

SMITHSONIAN MISCELLANEOUS COLLECTIONS.

265

CLASSIFICATION

OF THE

COLEOPTERA

OF

NORTH AMERICA.

PREPARED FOR THE SMITHSONIAN INSTITUTION.

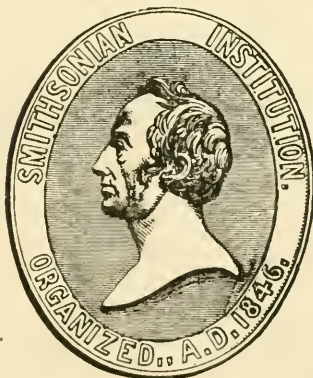
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**PART II.**

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## FAM. LXIII.—SPONDYLIDÆ.

I would unite under this name all the aberrant *Cerambycidæ* of Lacordaire, whether classed with the *Prionidæ* or *Cerambycidæ*. By Mr. Thomson they have been in part separated as distinct families, under the general name *Subcerambycidæ*: he has, however, excluded *Spondylis* from them and retained it with *Scaphinus* among the *Cerambycidæ*.

It seems a more natural view to regard them as sub-families (or tribes, as the case may be), having the same relation to each other as the sub-families and tribes of the *Cerambycidæ*, and representing in the modern fauna the last remnants of the prophetic, synthetic, or undifferentiated\* types of a former geological age. They are, therefore, few in number, without very obvious relations with each other, or with the numerous forms of *Cerambycidæ*, with which they cannot be intercalated, without interrupting the obvious series of relationships.

They may be briefly described as extraordinary forms, differing not only in appearance from other Longicorns, but also by the tarsi being all deprived of the brush of hair beneath; the 3d joint not bilobed, entire or feebly emarginate, the 4th joint frequently well-developed; the antennæ are short, with the scape very short, much constricted at base, inserted at the side of the head near the base of the mandibles, under a more or less developed ridge; 2d joint rather large, though smaller than the 3d. In our two sub-families the poriferous system of the antennæ is contained in deep foveæ, differing in shape according to the genus. The other characters vary, as may be seen by the table in Thomson, Syst. *Cerambyc.*, 312.

Two sub-families exist in our fauna:—

Prothorax margined; labrum connate.

PARANDRIDÆ.

Prothorax not margined; labrum free.

SPONDYLIDÆ.

\* These three appellations will be acceptable according to the metaphysical school to which the reader may belong. I write not to sustain a theory, but merely to present facts in such relation with other facts, as enables them to be most conveniently classified. The result is the same whatever hypothesis be adopted.

## Sub-Family I.—PARANDRIDÆ.

The body is elongate, parallel, smooth and shining; head broad, eyes transverse, convex, rather coarsely granulated, feebly emarginate; antennæ extending to the base of the prothorax, in front of the eyes, near the base of the mandibles, under distinct lateral ridges, polished, scape short and thick, strongly constricted at base; 2d joint half as long as 3d; 3-10 equal, subquadrate, constricted at base, flattened, with two deep grooves on the under surface, separated by a convex space, but limited on their outer edge by an acute ridge; 11th joint longer, obliquely truncate and pointed, with the same two grooves, and an apical fovea. Mandibles dentate, longer in ♂ than ♀; labrum pointed, connate with the front; mentum very transverse, closing the buccal fissure, bisinuate in front, ligula corneous very transverse, broadly truncato-sinuate in front; palpi short, labials inserted at the sides of the ligula, widely distant; maxillaries not longer, last joint cylindrical; maxillæ with one very slender and small lobe, sparsely ciliate at tip. Prothorax quadrate, margined at the sides; mesonotum punctured, without stridulating plate, not distinctly separated from the scutellum, which is triangular rounded at tip. Elytra parallel, margined, rounded at tip; epipleuræ extending to the sutural tip; wings perfect. Prosternum distinct between the coxæ, which are large, not prominent, transverse, and inclosed behind; middle coxæ oval, cavities widely open externally, mesosternum parallel, truncate or submarginate at tip; hind coxæ not prominent, transverse, extending to the sides of the abdomen; episterna of metathorax parallel, narrow; ventral segments 5, equal, alike in both sexes, intercoxal process acute. Legs rather short, thighs compressed; tibiæ compressed, outer angle acute, spurs rather strong, tarsi slender, without brush beneath; 4th joint half as large as the 3d, 5th as long as the others united, claws strong, paronychium slender, small, with two terminal setæ.

The species of *Parandra* live under pine bark, and are not very well defined.

The affinities of this genus with *Prionidæ* are quite apparent, but those with *Lucanidæ* are equally obvious, with also some tendency towards *Cucujidæ* in *Passandra*, *Catogenus*, &c.

## Sub-Family II.—SPONDYLIDÆ.

Body elongate, rather convex and robust, punctured, opaque or nearly so; head large, eyes transverse, not convex, rather finely granulate, feebly emarginate. Antennæ short or extending beyond the base of the prothorax, inserted under slight prominences in front of the eyes, near the base of the mandibles; 1st joint oval, stout, a little longer than the 3d; 2d about half as long as 3d, or (*Scaphinus*) nearly as long; remaining joints equal, transverse (*Scaphinus*), or oval (*Spondylis*), each with two foveæ on the under surface, which in the former are very large and deep, in the latter small and near the apex; 11th joint pointed at tip. Labrum small, separate. Mandibles long, slender, not toothed; palpi long, not dilated, last joint oval, truncate; mentum very transverse, buccal fissures wide, filled by the base of the maxillæ; ligula very large, corneous, concave, emarginate in front, with broadly-rounded lobes; labial palpi distant, situated on the inferior surface, but remote from the sides. Maxillæ with very small slender lobes. Prothorax oval, convex, narrowed behind, not margined; mesonotum polished, sparsely punctured, without stridulating plate, broadly channelled, distinctly separated from the scutellum by a transverse excavation. Elytra parallel, rounded at tip, epipleuræ narrow, not extending to the suture; wings perfect.

Prosternum distinct between the coxæ, which are subconical, somewhat prominent, angulated externally, and inclosed behind; middle coxæ oval, cavities widely open externally, with distinct trochantin, mesosternum triangular, slightly truncate at tip; episterna of metathorax rather wide, narrowed behind, hind coxæ large, extending to the side of the abdomen, prominent in *Scaphinus*, but not in *Spondylis*. Ventral segments 5, equal, similar in both sexes, intercoxal process acute.

Legs rather short, much stouter in *Scaphinus* than in *Spondylis*; thighs thick compressed; tibiæ compressed, finely serrate, outer angle prolonged into a flange much more developed in *Scaphinus*; spurs well developed, unequal on the front pair, obtuse and broad on the hind feet. Tarsi short without brush of hairs beneath, though hairy in *Spondylis*; 3d joint emarginate; 4th small, but distinct; 5th long, with slender rather large claws, and a very small bisetose onychium.

*Spondylis upiformis* extends from Alaska to Lake Superior. *Scaphinus sphaericollis* is found in pine woods of the Southern States.

A near approach is said to be made by *Spondylis* to *Asemum*; but while recognizing the resemblance, it appears to me to be a very remote one, and I rather consider the present form to be that which makes the closest approach to the next family, without, however, actually belonging to it.

#### FAM. LXIV.—CERAMBYCIDÆ.

Mentum variable, in Prionidæ usually very transverse and entirely corneous, in the others trapezoidal, more or less transverse, frequently coriaceous at tip; ligula membranous or coriaceous, sometimes (Prionidæ, a few Cerambycidæ, and Methiini of Lamiidæ) corneous; labial palpi 3-jointed.

Maxillæ with two lobes, clothed at the tip with bristles, the inner one obsolete in Prionidæ.

Mandibles variable in form, sometimes (*Mallodon* ♂, *Dendrobias* ♂) very long; usually curved and acute at tip, rarely emarginate, or chisel-shaped (*Distenia*).

Eyes usually transverse, most frequently deeply emarginate, often divided, in which case the upper lobe is sometimes wanting (*Tillomorpha*, *Spalacopsis*); either finely or coarsely granulated.

Antennæ variable in position, either in front of or between the eyes, in the latter case frequently on large frontal elevations; usually long and slender, imbricate in *Prionus* (pectinate in some foreign genera), subserrate or compressed in a few forms, with sensitive surfaces differing in the subfamilies and tribes; usually 11-jointed, sometimes 12-25-jointed (*Prionus*), very rarely 10-jointed (*Methia*, *Dysphaga*).

Prothorax margined in Prionidæ, not margined in any others in our fauna; coxal cavities and coxæ variable.

Mesosternum short, side pieces most frequently attaining the coxæ; sometimes (certain Cerambycidæ and Lamiidæ) cut off by the apposition of the sternal pieces.

Metasternum moderate, or long, short only in apterous Lamiæ (*Dorcadiodes*), and in some subterranean foreign genera; episterna variable; in many Cerambycidæ with an opening for the duct of a scent gland near the inner hind angle.

Elytra usually covering the abdomen, rarely short; epipleuræ usually distinct, rarely (some *Phytœciini*) indistinct.

Abdomen with five free ventral segments, the sixth visible in many males, and occasionally in both sexes.

Legs variable, usually slender, thighs frequently strongly clubbed, hind coxæ transverse, frequently inclosed externally by prolongation of epimera of metathorax. Tarsi with joints 1-3 furnished beneath with brushes of hair, sometimes wanting on the 1st and 2d joints of hind tarsi; 3d joint emarginated or bilobed, 4th joint nodiform, small, connate with 5th joint; claws simple, rarely (*Phytœciini*) appendiculate or cleft, paronychium slender and distinct in *Prionidæ*, wanting in the others.

A great family, containing an immense number of species, which live in the larval state exclusively on the woody parts of plants. The species are remarkable for large size, beauty of color, or elegance of form, and have been, on these accounts, great favorites with collectors. Nevertheless their classification, and even the definition of the family, present difficulties which have been called insuperable by every systematist who has yet attempted the task.

The species are easily recognized, the chief variations being only those of size, dependent probably on the quantity of food obtained by the larva, or the excellence of its digestive power. At any rate, the differences appear to be individual and not indicative of races. The genera are, on the other hand, extremely indistinct, as at present recognized, for the reason that the species frequently differ not only by the usual specific characters of form, color, sculpture, &c., but by structural peculiarities of considerable moment, sometimes sexual, sometimes asexual. By regarding these peculiarities as of generic value, the number of genera (as in birds) has been vastly and unnecessarily increased, and the system of classification correspondingly diluted, so that the more essential points of resemblance between allied forms are lost sight of, and the arrangement becomes quite artificial. Frequent reference will be made in the following pages to the misplacement of genera by the best authorities; and, also, what tends to greater confusion, to errors of description in several of our genera, which lead to an incorrect appreciation of their relations.

Several characters which have been recently adopted for the

differentiation of tribes seem to me to be of but small, or still worse, illusory importance; and among these, the extension outwards of the middle coxæ, so that they attain or not the episterna is one of the most indefinite, and I have, therefore, rejected it as far as possible in the following scheme.

I have, in common with previous investigators, failed thus far to find any distinct difference capable of expression in words between this family and Chrysomelidæ. One familiar with the subject will rarely if ever mistake one for the other. But so far the essential difference between the Tetramera, of which the larvæ feed upon wood, and those feeding upon cellular vegetable tissues has eluded observation. I can merely at present observe that a slight approximation to it seems to be made in the fact, that in the Cerambycidæ there is a tendency in the epimera of the metathorax to extend to the sides of the ventral segments, while in the Chrysomelidæ the 1st ventral is prolonged forwards at the sides to meet the metathorax; thus showing probably a lower, though necessarily more recent, type, which could have existed only since the development of the higher broad-leaved plants.

And in continuation of this same subject, I would refer the difficulties of classification of the Longicorns to the fact, that being exclusively feeders upon woody tissue, and passing a very long period in the larval state, in the interior of trunks or branches of trees, protected against inundations by the buoyancy of their juvenile homes, they have been peculiarly qualified, not only for an early introduction, but prolonged existence; and that we, therefore, have here a more perfect record than is likely to occur in any other land animals. Among marine objects frequent examples occur of the representation in the existing fauna of forms more fully represented in previous geologic periods; but this is the first instance in which we have had occasion to note the probability of its occurrence in the Coleoptera. I have already alluded to this subject,\* specially in connection with the Spondylidæ, and have been very glad to find that the idea has been approved of by my friend H. W. Bates†, the distinguished explorer of the Amazon, in words so expressive that I cannot forbear quoting them.

\* An attempt to Classify, &c., Journ. Acad. Nat. Sci. 2d, II. 99, (1851).

† Contributions to an Insect Fauna of the Amazon Valley, Coleoptera, Longicornes, Part I. Lamiaires, p. 5-6 (from Annals and Mag. Nat. Hist. 1861).



“It is one of those groups of insects in which nature, in striving after strong individuality in the species, seems to have changed or adapted those parts of structure upon which we rely for characters of genera and groups of genera. The family, too, is found throughout all parts of the world where woody vegetation exists, and has endured, probably, under the same laws of modification, throughout long geological periods. The diversity of specific forms seems endless, running into infinite varieties of grotesque, ornamented, and extraordinary shapes; and nearly every species has structural peculiarities for its specific characters; so that in no family can genera be made so easily and numerous as here. Analysis is too easy, and has already been pushed, perhaps, to too great an extent.”

This family comprises three sub-families, as follows:—

Prothorax margined; labrum connate.	PRIONIDÆ.
Prothorax not margined; labrum free.	
Front tibiæ not grooved.	CERAMBYCIDÆ.
Front tibiæ obliquely grooved on the inner side.	LAMIIDÆ.

#### Sub-Family I.—PRIONIDÆ.

The insects of this sub-family are generally of large size, containing in fact the longest Coleoptera known; the color is brown or black, and the elytra usually coriaceous in appearance, becoming metallic and of firmer consistence in some of the genera, with finely granulated eyes. The labrum is connate with the epistoma. The ligula is always entirely corneous, without distinct paraglossæ; the supports of the labial palpi are connate with the ligula. The mandibles are strong, frequently elongated in the males, and are destitute of membrane or molar tooth. The lobes of the maxillæ are small, the inner one obsolete, and the last joint of the palpi is triangular. The antennæ are furnished with poriferous spaces, varying according to the genus and tribe. The prothorax is always distinctly margined, the front coxæ are transverse, with distinct trochantin.

