, transverse, very small, eleventh ovoid-acuminate, half as wide as the entire front. *Prothorax* wider than the head and wider than long, sides slightly sinuate near the large lateral foveæ, disk minutely punctulate; median sulcus fusiform, nearly reaching the large, triangular fovea, which is connected with the lateral ones by a nearly straight, transverse sulcus about one-third of the pronotal length. *Elytra*, with high and prominent shoulders, the humeral width equal to the length of the suture and slightly greater than that of the prothorax; sutural lines very deep; three basal punctures; discal lines half the length, deep, and broadly impressed near the humeri. *Abdomen* longer than the elytra, the first and second segments with minute carinæ.

*Habitat.* Illinois. (Peoria). Differs from *E. pumilus* in the deep sculpture of the head and in the long discal lines of the elytra.

*E. PUMILUS*, *Lec.* Yellowish brown, pubescence thin, fine and short. Length 0.7 mm.

*Head* small; eyes large, prominent; tempora as long as the eye, not prominent, interocular surface rough, abruptly elevated far above the eyes, nearly flat above, narrower anteriorly; base sinuate, occipital foveæ minute, mutually one-half more distant than either from the eye and connected by a slightly impressed

parabolic sulcus; antennal tubercles small, prominent. *Antennæ* not much longer than the head, slender, ninth joint as long as the tenth and twice as wide; tenth one-third wider than the eleventh; the last joint is much wider, as long as the four preceding together, elongate, ovate-acuminate. *Prothorax* widest before the middle, a little wider than the head and slightly wider than long; base two-thirds of the pronotal width, the neck one-half of that measure; disk convex, granular, with a deep, median, fusiform sulcus, transverse sulcus one-third from the base, but slightly dilated in the middle, connecting the large, pubescent, lateral foveæ. *Elytra*, at the shoulders, wider than the pronotum, sides arcuate, disk quadrate, convex, impunctate, shining, discal lines short, not conspicuous. *Abdomen* narrower than the elytra, impunctate, shining convex, the first two dorsal segments with two short, distant, carinæ. Legs short and slender.

Habitat. Louisiana, Georgia.

E. PLANIPENNIS, *Brend.* Piceous brown, abdomen and prothorax paler; much depressed, densely pubescent with fine, appressed hair. Length 1.25 mm. Plate XII., Fig. 118.

*Head* triangular, anteriorly truncate, posterior angles strongly arcuate, eyes very prominent, as long as the tempora, base entire, across the posterior angles twice as wide as the straight frontal margin; frontal tubercles small, space between them and behind the frontal margin deeply concave, occipital foveæ large and connected with the frontal excavation by a very short sulcus, leaving in the middle of the vertex a short, acute, triangular elevation, posteriorly continuous with the occiput. *Antennæ* one-half longer than the head, joints one and two nearly equal, rounded, longer than wide, third to eighth very transverse, equal, narrower than the second, ninth one-third wider, tenth twice as long and wide as the ninth; last joint ovate, truncate at the base, one-third longer than wide, slightly wider than the tenth, pubescence denser at the tip. *Palpi* short, yellow. *Prothorax* very broadly convex, nearly plane, punctulate, sides evenly rounded with the basal

angles, broadly arcuate, as long as the width of the head, the prominent eyes included, and less than one-fourth wider; disk nearly flat in the middle, an oblong fovea before the middle and large lateral fovea just behind the middle, connected by a fine, straight sulcus, running through a very small median fovea. *Elytra* one-half longer, across the high shoulders slightly wider, across the tip one-fourth wider than the prothorax, sides behind the middle nearly parallel; disk flat, depressed, with declivous sides and tip, very densely pubescent, discal lines two-thirds of the length, very sharp and fine, sutural lines the same and entire; basal punctures three. *Abdomen* with the first and second dorsals bicarinate in the middle, carinæ including one-fourth of the segmental width. Legs short, yellow. ♂ with the last ventral nearly circular and an inconspicuous transverse impression at the base of the penultimate segment.

Habitat. Linn County, Iowa.

Very distinct by the small head and the form and sculpture of the prothorax.

*E. ROTUNDICOLLIS*, *Brend.* Piceous brown throughout, legs paler, pubescence fine, not dense; stature robust, compact. Length 1.33 mm. Plate XI., Fig. 113. Plate XII., Fig. 116.

*Head* narrower than the prothorax, one-fifth wider than long, tempora prominent, angulate with the base, nearly parallel behind the moderately prominent eyes; frontal margin two-thirds as wide as the base, which latter is emarginate and visibly impressed in the middle of the occiput; the outlines of the head resemble those of *E. confluens*; occipital foveæ large, in a line with the posterior margin of the eyes, circumambient sulcus deep, parallel to the sides of the head, the frontal part transverse, deeper; frontal margin thin and straight. *Antennæ* rather long, reaching the transverse thoracic sulcus; first and second joints larger, oblong; third to sixth equal, globular, small; seventh to tenth gradually increasing in length and width, transverse; tenth four times wider, and twice as long as the seventh, the last ovate, truncate at the base, wider than the tenth, one-half

longer, and as long as the three preceding ones; pubescence long. *Prothorax* transverse, oval, evenly rounded, as long as the width of the head behind the eyes, and one-fifth wider than long, convex; discal fovea, or abbreviated sulcus, less than one-fourth of the length of the prothorax, situated just before the middle; transverse sulcus one-fourth from the base, deep, doubly arcuate, deeper in the middle, ending in a large lateral fovea, the enclosed basal space granulated. *Elytra* moderately convex, just visibly broader than the prothorax across the high, narrow shoulders; the length of the suture is one-half more than that of the prothorax; basal foveæ deep, sutural lines parallel, discal lines dilated towards the shoulders, reaching one-third from the base; sides divergent, somewhat arcuate behind the middle. *Abdomen* narrower than the elytra, broadly margined, with extremely short carinæ on the bases of the first and second segments and a mere indication of them on the third. Legs rather strong and moderately short. ♂, fourth ventral with a fine, transverse line at the posterior margin, laterally hooked; the base of the fifth is transversely depressed in the middle third, and bears a transverse linear impression behind the middle; last ventral finely punctured, not carinate.

Habitat. Linn County, Iowa.

*E. SPINIFER*, Casey. Brown, impunctate, polished, pubescence inconspicuous. Length 1.2 mm. Plate XI., Fig. III. Plate XII., Fig. 117.

*Head* large, and, excluding the eyes, as long as wide, somewhat quadrate, sides slightly divergent, eyes moderately prominent, tempora prominent, arcuately divergent, longer than the eye; base sinuate, with a median occipital impression; occipital foveæ pubescent, moderately large, mutually two-thirds more distant than either from the eye, and connected by a parabolic sulcus, which is deeper behind the arcuate frontal ridge; the enclosed surface is very convex; supra-antennal tubercles strong, transversely and obliquely oblong. *Antennæ* one-half longer than the head, robust, the first two joints stout; the joints of the



funicle half as wide, transverse, ninth and tenth longer and wider, transversely oval; eleventh larger, little longer than wide, annulated, acuminate. Last joint of the maxillary palpi short, conical. *Prothorax* as wide as the head, widest on the anterior third, about one-sixth wider than long, sides arcuate throughout, more so anteriorly, base continuously and slightly arcuate with the sides, neck one-half as wide as the pronotal width and two-thirds as wide as the base; disk slightly convex, with an oblong fovea before the middle, and one-third from the base, is a deep, angulated, sulcus connecting the large, pubescent, foveæ. *Elytra*, across the high shoulders, as wide as the prothorax, sides slightly and arcuately divergent, the disk nearly quadrate, not very convex; the sutural lines are close, nearly parallel, discal lines half the elytral length, emerging from the outer basal foveæ, which are large and pubescent; a third intermediate basal puncture is also present. *Abdomen* narrower at the base than the elytra, wider across the third segment, the first two basal segments with short divergent carinæ. Legs strong, the tibiæ of the male dilated on the discal half. The third ventral in the male is sinuate in the middle, tumefied at the sides of the posterior limit; beyond this, on each side, is a long, externally arcuate spine, contiguous to the fourth segment, which is transversely impressed at the base; the fifth ventral has a transverse impression in the middle; last segment punctate and with a median carina.

Habitat. Illinois, Louisiana, Georgia.

*E. SEXUALIS*, Casey. Brown, legs paler, pubescence thin, very long, erect, coarse; surface polished, with a few feeble, minute, punctures. The general form is that of *E. spinifer*. Length 1.6 mm.

*Head* large, little broader than long, eyes large, moderately prominent, tempora as long as the eye, not prominent, convergent; base strongly sinuate, the pubescent foveæ three-fourths more distant than either from the eye, connected by a deep, parabolic sulcus passing from the tempora through the foveæ to the front, where it is wider and deeper; intermediate

space very convex, supra-antennal tubercles very large, angulate externally; frontal ridge strong, feebly notched in the middle; labrum with the lateral angles acute, transverse. *Antennæ* as long as the head and prothorax together, formed like those of *E. spinifer*. *Elytra*, across the high shoulders slightly wider than the prothorax, sides more arcuate, disk more convex, more nearly quadrate compared with *E. spinifer*. *Abdomen* as wide as the elytra, sides straight, parallel, carinæ on the two basal segments more distant, parallel, and three-fourths as long as the segment. Legs slender and rather long. The ♂ characters resemble very much those of *E. spinifer*, except that the fourth and fifth segments are emarginate posteriorly for their entire width.

Habitat. South Carolina, Georgia.

*E. INTERRUPTUS*, *Lec.* Form more robust, shoulders broader, pubescence not dense. Color, rust red. Length 1.4 to 1.6 mm. Plate XI., Fig. 108. Plate XII., Fig. 122.