The mesonotum never has stridulating surfaces, such as are seen in most other Cerambycidæ; some of the species, however, have the epipleuræ covered with fine transverse lines, and a noise is produced by rubbing the hind femora against the edge of the

elytra, a phenomenon of which the first record has been made by Mr. C. V. Riley.\*

Our species fall naturally into the following tribes:—

Eyes strongly granulated ;

I. Prothorax pluridentate on the side ;

3d antennal joint very long.

ERGATINI.

3d antennal joint moderate.

MALLODONTINI.

II. Prothorax parcidentate on the sides ;

Metathoracic epimera parallel ;

Antennæ filiform.

DEROBACHINI.

Antennæ imbricate.

PRIONINI.

Metathoracic epimera narrowed behind.

TRAGOSOMINI.

III. Eyes finely granulated.

SOLENOPTERINI.

#### Tribe I.—**ERGATINI.**

One species, *Ergates spiculatus* Lec. of large size (55–63 mm. long), is not uncommon on the maritime Pacific slope and in New Mexico. The tribe is easily known by the prothorax being much broader in the male than in the female, and finely punctured ; in the latter sex the sculpture is very coarse, and the small teeth of the lateral margin longer and more acute. The head is small, the eyes reniform and coarsely granulated ; antennæ 11-jointed, slender, two-thirds the length of the body in the ♂, about half the length of the body in the ♀, rough with elevated punctures, with the 3d joint as long as the three following united ; poriferous spaces on the 3d joint small inconspicuous, on the under surface near the distal end, gradually becoming larger, until the outer joints become entirely poriferous, and irregularly reticulated with fine elevated lines forming elongate cells, which are much less distinct, and in fact hardly to be seen in the male.

The generic characters are not sufficiently distinct from the European species *E. faber* to warrant the retention of the genus *Trichocnemis* proposed in my earliest description of this insect.

#### Tribe II.—**MALLODONTINI.**

This tribe contains also species of very large size (one from Florida in my collection is 61 mm. long), with the sides of the prothorax armed with numerous small teeth. The head is com-

\* Canadian Entomologist, iv. 139.

paratively large, the eyes strongly granulated, distant, transverse, feebly emarginate; the antennæ are slender, half the length of the body in the ♂, shorter in the ♀, sparsely and coarsely punctured; the 3d joint is scarcely longer than the 4th; poriferous spaces commencing on the under surface at the distal end of the 3d joint, gradually becoming larger until they cover the outer four joints, which are sculptured with fine longitudinal elevated lines.

The prothorax frequently differs in the two sexes, being nearly quadrate in the ♂, densely punctured with smooth separate facets, narrowed in front in the ♀, more coarsely punctured towards the sides, uneven on the disk.

The species form two groups: 1. Mandibles nearly horizontal, prolonged in the ♂. 2. *Apagiognathus* *Thom.* mandibles vertical. These characters do not seem to be of generic value.

*M. gnatho* Lec. from Texas belongs to the 1st group, and is further distinguished by the metathoracic episterna having the inner outline concave; this form is recognized by Lacordaire as a distinct genus, *Nothoplenrus* (l. c. viii, 125), but the difference scarcely merits such separation; in the ♂ the metasternum has two large densely villous spaces, in the ♀ the same portion is clothed with long soft pubescence.

### Tribe III.—DEROBRACHINI.

In this tribe the form is somewhat more slender than in the preceding; the head is smaller, the eyes coarsely granulated, very large, transverse, reniform, and approximate, both above and below, somewhat larger in the males than in the females. The mandibles are horizontal, acute, and alike in both sexes. The antennæ are 11-jointed, nearly filiform in the ♀, thicker at the base in the ♂. The sensitive pores commence on the outer half of the 3d joint, and cover the whole surface of the 4th and following joints, arranged in longitudinal grooves, separated by fine elevated lines. The prothorax is alike in both sexes, armed with three acute teeth on each side, the front one of which is in *D. geminatus* double, and occasionally even divided into two large teeth, so that the thorax becomes really 4-dentate. The legs are slender, sparsely punctured with the hind femora deeply sulcate beneath in *Derobrachus brevicollis*; densely punctured, some-

what rough in *D. geminatus*; hind femora less deeply sulcate beneath, and with several short elevated ridges on the inner surface in *Orthosoma*. In both genera the narrow epipleural portion of the elytra is transversely striate, forming a stridulating organ upon which the ridges or edges of the hind femora grate to produce a sound.

Among our three species I recognize but two genera, *Derobrachus* and *Orthosoma*, distinguished sufficiently by the characters above given. *Braderochus* Buquet, to which *D. geminatus* Lec. has been referred, does not seem to me sufficiently distinct. Besides the sexual characters above mentioned, the 5th segment in the ♂ of *Derobrachus* is broadly emarginate, the 6th visible and also emarginate; and the last dorsal is truncate and emarginate; the 5th ventral is elongate and truncate in the ♀, but the 6th is not visible.

In *Orthosoma* the 5th ventral is rounded in the ♀, but broadly truncate in the ♂, leaving the 6th visible.

The distribution of the species is as follows:—

*Derobrachus brevicollis*, Southern States.

*D. geminatus* from Texas, through Arizona to Lower California.

*Orthosoma brunneum* Forst. (*cylindricum* Fabr.), is generally distributed over the Atlantic States.

#### Tribe IV.—PRIONINI.

In this tribe the mandibles are moderate in size, acute, and similar in both sexes. The eyes are coarsely granulated, usually large, transverse, convex, and approximated. The antennæ have from 12–27 joints, varying according to species, the joints are conical and imbricated, much heavier in the ♂ than the ♀, the piferous system commences on the 3d joint, and covers nearly the whole surface of the 4th and following joints. In *Prionus* ♂ and ♀ the sensitive surface is reticulate, with fine elevated lines, but in *Homæsthesis* ♂, the surface is quite uniform. The sides of the prothorax are armed with 3 acute teeth in *Prionus*, but in *Homæsthesis integra* and *emarginata* the apical and basal teeth are obsolete, so that the sides become unidentate.

*P. palparis* Say, has the form of *Prionus*, but the antennæ are as in *Homæsthesis*.

The narrow epipleural margin is striate transversely, and stridulation is produced by rubbing against this surface the sharp

edge of the hind femora, which are flattened and sulcate beneath. The legs are slender, compressed, and punctate.

The sexual characters are obvious in the antennæ, heavy in the ♂, slender in the ♀. In some of the species the abdomen in the last-named sex is enlarged, and the intercoxal process is so broad as to show that the character possesses not even a generic value; the division *Prioni subterranei* of Lacordaire has therefore no foundation in nature, and its contents should be distributed according to the affinities of the individual genera. The 5th ventral segment in the ♂ is truncate and broadly emarginate, so that the 6th is visible; in the ♀ it is more elongate, gradually narrowed behind and truncate, and the 6th segment is not exposed.

Our genera are but two in number, *Prionus*, containing several species, occurs in every part of the country; *Homæsthesis* (*P. integer* Lec., *emarginatus* Say) found in Colorado and New Mexico. *P. innocuus* Lec. is the female of one of these species, probably *emarginatus*; the hind coxæ are very widely separated, and the intercoxal process of the 1st ventral segment is very short and wide.

There is much difference in the soles of the hind tarsi, which sometimes, as in *P. brevicornis*, are as thickly clothed with hair as the other feet and marked with a narrow medial groove; sometimes, as in *P. palparis* and *Homæsthesis*, flattened or broadly concave and nearly naked; sometimes again, as in *P. fissicornis* and *imbricornis*, the covering of hair is thin, so that the joints appear punctured, with a narrow smooth medial groove.

We see, therefore, in this genus that structural characters assume a merely specific importance, a fact which must be constantly borne in mind in attempting a rational classification of Cerambycidæ.

#### Tribe V.—TRAGOSOMINI.

This tribe is represented in our fauna by *Tragosoma Harrisii*, which scarcely differs from the North European *T. depsarium*; it occurs from Newfoundland to Vancouver Island, but is not abundant. The body is elongate (30–35 mm. long); the prothorax alike in both sexes, very hairy, and armed on the side with a single acute tooth. The elytra are punctured and finely ribbed.

The poriferous system of the antennæ of the ♀, which are

slender nearly filiform, and slightly compressed, commences on the 3d joint, on the under surface, and gradually increases, covering the whole of the joints beyond the 6th, and appears like a fine dense punctuation. The head is small, the eyes large, coarsely granulated. The legs are slender, finely punctured, and hairy. The side pieces of the metathorax are triangular, broad in front, pointed behind. The abdomen is gradually narrowed behind, with the 5th ventral segment truncate; the intercoxal process is acute.

#### Tribe VI.—**POECILOSOMINI.**

This tribe contains all Prionidæ with finely granulated eyes, and is represented in our fauna by single species of two genera, belonging to the group Solenopteræ. In the specimens before me, which are females, the poriferous system of the antennæ consists of a few irregular scar-like depressions on the outer joints.

The head is small, much narrower than the prothorax, which is trapezoidal, smooth, and obtusely toothed near the base; very roughly punctured and acutely toothed behind the middle in *Elateropsis*. In both genera the prosternum is deeply emarginate behind for the reception of the mesosternum, which is also emarginate behind.

*Sphenostethus Tastei* (serripennis Hald.), occurs in the Middle Atlantic States. *Elateropsis fuliginosus* occurs only in the southern point of Florida, whither it has extended from Cuba.

#### Sub-Family I.—**CERAMBYCIDÆ** (genuini).

The only characters I can give to define this sub-family are those already set forth in my first paper on this series of Coleoptera,\* viz.: Prothorax not margined, front tibiæ not obliquely sulcate, labrum separate from the front, palpi never acute at tip; to which may be added, antennæ always pubescent, never glabrous with corrugated and extensive sensitive surfaces as in Prionidæ.

Utilizing the improvements suggested by Thomson,† myself.‡

\* An attempt to classify the Longicorn Coleoptera of the part of America north of Mexico. Journ. Acad. Nat. Sci. Phila., 2d i, 311.

† Famille des Cerambycides, par M. James Thomson, Paris, 1860.

‡ Note on Classification of Cerambycidæ, Proc. Acad. Nat. Sci. Phila., 1862.

Schiödte,\* and Lacordaire.† I have constructed the following table as exhibiting the more obvious relations between the tribes represented in our fauna. The cross relationships can of course only be indicated in the more detailed descriptions which follow, and I am far from believing that the arrangement here adopted can be extended to the immense number of genera found in other countries, with any better success than the two classifications previously devised by me.

The tribes of the Cerambycidæ genuini may be arranged as follows: the series are indicated very plainly, but can hardly be definitely restricted; the tribes seem to be limited tolerably sharply, though the cross affinities are frequently perplexing when an attempt is made at a linear arrangement.

- I. Base of antennæ not enveloped by the eyes; antennæ with the 2d joint rather large, front coxæ transverse, not prominent.

## CALLIDIROIDES.

Ligula corneous, eyes variable.

## I. ASEMINI.

Ligula membranous, eyes finely granulated.

## II. CALLIDIINI.

- II. Base of antennæ partly enveloped by the eyes; front coxæ not conical, though sometimes prominent; stridulating plate (absent only in *Molorchus*) large, never divided; ligula membranous (except in the group *Oemes*); 2d joint of antennæ small (except in one genus of *Clytini*).

## CERAMBYCOIDES.

Eyes coarsely granulated, front coxal cavities open behind (except in *Compsa*).

## III. CERAMBYCINI.

Eyes variable, front coxal cavities angulated, closed behind.

## IV. OBRINI.

Eyes finely granulated;

a. Scutellum rounded, tibial spurs small; elytra not sinuate;

Legs long slender, thighs pedunculated and suddenly clavate; front coxal cavities open behind;

Antennæ with poriferous system.

## V. ANCYLOCERINI.

Antennæ without poriferous system.

## VI. RHOPALOPHORINI.

Legs slender, thighs not pedunculated, nor clavate, front coxal cavities open behind;

Front coxæ rounded.

## VII. PTEROPLATINI.

Front coxæ transverse, cavities angulated.

## VIII. ROSALINI.

\* On the Classification of Cerambyces, with particular regard to the Danish fauna, by Prof. J. C. Schiödte, *Naturhist. Tidsskrift*, 3d, ii, 483, (1864); translated in *Annals and Mag. of Nat. Hist.*, 1865.

† *Genera des Coléoptères*, Vol. viii, Paris, 1869.

- b. Scutellum acutely triangular; elytra not sinuate;  
 Front coxal cavities closed behind. IX. CALLICHROMINI.  
 Front coxal cavities open. X. TRACHYDERINI.
- c. Scutellum rounded, or broadly triangular (Cyllene); tibial  
 spurs large; thorax never tuberculated, nor spinose;  
 elytra not sinuate;  
 Tibiæ carinated. XI. STENOSPHEENINI.  
 Tibiæ not carinated. XII. CLYTINI.
- d. Scutellum broadly rounded; thorax not tuberculate nor  
 spinose; sides of elytra deeply sinuate near the humeri.  
 XIII. AGALLISSINI.
- III. Base of antennæ partly enveloped by the eyes, which are nearly  
 divided, and moderately finely granulated; 2d joint of antennæ  
 longer than usual; front coxæ globose, widely separated; stridulating  
 plate of mesonotum divided by a smooth furrow. (Body  
 resembling a Lamiide.)  
 ATIMIOIDES.  
 XIV. ATIMINI.
- IV. Base of antennæ not enveloped by the eyes, which are entire or  
 emarginate, and usually finely granulated; front coxæ conical  
 except in Disteniini); stridulating plate of mesonotum divided  
 by a smooth space or furrow. LEPTUROIDES.
- A. Mandibles scalpriform, not fringed. XV. DISTENIINI.
- B. Mandibles simple, not fringed. XVI. DESMOCERINI.
- C. Mandibles acute, fringed on the inner margin.  
 Elytra abbreviated. XVII. NECTDALINI.  
 Elytra not abbreviated;  
 Front nearly vertical. XVIII. ENCYCLOPINI.  
 Front oblique or horizontal. XIX. LEPTURINI.