*Head* large, eyes large, tempora as long as the eye, arcuately convergent, occiput not sinuate nor impressed, frontal margin straight, sharp, foveæ large, in a line with the middle of the eye, connecting sulcus deep, parallel to the sides, broader and arcuate behind the frontal margin, inclosed space very convex, smooth. Sides, external to the sulcus, somewhat punctured, lateral frontal tubercles strong. *Antennæ* not quite as long the head and prothorax together, first joint larger than the second; third to eighth joints much narrower than the second, equal in width, gradually more transverse; ninth longer, nearly twice as wide, obconical, truncate at the base; tenth of the same form, larger; eleventh slightly wider than long, annulate near the acute apex. *Prothorax* widest before the middle, where it is arcuately rounded, and slightly sinuate anteriorly, sides, toward the base, nearly straight, convergent; near the lateral foveæ they are imperceptibly sinuate; the basal angles are rounded; disk convex, minutely punctulate, with a small central fovea; basal sulcus one-fourth from the base, deeply arcuate, lateral foveæ large and deep.

*Elytra* minutely and sparsely punctulate, rather convex, as wide across the shoulders as the prothorax, and nearly one-third wider across the middle; the length of the suture is one-fifth greater than the width of the prothorax, the sides evenly arcuate; the sutural interval is slightly dilated behind the middle, the lines deep, discal ones half the length of the elytra. *Abdomen* as long as the elytra, border strong, basal carinæ including one-fifth of the segmental width, very short on the first and second segments and only indicated on the third. Legs moderately strong. Sexual differences consist of a lateral swelling of the posterior edge of the third ventral segment, a transverse median depression of the base of the fourth, and a transverse median depression before the middle of the fifth; the last ventral is lozenge-shaped, longitudinally carinate in the middle and punctured.

Habitat. Florida, Virginia, Louisiana, Iowa.

*E. LONGICOLLIS*, Casey. Pale brown, pubescence dense and fine. Length 1.3 mm.

*Head* as long as wide; tempora longer than the eyes, arcuate; base slightly sinuate; vertex punctate at the side, foveæ small, mutually a little more distant than either from the eye, the arcuate groove deeper and wider in front; supra-antennal tubercles large, angulate, and behind each is a small puncture. *Antennæ* one-third longer than the head, the ninth and tenth joints transverse, twice as wide as long, the last joint wider than the tenth, as wide as long. *Prothorax* slightly narrower than the head, widest near and before the middle, very slightly sinuate anteriorly near the neck, posteriorly less convergent, minutely slightly sinuate behind the middle, thence straight; neck one-half, the base two-thirds of the pronotal width; disk impunctate, convex, with an elongate puncture before the middle, and a slightly impressed sulcus one-fifth from the base, connecting the three small deep foveæ. *Elytra*, across the shoulders, somewhat wider than the pronotum, sides slightly arcuate, nearly parallel, disk a little longer than wide, slightly

depressed; sutural lines arcuate, discal lines two-fifths as long as the suture. *Abdomen* not longer than the elytra, two dorsal segments with approximate, divergent carinæ. The ♂ characters are as follows: a deep transverse impression of the penultimate segment, the third and fourth, sinuate behind.

Habitat. Maryland, Virginia.

*E. DIFFICILIS*, *Lec.* Red, feebly and sparsely punctulate, pubescence fine, short, and dense. Length 1.2 mm. Plate XI., Fig. 109.

*Head* large, as long as wide, eyes small, prominent, tempora much longer than the eyes, convergent; base sinuate, with a median impression; vertex impunctate, highly polished, occipital foveæ small, pubescent, situated near and behind the middle, slightly more distant from one another than from the eyes, circumambient sulcus narrow, the parabolic very wide and deep behind the frontal ridge; supra-antennal tubercles very large, angulated externally. *Antennæ* one-third longer than the head, slender, club large, ninth joint not longer than the eighth, twice as wide as long; tenth one-half longer and wider than the ninth; the last joint very slightly wider than the tenth, nearly globular, annulate and acuminate at the tip. *Prothorax* narrower than the head, slightly wider than long, widest in the anterior third, sides, behind the point of the greatest width, convergent and broadly sinuate; base three-fourths as wide as the pronotum, and one-half wider than the neck; disk convex, with a deep, elongated, median puncture in the middle; one-fourth from the base is a narrow, feebly impressed, transverse sulcus, connecting a large, deep, median impression with the circular, pubescent, lateral foveæ near and behind the middle. *Elytra*, across the prominent shoulders, slightly wider than the prothorax and as wide as the head, sides parallel, arcuate; disk longer than wide, about as long as half of the head and the prothorax together, rather flat, sutural lines close, the lateral ones short, broadly impressed. *Abdomen* not narrower than the elytra, the first two segments

conspicuously carinate; space between the carinæ at the base pubescent, margin flat.

Habitat. Eastern States.

*E. CONGENER*, Casey. Form slender, head large, wider than long, prothorax as wide as the head, rather longer than wide, humeral width as great as that of the head, elytra slightly longer than wide; color brown, legs paler, pubescence short, coarse, dense, conspicuous. Length 1.5 mm.

*Head* slightly punctulate, eyes large, prominent, tempora very convergent, longer than the eye, base sinuate, impressed in the middle; more than one-third from the base are two minute, pubescent foveæ, mutually not more distant than either from the eye; the connecting sulcus is extended on to the tempora, the enclosed space narrow, convex, impunctate; frontal tubercles large, angulate, frontal ridge depressed in the middle. *Antennæ* one-half longer than the head, third to eighth joints moniliform; eighth smallest; ninth twice as wide; tenth longer and wider, two-thirds wider than the ninth; the last is as long as wide, slightly wider than the tenth, acuminate and annulate at the apex. *Prothorax* as wide as the head, widest before the middle, nearly as wide as long, feebly arcuate at the sides anteriorly, posteriorly convergent, nearly straight, feebly undulate; neck half as wide as the disk; disk minutely and sparsely punctulate, convex, with a small elongated puncture before the middle; one-fourth from the base a narrow, arcuate sulcus connects the deep, triangular, median impression with the deep, round, pubescent, lateral foveæ. *Elytra*, across the high shoulders, as wide as the the head; sides arcuate; disk slightly longer than wide, convex, impunctate, sutural lines parallel, lateral ones broadly impressed, abbreviated before the anterior third. *Abdomen* with the sides divergent posteriorly, first three dorsals equal, the two basal ones with approximate divergent carinæ. Legs slender. ♂, third segment minutely produced behind in the middle, fourth with a small tubercle in the center.

Habitat. Virginia.

E. LINEARIS, *Lec.* Form more parallel, pubescence coarse, color uniformly brown; surface punctulate. Length 1.3 to 1.6 mm. Plate XI., Fig. 107.

*Head* trapezoidal, wider than long, eyes large, tempora slightly arcuate, convergent, base sinuate, with a median impression, frontal margin straight; supra-antennal tubercles strong, angularly rounded, occipital foveæ far apart, in line with the posterior limits of the eyes; sulcus parallel to the sides, where it is deepest, wider toward the frontal margin; from this point it presents a surface slanting upwards to the triangularly elevated vertex. *Antennæ* nearly as long as the head and prothorax together, first joint rather robust; second much smaller, third to eighth equal, transversely globular; ninth twice as wide as long; eleventh as wide as the tenth, and one-half longer than wide, annulate near the acute tip. *Prothorax* slightly wider than the head, widest before the middle, sides slightly sinuate anteriorly, very convergent, the middle evenly arcuate, behind nearly straight; neck not half as wide as the middle, base two-thirds of the total width, disk broadly convex, median sulcus fusiform, widest and deepest near the center, connected with the transverse doubly-arcuate sulcus; the lateral foveæ are large and deep. *Elytra* rather flat inside of a triangle limited by the base and two lines drawn from the shoulders to the posterior end of the suture, the remaining triangles being more convex and declivous; across the shoulders they are as wide as the prothorax, and near the tip are one-fifth wider; sides divergent, nearly straight behind; discal lines abbreviated before the middle, sutural lines deep, interval very slightly dilated behind the middle, the three basal foveæ rather deep. *Abdomen* broadly margined, sides of the first three segments parallel; carinæ of the first and second segments short, including one-fifth of the total width. The under surface of the head and abdomen more strongly punctured. ♂, last ventral lozenge-shaped, punctate, carinate in the middle.

Habitat. East of the Mississippi river.

*E. CONFLUENS*, *Lec.* Form slender, depressed, sides of the elytra and abdomen parallel; surface punctulate. Length 1.2 to 1.5 mm. Plate XI., Figs. 110 and 112.

♂ *Head* broader than long, trapeziform, one-fourth shorter from the frontal margin to the base than the width across the very prominent tempora; base sinuate and shortly carinate in the middle, tempora acutely rounded; eyes not prominent, sides, from the tempora to supra-antennal tubercles, nearly straight, slightly sinuate; frontal margin straight, slightly produced in the middle, as wide as the head is long; disk very coarsely punctured, flat, the inter-ocular foveæ very small, mutually as distant as either from the eye; the grooves are parallel, broadly arcuate in the transverse frontal portion, included space smooth or less deeply punctured, mandibles prominent. *Antennæ* one-third longer than the head, third to eighth joints transversely moniliform; ninth and tenth gradually wider; eleventh ovate, truncate at the base, where it is slightly wider than the tenth and four times wider than the funicle, the length and width about equal. *Prothorax* narrower than the head, widest before the middle, as wide as long, sides rounded in the middle, straight and convergent toward the neck and base, slightly sinuate opposite the lateral foveæ; base broadly arcuate; disk punctate with a deep oblong fovea before the middle, running out into a shallow, longitudinal sulcus, reaching into the triangular median fovea one-fourth from the base; lateral foveæ large, deep, very faintly connected with the median ones. *Elytra* densely pubescent, faintly punctulate, as long as wide, sides nearly parallel; disk flat, sutural lines nearly straight, parallel, base trifoveate, discal lines deep near the base, not reaching the middle; shoulders prominent. *Abdomen* longer than the elytra, the first and second dorsals carinate. The sexual differences are conspicuous, the head of the ♂ being shorter, the mandibles strong, prominent, the antennæ more slender, and the abdomen shorter; the third ventral segment is bisinuate in the middle behind, the fourth depressed at the middle of the base and covered by tufts of hair; the fifth has

two short transverse folds on each side of the middle; the last is lozenge-shaped, punctured, carinate longitudinally.