#### Tribe I.—ASEMINI.

This series contains the genera in which the ligula is corneous, with the supports of the labial palpi fixed and connate, not retractile; the eyes are usually coarsely granulated, but sometimes (Asemum, Tetrogium, and Opsimus) the granulation is very fine; the antennæ are sometimes short, sometimes long, densely punctured and pubescent, and do not usually have any well-defined sensitive spaces, the 2d joint is always half as long as the 3d, and the 11th is simple; the front coxæ are generally transverse and angulated externally, with distinct trochantin, and the cavities are always open behind; the middle coxal cavities open externally; the side pieces of the mesosternum do not intervene between the sterna; the mesosternum is bent down behind but not acutely emarginate for the reception of the inter-



coxal process; the episterna of the metathorax are narrowed and almost pointed behind, and the epimera are not longer than the episterna.

In the ♂ the 5th ventral segment is transverse, and the 6th is visible, in the ♀ the 5th is prolonged, and 6th not visible.

The scutellum is always rounded behind; the mesonotum is punctured at the sides, the stridulating plate is wanting in *Tetropium*; feebly developed, and divided by a broad median vitta in *Criocephalus*; tolerably large and channelled in *Asemum* and *Nothorhina*; large and undivided, as in most *Cerambycini*, in *Opsimus*, and *Smodicum*.

An undifferentiated, or synthetic tribe, having affinities in various directions; the maxillary lobes are very feebly developed, and almost atrophied in *Asemum*, showing an affinity with *Spondylis* and *Prionidæ*; the divided stridulating plate indicates a relation with *Lepturini*; *Tetropium* diverges towards *Callidium*, *Criocephalus* with its coarsely granulated eyes tends towards the genuine *Cerambycini*, while *Opsimus* and *Smodicum* seem to be entirely isolated, having no relation with other members of our fauna.

The groups may be thus separated.

Epimera of mesothorax normal, truncate at inner end;

Base of prothorax normal.

ASEMI.

Base of prothorax emarginate, filled by a thin plate.

OPSIMI.

Epimera of mesothorax acutely pointed internally.

SMODICI.

#### Group I.—*Asemi*.

The insects of this group are generally *Callidioid* in form, the head short, the mandibles small, stout, and acute, the palpi nearly equal, or rarely unequal (*Tetropium*); the eyes finely or moderately coarsely (*Criocephalus*) granulated, transverse, scarcely emarginate (*Asemum*), large, more or less emarginate (*Criocephalus*), divided (*Tetropium*).

All the genera except *Cyamophthalmus*, which has the last joint of the palpi subulate, are represented in our fauna, and are distributed on both sides of the continent.

Eyes moderate, transverse, finely granulated, hairy;

Antennæ finely pubescent.

ASEMUM.

Antennæ coarsely pubescent.

NOTHORHINA.

Eyes large, coarsely granulated, not hairy.

CRIOCEPHALUS.

Eyes divided, rather finely granulated.

TETROPIUM.

To *Nothorhina* belongs *Asemum asperum* Lec., from Oregon and Vancouver. From *Asemum* must be excluded *A. australe* Lec., which is an anomalous *Criocephalus*, differing from all the others by the eyes being deeply emarginate.

#### Group II.—*Opsimi*.

*Opsimus quadrilineatus* Mann., from Alaska and Oregon, constitutes this group; it is a lead-colored, finely pubescent insect, having the prothorax armed with a lateral acute spine, and the disk of the elytra with several vague impressions. The antennæ are punctured and coarsely pubescent, as long as the body; the head is short and perpendicular in front; the eyes narrow, emarginate so deeply as to be completely divided, not finely granulated; the palpi are unequal, the labial short, the maxillary elongate, last joint triangular, obliquely rounded at tip; the front coxæ are large, globose, and contiguous, scarcely angulated externally, the lateral fissure being only narrowly open; the middle coxal cavities are angulated externally, but the sternal pieces come in contact so as to cut off the episterna; the episterna of the metathorax are wide in front, narrowed and pointed behind; the legs are stout, the thighs strongly clavate, the spurs small, and the 1st joint of hind tarsi longer than the two following united.

The singular character which distinguishes this from all other groups is, that the thickened hind margin of the prothorax is broadly emarginate in the arc of a circle, and the emargination filled with a thin corneous plate. The mesonotum is punctured each side, with a very broad and flat, extremely fine, stridulating surface.

#### Group III.—*Smodici*.

*Smodicum cucujiforme* (Say), a small narrow depressed pale-yellow species, found under bark in the Atlantic States, constitutes by itself a distinct group, characterised by the mesothoracic epimera being narrowed and acutely pointed inwards; the middle coxal cavities are widely open externally.

The front is broad, short, and perpendicular, the eyes coarsely granulated, very deeply emarginated; the mandibles small,

pyramidal, and entire, the genæ very short; the palpi are short, equal, not dilated; the mentum is narrowed and rounded in front, and the ligula appears to be of a corneous consistence, with the supports of the labial palpi less distant than usual and connate. The antennæ are polished, very sparsely punctured and pilose, and have two obscurely defined sensitive spots near the extremity of the 5th and following joints; they are scarcely as long as the body in the ♂, shorter and more slender in the ♀.

On the under surface of the prothorax is seen on each side a large reniform impression, which is opaque, coarsely punctured and slightly hairy, and which according to Lacordaire is wanting in some exotic species; the front coxal cavities are small, quadrate, not angulated externally, widely open behind; the prosternum is rather broad. The mesosternum is broad, flat, and truncate behind; the ventral segments 1-4 diminish gradually in length, the 5th is very short, and broadly subemarginate in ♂, narrower and elongate in ♀.

The genus *Smodicum* seems more allied to *Asemum*, than to *Atimia*, with which it has been associated by Lacordaire.\* The eyes are coarsely granulated in *Smodicum*, and very finely in *Atimia*; the front coxal cavities open in the former, and closed in the latter. The one is an undifferentiated form of typical Cerambycidæ, the other an anomalous form leading to some of the Lamiidæ groups.

#### Tribe II.—**CALLIDIINI.**

A tribe containing species usually depressed, and rarely slender in form; the prothorax and elytra are never spinose. The eyes are finely granulated, deeply emarginate, but do not embrace the base of the antennæ; the head rather small, with the front short, perpendicular, or nearly so; mandibles short, stout, acute, genæ moderately long; palpi usually very unequal, dilated. Antennæ with the outer joints sericeous, or punctured, without distinct poriferous spaces; the 2d joint not as large as in *Asemini*, but longer than usual. Front coxal cavities transverse, very strongly angulated, with large trochantin, open behind; prosternum variable; middle coxal cavities open externally; mesosternum some-

\* Gen. Col. ix, 143.

times wide and emarginate behind, sometimes triangular and pointed, side pieces large; metasternum with side pieces wider than usual. Legs moderate in length, thighs generally strongly clubbed, 1st joint of hind tarsi at least twice as long as the 2d. Abdomen with ventral segments slightly diminishing in length, 5th, in ♂, short subemarginate.

The antennæ, in ♂, are usually longer than the body, and thicker at base than in ♀. Flying hairs are seen on the legs and antennæ, and frequently on the body.

As in the Stenopteri, there are mute and sonant genera, and according to the sculpture of the mesonotum they may be arranged as follows:—

- A. Mesonotum with a large, undivided, very finely striate stridulating surface.
- |  |              |
|--|--------------|
| Hind coxæ not prominent, thighs slender.   | GONOCALLUS.  |
| Hind coxæ very prominent, thighs strongly clubbed; metasternum with scent pores;         |              |
| Elytra with ivory lines.   | PHYSOCNEMUM. |
| Elytra uniform.  | RHOPALOPUS.  |
| Hind coxæ not prominent; metasternum without scent pores;                                |              |
| Prosternum broad or moderate, hind coxæ inclosed by side pieces and 1st ventral segment. | HYLOTRUPES.  |
| Prosternum very narrow, pointed, hind coxæ not inclosed; prothorax rounded.              | PHYMATODES.  |
- B. Mesonotum polished, with large scattered punctures;
- |                                  |            |
|----------------------------------|------------|
| Mesosternum broad, emarginate.   | MERIUM.    |
| Mesosternum obtusely triangular. | CALLIDIUM. |
- C. Mesonotum punctured and pubescent at the sides, with a medial stridulating surface.
- |  |            |
|--|------------|
|  | XYLOCRIUS. |
|--|------------|

Gonocallus is established on *C. collare* Kirby (lepidum *Lec.*), a very anomalous species with slender thighs, and the ♂ antennæ 12-jointed. It is an annectant branch towards *Stenosphenus* and *Clytus*.

*Semanotus* does not appear in the above scheme, as the former representative of the genus in our fauna, *C. ligneum* Fabr., appears to me more naturally placed as a section of *Hylotrupes*, differing merely by the sternal pieces being less dilated.

I have retained *Merium Kirby*, because the type *M. Proteus*, though agreeing with *Callidium* in the sculpture of the mesonotum, differs essentially in the form of the mesosternum; the sculpture

is also different, there being indications, more or less distinct, of two ivory vittæ on each elytron.

Curious sexual differences appear on the under surfaces of the prothorax in *Phymatodes* and *Callidium*; the punctures are coarser and more numerous in ♂.

*Xylocrius Lec.* is founded upon *Callidium Agassizii Lec.* (Proc. Acad. Nat. Sci., 1861, 357), a black coarsely punctured species, from California; it is of more convex form than usual in this group, the antennæ are shorter and stouter with joints 3-5 equal, the palpi unequal, the prosternum narrow and pointed behind, the mesosternum subtriangular, obtusely truncated and slightly emarginate at tip, the hind coxæ not inclosed by the side pieces of metasternum. The scutellum is triangular with curved sides, and the mesonotum, though provided with a medial stridulating surface, is punctured and pubescent at the sides. The hind tarsi are stouter than in the other genera of this group, and the thighs are moderately clubbed.

#### Tribe III.—CERAMBYCINI.

A very extensive series, of rather difficult definition, and containing a large number of genera, which seem to have been unnecessarily multiplied, on account of the unimportance of the characters used for the definition of the separate groups. As here restricted, the tribe contains all of the groups of Section A. (Lac. Gen. Col. viii, p. 202), which are represented in our fauna, except *Asemini* and *Obrini*; in other words, all genera having the eyes strongly granulated, the front coxal cavities usually open, the abdomen normal in both sexes, and the antennæ with the 2d joint small.

The ligula is sometimes (Oeme, etc.) corneous, but usually membranous, and deeply bilobed; the scutellum is usually rounded, rarely (*Chion*) triangular and acute; the stridulating surface is fine, and covers nearly the whole mesonotum; the antennæ are nearly always long, and without distinct sensitive spaces. The mandibles are acute at tip. The middle coxal cavities are sometimes open, sometimes closed, varying frequently, to an appreciable extent, in the species of the same genus. The elytra, as observed by Lacordaire, are not abbreviated, but they are slightly so in *Gracilia manca*; the eyes are not divided in any

of our genera, though always deeply emarginated, and embracing the antennal tubercles.

Group I.—**Oemes.**

The ligula is more or less corneous, and usually only emarginate at tip; though in *Achryson*, corneous, with the front part membranous, and broadly bilobed; the body is slender and elongate, the palpi frequently very unequal, the antennæ usually long, and longer than the body in ♂; the eyes are usually very large, convex, coarsely granulated, and very deeply emarginated. The thighs are rather slender, except in *Gracilia*, where they are strongly clavate.

Three sub-groups are indicated,

Epimera of mesothorax large;

Front trochantins very distinct.

Front trochantins not visible.

Epimera of mesothorax small.

OEMES.

ACHRYSONES.

GRACILIÆ.

Sub-Group 1.—OEMES.

*Oeme rigida* (Say), from the Middle and Southern States, and two new genera, *Ganimus*, and *Eucrossus* from Arizona, represent this sub-group in our fauna; they are pale brown, slender insects, with the antennæ hairy beneath; rough with small acute tubercles on the under surface of the 3d, 4th, and 5th joints in *Oeme*; these joints in *Eucrossus* are not rough, but are armed on the inner side with a terminal spine; the prosternum is very narrow and prolonged in *Oeme*; moderate in width in *Eucrossus*; the mesosternum is narrow in *Oeme* and *Ganimus*, wider and truncate in *Eucrossus*; the palpi are dilated in the latter two, but scarcely so in the former, very unequal in all.\* The prothorax is strongly constricted at base in *Oeme*, but in *Ganimus* is transverse, more rounded on the sides, and not constricted at base.

The sculpture of the prothorax of the ♂ in *Eucrossus* is peculiar; finely alutaceous, opaque, with a smooth dorsal vitta, and a large scar-like mark each side, nearly parallel with the dorsal line, commencing near the base, suddenly inflexed just in front of the middle, and then abbreviated.

\* Lacordaire, l. c. viii, 222, says that the palpi are subequal in *Oeme*, but his specimen seems to have been much mutilated.

The episterna of the metathorax in *Oeme* and *Eucrossus* are triangular, wide in front, and pointed behind, as in *Criocephalus*.

The species *E. villicornis* is 18 mm. long, of a pale-brown color; with the elytra feebly punctured, clothed with erect pubescence, marked with two very faint lines, and armed with a small subsutural spine at tip; the joints of the antennæ from the 3d are clothed beneath with a dense fringe of hair, becoming thinner to the 8th, where it disappears.\*

The essential characters of this sub-group are in the front coxæ being prominent, very strongly angulated externally, with large trochantin; the middle and hind coxæ are also prominent; the 5th ventral of the ♂ is as large as the 4th and emarginate at tip in *Oeme*; equally large and truncate in *Ganimus*; small and truncate in *Eucrossus*.

The genera may be distinguished as follows:—

Palpi very unequal, dilated;

Prosternum laminiform; antennæ rough with elevated points; mesosternum very narrow;

Prothorax lobed at base.

GANIMUS.

Prothorax constricted at base.

OEME.

Prosternum not laminiform; antennæ very hairy beneath, joints 3-6 with a terminal spine;

Body uniformly pubescent.

EUCROSSUS.

Body with transverse bands of yellow pubescence.

DRYOBIOUS.

Palpi short, equal, slender;

Front coxæ contiguous, hardly prominent; middle coxæ distant.

HAPLIDUS.

The position of *Dryobius* is doubtful; the eyes are almost finely granulated, and the front coxal cavities much less angulated externally, but the affinities seem to be stronger than with any other group. The type and only species is *Callidium sexfasciatum* Say, a rare insect of the Mississippi valley.

*Haplidus* is founded upon *H. testaceus* Lec., a slender finely pubescent brown insect, without any striking characters; it occurs in California and Utah, and the affinities of it seem to me also doubtful.