Habitat. Atlantic slope from North to South.

*E. PERTENUIS*, Casey. ♀ very slender, linear, pubescence fine and dense; surface nearly opaque. Length 1 mm.

*Head* nearly as long as wide, very large; eyes large, nearly invisible from above, tempora arcuate, longer than the eye; base sinuate, vertex nearly flat, distinctly punctate; in a line through the center are two minute, pubescent foveæ, mutually equally as distant as either from the eye; connecting sulcus deep, convergent, angulated and transverse behind the straight frontal margin; frontal ridge sharp. *Antennæ* very short, third to tenth joints transverse, ninth and tenth wider; tenth three times as wide as long; eleventh wider, as long as wide, acuminate. Labrum bilobed. *Palpi* with the second joint clavate, the third small, transverse, fourth conical, twice as long as wide. *Prothorax* narrower than the head, longer than wide, widest before the middle, feebly sinuate at the sides anteriorly, nearly straight posteriorly; neck one-half the pronotal width and four-fifths that of the base; disk convex, with an oblong puncture before the middle and cruciform impression near the base, the lateral branches not reaching the small foveæ. *Elytra*, across the shoulders, not wider than the head, sides nearly parallel; disk one-fourth longer than wide, the discal lines very short, shoulders prominent. *Abdomen* with the third segment slightly wider than the elytra, the first two carinate. Legs long.

Habitat. Virginia. Unknown to us.

*E. CALIFORNICUS*, Casey. Form slender, depressed; pubescence fine, short, dense; body brown, polished. Length 1.3 mm.

*Head* wider than long, tempora rounded, convergent, not prominent; base sinuate; vertex depressed; in a line with the middle of the eyes are two small, nude, foveæ, mutually as distant as either from the eye, and connected by a feeble



arcuate groove; frontal margin nearly straight, the lateral tubercle small, prominent; surface rather rough, punctured. *Antennæ* three-fourths the length of the head and prothorax together, the last three joints gradually wider, the last oval, as long as the three preceding together. *Prothorax* punctate, slightly shorter and narrower than the head, wider than long, widest before the middle, sides convergent, nearly straight towards the base, which is two-thirds as wide as the disk; neck very slightly narrower, disk with a slightly elongate fovea near the center; one-fourth the length from the base is a deep, transverse, impression; lateral foveæ deep, rounded, not connected with the median impression. *Elytra*, across the shoulders, slightly wider than the prothorax, sides nearly parallel, very feebly arcuate, disk as long as wide; sutural lines deep, arcuate, discal lines fine, slightly arcuate, half the length of the elytra; base trifoveate, punctate. *Abdomen* narrower and longer than the elytra, sides parallel, punctate; the base of the first two segments is impressed in the middle and bears obsolete carinæ. Legs short, tarsi short and thick.

Habitat. California. (Lake Tahoe).

E. LONGISSIMUS, *Brend.* Pale testaceous, polished, impunctate, sparsely pubescent, very elongate-linear. Length 1.6 mm. Plate XI., Fig. 114. Plate XII., Fig. 115.

*Head*, including the eyes, as long as wide, tempora slightly convergent, straight from the rounded posterior angles to the eyes; frontal tubercle prominent, rounded, the angular frontal margin crenate and elevated between the tubercles; occipital foveæ large, sulcus straight to the arcuate frontal portion and fairly wide; enclosed surface convex, occiput emarginate and impressed in the middle; eyes small, not prominent. *Antennæ* one-half longer than the head, first and second joints cylindrical, longer than wide, as wide as the ninth; third to eighth very small, sub-globular; ninth not longer, tenth twice as wide and long as the ninth, the last wider than the tenth and one-fourth longer than wide, obliquely annulate near the sub-acute tip. Palpi, last joint as large as the second antennal

joint, more convex inside. *Prothorax* as wide and long as the width of the head, widest across the anterior third where it is strongly arcuate; anteriorly the sides are strongly convergent, slightly sinuate; posteriorly convergent, sinuate near the lateral foveæ, thence rounded toward the base, which is three-fourths as wide as the disk and one-half wider than the neck; disk convex with an oval fovea behind the apical third, and a doubly arcuate, not very deep sulcus one-fourth from the base, which is deeper or foveate at the angulated middle and ends in two large lateral foveæ. *Elytra*, across the very high shoulders, as broad as the prothorax, near the tip one-fourth wider, the width here equalling the length of the suture; sides very slightly arcuate, nearly parallel; base sinuate; tip straight; sutural lines slightly impressed, basal punctures three, the outer one resembling a short impression. *Abdomen* longer than, and as wide as the elytra, the two basal segments carinate, border broad, parallel. Legs, ( $\delta$ ) tibiæ and tarsi dilated, short; fourth ventral impressed at the base, fifth transversely impressed in the middle, last lozenge-shaped, carinate.

Habitat. South Carolina, Georgia.

EUTYPHLUS, *Lec.*

(*Nicotheus* Casey.)

Body elongate, linear, resembling *Euplectus*. The head with large antennal foveæ before and above the eyes; prothorax rectangular at the sides of the base; prosternum carinate; abdomen with the fourth dorsal segment not, or very slightly longer than the third. ♀ with rudimentary eyes.

*E. TIBIALIS*, Casey. Form robust, slightly depressed, pubescence short, brown conspicuous. Length ( $\delta$ ) 1.2 mm. (♀) 1.4 mm. Plate XII., Fig. 119, ♀; Fig. 120, ♂.

♂ *Head* as long as wide, eyes moderately prominent, small, coarsely faceted, tempora convergent, feebly arcuate, exca-

vated above and below the eye, sides of the vertex straight, convergent to the frontal margin; supra-antennal tubercles strong, angulate; frontal margin convex in the middle and declivous at the tip; in a line with the anterior limits of the eyes are two pubescent foveæ, mutually two-thirds more distant than either from the eye, connected by a parabolic sulcus; the included space impunctate; labrum truncate anteriorly. *Antennæ* not as long as the head and prothorax together, first and second joints stout, ovate, nearly equal; third to seventh small, gradually transverse; eighth to tenth gradually increasing in width, nearly equal in length; eleventh sub-globular, annulated near the acute tip. Last joint of the maxillary palpus thick, one-sided, acute at the tip. *Prothorax* widest across the anterior third where the width equals that of the head, as wide as long, evenly arcuate at the sides; posteriorly the sides are nearly straight, forming a slightly obtuse angle with the base; disk polished, impunctate, convex, with an abbreviated, linear sulcus just before the middle and a transverse, slightly angulated groove one-fourth from the base, connecting the pubescent lateral foveæ; the space behind the transverse sulcus is rough, with a median carina. *Elytra*, across the prominent shoulders, as wide as the prothorax, sides divergent, moderately arcuate, disk feebly convex, indefinitely punctulate, wider than long, and one-fourth longer than the pronotum; base bifoveate, the sutural lines parallel, the discal impression conspicuous, more than one-third as long as the suture. *Abdomen* short, broad, border retuse, segments sub-equal, the first and second with two short, divergent carinæ at the base. Legs long, thighs clavate, tibiæ dilated toward the tip. ♀, form more slender, longer than the male, eyes rudimentary, consisting of three or in some cases two ocelli; the elytra are comparatively longer, the sides more arcuate, the abdomen longer, and the tibiæ not dilated.

Habitat. Virginia.

BIBLOPORUS, *Thomson*.*(Faliscus, Casey.)*

Body slender; antennal club<sup>o</sup> three-jointed; prosternum carinate; fourth dorsal not prolonged.

B. BICANALIS, *Casey*. Dark brown, pubescence short and fine; antennæ and legs paler. Length 1.1 mm.

*Head* small, wider than long, eyes large, coarsely faceted, prominent, very near the base, tempora short, nearly transverse; vertex flat, polished, impunctate, with two small, deep, naked foveæ, mutually twice as distant as either from the eye; on each side of the vertex is a very shallow sulcus running from the occipital foveæ forward, near the frontal margin turning inwards without meeting the opposite sulcus, where it is much more deeply impressed; supra-antennal tubercles flat, crossed by a fine impressed line; frontal margin convex. *Antennæ* not as long as the head and prothorax together, slender; first joint larger, second oblong, conical; third longer than wide, fourth to sixth globular; seventh thicker, globular, eighth as thick as the seventh and slightly transverse; ninth larger, of the same form; tenth nearly as long as the ninth, transverse, one-half wider than long; eleventh wider than the tenth, little longer than wide, acuminate. Maxillary palpus with the last joint fusiform; under surface of the head with capitate hairs. *Prothorax* widest before the middle, sides evenly arcuate, straight toward the neck and the basal angles; the neck is two-thirds as wide as the base; disk polished, indistinctly punctulate, with a nude, oblong puncture near the base, continued forward as a fine shallow impression, not reaching the middle of the disk; on each side is a shallow, longitudinal, impression, reaching the basal angle; lateral foveæ and transverse basal sulcus wanting. *Elytra*, across the shoulders, slightly wider than the prothorax, sides arcuate, sutural lines close together, feebly arcuate. Discal lines deep, one-third as long as the suture; disk indefinitely and closely punctulate. *Abdomen* shorter and narrower than the elytra,

margin narrow, the segments sub-equal, the first two with short carinæ at the base. Legs long, thighs robust, tibiæ slender; male intermediate thighs lunate, the intermediate tibiæ with an internal tooth.

Habitat. New York.

FARONUS, *Aubé*.