\* *Ganimus vittatus* resembles in form *Oeme*, and the antennæ are almost equally rough; but the prothorax is not constricted behind, and has a broad basal lobe as described in the African genus *Hypæschrus*, with which it further agrees in having the middle coxæ very large and nearly contiguous, but differs by the palpi being very unequal.

## Sub-Group 2.—ACHRYSONES.

Slender sub-cylindrical species, with slightly dilated palpi; the head short, and front perpendicular as in Oemes; the front coxæ globose, prominent (contiguous in Achryson), not angulated externally, trochantin not visible; the middle coxæ are also prominent, closed externally, the mesosternum is moderately wide, truncate at tip in *A. surinamum*, narrow and sub-triangular in the Texan *A. concolor*; the elytra are armed with a terminal spine in the former, but are rounded in the latter. The 5th ventral segment of ♂ is truncate, but not shorter than the 4th.

*A. surinamum* (Linn.), (*S. circumflexus* Fabr.) is found from the Middle States to Mexico and South America; it is a slender pale-brown insect, with dark angulated lines on the elytra.

## Sub-Group 3.—GRACILIÆ.

Very small slender species of piceous color, very finely punctured and pubescent, constitute this sub-group. The head is short, as in the other sub-groups, the palpi very unequal, the labial short, the maxillary long with the last joint triangular, obliquely truncate so as to appear pointed; eyes large, coarsely granulated, deeply emarginate, almost divided; front coxæ very prominent, nearly contiguous, the prosternum being narrow, and pointed behind; the coxal cavities are sub-quadrate; the middle coxæ are prominent, separated by the triangular mesosternum, the cavities are angulated externally, but the epimera are very small, and do not fully reach the coxæ; the episterna of the meta-thorax are linear; the 1st ventral segment is somewhat longer than usual. The legs are short, the thighs thick and clavate, the 1st joint of the hind tarsi longer than the 2d and 3d.

The mesonotum is covered with stridulating surface; it is less transverse than usual, nearly quadrate, and finely margined at the sides.

The antennæ are hairy, in ♂ longer, in ♀ shorter than the body. *Gracilia pygmxæa* has been introduced in articles of commerce from Europe. *G. manca* is very rare in the Middle States, and differs by the prothorax being more rounded on the sides, and the elytra a little shorter than the abdomen.



Group II.—*Cerambyci*.

This group contains a large number of genera, which have been partitioned by Lacordaire into several minor groups, separated by evanescent or variable characters. Although the typical genera of these smaller groups possess in every instance a distinct appearance by which they may be recognized, yet the structural variations observed even within the limits of the genera themselves, when the species are numerous, are such as to completely prevent any definition of these minor divisions. For the information of the general student, I will mention below the groups of Lacordaire to which he has referred, or would refer the genera represented in our fauna.

I have placed in this group all those genera with coarsely granulated eyes, having the ligula entirely membranous and deeply bilobed, and the middle coxæ more or less angulated externally, even when the two sternal plates come into contact. The other characters are all variable to a greater or less degree, as will be seen by the following table. The metathoracic episterna have in many species a distinct aperture near the hind coxa, at the side of the metasternum, which is the orifice of the scent gland, but even in species of the same genus (*Elaphidion*) they vary greatly in size, so as almost, or even completely, to disappear. In the same manner the spines of the antennæ, of the femora, and of the elytra have rather specific than generic value. In *Eburia* there is a gradual transition from those species in which the lateral spines of the prothorax are acute and prominent to those in which they are entirely wanting.

Antennæ 11-jointed, with recurved hooks on joints 3—6, (prothorax plicate, armed, elytra bispinose). HAMMATICHERUS.

Antennæ 12-jointed, sericeous, serrate. AXESTINUS.

Antennæ 11-jointed;

A. Front coxal cavities angulated; antennæ, thighs, and elytra not spinose;

Frontal suture deep; metathorax without scent pores;

Prothorax uneven, tuberculate at the sides. BROTHYLUS.

Prothorax even, (palpi equal). STROMATIUM.

Frontal suture faint, scent pores distinct;

Elongate, prothorax even, antennæ very long. OSMIDUS.

B. Front coxal cavities rounded, or feebly angulated;

a. Scutellum acute, triangular, frontal suture very deep; antennæ very long, sulcate;

Prothorax with lateral spine, but no dorsal callosities, elytra and thighs spinose at tip; episterna of metathorax wider in front, scent pores distinct. CHION.

b. Scutellum rounded behind;

\* Femora not strongly clubbed; antennæ not carinated;

Elytra with ivory spots, prothorax with dorsal callosities, and usually with lateral spines; elytra and thighs either spinose or unarmed; scent pores distinct; antennæ unarmed. EBURIA.

Elytra without ivory spots, antennæ usually spinose;

Episterna of metathorax narrower behind, antennæ with sensitive spaces. ROMALEUM.

Episterna of metathorax parallel; antennæ without sensitive spaces. ELAPHIDION.

\*\* Antennæ carinated, femora not strongly clubbed;

Antennæ slender. ANEFLUS.

Antennæ stout, joints excavated beneath. EUSTROMA.

\*\*\* Femora strongly clubbed.

Antennæ bisulcate. TYLONOTUS.

Antennæ not sulcate. ZAMODES.

Hammacherus is represented by *H. mexicanus* Thomson, which occurs in Lower California.

Axestinus is allied to Xestia, but is clothed with fine gray pubescence; the species *A. obscurus* is of large size (30 mill.), and occurs in New Mexico.

To Stromatium I would refer *Anoplium pubescens* Hald., it belongs to the division of the genus without pubescent spaces on the prothorax of the ♂; the disk is, however, more finely punctured in that sex than in the ♀, just as in Romaleum.

Osmidus contains an elongate species from Lower California, resembling in appearance Hesperophanes, and like many of the species of that genus, finely and densely pubescent, with round denuded slightly elevated spots on the elytra; the absence of the deep frontal suture seen in the neighboring genera is a remarkable character.

Romaleum *White* has distinct sensitive spaces on the antennæ, especially well marked in the ♀, commencing in a small depression on the outer face of the 4th joint. It contains all of our large species of Elaphidion, except *protensum*, which has carinated antennæ and tibiæ, and belongs to the genus Aneflus. The typical species of Romaleum is *Enaphalodes simplicicollis* Hald. (*Elaph. pulverulentum* Hald., nec *De Geer*). It corresponds with *Hypermallus Lac.* in part, but I have replaced the greater number of

the species mentioned by him in *Elaphidion*, as the differences in the sternum, upon which the genera were separated, seem to me to be of purely specific importance.

I have been disposed to retain *Anoplium* for the second species of Haldeman, *A. unicolor*, which has been fully described by Lacordaire; the first species being placed in *Stromatium*, the name is thus rendered disposable. But it seems to be so slightly different from *Elaphidion*, that it is more prudent to suppress it.

*Aneflus* contains *E. protensum* with the elytra bispinose, and *E. tenue, lineare*, etc., with the spines much shorter, or wanting.

*Eustroma* is founded upon *Elaph. validum* Lec., a large, stout species from Texas and Lower California, with short and stout antennæ, the intermediate joints of which are concave beneath; the antennal spines are short, and the femora and elytra are unarmed; the 4th joint of the antennæ is conspicuously shorter than the 3d or 5th; the sides of the prothorax have a large oval patch of dense yellowish pubescence in two specimens from Texas, but in another specimen it is much less distinct, and in one, from Lower California, it is not visible.

*Zamodes* contains a black species from Pennsylvania, of the same size and form as *Tylonotus*, but without callosities on the prothorax; the antennæ, legs, and general surface of the body are clothed with long, erect, flying hairs. From its strong resemblance in appearance to *Zamium Pascoe*, which is placed by Lacordaire in his group *Saphanides*, I have derived the generic name.

#### Group III.—*Ibidiones*.

The very elongate form, large and coarsely granulated eyes, and clavate thighs will easily distinguish the members of this group from all others in our fauna; in addition, it will be observed, that the front coxæ are small, rounded, and either inclosed, or a little open behind, the middle coxæ are not open externally and the cavities not at all angulated; the hind tarsi are slender, the 1st joint as long as the two following united. The front is small and perpendicular, the mandibles short, acute, the palpi somewhat unequal, short, dilated.

The antennæ are elongate, slender in the ♀, thickened at the base in ♂; sparsely punctured, and pubescent, not sericeous. The episterna of the metathorax are narrow, parallel, and have

very distinct scent pores near the hind end. Tibiæ not carinate in our species.

This group evidently belongs to the same series as the preceding, with which it connects closely, though assuming a form which is characteristic. The prothorax is very elongate and cylindrical, as in certain *Elaphidion*, but the antennæ are never spinose.

The two genera belonging to our fauna may be thus distinguished:—

Front coxal cavities closed behind.

COMPSA.

Front coxal cavities open behind.

HETERACHTHES.

Of *Compsa*, two species are found in Lower California; the genus is easily distinguished by the character given above, and by the joints 3–6 of the antennæ being distinctly carinated; one of the species *C. puncticollis* Lec., is remarkable for the dull color, and coarsely punctured prothorax.

#### Group IV.—*Curii*.

The singular characters of the two species of *Curius* *Newm.*, compel me to separate them as a distinct group, which is easily recognized by the coarsely granulate eyes, and very strongly clavate thighs, armed beneath with a broad tooth. The form is elongate, in the typical species depressed, dull, and slightly pubescent; in *C. scambus* cylindrical, polished, and glabrous, resembling *Ibidion*. The front is small, declivous, the antennal tubercles not prominent, the palpi somewhat unequal, the mandibles small and acute; the antennæ are slender, longer than the body, annulated, finely punctulate and pubescent. The front coxæ are globose, prominent, nearly contiguous in *C. dentatus*, separated in *C. scambus*, and the cavities are open behind; the middle coxæ are entirely inclosed by the sterna, and the side pieces of the mesothorax are *undivided*;\* the first joint of the abdomen is as long as the two following in *C. dentatus*, but equal to the three following in *C. scambus*.

The differences above noted indicate the necessity of separating *C. scambus* as a distinct genus for which the name *Plectromerus* †*Dej.* may be adopted.

\* This character is otherwise only known to me in the tribe *Ancylocerini*, also a very anomalous form.

Tribe IV.—**OBRINI.**

A tribe containing only small species, which are easily distinguished by the front coxæ being more prominent than usual, sometimes nearly conical, and frequently contiguous, but completely inclosed behind. The palpi are usually slender, rarely with the last joint triangular. The other characters are abnormal, the abdomen in the ♀ being deformed in the group *Obria*, and the elytra more or less subulate or abbreviated in *Stenopteri*; the eyes are finely granulated in the latter, variable in the former.

The affinities of this tribe lead from the last groups of *Cerambycini*, towards the tribes with finely granulated eyes, *Lepturini* on the one side, and *Callidiini* on the other.

Group I.—**Obria.**

This group contains a few small species in which the granulation of the eyes has ceased to be of primary importance; but which is easily distinguished by the 1st segment of the abdomen being very long, and the 2d and following irregular, hairy, excavated or deformed in the ♀.

The mandibles are small and acute, the antennæ slender, as long as, or shorter than, the body; the palpi are unequal, and the last joint is rarely dilated. The antennæ are slender, and the 2d joint is larger than in genuine *Cerambycini*. The prothorax is variable in form, always, however, constricted and pedunculated at base, and narrower than the elytra; the front coxæ are conical, prominent, contiguous, cavities small, rounded or angulated, closed behind; middle coxal cavities not open externally. The thighs are strongly clavate, the tibial spurs small or moderate, and the 1st joint of the hind tarsi is as long as the two following.

It is worthy of remark that in *Obrium* the structure of the eyes has merely specific significance; in our *O. rubrum* the eyes are very coarsely granulated, while in the nearly allied European *O. brunneum* the lenses are much smaller.

Our genera may be grouped as follows:—

Palpi with last joint broadly triangular.  
 Palpi slightly dilated; tarsi tumid.  
 Palpi not dilated, last joint cylindrical;

CALLIMUS.  
 EUMICHTHUS.

Eyes coarsely granulated ;	
Prothorax much narrowed behind.	PHYTON.
Prothorax equally narrowed before and behind, tuberculate at the sides.	OBRIUM.
Eyes very finely granulated ; prothorax with dorsal and lateral tubercles ;	
Punctures fine, flying hairs sparse.	HYBODERA.
unctures coarse, flying hairs long, numerous.	
Mesosternum wide.	PILEMA.
Mesosternum narrow.	MEGOBRIUM.

To *Callimus* I would refer *C. chalybeus* Lec., a small highly polished blue species from California, with the elytra sparsely punctured, and the front thighs sometimes yellow.

*Phyton* contains *Callidium pallidum* Say, from the Atlantic States. *Obrium* has two species in the Atlantic States.

*Eumichthus œdipus* Lec., is a small species from Vancouver, dark brown, finely punctured and pubescent, with two narrow cinereous elytral bands, between which the color is darker. The first two joints of the tarsi are swollen.

*Hybodera tuberculata*, from California and Vancouver, of brown color, with a large basal patch, and posterior transverse band of pale sericeous pubescence. Besides the sculpture, it differs from *Cartallum* by the prothorax having four discoidal tubercles, and a smaller medial one.

*Pilema* contains two species from California. They resemble very much the European *Cartallum ebulinum*, but apart from the specific differences in color they have the last joint of the palpi quite cylindrical, and the mesosternum very wide.

*Megobrium Edwardsii* Lec. is a Californian species, 12 mm. long, of a testaceous color, with the punctures of the elytra sparse, arranged in rows near the base, obsolete behind the middle.

Lacordaire mentions that the front coxal cavities of *Cartallum* are not at all angulated externally ; I find on repeated examination that they are quite as much so as in the genera with which I have associated it, though the coxal fissure is not as widely open as in the next tribe.

#### Group II.—*Stenopteri*.

A group characterized by the front coxal cavities being widely angulated externally, but entirely closed behind, and the abdomen normal in both sexes. The head is porrect, the front large and oblique, with the labrum prominent, the epistoma not separated ;

the eyes are finely granulated and deeply emarginated; the mandibles are very acute, the mentum rather larger than usual, the palpi short, equal, not dilated. Antennæ punctulate and sericeous, longer than the body in some ♂, shorter in ♀. Front coxæ as above; mesosternum flat, broadly emarginate behind in *Callimoxys*, triangular, and truncate in *Molorchus*; coxæ globose, more prominent than usual, nearly inclosed externally. Abdomen with segments gradually diminishing in length, 5th segment shorter in ♂. Legs rather long, thighs strongly clubbed, hind tarsi with 1st joint twice as long as the 2d; the legs and pronotum are clothed with long flying hairs. The elytra are elongated, and subulate in *Callimoxys*; short, dehiscient, and separately rounded at tip in *Molorchus*. The stridulating surface is large and undivided in *Callimoxys*; very imperfect, oblong, margined each side, slightly elevated in the middle, and nearly destitute of transverse lines in *Molorchus*. The outer lobe of the maxillæ in *Callimoxys* is elongated nearly as in *Rhopalophorus*.

*Heliomanes* and *Glaphyra Newm.*, are not different from *Molorchus*; to *Callimoxys* belong the species heretofore referred to *Stenopterus*; the two genera occur on both sides of the continent, the latter is remarkable for having the hind tibiæ curved inwards, and furnished on the outer side with two rows of acute tubercles, giving a serrate appearance.

Our species of *Callimoxys* differ from (the description of) the European by having the mesosternum broad, and the thighs suddenly and strongly clavate, but these characters are probably not of generic value, and the figure of *C. gracilis* (Duval, Gen. Col. Eur., iv, pl. 45, fig. 210) would do equally well for one of our species. The prothorax varies from red to black, the latter color prevailing in the ♂.

#### Tribe V.—RHOPALOPHORINI.

A single genus *Rhopalophorus* (*Tinopus* Lec.) represents this tribe in the Middle, Western, and Southern States; they are small, slender insects, of blackish-gray plumbeous color, with red prothorax; the head is elongate, the front rather large, oblique, concave, with the epistoma and labrum more prominent than usual; the eyes are finely granulated, and deeply emarginate; genæ long, mandibles very acute; mentum transverse, of usual form, palpi short, equal, not dilated, outer lobe of maxillæ as long

as the palpi. Antennæ slender, with the 4th joint shorter than the 3d and 5th, as long as the body in ♂, shorter in ♀, punctulate and sericeous, without poriferous system. Front coxal cavities small, not angulated, widely open behind; mesosternum somewhat obtusely pointed in front, and feebly concave each side, to complete the front coxal cavities, general surface flat, broad between the coxæ, and emarginate behind, coxal cavities small, closed. Abdomen with the 1st ventral segment longer. Legs very long and slender, thighs suddenly and strongly clubbed at the tip, hind tarsi with the 1st joint twice as long as the 2d. The elytra are flat especially at the base, and suddenly declivous so that the basal edge is unusually distinct; the scutellum is small, but obtuse, the stridulating surface is large and undivided.

This group has been considered as allied to *Callichroma*, but seems to me better placed as an ally of *Stenopterus*, etc., leading to *Necydalis*, and thence to *Leptura*.

#### Tribe VI.—**ANCYLOCERINI.**

Body slender, cylindrical, coarsely punctured; head short, front small, perpendicular, genæ large; eyes finely granulated, deeply emarginated, vertex concave; mandibles acute, palpi short, nearly equal, not dilated; mentum very transverse, excavated, as in most *Cerambycidæ*. Antennæ serrate, half as long as the body in ♀, longer than the body in ♂, very sparsely punctured, sensitive system commencing on the 3d joint, forming two well-defined spaces on the under surface, separated by the sharp edge of the joint, 11th joint oval, pointed at tip in ♀, very short and curved in ♂.

Front coxal cavities small, open behind; middle coxal cavities nearly closed by the sterna; mesosternum deeply emarginate behind. Legs slender, thighs suddenly and strongly clubbed, hind pair armed with a terminal spine on the inner side; 1st joint of hind tarsi scarcely one-half longer than the 2d. Ventral segments nearly equal in length except the 1st, which is longer.

A very peculiar tribe, recalling *Ibidion* by its slender, cylindrical form, but not related to it nor to any other known to me.

But one species *Ancylocera rugicollis*, black with scarlet elytra and abdomen, is found in our Southern States from North Carolina to Texas.



Tribe VII.—**PARISTEMIINI.**

I have adopted the name of this tribe from Lacordaire; it has two representatives in our fauna; *Pteroplatus? floridanus* Lec., a black coarsely punctured species, with two narrow orange vittæ on the prothorax, and the base and outer margin of the elytra also orange; and *Holopleura* n. g., found in California.

The head is moderate, mandibles small, acute, curved; the eyes large, very deeply emarginate, not very finely granulated, and embracing the base of the antennæ rather less than usual, the upper lobe is larger than usual; the front is rather flat, with the transverse suture very deep; the palpi short, with the last joint cylindrical, truncate at tip; the mentum is trapezoidal, and more porrect than in neighboring groups, being almost as in *Callidium*; the antennæ (♀) are a little more than half as long as the body, stout, serrate, and velvety; the 1st joint is as long as the 3d, but stouter, the 2d is one-third the size of the 3d, the 4th shorter than the 5th, which is the longest, the following diminish in length. The prothorax is rounded on the sides, truncate in front, bisinuate at base; scutellum variable in form; elytra a little wider from the base, rounded at tip, with the suture, margin, and three discoidal costæ elevated, the intermediate costa being the longest; epipleuræ well marked, extending to the tip. Prosternum narrow between the coxæ, which are rounded, with the cavities open behind, and feebly angulated externally; mesosternum flat, triangular, coxal cavities widely open externally; epimera of metathorax moderately wide, parallel. Ventral segments nearly equal. Legs short, slender, thighs not clavate, tibial spurs very small, 1st joint of hind tarsi as long as the two following.

I cannot see the stridulating organ in the specimens before me. On each side of the pronotum there is an elliptical depressed space, tolerably well defined by an acute edge, which is perhaps sexual.

This like the following tribe is a transition form; the 2d joint of the antennæ is too large for the series in which I have placed it, but, on the other hand, the front coxæ are not transverse as in the *Callidioides*. It seems to lead off from the latter towards the *Stenaspes*; it is easily recognized by the peculiar sculpture,

and the costate elytra, with epipleuræ prolonged to the tip, a character I have seen in no other tribe.

Antennæ short, serrate, 11th joint appendiculate.

PTEROPLATUS?

Antennæ longer, slender, 11th joint simple.

HOLOPLEURA.

#### Group I.—Rosaliini.

A very distinct tribe, represented by *Rosalia funebris*, in Oregon and Vancouver, a large, elongate, velvety black insect, with bands and antennal rings of cinereous. The head is moderate, front not elongated, obliquely declivous, antennal tubercles not elevated, genæ long; eyes finely granulated, very deeply emarginated, upper lobe rather broad; antennæ long, outer joints sericeous, densely pubescent, joints 3-7 with a tuft of longer hair at the apex, last joint feebly divided in ♂. Mandibles stout, acute, with a small tooth near the base; mentum narrowed in front, entirely corneous; palpi nearly equal, truncate at tip. Prothorax constricted at base and apex, with an acute lateral spine each side, and two acute dorsal tubercles; prosternum rather broad, coxal cavities strongly angulated, widely open behind; mesosternum broad, truncate behind, declivous in front; epimera very large, extending to the coxal cavities; metasternum not acutely emarginate behind, episterna rather wide, narrowed behind, and nearly pointed; intercoxal process of 1st ventral broadly rounded in front, segments nearly equal in length, 5th truncate at tip, with an acute, short, medial cleft in ♀; shorter, triangularly impressed, and hairy in ♂; the last dorsal in ♂ is deeply emarginate, and in ♀ rounded and subtruncate; the 6th ventral and corresponding interior dorsal segment is prominent and truncate in ♀. Legs slender, moderately long, thighs not clavate, tibial spurs small, 1st joint of hind tarsi as long as the two following united.

The affinities of this tribe are somewhat doubtful; the scutellum is rounded behind; the mesonotum is smooth, with a broad medial vitta of stridulating surface, and a small lateral space is punctured and pubescent. The form of the front coxæ is very much as in *Callidium*, near which it is placed by Schiödte, but the long and tufted antennæ, with the 2d joint very small, and the tuberculate prothorax and slender legs prevent such an association. The eyes embrace the base of the antennæ rather less than in the neighboring tribes.

Tribe VIII.—**CALLICHROMINI.**

With this tribe commences a series distinguished by the scutellum being acute at tip, and the antennæ carinate on the lower edge, with the poriferous system arranged in a groove each side of the carina. The eyes are always very finely granulated, and deeply emarginated, embracing the base of the antennæ, with the upper lobe tolerably wide.

This tribe is further distinguished by the mandibles being long, pyramidal, nearly straight, bent only at the tip, which is acute. The outer lobe of the maxillæ is longer than the palpi, which are cylindrical; the labial palpi are much longer, feebly dilated, truncate at tip; the mentum is flat, trapezoidal, and porrect, gradually becoming coriaceous in front; the base of the maxillæ is very large and flat; the gular process for support of the mentum is nearly wanting; the genæ are long. The prothorax is constricted before and behind, armed with a strong lateral spine. Scutellum moderately large, triangular acute, mesonotum smooth, with a narrow triangular stridulating surface; elytra narrowed from the humeri, which are prominent, rounded at tip. Prosternum not tuberculate, rounded behind, coxæ globose, cavities not angulated externally, completely closed behind; mesosternum parallel, emarginate behind, coxal cavities rounded, scarcely angulated, closed by the epimera, which extend inwards further than usual; metathoracic episterna wider in front, with very distinct posterior scent pores; hind coxæ rather prominent. Ventral segments, the 1st longer, the others equal, tapering considerably; the 5th in ♀ longer than wide, subtruncate; in ♂ deeply and broadly emarginate, with the 6th joint filling the space, and rounded behind. Legs slender, hind pair elongated, tibiæ compressed, feebly carinated, spurs usually not large, 1st joint of hind tarsi nearly as long as the others united.

The last joint of the antennæ is simple in both sexes, but is much longer in the ♂.

Four species of *Callichroma* are found in the warmer parts of the country; they exhale an agreeable musky odor, and, with one exception, are of a beautiful blue or green color.

Tribe IX.—**TRACHYDERINI.**

A very large tribe as here defined, and containing as great a variety of forms as the Cerambycini, from which it is distinguished

by the acutely triangular scutellum, and finely granulated eyes. The last joint of the palpi never has the triangular form which it affects in most Cerambycini, but is usually oval, squarely truncate at tip, with a deep elliptical impression on the side.\* The tibiæ are not carinate, and the tibial spurs are rather long.

The following groups may be recognized in our fauna:—

Mandibles acute, or simple at tip;

Pronotum broadly lobed at base; poriferous system of antennæ very distinct;

Metasternal pores absent, side pieces very wide.

MEGADERI

Metasternal pores distinct.

TRACHYDERES.

Pronotum not lobed, sometimes subsinuate at base, poriferous system often obsolete, and palpi in some genera scarcely impressed.

STENASPES.

Mandibles emarginate at tip.

TYLOSES.

#### Group I.—Megaderi.

This group contains but one genus *Megaderus*, of which one species, *M. bifasciatus* Dupont (corallifer *Newm.*), extends from Mexico into Texas. It is a broad, flat insect, with roughly punctured prothorax, angulated on the sides behind the middle; elytra finely punctured, with a basal and medial transverse band, which are more or less confluent, separate, or even obliterated.

The antennæ are shorter than the body, with the 1st joint as long as the 3d, and a little thicker; 3d and following with poriferous spaces; outer joints velvety, 11th appendiculate, acute at tip; front rather flat, oblique; genæ long; mandibles stout, acute, palpi short, last joint not elongated, oval truncate, deeply impressed. Prothorax broad, strongly and broadly lobed at the base, deeply excavated behind the middle, especially at the sides, which are angulated; scutellum very large, acutely triangular, mesonotum sparsely punctured, with narrow medial stridulating surface; elytra finely densely punctured, rounded behind, sutural angle not rounded, nor prominent. Pro- and mesosternum very broad, the former overlapping the latter, both broadly emarginate, behind; side pieces of metathorax very wide, epimera extending

\* Among the Cerambycini with coarsely granulated eyes I have observed this form of palpi and the lateral fovea in *Chion*, which is an annectant form; and the same in a much less degree in some other genera. The maxillary palpi are never short as in *Callichromini*, nor has the ♂ an-additional ventral segment. The front coxal cavities are open behind, and not angulated externally.

beyond the hind coxæ, which are widely separated; no scent pores. First ventral segment much longer; 5th longer than the 4th, broadly subtruncate at tip. Legs slender, tibial spurs long, tarsi broad, 1st joint of hind pair scarcely longer than the 2d.

An anomalous group, having an evident affinity towards *Cyl-lene* of the tribe *Clytini*.

#### Group II.—*Trachyderes*.

Insects of large size, and glabrous surface, having the antennæ compressed, much longer than the body in ♂, with very distinct poriferous system, 11th joint either simple or appendiculate; the mandibles of *Dendrobias* ♂ are very long, and have an acute tooth near the tip, so as to appear emarginate, without really being so. The palpi have the last joint cylindrical, and deeply foveate. The scutellum is very large, acutely triangular; mesonotum with narrow stridulating plate. Elytra convex, narrowed from the base, rounded at tip. Prothorax variable in form, tuberculate on the disk, and strongly armed on the sides in *Dendrobias*, uniformly convex in *Lissonotus*; prosternum perpendicularly declivous in both, armed also with a large tubercle in front of the coxæ in *Dendrobias*; mesosternum elevated, perpendicular in front; side pieces of metasternum tolerably wide, narrower behind, with scent pores in *Dendrobias*, without them in *Lissonotus*; ventral segments, 1st longer, others nearly equal. Legs rather stout, thighs moderately clubbed, tibial spurs moderate, tarsi broad, 1st joint of hind pair scarcely longer than 2d.

The two genera are found only in the most southern part of Texas, Arizona, and Lower California, and constitute two subgroups corresponding to *Trachyderides*, and *Lissonotides* of *Lacordaire*.

#### Group III.—*Stenaspes*.

I have removed from the *Stenaspides* of *Lacordaire* those genera in which the mandibles are chisel-shaped, and emarginate at the tip; and although he mentions\* that in some instances this character is merely specific or sexual, I cannot avoid believing that this is only the case in genera, like *Sphænothecus*, composed of heterogeneous material. However this may prove on

\* *Gen. Col.* ix, 167, note 1.

more extended observation, the group as here defined contains all those genera in our fauna in which the eyes are finely granulated, deeply emarginate, with the upper lobe wide; the scutellum acute, but not very large, though sometimes elongate; and the prothorax not distinctly lobed, but only feebly bisinuate or truncate at base. The antennæ are more slender than in *Trachyderes*, and the poriferous system is much less distinct, or even obsolete, though in *Stenaspis* it is still quite obvious, and the joints are carinate and bisulcate. In *Batyle* the last joint of the palpi (which is subcylindrical, and truncate) is very feebly impressed.