Antennæ inserted beneath the moderately distant frontal tubercles, joints moniliform, gradually slightly larger; palpi short, the last joint oval or elongate oval; vertex trifoveate; eyes moderately prominent, the facets not very large. Prothorax commonly wider than long, with two small foveæ near the center and a transverse excavation limited laterally by a carina which separates it from the lateral fovea, posteriorly by a roof-shaped transverse carina which divides it from the basal line. Elytra usually with nearly straight divergent sides, the line of the sides if prolonged touching the sides of the prothorax and the eyes anteriorly, and the first three segments posteriorly; the disk is depressed, with deeply interrupted or strongly foveate lines. Abdomen, basal segment shorter than the two succeeding ones, broadly margined, the segments quite flexible and somewhat retractile; segments six in number. Pubescence usually very coarse and long. Legs slender, short, tarsi short, the first two joints very short, the last with two equal claws. Posterior coxæ approximate, slightly transverse. Antennæ with the third joint smallest. The following table will enable the student to identify his specimens.

TABLE OF THE SPECIES OF FARONUS.

- 1<sup>2</sup> Prothorax with two foveæ on the disk before the middle.
- 2<sup>2</sup> Prothorax nearly as wide as long, sides evenly arcuate, discal foveæ faint, not connected with the basal transverse impression by a longitudinal one. - - - - - *tolulæ*.
- 2<sup>1</sup> Prothorax wider than long, foveæ connected with the transverse basal impression by a longitudinal one.
- Sides of body nearly parallel: head very transverse, tempora rectangular with the base. - - - - - *corticinus*.

Sides of the body divergent; head not much wider than long, tempora convergent towards the base, slightly arcuate.

*cavicollis*.

Sides of body divergent; head very small, not much wider than long, sculpture of vertex less deep; tempora arcuate, but not angular to the base. - - - - *parviceps*.

1<sup>1</sup> Prothorax without discal foveæ, the basal transverse impression with three deeper punctures. - - - - *isabellæ*.

F. TOLULÆ, *Lec.* Dark brown, polished, pubescence coarse, long, abundant on every part of the body; antennæ and legs yellowish. Length 2.1 mm. Plate XII., Fig. 125.

*Head* without the eyes, as long as wide, eyes large, prominent, tempora very convergent, nearly transverse, as long as the eye, with the posterior part of the eyes and the base forming a regular arch; sides near the eyes sinuate, frontal margin sinuate, supra-antennal tubercles strong; in a line with the middle of the eyes are two small, circular foveæ, mutually three times more distant than either from the eye, frontal fovea oblong, large and deep; space separating the three foveæ slightly elevated. *Antennæ* half as long as the entire body, first joint cylindrical, strong, twice as long as wide, flattened above; second shorter, oval, one-half longer than wide; third to tenth gradually increasing in width, third smallest, longer than wide, eighth slightly transverse, ninth as thick as the first; tenth a little larger transversely oval, one-fourth wider than long, eleventh ovate-acuminate, one-half longer than wide. Last palpal joint twice as wide as long, oval, somewhat more arcuate inside, the second joint larger than the third; on the under side of the head, behind and below the eyes each side, is a small acute tubercle. *Prothorax* sub-globose, widest in the middle, nearly as long as wide, the base twice the width of the neck; the discal punctures are hardly visible, the basal transverse excavation and lateral foveæ deep. *Elytra* much depressed, the base, sides, and posterior limit nearly straight; sides and tip declivous, discal and sutural lines with deep foveolæ before the middle, only one intermediate puncture near the base; the disk, across the shoulders, is

as wide as the prothorax, across the tip one-half wider, and equal to the length of the suture. *Abdomen*, across the second segment, wider than the elytra. Legs rather long and stout, the third tarsal joint three times longer than the second.

Habitat. Virginia.

F. CAVIFRONS, *Casey*. Brown, impunctate, polished; pubescence long, coarse, and recumbent, especially long on the tempora and abdomen. Length 1.9 mm. Plate XII., Fig. 126.

*Head*, behind the large prominent eyes, nearly as wide as the distance from the frontal margin to the base, which is continuously arcuate with the tempora; sides, for a short distance before the eyes, convergent, thence forming an obtuse angle with the parallel antennal tuberculations; disk moderately convex, deeply excavated between the antennal tubercles, leaving the frontal margin very sharp in the middle; in the eye line are two small, faintly impressed foveæ, not quite twice as distant from one another as from the eye. *Antennæ* very pubescent, longer than the head and prothorax together; first joint oblong-oval, as wide as the ninth joint, nearly twice as long as wide, second oval, shorter, equal in thickness to the first; third smallest, globular, fourth to tenth sub-equal, moniliform, slightly and gradually increasing in size; the tenth is rather wider than long, eleventh ovate, little wider than the tenth, and one-half longer than wide. Last joint of the maxillary palpi nearly fusiform, twice as long as wide. *Prothorax* wider than the head, one-fifth wider than long just before the middle, where the sides are evenly rounded; thence nearly straight to the neck, and slightly sinuate toward the base; neck half as wide as the base, which is about three-fourths of the greatest width; disk with two small, slightly impressed foveæ before the middle, and the basal structure given in the generic description, modified by the lateral carinæ including little more excavated space than one-half of the basal width. *Elytra* longer than wide, slightly divergent at the sides, width

of the shoulders but little greater than that of the thorax, three-fourths as wide as across the tip, discal lines quadrifoveate; intermediate foveæ two, lateral declivity slightly concave. *Abdomen* with a pubescent transverse line on the basal segment. Legs short and slender.

Habitat. Middle California.

F. CORTICINUS, *Casey*. More elongate than the preceding, pale brown, pubescence shorter, finer, surface impunctate. Length 1.5 mm. Plate XII., Fig. 127.

*Head* wider than long, four-fifths as wide as the prothorax, trapeziform, eyes small, situated in the middle of the straight, anteriorly convergent, sides; tempora rather prominent, rounded, frontal margin slightly convex, less than two-thirds the distance across the tempora, front deeply excavated; vertex with two small punctiform foveæ, mutually less distant than either from the eye. *Antennæ* one-third longer than the head and prothorax together, first joint longer and little thicker than the second; the second is nearly one-half longer than wide, oval; third to ninth smaller, moniliform, gradually shorter, and wider than long; tenth and eleventh slightly larger, the former transverse, the latter wider, and a little longer than wide, as long as the two preceding together. The fourth joint of the maxillary palpi is longer than wide, compressed oval, with a terminal pencil of hair. *Prothorax* widest in the middle, evenly rounded, very slightly sinuate toward the base; discal foveæ just before the middle, mutually distant one-fifth of the pronotal width; basal excavation foveate in the middle, and limited on the angle by the lateral carinæ; lateral foveæ large, extending to the lateral basal angle. *Elytra* a little wider across the shoulders than the prothorax, across the tip less than one-fourth wider, the width here being equal to the sutural length; disk depressed, the sutural lines punctate at the base, the discal lines with two large punctures near the base, intermediate punctures three in the longitudinal row. *Abdomen* slightly longer and wider than the elytra, marginal border one-seventh of the segmental width; the basal



segment is shorter than any one of the succeeding segments, and bears on each side of the middle a transverse pubescent line. Legs short, stronger than those of the preceding species.

Habitat. Middle California.

F. PARVICEPS, *Mæklin*. Dark brown. Length 2 mm.

*Head* wider than long, much smaller than in any of the preceding species; the frontal impression is more transverse, the foveæ not so well impressed and situated in a line with the anterior limits of the eyes, tempora arcuate. *Antennæ* longer than the head and prothorax, the basal joint longer than in the preceding species, the ninth and tenth joints transverse. *Prothorax* widest behind the middle; the foveæ before the middle are near together, not connected with the transverse basal impression. *Elytra* with the sides straight, divergent, half as long again as the prothorax, shoulders not prominent. *Abdomen* with the sides divergent, the first segment apparently half as long as the second. In the living specimen this proportion may possibly be different.

Habitat. British Columbia.

This description is taken from a drawing made thirty years ago from a specimen in Dr. Leconte's cabinet. We do not recollect whether or not it has the transverse pubescent line on the first abdominal segment.

F. ISABELLÆ, *Lec*. Black, elytra, legs, and antennæ red. Length 2 mm.

*Head* large, as wide as long, the frontal foveæ large and deep. *Antennæ* as long as the head and prothorax together, first joint oblong oval; second of the same form, as long as the width of the first; third smallest, as long as wide; fourth to sixth little longer than wide, one-half wider than the third; seventh to tenth gradually wider, not longer, the tenth being twice as wide as the eighth; the last joint is wider than the tenth, and one-half longer than wide, oval. *Prothorax* of the same form as in *F. cavifrons*, without discal foveolæ, the basal

impression less deep. *Elytra* red, of the same form as in *F. cavifrons*. *Abdomen* with the first segment very short, and narrower than the elytra; the second is twice as long as the first and equal to the third or fourth segment, gradually increasing in width from base to apex, the rest of the segments rapidly decreasing in width and seemingly so in length, as they are retracted in dead specimens.

Habitat. San Francisco, Cal.

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## APPENDIX.

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ANOPS, *n. g.* (from *a*, wanting, and  $\delta\psi$ , eye.)

ANOPS AMPLYOPONICA, *n. sp.* Uniform umber brown, alutaceous, finely pubescent, of the general form and character of *Batrissus*; eyes wanting, sides of the head with a prominent spine; fourth dorsal segment as long as the others taken together, not margined; posterior coxæ approximate. Length 3.4 mm.