The antennal tubercles are either much elevated, leaving a concavity between them, or scarcely elevated, in which case the vertex is nearly flat; the front in the former is very large, square, and perpendicular, and the genæ are long; in the latter the tubercles are less elevated, the front is moderate, declivous, and the genæ usually short.

They may be thus tabulated:—

- A. Front large, square, perpendicular, abruptly separated from the ante-ocular spaces;  
 Prothorax bituberculate at the sides, body glabrous;  
 Mesosternum protuberant. STENASPIS.  
 Prothorax armed with a lateral spine; mesosternum not protuberant;  
 Body pubescent. TRAGIDION.  
 Body glabrous. PURPURIGENUS.  
 Prothorax rounded, convex. ÆTHECERUS.
- B. Front moderate, short, declivous, not abruptly defined each side;  
 Two ivory vittæ on each elytron;  
 Mesosternum declivous; (prothorax margined at apex). MANNOPHORUS.  
 One ivory vitta on each elytron;  
 Mesosternum protuberant; (prothorax not margined at apex). ENTOMOSTERNA.  
 Elytra without ivory vittæ; mesosternum declivous;  
 Body pubescent, prothorax not margined at apex. AMANNUS.  
 Body pilose, prothorax margined at apex. BATYLE.

Of the three species of *Tragidion*, two have the elytra sulcate, while *T. armatum* has them even: there is also a difference in the hind tarsi, which are comparatively wider in *T. annulatum*. Variations in the proportions of the joints of the hind tarsi are not unusual in *Cerambycidae*, as, for instance, in *Criocephalus*. This fact has induced me to refer *Sphænothecus cyanicollis* to

Entomosterna, instead of forming of it the new genus indicated but not named by Lacordaire.\*

Of the genera tabulated above *Stenaspis* and *Tragidion* occur from the Atlantic to the Pacific in the warmer regions, the former extending northward in the central region, the latter in the Atlantic district. *Purpuricenus* occurs in the Middle and Western States. The next three genera are found in Texas, and *Batyle* occurs in the Atlantic region especially southward.

The genus last named is placed by Lacordaire in *Heteropsides*, of which he observes that the middle coxal cavities are closed externally; I find, however, in my specimens that the mesothoracic epimera attain the coxal cavities, and that they are as open as in *Purpuricenus*. The character as used by Lacordaire seems to me very deceptive, and without value for systematic results.

#### Group IV.—*Tyloses*.

Closely related to the preceding, and only differing in fact by the mandibles not being acute at tip, but truncate, forming a chisel-shaped edge, which is emarginate. The front is moderate in size, nearly perpendicular, and the antennal tubercles are not much elevated; the genæ are not elongated. The scutellum is small, acutely triangular, and the stridulating plate of the mesonotum is large. The side pieces of the metasternum are tolerably wide, not narrowed behind, and the scent pores are distinct, except in *Perarthrus vittatus* and *Sphænothecus bivittatus*. The legs are slender, thighs not clavate, tibial spurs rather long, hind tarsi with the 1st joint equal to the two following; less slender in *Tylosis* and *Crossidius* than in the other genera. The antennæ are slender, with elongate sensitive spaces near the carina of the under margin. The last joint of the palpi is subcylindrical, and impressed, as usual, in the other groups of this tribe.

Our genera, which are found mostly in Texas, Arizona, and Lower California (*Crossidius* alone extending into Colorado, California, and Oregon), may be tabulated thus:—

A. Elytra without ivory vittæ;	
Prothorax with an acute lateral spine;	
Eyes not divided (pubescence fine).	OXOPLUS.
Eyes divided (pubescence coarse).	SCHIZAX.

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\* Gen. Col. ix, 184, note 3.

Prothorax rounded on the sides, with dorsal callosities.	TYLOSIS.
Prothorax rounded on the sides, or feeble spinose, without dorsal callosities (pubescence long and partly erect).	CROSSIDIUS.
Prothorax narrowed in front, mesosternum protuberant.	SPHÆNOTHECUS.
B. Each elytron with two ivory vittæ; prothorax narrowed in front;	
Mesosternum declivous, body robust.	PERARTHURUS.
Mesosternum protuberant, body slender.	ISCHNOCNEMIS

Schizax is established on a remarkable insect, *S. senex* Lec., from Arizona; the color is black, the pubescence is coarse, dirty white, with the scutellum, suture and side margin of elytra densely clothed with yellow pubescence; the elytra rounded at tip, with the suture slightly prominent; the antennæ are slender, and very long in the ♂.

To Crossidius belongs *Callidium discoideum* Say, which is identical with *Cr. pulchrior* Bland. The reference of Say's species to *Eriphus* (now *Batyle*) was incorrect, and was owing to my not having properly identified the insect.

To Sphænothecus I would refer *S. suturalis* Lec., from New Mexico, while the Mexican and Texan *S. bivittatus* Dupont, having distinct ivory vittæ seems to belong more properly to *Ischnocnemis Thomson*.

#### Tribe X.—STENOSPHEININI.

Closely allied to the *Cyllene* group of *Clytini*, but the punctures are sparse and coarse, the pubescence scanty, and the general form more slender. The head is small, narrow and porrected in two of the species, with the front elongated, and very slightly declivous; but shorter and nearly vertical in *Stenosphenus notatus*. The eyes are finely granulated, deeply emarginated; the antennal tubercles are not elevated; antennæ as long as the body in ♀, somewhat longer in ♂, setaceous, punctured and pubescent, not sericeous, sparsely clothed beneath with flying hairs; 2d joint small, 3d longer than 4th, 3-7 armed with an apical spine on the inner side, as in *Elaphidion*. Palpi short, subequal, last joint nearly cylindrical, truncate at tip, not impressed. Prothorax rounded on the sides, without spines or callosities. Scutellum rounded behind, mesonotum covered with fine stridulating surface, with a few punctures each side near the edge. Elytra truncate at tip, and armed with two apical spines as in most species of *Elaphidion*.

Front coxal cavities rounded, open, prosternum suddenly de-



clivous, and perpendicular behind; middle coxæ inclosed by the sternal pieces, not angulated externally; mesosternum rather broad, protuberant, suddenly declivous in front, truncate or broadly emarginate behind, side pieces moderately large, intervening between the sterna, but not extending to the coxæ. Metasternum acutely emarginate behind for the reception of the intercoxal process, episterna linear, ventral segments gradually decreasing in length.

Legs rather short, thighs not clavate, not spinose at tip; tibiæ strongly carinated, with the 1st joint as long as the two following united.

The closest affinities of this genus in the series with finely granulated eyes are evidently with *Cyllene*, but there is an equally evident cross affinity in the direction of *Elaphidion*, *Sphæron*, etc.

*Batyle*, associated with *Stenosphenus* by Lacordaire, has the scutellum acutely pointed, the hind legs elongated, the antennal tubercles more elevated, and the eyes more prominent. It seems to me a degraded ally of *Purpuricenus*, and I have placed it accordingly.

#### Tribe XI.—CLYTINI.

A tribe containing many species, but on account of the variation in appearance and characters very difficult to define. The head is sometimes rather small, sometimes large, the front long, quadrate, and vertical in some, short and oblique in others, eyes finely granulated, deeply emarginate, with the lower lobe always large; antennæ with the outer joints sericeous, usually shorter than the body in both sexes, sometimes longer in the ♂, joints 3-7 in some genera (*Cyrtophorus*) armed with an apical spine; palpi short, equal, dilated, but not very broadly, last joint impressed; mandibles short, stout, acute; mentum nearly semicircular, corneous. Front coxal cavities rounded, open behind, not angulated externally; middle cavities usually open, sometimes (*Euderes*, etc.) closed externally, side pieces large, articulating with the metasternum, so as to interpose between the meso- and metasternum; the latter with the side pieces usually wide, sometimes narrow. Legs long, thighs sometimes slender, sometimes clubbed, spines of hind tibiæ usually well developed, tibiæ not carinated, hind tarsi with first joint usually very elongate. Ventral segments diminishing gradually in length.

The scutellum is obtusely triangular in some species of *Cyllene*, rounded in the other genera; the mesonotum is punctured, and hairy at the sides, and has a large undivided, very finely striate stridulating surface.

The genera are numerous, and indicate three groups; the affinities are in various directions, to *Megaderus*, *Callidium*, and by a gradual transition in *Eudercus*, etc., towards certain *Lamiides*. Nearly all the species of this group are varied with bands of yellow, white, and black pubescence, and the sculpture is always of fine punctures; in some species small elevations on the prothorax are intermixed with the punctures.

Groups may be defined as follows:—

Epimera of metathorax produced over the angles of the 1st ventral segment, so as to inclose the hind coxæ externally; episterna of metathorax usually wide;

Front short, intercoxal process rounded.

CYLLENES.

Front large, intercoxal process acute.

CLYTI.

Epimera of metathorax not produced, episterna linear; front large; intercoxal process of abdomen acute.

ANAGLYPTI.

#### Group I.—*Cyllenes*.

The head is comparatively small, the front short and oblique, the antennæ in *Cyllene* better developed than in the other genera, and longer than the body in ♂, nearly as long in ♀; in some of the species of that genus they are thicker at the base, as in many *Callidia*. The body is rather stouter and less convex than in the other groups; the prosternum is sometimes very broad, and the mesosternum gibbous, or perpendicularly declivous in front; the episterna of the metathorax are wide, and the epimera prolonged over the side angles of the 1st ventral segment, the intercoxal process of which is rounded in front. The legs are moderate, and not very unequal in length, scarcely clubbed, not spinose at tip. The affinities are partly with *Megaderus*, and partly with *Callidium*; the scutellum is usually rounded behind, but is quite distinctly triangular in some species of *Cyllene*.

The genera may be tabulated as follows:—

Pronotum transversely excavated at the sides, near the base, prosternum perpendicular at tip, mesosternum usually perpendicular in front.

CYLLENE.

Mesosternum oblique or nearly flat, prosternum declivous at tip, not perpendicular, pronotum not excavated at the sides, but only rounded, and constricted at base;

Antennæ compressed, subserrate.	GLYCOBIUS.
Antennæ filiform;	
Mesosternum declivous.	CALLOIDES.
Mesosternum nearly flat, episterna narrower.	ARHOPALUS.

*Glycobius Lec.* is founded upon *C. speciosus* Say, a large black and yellow species which infests the sugar maple.

*Calloides Lec.* contains *C. nobilis* Harris, a large species of the Atlantic States, and the nearly allied *C. Lorquini* Buquet, of California. *Arhopalus Serv.* (*Sarosesthes* Thomson) contains only *C. fulminans* Fabr.

#### Group II.—Clyti.

The head is larger than in the *Cyllenes*, and the front much longer, sometimes perpendicular, and quadrate; the antennæ are always short, not very different in the sexes, filiform, or slightly thickened externally; the episterna of the metathorax are usually wide, and the epimera are produced over the angles of the 1st ventral segment, the intercoxal process of which is acute. The thighs are usually clavate, the hind pair frequently very long, and occasionally spinose at tip; the first joint of the hind tarsi usually very long.

Front rounded, declivous, thighs not spinose at tip, episterna of metathorax wide;

Head not carinated.	CLYTUS.
Head carinated.	XYLOTRECHUS.

Front quadrate perpendicular; head not carinated;

Episterna of metathorax wide.	NEOCLYTUS.
Episterna of metathorax narrow.	CLYANTHUS.

*Clytus* is represented by *C. marginicollis* Lap. in the Atlantic States, and *C. lanifer* Lec. in Arizona.

*Clytanthus* by *C. ruricola* Oliv. and *albofasciatus* Lap. in the Atlantic States.

The other two genera are distributed over our whole territory, and contain many species.

#### Group III.—Anaglypti.

The head is also large, and the front long, and quadrate; the antennæ slender, moderately long, with the joints 3-5 sometimes spinose at tip; the prothorax is not narrowed in front, but always much constricted behind; the elytra are frequently gibbous at the base, and declivous at tip, and sometimes have transverse

ivory bands. The episterna of the metathorax are narrow, and the epimera are scarcely produced over the angles of the 1st ventral; the intercoxal process is acute. The legs are moderate in length, and the thighs somewhat strongly clubbed, and not spinose at tip; the 1st joint of the hind tarsi is less elongated than in the other groups. The mesonotum is not punctured at the sides, and is covered with very fine stridulating lines.

In some of the genera the middle coxal cavities are nearly or entirely closed externally, but as in other portions of the series, the transition is accomplished by such slight gradations that the character seems to have little value.

2d joint of antennæ equal to 4th :

Antennæ not spinose, elytra without ivory spots.

MICROCLYTUS.

2d joint of antennæ short, 3d longer than 4th ;

Elytra without ivory spots ;

Eyes oblique, emarginate.

CYRTOPHORUS.

Eyes entire, rounded.

TILLOMORPHA.

Elytra with a transverse ivory band.

EUDERGES.

*Microclytus* is founded upon *C. gazellula* Hald. a species of the Middle States, having entirely the form and coloration of the European *Anaglyptus mysticus*, but smaller, and differing essentially by the 2d joint of the antennæ being fully half as long as the 3d, and scarcely shorter than the 4th joint; the flying hairs are peculiarly long and numerous; the eyes are oblique, emarginate above, and pointed behind, as if the usual deeply emarginated form had been shortened by the obliteration of the upper part. The same form is seen in *Cyrtophorus verrucosus*, but less acute at the upper angle. In *Tillomorpha geminata* (Hald.) the eyes are oval, not at all emarginate, the upper part being absent; and in *Euderges* they are entirely divided, the lower part being emarginate, acutely pointed above, and the upper part small, distant, and oval.\*

\* Lacordaire, Gen. Col. ix, 89, observes that this character, mentioned by me in the original description of the genus, has completely escaped him; it is quite obvious in all the specimens before me, though in *Eu. picipes* the two parts of the eye are connected, as in *Tetropium*, by a line of corneous material, without lenses; even this line is wanting in *Eu. pini*, so that the eye becomes as completely divided as in *Tetraopes*.