*Head* as wide as long, vertex quadrate, carinate at the sides, the carinæ nearly obsolete posteriorly, with two shallow foveæ less than one-fourth from the base, and mutually three times farther distant than either from the basal carinæ; circumambient sulcus shallow near the foveæ, deeper and wider near the frontal margin. Supra-antennal tubercles retusely angulate outside and separated by a notch from the arcuate frontal margin; clypeus evenly rounded, punctured; sides of the head continuously convex with the posterior part of the vertex and the gular region, and with a strong, pointed, conical spine (perhaps bearing an ocellus) in the position usually occupied by the eyes; occiput carinate in the middle; gula unicarinate; neck faintly carinate; mentum and labrum very short, emarginate; antennal cavities shallow. *Palpi* with the second joint very slightly sigmoid, third quadrate, fourth not thicker than

the third, fusiform, five times longer than wide, acuminate. *Antennæ*, excluding the last joint, as long as the head and prothorax, first to eighth joints obconical, regularly decreasing in size; ninth and tenth respectively as wide as the second and first, sub-globose, nearly transverse; eleventh one-half thicker than the tenth, more convex outside, as long as the three preceding. *Prothorax* widest across the anterior fourth, anterior circumference semi-circular, sides straight from the anterior third to the basal angle, rounded, not margined; disk evenly vaulted, with a large, deep, median fovea, lateral foveæ small and shallow; on each side of the large fovea is an inconspicuous tubercle, and there are two shallow impressions on each side near the base; median basal carina present, median, transverse, and lateral sulci wanting. *Elytra* rather convex, with obsolete shoulders, as in some Californian *Batrisi*, the sutural lines close together, discal lines wanting; there are two shallow impressions near the base. *Abdomen* wider than the elytra, nearly as long as the prothorax and elytra, without a visible line of junction between the dorsals and ventrals above, not margined; basal dorsal segment three times wider than long, basal foveæ deep, the median twice as wide as the lateral ones; second and third segments sub-equal, together as long as the first; fourth half as long as the abdomen; fifth very short, emarginate at the tip. Prosternum short, the coxal cavities continuous, coxæ large, conical; mesosternum carinate, narrow anteriorly, bilobed, the posterior coxæ separated by a distance equal to the length of the last palpal joint. Legs, coxæ, and trochanters simple, not spinous, femora strongly clavate, tibiæ moderately arcuate, the posterior ones with a very small terminal spinule inside; tarsi half as long as the tibiæ, first joint short, second longest, more than half the length of the tarsus, thicker at the distal end, third cylindrical, thin, with but one perceptible claw. To all appearance the unique specimen described is a male; the ventral segments correspond to the dorsals in length, the fourth segment bears a large, deep, transverse fovea, and the fifth is semi-circular.

Habitat, Westmoreland County, Pennsylvania, with *Amplyopone pallipes*.

This insect represents the genus *Amaurops* of Europe, differing in the absence of the abdominal margin, and is related to some of the Japanese *Batrissi* (*longicornis*, Sharp, and *solitarius*, Sharp) from which it differs in the absence of eyes and the extreme length of the fourth dorsal segment. For the loan of this interesting species we are indebted to Mr. P. Jerome Schmitt, of St. Vincent College, Pennsylvania, to whom is also due the honor of its discovery. The specimen was received after the rest of the monograph was in press, so we were unable to insert this description in its proper place.

#### BATRISUS, *Aubé*.

B. FURCATUS, *n. sp.* Saturated red-brown, faintly punctulate; elytra brighter; pubescence sparse. Length 1.8 mm.

♂ *Head*, including the prominent eyes, as long and wide as the prothorax; lateral carinæ of the vertex nearly parallel, circumambient sulcus parabolic; the perforate nude foveæ are inside the sulcus; middle portion convex, carinate from the middle to the base; frontal margin sparsely punctate, not depressed in the middle, anterior margin trisinate, the median sulcus not so deep as the lateral ones; the black, pointed spinulæ end in long yellow claws, the lateral lobes only pendant at the tips; clypeus porrected somewhat in the form of an equilateral triangle, pointed in front, edges black, sides punctate, upper edge, limiting the sub-frontal excavation, arcuate; the culmen bears a short black carina with two tufts of hair, and on each side is a small emargination corresponding to the outer sinuses of the frontal margin. *Antennæ* with the second, third, fifth and seventh joints equal, obconical, fourth and sixth equal, smaller, the eighth half as long as the seventh, transverse, rounded; ninth as long as the eighth and twice as wide; tenth three times as wide as the eighth and nearly as long as wide, the fovea large; eleventh not wider

than the tenth, ovate-acuminate, truncate at the base. *Prothorax* with a very fine, nearly entire median sulcus, and small, acute, basal spines. *Elytra* narrow-shouldered, the humeri not prominent, space between the sutural lines punctulate. *Abdomen* narrower at the base than the elytra, the foveæ nearly equal in width, ventral foveæ large, square; anterior tarsi with the larger claw cleft; ♀ unknown. This species ranks next to *B. virginia*.

Habitat. Southern Pennsylvania. (H. Ulke.)

Since the descriptions of *Batrasi* were in press we have received specimens of *B. foveicornis* Cas., and *B. punctifrons*, Cas., and both species seem entitled to specific distinction. The student is therefore requested to insert in the synopsis after *B. globosus* the following:

Clypeus conical, not reflexed laterally; pronotum feebly sulcate.

Tenth antennal joint larger in the ♂ than in the ♀ - *foveicornis*.

Tenth antennal joint of ♂ not larger than in the ♀ - *punctifrons*.

*B. FOVEICORNIS*, Casey. Red, impunctate; pubescence lor ♂, sparse. Length 1.9 to 2.0 mm.

*Head* as wide as long, face nearly perpendicular to the vertex, which latter is wider than long, not very convex, carinate in the middle of the occiput and at the sides, fovea nude, lateral grooves arcuate, dividing the thinly punctured margin in the middle; clypeus large, conical, not reflexed at the sides, sub-frontal groove remarkably inconspicuous. *Antennæ* with the first joint sub-cylindrical, as wide as the ninth, and twice as long as wide; second, one-third shorter and narrower, third to seventh longer than wide, gradually shorter, eighth as long as wide, ninth as long as the eighth, transverse; tenth much wider, globose when viewed from above, flattened below, with a perforate fovea, which in some specimens is very large. Eleventh wider than the tenth and as long as the three preceding together. *Prothorax* with the foveæ and sulci deep, the median sulcus short, disappearing behind the middle, or very much shorter; basal spines small, discal carinæ rather

indistinct or sometimes absent. *Elytra* with humeral ridges not spinous. *Abdomen* with the basal median fovea not half as wide as the lateral. The ♀ has the clypeus remarkably flat, strongly punctured laterally, less so in the middle, not separated from the frontal margin. Median basal abdominal fovea wider; tenth antennal joint not modified.

Habitat. Cincinnati, Ohio.

B. PUNCTIFRONS, Casey. Red-brown to black, impunctate, pubescent, antennæ, legs, and palpi dull-red. Length 1.8 to 1.9 mm.

*Head* carinate at the sides of the vertex, foveæ nude, circumambient sulcus interrupted in front, where the frontal elevation is connected with the rather flattened median arch; between the occipital foveæ is a transverse impression; the frontal margin is densely punctured, anteriorly declivous to the interantennal line, the declivous portion triangular, slightly truncate in front; sub-frontal groove very narrow, sharply cut; clypeus conical, edges not reflexed, densely punctured. *Antennæ* with the first joint as wide as the tenth, one-half longer than wide, the joints gradually decreasing in size to the eighth; eighth transversely oval, ninth and tenth not longer than the eighth, gradually wider, shorter inside, with the usual perforate fovea on the tenth; eleventh more than twice as wide as the tenth, and larger than the three preceding joints together, ovate-acuminate. *Prothorax* with the median sulcus fine, perceptible only in a favorable light, stronger near the fovea, spines very small and fine. *Abdominal* basal foveæ nearly equal. The ♀ differs in the vertex being uniformly convex and scabrous; the antennæ are of the same form as in the ♂.

Habitat. Southern Pennsylvania.



## PLATE VI.<sup>1</sup>

- Fig. 1. *Adranes lecontei*.  
Fig. 2. Side view of head.  
Fig. 3. Ventral view of same.  
Fig. 4. *Adranes cæcus*.  
Fig. 5. Ventral view of the same.  
Fig. 6. *Articerus fuchsii*.  
Fig. 7. *Ceophyllus monilis*.  
Fig. 8. Female antenna.  
Fig. 9. Maxillary palpus of the same.  
Fig. 10. *Cedius spinosus*, showing ♂ and ♀.  
Fig. 11. *Cedius zieglerei*, ♂ and ♀.  
Fig. 11, a. Maxillary palpus of the same.  
Fig. 12. *Tmesiphorus carinatus*, ♂ and ♀.  
Fig. ~~13~~<sup>15</sup> *Tmesiphorus costalis*.  
Fig. 14. *Chennium (Biotus) formicarium*.  
Fig. ~~15~~<sup>13</sup> *Chennium (Atinus) monilicorne*.  
Fig. 16. *Ctenistes pulvereus*.  
Fig. 17. *Ctenistes consobrinus*.  
Fig. 18. *Ctenistes piceus*.  
Fig. 19. *Tyrus humeralis*.

1 Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.



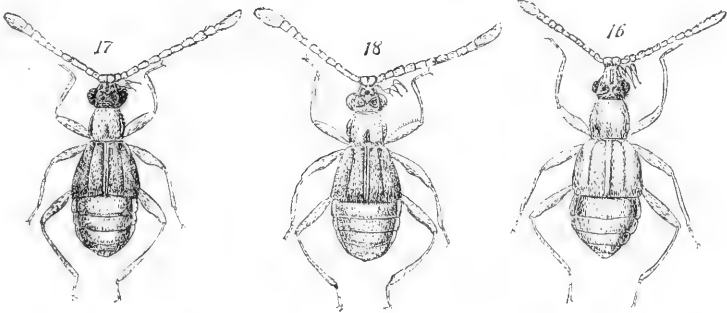
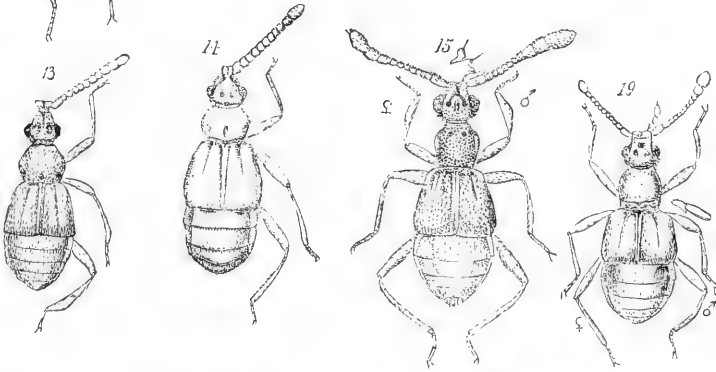
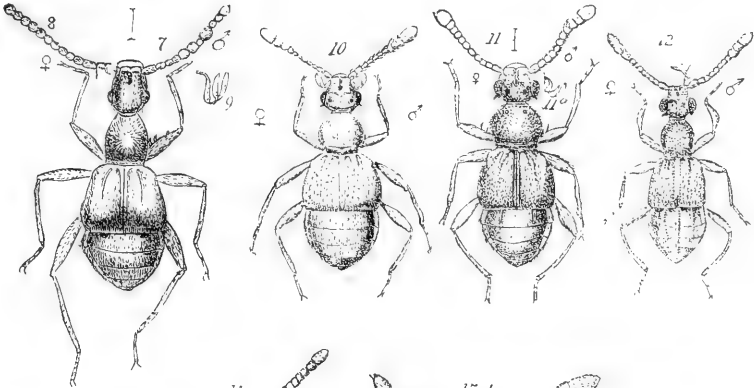
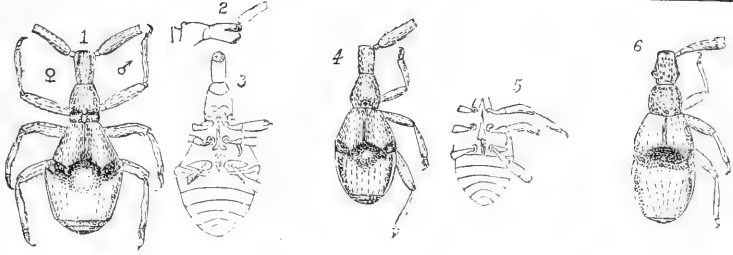






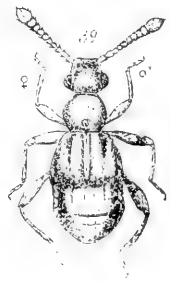
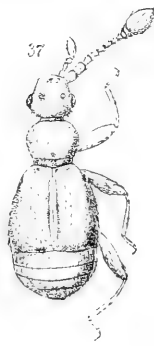
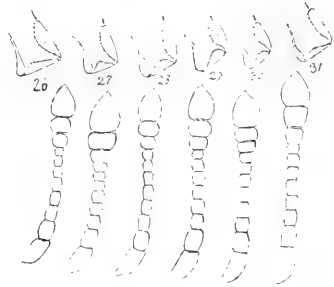
PLATE VII.<sup>1</sup>

- Fig. 20. *Tyrus corticinus*.  
Fig. 21. *Tyrus elongatus*.  
Fig. 22. *Hamotus (Cercocerus) bättrisioides*.  
Fig. 23. *Pselaphus erichsonii*.  
Fig. 24. *Pselaphtricus tuberculipalpus*.  
Fig. 25. *Tychus longipalpus*.

Antennæ and maxillary palpi of *Tychus*—

- Fig. 26. *longipalpus*.  
Fig. 27. *minor*.  
Fig. 28. *testaceus*.  
Fig. 29. *cognatus*.  
Fig. 30. *tenellus*.  
Fig. 31. *puberulus*.  
Fig. 32. *Rhinoscepsis bistriatus*.  
Fig. 33. ♂ of *Machærodes carinatus*.  
Fig. 34. ♀ of the same.  
Fig. 35. *Machærodes tychoides*.  
Fig. 36. *Scalenarthrus hornii*.  
Fig. 37. *Entrichites zimmermanni*.  
Fig. 38. *Decarthron strenuum*.  
Fig. 39. *Decarthron stigmatosum*.

<sup>1</sup> Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.







## PLATE VIII.<sup>1</sup>

- Fig. 40. *Decarthron abnorme*.
- Fig. 41. *Decarthron exsectum*.
- Fig. 42. *Decarthron longulum*.
- Fig. 43. *Decarthron brendelii*.
- Fig. 44. *Decarthron formiceti*.
- Fig. 45. *Bryaxis sanguinea* (European).
- Fig. 46. *Bryaxis conjuncta*.
- Fig. 46, a. Antenna of var.
- Fig. 47. *B. brendelii*.
- Fig. 48. *B. elegans*
- Fig. 49. *B. cavicornis*.
- Fig. 50. *B. luniger*.
- Fig. 51. *B. abdominalis*.
- Fig. 52. *B. intermedia*.
- Fig. 53. *B. floridana*.
- Fig. 54. *B. ulkei*.
- Fig. 55. *B. illinoiensis*.

1 Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.









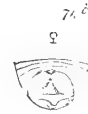
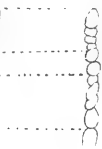
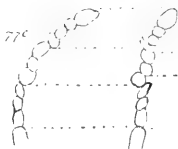
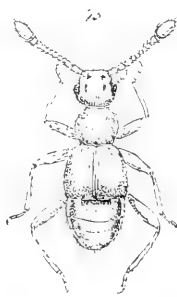
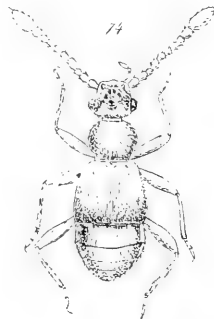
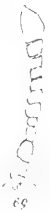
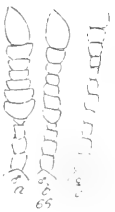
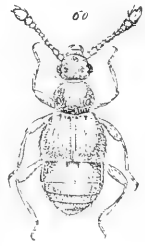
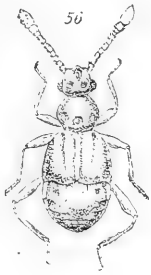
## PLATE IX.<sup>1</sup>

- Fig. 56. *Bryaxis dentata*.  
Fig. 57. *B. belfragei*.  
Fig. 58. *B. perforata*.  
Fig. 59. *B. texana*.  
Fig. 60. *B. gracilis*.  
Fig. 61. *B. congener*.  
Fig. 62. *B. scabra*.  
Fig. 63. *B. propinqua*, ♂  
Fig. 64. *B. tumidicornis*.  
Fig. 65. *B. tumida*.

### Antennæ of *Bryaxis*—

- Fig. 66, a, b. Two forms of ♂ *propinqua*.  
Fig. 66, c. ♀ *propinqua*.  
Fig. 67. *tumorosa*.  
Fig. 68. *tumidicornis*.  
Fig. 69. *informis*.  
Fig. 70, a. ♂ of *deformata*.  
Fig. 70, b. ♀ of *deformata*.  
Fig. 71. *franciscana*.  
Fig. 72, a. ♂ of *fundata*.  
Fig. 72, b. ♀ of *fundata*.  
Fig. 73, a. ♂ of *tumida*.  
Fig. 73, b. ♀ of *tumida*.  
Fig. 74. *Verticinotus cornutus*, ♂.  
Fig. 75. *Verticinotus cornutus*, ♀.  
Fig. 76. *Arthmius globicollis*, ♀  
Fig. 77. *Arthmius globicollis*, ♂.  
Fig. 76, b. ♀ sexual ventral marks of *Arthmius*.  
Fig. 77, a. ♂ sexual marks of the same.  
Fig. 77, c. Three different projections of male antenna of *Arthmius*.

<sup>1</sup> Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.





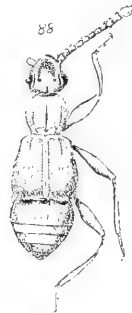
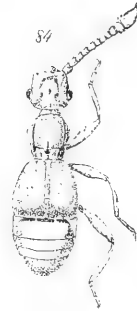


## PLATE X<sup>1</sup>.

- Fig. 78, *Batrisus ferox*.  
Fig. 79. *B. ionæ*.  
Fig. 80. *B. riparius*.  
Fig. 81. *B. schaumii*.  
Fig. 82. *B. zephyrinus*.  
Fig. 83. *B. cicatricosus*.  
Fig. 84. *B. albionicus*.  
Fig. 85. *B. occidius*.  
Fig. 86. *B. scabriceps*.  
Fig. 87. *B. lineaticollis*.  
Fig. 88. *B. frontalis*.  
Fig. 89. *B. globosus*.  
Fig. 90. *B. cephalotes*.  
Fig. 91. *B. triangulifer*.  
Fig. 92. *B. spretus*.  
Fig. 93, a. Antennæ of *B. denticornis*.  
Fig. 93, b. Antennæ of *B. triangulifer*.  
Fig. 93, c. Antennæ of *B. nigricans*.

1 Note. All the figures of Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.





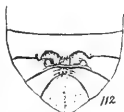
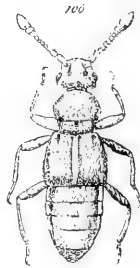
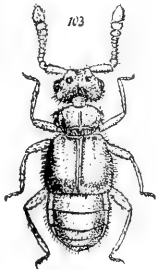
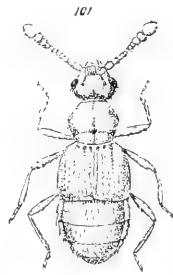
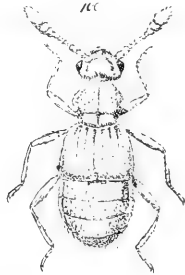




## PLATE XI<sup>r</sup>.

- Fig. 94. *Trimium convexulum*.  
Fig. 95. *T. dubium*.  
Fig. 96. *T. thoracicum*.  
Fig. 97. *T. parvulum*.  
Fig. 98. *T. impunctatum*.  
Fig. 99. *Actium pallidum*.  
Fig. 100. *Rhexidius granulatus*.  
Fig. 101. *R. canaliculatus*.  
Fig. 102. *Oropus striatus*.  
Fig. 103. *Rhexius insculptus*.  
Fig. 104. *Thesium cavifrons*.  
Fig. 105. *Trimiopectus obsoletus*.  
Fig. 106. *Euplectus crinitus*.  
Fig. 107. *E. linearis*.  
Fig. 108. *E. interruptus*.  
Fig. 109. *E. difficilis*.  
Fig. 110. *E. confluens*.  
Fig. 111. ♂ sexual ventral marks of *E. spinifer*.  
Fig. 112. ♂ sexual ventral marks of *E. confluens*.  
Fig. 113. ♂ sexual ventral marks of *E. rotundicollis*.  
Fig. 114. ♂ sexual ventral marks of *E. longissimus*.