Tribe XII.—**AGALLISSINI.**

A tribe composed of a single genus *Agallissus* *Dalman* (*Cryptopleura* *Lec.*) which is remarkable for having the epipleuræ strongly sinuated near the humeri. Head small, front short, vertical in *A. clerinus*, quadrate, oblique in *A. gratus*; eyes finely granulated, deeply emarginate; antennal tubercles not elevated, antennæ slender, shorter than the body in both sexes, finely punctulate, and sericeous, 11th joint feebly appendiculate; mandibles small, stout, acute, genæ moderately short; mentum transverse, of the usual form, entirely corneous; palpi short, equal, not dilated. Front coxæ small, not prominent, cavities rounded, open behind; middle coxal cavities angulated externally, mesosternum suddenly declivous in front. Epimera of metathorax very wide in front, gradually narrowed behind; ventral segments slightly decreasing in length; legs short, slender, thighs not clavate, spurs small, 1st joint of hind tarsi but little longer than the 2d.

The prothorax is rounded on the sides, not transverse, the elytra are wider at base than the widest part of the prothorax, and the humeri are rather prominent, as in many Lepturidæ. The scutellum is obtusely rounded behind, the mesonotum is smooth and polished, with a large, very fine stridulating plate. Flying hairs of moderate length are seen over the general surface of the body, and on the legs.

Two species occur in our fauna, *A. gratus* (*Cryptopleura grata* *Hald.*) from Texas, and Northern Mexico, shining black, sparsely punctured, with the elytra narrowed behind, truncate and finely serrate at tip, ornamented with yellow spots, of which the basal pair are elongate; and *A. clerinus* from Florida, opaque black, very coarsely and densely punctured; prothorax red, with faintly indicated dorsal smooth spots; elytra parallel on the sides, rounded at tip, with a round basal spot, and two broad transverse bands bright scarlet. Length 13 mm.

I consider this as the nearest approach made by the genuine Cerambycidæ to the *Stenocorus* group of Lepturidæ. It is, however, quite an isolated form, and the two species above mentioned should probably be regarded as distinct genera.

Tribe XIII.—**ATIMIINI.**

One genus with two species constitutes this group, which has lost entirely the characteristic form of the Cerambycidae, and resembles a rather stout Lamiide. The head is broad and short, the front perpendicular; the eyes large, deeply emarginate, almost in fact divided, and not very finely granulated; labrum transverse, ciliated with very long hairs; mandibles slender and acute; mentum trapezoidal, corneous; palpi unequal, scarcely compressed, truncate at tip, the maxillary about half longer than the labial. Antennae slender, shorter than the body in both sexes, 11-jointed; 2d joint less than half as long as the 3d, which is a little shorter than the 4th, punctured and pubescent, not sericeous. Front coxae rounded, somewhat large, widely separated by the prosternum, cavities not angulated externally, *completely closed* behind; middle coxae widely separated by the mesosternum, which is truncate behind and gradually declivous in front; coxal cavities slightly angulated externally, completely closed by the sterna; metathoracic episterna moderate, neither wide nor narrow; metasternum unusually deeply emarginate behind, for the reception of the acute intercoxal process; ventral segments slightly decreasing in length, the 5th in ♀ a little longer than the 4th and truncate. Legs short, thighs moderately clavate, tibiae with small spurs, hind tarsi with 1st joint equal to two following united.

The scutellum is subquadrate, rounded behind; the mesonotum has a large stridulating surface, divided by a dorsal furrow, as in *Leptura* and allied genera.

The body is densely clothed with long, coarse, luteous hair, with some denuded spots on the thorax and elytra; the former is quadrate, transverse, scarcely rounded on the sides, and coarsely punctured, the latter a little broader, truncate at tip, more finely and very sparsely punctured, with several rows of very distant larger punctures. The front tibiae are without any vestige of the oblique groove seen in *Lamiæ*.

*Atimia confusa* (Clytus conf. Say) occurs in the Middle States and Canada; and *A. dorsalis* Lec. on the Pacific slope.

Tribe XIV.—**DISTENIINI.**

This tribe, represented only by *Distenia undata* in our fauna, exhibits so many peculiarities that it may well be viewed as a survivor of the synthetic types of former times. The combination of the form of eyes of Prionidæ, with the ligula of the same sub-family, large globose front coxæ (as in Achryson), long, slender antennæ; spinose prothorax and elytra (as in many Cerambycoides), a divided stridulating organ (as in Lepturoides), with a peculiar form of mandibles, not known to me otherwise in the whole family, is very remarkable. The form of body and general appearance is intermediate between a slender Cerambycid and a Lepturoid. Lacordaire has very properly given to this type, as the 3d division of the true Cerambycidæ, the greatest prominence it could have in his system.

Body elongate, head large, horizontal; eyes transverse, large, rather coarsely granulated, feebly emarginate, not embracing the base of the antennæ; neck moderately constricted; front very short, suddenly declivous between the antennæ, epistoma large, quadrate, horizontal, labrum large, broader than long. Antennæ long, setaceous, 1st joint as long as the head, comparatively slender, 2d joint small, but with its condyle very much protruding from the 1st joint; following joints equal in length, pubescent, not sericeous, without distinct sensitive spaces, fringed beneath with long, fine, close lying hairs, which extend far beyond the end of each joint, from the 4th to the 10th. Palpi very unequal, maxillary with the last joint elongate triangular, rounded at tip, not impressed, labial shorter, last joint thick, rounded triangular. Ligula large, corneous, feebly emarginate in front, supports of palpi small, widely distant. Mandibles thick, curved, chisel-shaped at tip, apical edge vertical, sharp, straight. Prothorax with dorsal elevations, and acute lateral spine, constricted near apex and base, which are truncate. Scutellum rounded behind, mesonotum with large stridulating plate, divided by a smooth dorsal stripe. Elytra wider in front, gradually narrowed from the humeral angles, bispinose at tip. Prosternum very narrow between the coxæ, which are very large, globose, and prominent, cavities widely open behind, not at all angulated externally. Mesosternum rather wide, parallel, emarginate behind, coxal cavities narrowly angulated externally, but closed by

the contact of the sternal pieces. Episterna of metathorax long and narrow, nearly pointed behind; scent pores not very distinct, though the insect has an offensive odor when alive. Hind coxæ rather convex, though distinctly separated. Ventral segments nearly equal in length, 5th in ♂ semicircularly emarginate at tip. Legs slender, hind pair longer, middle tibiæ with a singular oblique groove on the outer face, below the middle; tibial spurs distinct; 1st joint of hind tarsi as long as the two following.

Tribe XV.—**DESMOCERINI.**

This tribe is represented by two species of *Desmocerus*, *D. palliatus* in the Atlantic, and *D. auripennis* in the Pacific States. Though by the large conical and contiguous front coxæ, and the divided stridulating surface of the mesonotum it belongs to the Lepturoid series, it differs remarkably from the other genera by the much smaller and stouter mandibles, which are not at all fringed on the inner margin. The ligula is large, membranous, and bilobed, though less deeply so than in Lepturini; the palpi are short, not dilated; the mentum is large, trapezoidal, and the gular process very short. The eyes are finely granulated, nearly rounded, suddenly and deeply emarginate towards the base of the antennæ, which are 11-jointed, with the joints 3-5 thickened at the end, and the outer ones velvety black; the vertex is prominent, deeply sulcate, suddenly perpendicular in front of the antennæ, front horizontal, advancing as in other Lepturoides (and also in *Distenia*) between the base of the mandibles; labrum large, not emarginate. Prothorax gradually wider behind, obtusely angulated on the sides, hind angles prolonged, acute; scutellum rounded behind, stridulating plate of mesonotum large, divided by a smooth furrow. Elytra parallel, coarsely punctured, obliquely rounded behind. Prosternum very narrow between the coxæ, which are large and conical with the cavities angulated externally and open behind; mesosternum narrow, subemarginate at tip, coxal cavities widely open externally; episterna of metathorax wide, subparallel, suddenly narrowed behind. Hind coxæ prominent, contiguous at the inner side; ventral segments subequal; legs slender, tibial spurs moderate, tarsi rather broad, hind pair with 1st joint scarcely equal to the two following united.

In the ♂ the 5th ventral segment is slightly emarginate at tip,



and the antennæ are stouter. The insects are found on species of *Sambucus*.

Tribe XVI.—**NECYDALINI.**

Head large, suddenly, but not very deeply constricted far behind the eyes, which are finely granulated, large, oblique, deeply emarginate; the front is very large, quadrate, and vertical, the genæ long, and the hypostoma limited each side by an oblique ridge; the antennæ are inserted high up on the top of the front between the eyes; the mandibles are small, stout, pointed, and fringed with hair on the inner margin; the palpi are very short, the last joint oval and deeply impressed in *Ulochætës*, bell-shaped and feebly impressed in *Necydalis*. Antennæ filiform, longer in ♂; 2d joint small; 3d and 4th united not longer than the 5th in *Ulochætës*; 3d and following joints equal in *Necydalis*. Prothorax deeply constricted before and behind, and tuberculate on the sides. Scutellum elongate, triangular; stridulating plate of mesonotum large, undivided. Elytra very short, dehiscent, separately rounded at tip; dorsal segments exposed, entirely corneous; wings not folded at tip, but lying straight along the abdomen. Prosternum very short in front of the coxæ, narrow between them, coxæ large, conical, prominent, nearly contiguous, cavities angulated externally, closed behind; mesosternum subtriangular, truncate behind; coxæ prominent, cavities open externally; metathoracic episterna wide in front, narrowed behind; hind coxæ prominent, nearly contiguous. Abdomen gradually narrowed behind and nearly pointed in ♀, slightly thicker at the extremity in ♂; ventral segments equal in length, 5th in ♂ broadly emarginate. Legs slender, hind pair much longer, tibial spurs small, tarsi narrow, 1st joint elongate, not brush-like beneath, in front pair equal to 2d and 3d united, in middle pair equal to all the others united, in the hind pair much longer.

This tribe is represented in our fauna by *Necydalis mellitus* Say in the Atlantic, two species of the same genus, and *Ulochætës leoninus* in the Pacific States. The latter is a large, robust, and very hairy insect, which is well figured in the Pacific R.R. Explorations, vol. xi, pl. 2, f. 12.

The undivided stridulating plate is an exception in the Lepturoid series, to which I have attached this remarkable tribe, and with which it has very strong relations. It would perhaps be

better to view it as representing a separate series, in which might be placed various foreign tribes in which the wings are not folded at the end. In this connection, it is important to observe that in *Stenopterus* and *Molorchus*, which have abbreviated elytra. the wings are not straight, but folded in the usual manner.

Although the under surface of the head is limited each side by a line, as in other *Lepturoides*, the line is less defined and the mentigerous process is not more developed than in *Cerambycoides*, and the mentum has the short transverse form so frequent in that series, and totally unlike the ordinary *Leptura* type.

Prof. Lacordaire describes the front coxal cavities as open behind, but they are very evidently closed in *N. mellitus*.

#### Tribe XVII.—ENCYCLOPINI.

The head is quadrate, suddenly but not strongly narrowed and constricted far behind the eyes (so that the neck is very short); front large, quadrate, nearly vertical, eyes finely granulated, obliquely emarginate, with the antennæ inserted high up on the front near the emargination; antennæ 11-jointed slender, with  $4\frac{2}{3}$  joints punctured, the rest sericeous, genæ rather long; mandibles small, acute, fringed with hair on the inner margin; labrum rather large; palpi moderate, unequal, last joint rounded triangular; hypostoma very distinctly defined each side, mentigerous process short, broad, distinct, mentum large, trapezoidal; prothorax constricted before and behind, wider at the base, tuberculate on the sides. Scutellum small triangular, mesonotum in *Encyclops* punctured and hairy, with a very narrow median smooth space, which is carinated, but does not appear to be stridulating; in *Leptalia* the stridulating surface is large, and divided by a fine dorsal groove; in *Pyrotrichus* not examined. Elytra elongate, parallel, separately rounded in *Encyclops*, feebly truncate in *Pyrotrichus*. Front coxæ conical prominent, nearly contiguous, cavities angulated, open behind; mesosternum triangular, coxal cavities open externally; metathoracic episterna narrow, pointed behind; hind coxæ not prominent; ventral segments nearly equal, the 1st a little longer, the 5th a little shorter. Legs slender, hind pair longer, tibial spurs small; tarsi in *Encyclops* slender elongated, 1st joint of all much longer, and on the hind tarsi without brush of hair beneath; in *Leptalia* the first joint of hind tarsi is sulcate. with a line of

pubescence each side ; in *Pyrotrichus* wider, with usual covering beneath, and only as long as the 2d and 3d united.

The eyes are very deeply emarginate in *Pyrotrichus*, rounded, with a small but distinct emargination in *Encyclops*, feebly emarginate in *Leptalia*.

† The genera may be thus distinguished:—

Tarsi wider, joints 1—3 brush-like beneath. PYROTRICHUS.

Tarsi slender, 1st joint very long;

Hind tarsi with basal joint sulcate, brush-like at the sides.

LEPTALIA.

Hind tarsi with basal joint cylindrical.

ENCYCLOPS.

The differences in the tarsi are similar to those observed in the three groups of *Lepturini*. *Pyrotrichus* being similar to *Stenocorus*, *Leptalia* to the *Toxotus* group, and *Encyclops* to the genuine *Lepturæ*.

To *Leptalia* belongs *Anoplodera macilenta* Mann. a black species from Alaska ; *A. Frankenhäuseri* Mann. is a variety with striped elytra and yellow legs ; *Leptura fuscicollis* Lec., is a larger variety from Vancouver and California, in which the elytra are also striped, and the legs yellow, sometimes varied with black. The reference to *Anoplodera* was singularly inappropriate, since the sides of the prothorax are armed with a rather acute tubercle, almost as in *Centrodera*.

#### Tribe XVIII.—LEPTURINI.

The numerous species composing this tribe are easily recognized by the prominent conical front coxæ, with the cavities angulated externally, open, sometimes almost closed, behind ; middle coxal cavities widely open externally ; the palpi are always unequal, the maxillary elongated, the last joint cylindrical, or triangular, impressed. The head is variable in form, either gradually narrowed behind the eyes, or suddenly and strongly constricted, in either case the neck is long ; the front is slightly declivous, and the antennæ are inserted well in front of the eyes, or slightly between them ; the eyes are oval, longitudinal, or slightly oblique, entire or emarginated. The mandibles are flat, acute, and fringed on the inner margin. The hypostoma is defined by very distinct lateral lines, the mentigerous process is very distinct, and the mentum flat and trapezoidal. The other characters are variable, the antennæ are usually slender, some-

times subserrate; the prothorax is usually wider at base, sometimes tuberculated at the sides; the elytra usually narrowed from the base, sometimes bispinose at tip, sometimes acute and dehiscent, but usually rounded and dehiscent.