1 Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.







## PLATE XII.

- Fig. 115. *Euplectus longissimus*.  
Fig. 116. *E. rotundicollis*.  
Fig. 117. *E. spinifer*.  
Fig. 118. *E. planipennis*.  
Fig. 119. *Eutyphlus tibialis* ♀.  
Fig. 120. *E. tibialis* ♂.

Male sexual ventral marks of:

- Fig. 121. *Euplectus crinitus*.  
Fig. 122. *E. interruptus*.  
Fig. 123. *Trimiopectus obsoletus*.  
Fig. 124. *Euplectus fossulatus*.  
Fig. 125. *Faronus tolulæ*.  
Fig. 126. *F. cavifrons*.  
Fig. 127. *F. corticinus*.  
Fig. 128. *Nisaxis tomentosa*.  
Fig. 129. Head of ♀ *Machærodes carinatus*; a, profile.  
Fig. 130. Head of ♂ *Machærodes carinatus*; b, profile.  
Fig. 131. Head of *M. tychoïdes*.

Face (front, clypeus and labrum) of:

- Fig. 132. *Batrisus cephalotes*.  
Fig. 133. *B. triangulifer*.  
Fig. 134. *B. frontalis*.  
Fig. 135. *B. globosus*.  
Fig. 136. *B. schaumii*.  
Fig. 137. *B. denticornis*.  
Fig. 138. *B. scabriceps*.  
Fig. 139. *B. virginiaë*.  
Fig. 140. *B. riparius*.  
Fig. 141. *B. zephyrinus*.

1 Note. All the figures of the Pselaphidæ are highly magnified. For the size of the several species the student must be guided by the dimensions quoted in the text.







## ERRATA.

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Some typographical and clerical errors having crept into the first part of this Monograph the student is requested to make the following changes:

Page 224, b', for cylindrical read elliptical.

Page 225, line 7, for absolutely read obsoletely.

Page 237, after description of *Ct. zimmermanni*, add, Habitat. Southern States.

Page 239, lines 14 and 15 should read, Habitat. Western slope of the Sierra Nevada. Montana. (Wickham).

Page 242, line 6, after Habitat., add, Mississippi Valley, south of 36°.

Page 266, last line, for Sauley read Saulcy.

Page 268, II, for wide read nude.

Page 271, line 2, for front read fourth.

Page 271, line 12, for *albinica* read *albionica*.

Page 294, line 6, for impunctuate read impunctate.

Page 294, line 17, for TRIGMA read TRIGONA.

In the explanation of Plate VI., Figs. 13 and 15 are transposed; read therefore:

Fig. 13, *Chennium (Atinus) monilicorne*.

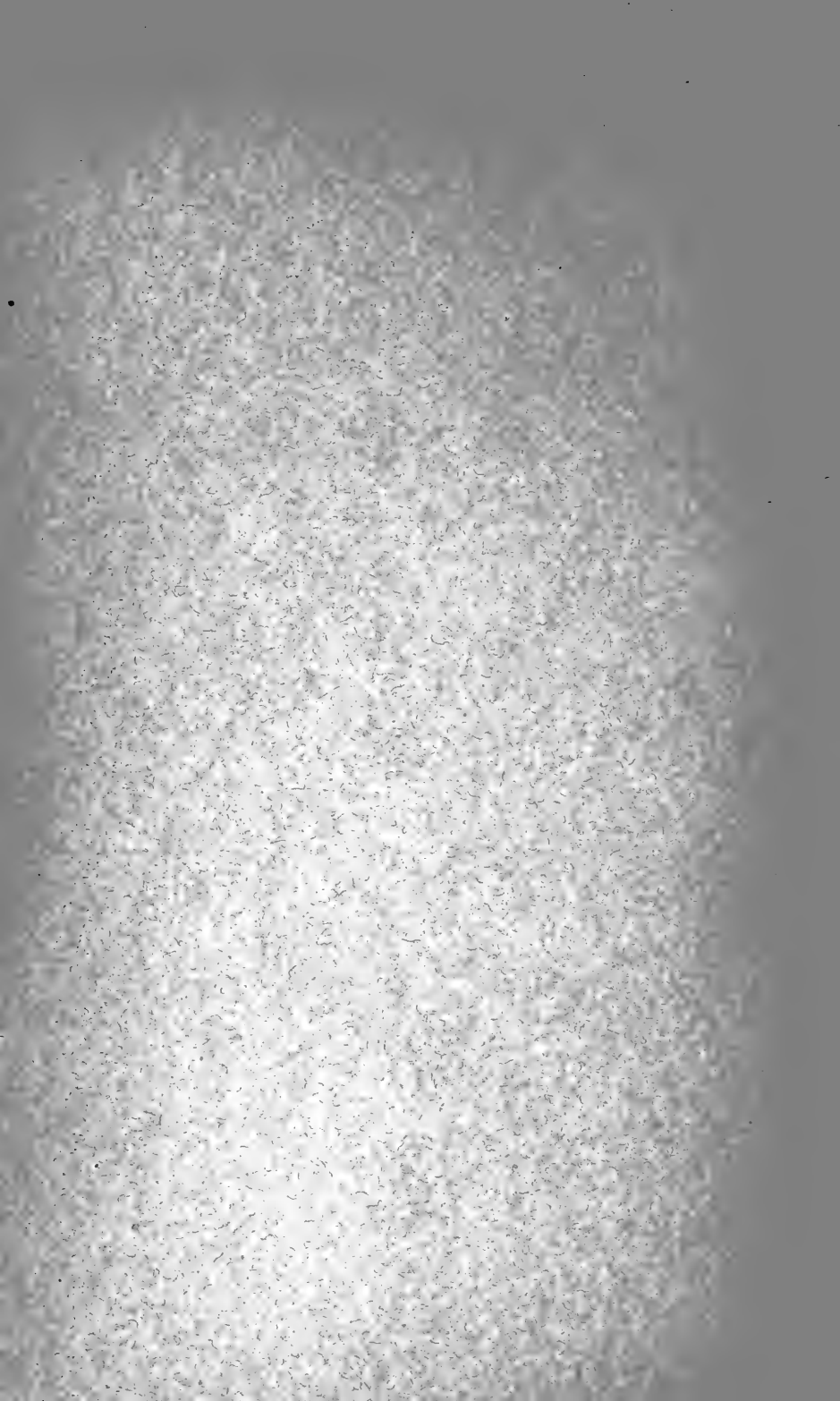
Fig. 15, *Tmesiphorus costalis*.













eters used by Vicentini were not sensitive enough for solution of the question concerning anomalous expansion of fused bismuth.

I now proceed to compare his co-efficient of expansion of fused bismuth with that obtained in my experiments. It is nearly three times as great. In the extensive series of experiments made by Vicentini, his results agree very well with one another. I presume, therefore, that the difference is due to a constant error in the method, which I think is to be found in his mode of filling the dilatometers. We know how tenaciously air adheres to glass vessels, and how difficult it is to get rid of it. Even that dilatometer par excellence, the mercurial thermometer, contains air in appreciable quantities in most cases. Vicentini in simply filling his dilatometers with bismuth, and without resorting to the known methods of freeing them from air, must have quite a constant error in his absolute results. His co-efficient would be too high from this cause, whilst mine must be comparatively free from such influences.

Chemical Laboratory Washington University.

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*Synopsis of the Family of PSELAPHIDÆ.*

By Dr. EMIL BRENDEL, of Cedar Rapids, Iowa.

- I. Antennæ approximate, inserted beneath, prominent, porrected contiguous tubercles. - PSELAPHINI
- a'''* } Posterior coxæ distant.  
 } Tarsi with two equal claws.
- b''''* Maxillary palpi, the last two joints similar, in form like the cotyledons of an acorn, without appendages. Antennæ robust, moniliform, the last two joints of the max. palpi compressed fusiform - - - - - CLEOPHYLLUS Le Conte
- Antennæ by the last three joints clavate, the last two joints of max. palpi lunate, the last longer. CEDIUS Le Conte
- b'''* Antennæ clavate. Max. palpi, the last three joints with lateral setiform appendages.  
 Max. palpi, the last three joints triangular, appendages short - - - - - TMESIPHORUS Le Conte  
 Max. palpi, last three joints oval-transverse, appendages very long - - - - - CTENISTES Reichenbach
- b''* Antennæ moniliform. Max. palpi minute, the basal joints hidden, the last two connate, together forming a globular club - - - - - CHENNIUM\* Latreille
- b'* Antennæ clavate by the last three joints. Max. palpi, last joint elongate with a terminal seta.  
*Pytna* Casey; TYRUS Aubé
- Antennæ clavate by the last joint, which is enormously enlarged. Max. palpi, last joint very long cylindroid, rounded at top - - - - - CERCO CERUS Le Conte

\* The genera *Atinus* Horn and *Biotus* Casey do not differ more from the European species of *Chennium* than these species among themselves; the uncertainty in respect to the number of palpal joints, being in all the *Pselaphidæ* four, does not justify a separation from Latreille's genus.

- a* Tarsi with a single claw. Posterior coxæ distant.  
 Max. palpi excessively long, the second and fourth joint pedunculate-clavate, very long.  
 Max. palpi long, the second joint clavate-pe-  
PSELAPHUS Herbst  
 dunculate, the third triangular, the fourth long  
 securiform - - - - - TYCHUS Leach
- a'* Posterior coxæ proximate. Tarsi with a single  
 claw. Body linear, depressed - RHINOSCEPSIS Le Conte
- II. Antennæ distant, inserted on the sides of the head beneath  
 short, distant, not porrected tubercles.
- a'* Posterior coxæ distant. Claws, only one fully  
 developed.
- b'''* Body broad, transversely elliptico-cylindrical in  
 the cross-cut. Abdomen more or less broadly  
 margined.
- c''* Abdominal margin retuse, narrow; dorsal seg-  
 ments subequal: the two basal ventrals longer;  
 élytra narrow-shouldered, very long. Vertex  
 bifoveate.  
 Last palpal joint long-securiform, with a rudi-  
 mentary hair-shaped second claw.  
BYTHINUS Aubé (*Machærites*)  
 Last palpal joint ovate-acuminate, short; tarsi  
 with a single claw - - - EUTRICHITES Le Conte
- c'* Abdominal margin broadly retuse, the basal seg-  
 ments of the dorsum and ventre much longer,  
 tarsi with a single claw (*Bryaxini*).  
 Vertex bifoveate or foveæ wanting, prothorax  
 unifoveate, antennæ 10-jointed with the club  
 3-jointed; body broad, sexual marks on the  
 intermediate thighs, elytral lines and abdomi-  
 nal carinæ long parallel - DECARTHON Brendel  
 Vertex not foveate, prothorax faintly trifove-  
 ate, undersurface of the head bicarinate, body  
 broad, antennal club 3-jointed - - - NISAXIS Casey

Vertex and pronotum trifoveate, body broad, each elytron with a long discal line, antennæ with a 3-jointed club, undersurface of the head unicarinate - - - - - BRYAXIS Leach

Vertex bifoveate with a transverse frontal impression and obsolete circumambient sulcus, prothorax trifoveate, only the last antennal joint enlarged, body elongate - - - EUPSENIUS Le Conte

Vertex bifoveate, different in the sexes; prothorax unifoveate, elytral discal lines short, body elongate - - - VERTICINOTUS Brendel\*

♂" Body more elongate, convex; abdominal margin linear, narrow; prothorax with faint punctiform fovea or none.

Vertex bifoveate, elytral lines wanting, abdomen at the base without carinæ, antennal club 3-jointed - - - - - SCALENARTIURUS Le Conte

Vertex not foveate, elytral lines wanting, dorsal abdominal base bicarinate, antennal club one-jointed - - - - - PSELAPTUS Le Conte

Vertex with four faint foveæ, different in the sexes; prothorax bifoveate, with a flat basal transverse sulcus; elytral discal lines obsolete or wanting; sutural lines present, abdominal basal carinæ present; sexual differences in the vertex, antennæ and anterior tibiæ; tarsi with two unequal claws - - - - - ARTIMIUS Le Conte

♂' Body circulo-cylindrical, narrow elongate, very convex; abdominal margin with the edges not parallel on each segment triangular the external

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\* *Verticinotus* n. g. separated from *Decarthron*. The male was formerly described as *Decarthron cornutum*, the female as *Bryaxis inornata*. The genus contains till now two species, one discovered in Iowa, the other in Florida. Last January I intended the name *Anchylarthron* for this genus, which, being rather an improper designation, I retracted it from being included in my publication through the American Entomological Society of Philadelphia. Notwithstanding it was published therein, probably by oversight.

edges obsolete; vertex arcuately impressed; prothorax with two or three longitudinal grooves, two unequal claws - - - - - **BATRISUS** Aubé

*a* Posterior coxæ approximate.

*d'''* Body circulo-cylindrical, narrow; vertex arcuately impressed, prothorax without longitudinal sulcus, the last antennal joint only enlarged, tarsi with a single claw (*Trimini*).

Elytral base bifovente, no subhumeral fovea, head larger (*Trimiosis* Reitter) - - - **TRIMIUM** Aubé

Elytral base trifoveate with a subhumeral fovea, head smaller - . . . - **ACTIUM** Casey

*d''* Body elliptico-cylindrical, convex, broader, the last three antennal joints enlarged, head transverse, prothorax with sharp straight longitudinal and basal sulcus crossing each other, tarsi with two unequal claws (*Trogasterini*).

*e''* Prothorax at the sides not spinous. Elytra each with three basal foveolæ, sutural line and two shallow longitudinal discal impressions, body uniformly tapering towards the head.

**CONOPLECTUS** Brendel\*

Elytra with four basal punctures, each with a sharp line, the discal ones abbreviated. (*Rhexidius* Casey)  
**EURHEXIUS**† Sharp

*e'* Prothorax at the sides spinous. Prothorax armed on the sides with a single sharp tooth, elytra with three discal lines (*Oropus* Casey) - - - - - **TROGASTER** Sharp

\* The genus *Conoplectus* is founded on *Euplectus canaliculatus*, having a second rudimentary claw, the fourth dorsal segment not prolonged, and an entirely different form of the body than *Euplectus*.

† A few months after Sharp's publication this genus was published by Casey by the name "*Rhexidius*."

Prothorax twice as wide as long, sides with three recurved spines, elytra with one discal line, antennæ geniculate - - - - RHEXIUS Le Conte

*d'* Body depressed, antennæ thicker towards the apex.

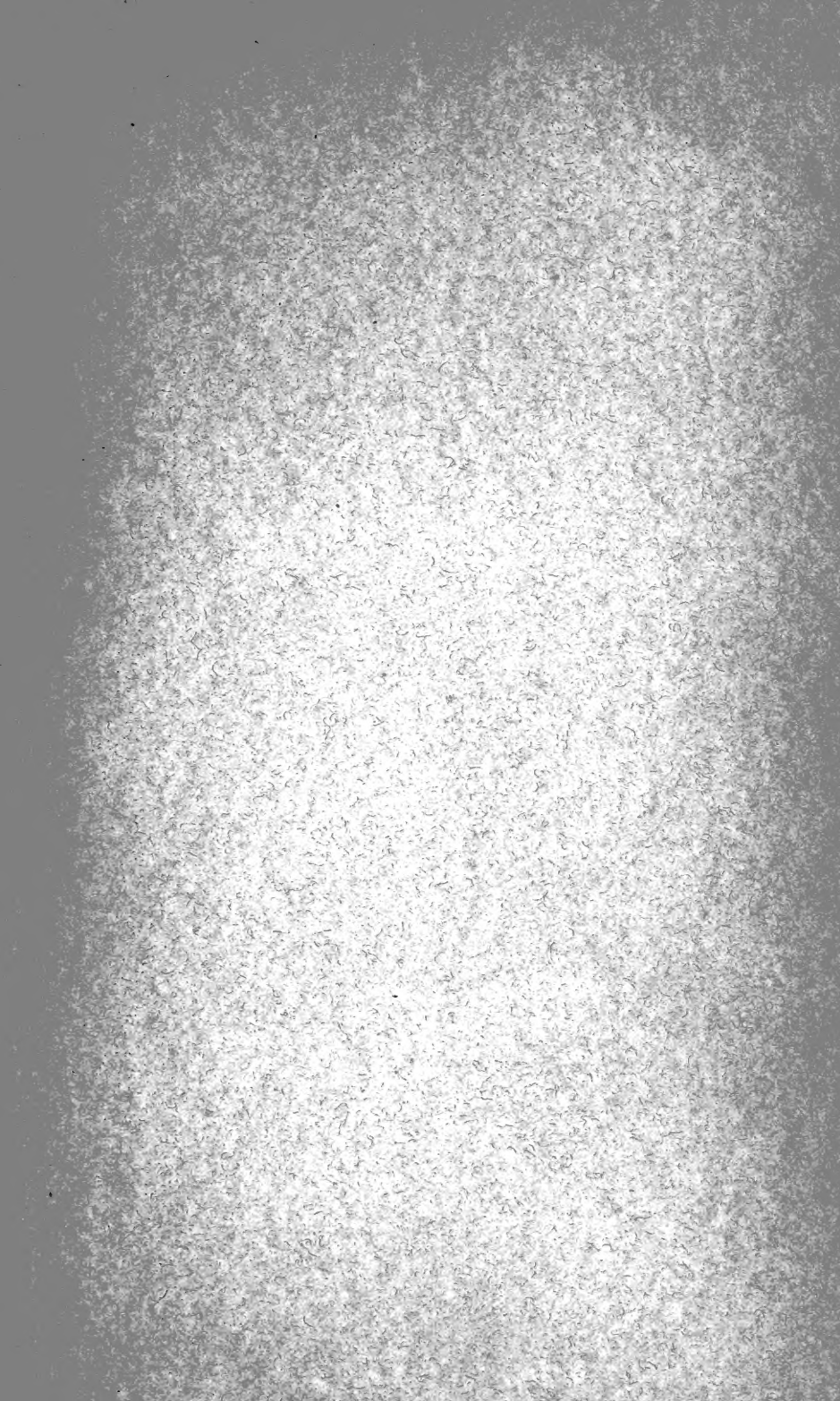
*f''* Tarsi with a single claw, antennal club 3-jointed. Vertex arcuately impressed, not produced in front. Body broader, lateral margin of the pronotum crenate, prosternum carinate, fourth dorsal segment not prolonged - - - - THESIUM Casey

Body slender, pronotum with lateral longitudinal grooves, prosternum carinate, fourth dorsal not prolonged - - - - FALISCUS Casey

Body linear, lateral margin of the pronotum simple, the fourth dorsal segment prolongate.

EUPLECTUS Leach

*f'* Tarsi with two equal claws. Body linear, antennal joints gradually slightly larger towards the apex (*Sagola* Sharp, *Sonoma* Casey) - FARONUS Aubé



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