The species occur on flowers, are generally prettily colored, and usually clothed with fine pubescence.

A. First joint of hind tarsi with the usual brush of hair beneath (except in certain *Acmaeops*).

a. Prosternum prominent between the coxæ. STENOCORUS.

b. Prosternum not prominent, front coxæ conical, protuberant; head not suddenly constricted behind. (TOXOTI.)

Eyes large, coarsely granulated. CENTRODERA.

Eyes smaller, coarsely granulated. XYLOSTEUS.

Tibial spurs not terminal (eyes variable). TOXOTUS.

Eyes finely granulated, tibial spurs terminal;

Prothorax acutely armed on the sides;

Eyes moderate, feebly emarginate. PACHYTA.

Eyes large, strongly emarginate. ANTHOPHYLAX.

Eyes very small, entire. PODES.

Prothorax obtusely angulated or rounded on the sides; eyes small, entire;

Mesosternum not protuberant. ACMÆOPS.

Mesosternum protuberant. GAUROTES.

B. 1st joint of hind tarsi without brush-like sole; prosternum not prominent; head strongly and suddenly constricted behind; eyes finely granulated, deeply emarginate. (LEPTURÆ.)

Last ventral segment of ♂ deeply excavated; body very slender;

Elytra strongly sinuate on the sides; antennæ without poriferous spaces. BELLAMIRA

Elytra less sinuate on the sides; antennæ with poriferous spaces on the outer joints. STRANGALIA.

Last ventral segment of ♂ not excavated;

Antennæ with large poriferous spaces. TYPOCERUS.

Antennæ without poriferous spaces;

Hind coxæ not contiguous. LEPTURA.

Hind coxæ contiguous. EURYPTERA.

The type and only species of *Bellamira* is the large and elegant *Leptura scalaris* Say (*Toxotus coarctatus* Hald.) of the Atlantic States.

To *Euryptera* belongs *Lept. lateralis* Oliv. (distans *Germ.*).

*Stenocorus Geoffroy* is equivalent to *Rhagium Fabr.*

## Sub-Family III.—LAMIIDÆ.

The members of this sub-family are usually very easily recognized by (1) the prothorax not being margined; (2) the palpi with the last joint cylindrical and pointed; and (3) the front tibiæ obliquely sulcate on the inner side. One of these characters is occasionally absent, but the other two will then, with the general appearance of the insect, make its affinities unmistakable. To the first character there is no exception in our fauna, and only the *Tmesisternus* group of the other continent; *Michtysoma*, having the last joint of the palpi triangular, is the only exception in North America to the second character; the third character is lost in some genera of low organization, such as *Methia*, *Dysphaga*, which are only feebly differentiated from the *Oeme* group of *Cerambycidæ*.

The front is vertical, usually large and flat, rarely shorter and convex; the eyes are usually finely or moderately finely granulated, rarely quite coarsely granulated; emarginated, frequently divided, sometimes (*Spalacopsis*) with the upper lobe wanting.\* The front coxæ are rounded, never transverse, the coxal fissure is frequently open, so that the cavity becomes angulated, but this character, as in *Cerambycidæ*, is not of great importance; they are closed behind in nearly all, widely open in *Methiini*, with a tendency to become open in *Monohammi*. The middle coxæ are entirely closed by the sternal pieces in the higher forms of each series, open to the side pieces in the others, but this character is also of small importance. The metasternum never has scent glands; and the stridulating organ of the mesonotum is always undivided, though frequently narrow. The ventral segments are always 5, and present no remarkable characters. The legs are usually short, sometimes (*Monohammus* ♂, *Dorcascema*) long; middle tibiæ with a tubercle or sinus on the outer face in most genera; tibial spurs short; ungues either *divaricate* (extending in a plane at right angles to the length of the last joint), or *divergent* (not in the same plane, but forming an angle). This character, first observed by Lacordaire, seems to be of great value; in the true *Cerambycidæ* the claws do not appear to vary

\* This character has been already noticed in the *Clytini*, group *Anaglypti*, v. sup. p. 320.

to the same extent, but to be slightly moveable in nearly all, if not all, the species.

I would arrange the tribes represented in our fauna into series, as follows:—

- I. Humeral angles not prominent; metasternum short; wings wanting; front tibiæ sulcate. DORCADIOIDES.
- A. Front large, palpi slender;  
Support of labrum distinct, coriaceous. DORCADINI.  
Support of labrum not visible. MONILEMINI.
- B. Front short, oblique, palpi dilated. MICHTHYSOMINI.
- II. Humeral angles distinct, wings perfect, elytra entire; front tibiæ sulcate;
- A. Body small, elytra gibbous or spinose near the base; prothorax constricted behind, front large inflexed, unguis divergent. CYRTINOIDES.  
Front coxal cavities rounded. CYRTININI.  
Front coxal cavities angulated. PSENOCKERINI.
- B. Body elongated, usually large, elytra not gibbous; scape of antennæ with an apical cicatrix (except *Dorcascema*), front coxal cavities angulated, sometimes a little open behind; eyes rather finely granulated; (unguis usually divaricate, but variable). LAMOIDEOS.  
MONOHAMMINI.
- C. Unguis divergent.
- a. Scape of antennæ with an open apical cicatrix; front coxal cavities angulated, middle coxæ open; eyes finely granulated; body broad. MESOSOIDES.  
MESOSINI.
- b. Scape of antennæ without cicatrix; front coxal cavities variable, middle coxæ open. ONCIDEROIDES.  
Front large, flat; front coxæ angulated. ONCIDERINI.  
Front convex; front coxæ nearly round; eyes very coarsely granulated. ATAXINI.  
Front inflexed, form very elongate. HIPPOPSINI.
- D. Unguis divaricate; scape of antennæ without cicatrix;
- a. Front coxæ rounded, middle coxæ closed or nearly so; form usually stout. ACANTHODEROIDES.  
Scape of antennæ clavate. ACANTHODERINI.  
Scape of antennæ long, slender. ACANTHOCINI.
- b. Front coxæ angulated, middle coxæ open. POGONOCHEROIDES.  
Support of labrum coriaceous. POGONOCHERINI.  
Support of labrum not visible. DESMIPHORINI.
- c. Front coxæ protuberant, subconical, cavities angulated; middle coxæ open externally; eyes very finely granulated; form cylindrical, prothorax never armed, rarely tuberculate on the sides. SAPERDOIDES.

Ungues simple (except the outer one of front and middle tarsi in certain ♂).

SAPERDINI.

Ungues cleft or appendiculate.

PHYTOECINI.

III. Humeral angles distinct, wings perfect, elytra abbreviated; front tibiæ not sulcate, claws divaricate.

METHIOIDES.

Front coxal cavities angulated, widely open behind; middle coxal cavities open externally; front short, eyes very large, coarsely granulated; oral organs atrophied.

METHINI.

#### Tribe I.—**DORCADIINI.**

This tribe, represented by numerous species in the Mediterranean region of the Eastern continent, has but two representatives, *Plectrura* and *Ipochnus*, in our fauna; the former, a brownish insect with rows of shining tubercles on the elytra, which at the apex are prolonged into acute serrated cusps; the sides of the prothorax are armed and serrate; it is found in Oregon, Vancouver, and Alaska. *Ipochnus*, a very convex form, clothed sparsely with long erect hair, with bands of white pubescence on the elytra; the prothorax rounded, not armed; found in the southern part of California.

These two genera represent separate groups, the former, *Dorcadia*, having slender almost pointed palpi, and wide intercoxal process of 1st ventral segment; the latter, *Parmenæ*, having the palpi stouter, last joint oval, obliquely truncate, and the intercoxal process of 1st ventral segment acute.

The tribe is readily recognized by the absence of wings, the consequently short metasternum, and by the elytra having no humeral angles; the large quadrate vertical front; the support of the labrum coriaceous and distinct. The ungues are divaricate, and the last tarsal joint long. The front coxal cavities are widely angulated, closed behind; the middle coxal cavities widely open externally, with distinct trochantin. The eyes are coarsely granulate. Habits epigæal.

#### Tribe II.—**MONILEMINI.**

These are large species of black color, rarely (*M. albopictum* White) varied with whitish pubescence; the antennæ are, however, always annulate. They are found in the interior region of the continent, extending into Texas and Lower California.

The characters of the tribe are: front large, quadrate vertical, support of labrum not visible; wings none, metasternum short,

elytra without humeral angles; palpi slender, last joint obtusely pointed.

Additional characters are: eyes rather finely granulated, small, deeply emarginate; front coxal cavities rounded, closed behind; middle coxal cavities angulated externally but closed; ungues divaricate, last tarsal joint less elongated than in *Dorcadiini*. Intercoxal process of 1st ventral segment wide.

Mr. James Thomson has established *Omoecylon* on *M. subrugosum* Bland, a species of Lower California in which the prothorax has no lateral spine. The distinction is illusive, as all gradations in the degree of development of the spine are seen, from *M. armatum* where it is large and acute to *M. annulatum* Say, where it is obtuse, and finally to *M. appressum* Lec., and *subrugosum*, where it is wanting.

#### Tribe III.—**MICHTHYSOMINI.**

I have established this tribe on the very anomalous *Michthysoma heterodoxum* Lec., of which I found a single specimen in the mountain region of Georgia. The head is rather large, the front short, scarcely vertical, the support of labrum visible, coriaceous, labrum small, rounded in front. Palpi very unequal, with the last joint securiform. Antennæ slender, as long as the body, scape rather stout, as long as the 3d joint, rounded at tip, without cicatrix; 3d joint not longer than 4th; eyes small elongate, coarsely granulated, lower lobe narrow. Prothorax as wide as the head, with an acute lateral spine, rather in front of the middle. Elytra elongate not wider than prothorax. Intercoxal process of first ventral segment acute.

Front coxal cavities angulated, closed behind; middle ones angulated, closed externally; thighs strongly clavate, front tibiæ curved inwards and feebly sulcate, middle ones absolutely without tubercle, sinus, or tuft of hair on the outer margin; tarsi less dilated than usual, 1st joint of hind pair equal to two following united; last joint moderate, claws divaricate.

The form of the palpi seems to show an affinity with the African genus *Phantasis*, but the body is much more elongate, and the other characters do not agree. The head and prothorax are densely punctured and opaque, the elytra more shining, less densely punctured, with hairs proceeding from the punctures.



Tribe IV.—**CYRTININI.**

This tribe is represented in the Atlantic States by a single species of *Cyrtinus* (*Clytus pygmæus* Hald.), and is very anomalous in its characters.

The front is large, inflexed, somewhat convex, and the mouth is small; palpi slender, pointed; eyes small, divided, coarsely granulated; antennæ a little longer than the body, scape slender, without apical cicatrix. Prothorax smooth, oval, very convex, constricted at base; elytra with rounded humeri, wider behind, very convex, each with a large acute spine near the scutellum. Wings perfect.

Front coxæ large, rounded, cavities not angulated, closed behind, prosternum scarcely longer in front than behind the coxæ; middle cavities slightly angulated, closed externally; legs stout, thighs strongly clavate, middle tibiæ with a faint sinus on the outer margin; hind tarsi shorter than the tibiæ, 1st joint equal to the two following, last joint rather large; claws apparently moveable, as they are sometimes very widely divergent, and almost divaricate, at others quite near together. The metasternum is very little longer than the 1st ventral segment, and the intercoxal process is acute. This is the smallest Lamiide in our fauna.

Tribe V.—**PSENO CERINI.**

Also represented by a single very small species of *Psenocerus* in the Atlantic States (*Clytus supernotatus* Say), which resembles a *Saperda* in its form, as much as *Cyrtinus* does a *Dorcadion*.

The characters are nearly the same as in the preceding tribe, except that the front coxæ are angulated externally, and the middle ones open; the middle tibiæ are absolutely without sinus or tuft of hair on the outer margin; the tarsi are wider, and the last joint rather longer, and the claws very widely divergent, though not divaricate.

The front is large and vertical, the support of the labrum coriaceous, the eyes coarsely granulated, divided, the antennæ shorter than the body; scape stouter, and less elongated, without cicatrix, the 3d and 4th joints equal, longer than the others. The prothorax is cylindrical, convex, constricted at base; elytra cylindrical, each with an oval elevation near the scutellum, which is much weaker in small specimens, humeri square. The body

is densely punctured, brown or blackish, with the scutellum, a narrow oblique band composed of two spots about the middle, and a wider transverse one behind the middle not extending to the suture, of white pubescence.

The relations of this and the preceding tribe with the Anaglyptus group of Clytini are quite obvious.

#### Tribe VI.—**MONOHAMMINI.**

I have given to this tribe a greater extension than that proposed by Lacordaire, who restricted it to those genera in which the scape of the antennæ has a large cicatrix, limited by a raised line. The relations between *Ptychodes* and *Dorcaschema* are so obvious that they cannot be naturally separated. The tribe as thus enlarged may be defined as follows :—

Front large, vertical, quadrate, flat; genæ long; support of labrum large, coriaceous; mandibles flat; palpi slender, filiform, pointed; eyes somewhat finely granulated, emarginate, lower lobe variable in form. Antennæ longer than the body, very long in the ♂, except in *Goes* and *Cacoplia*, scape rather stout, with a terminal cicatrix, except in *Dorcaschema*. Prothorax with or without a lateral spine, elytra narrowed behind, or cylindrical, wings perfect.

Front coxæ angulated, with distinct trochantin, middle coxal cavities widely open externally; metasternum longer than the first ventral segment (as in all the following tribes); the intercoxal process acute; middle tibiæ with a distinct tubercle on the outer margin; tarsi not elongated, last joint large, claws not fully divaricated, but somewhat moveable as in *Cerambycidae* genuini. The last ventral segment is truncate in both sexes, but more so in the ♀.

Three groups exist in our fauna.

Legs long, the front pair elongated in ♂, and the antennæ much longer than the body;

Prothorax with lateral spines.

MONOHAMMI.

Prothorax cylindrical.

PTYCHODES.

Legs equal, not elongated.

GOES.

#### Group I.—**Monohammi.**

Several species of *Monohammus* represent this group in various parts of the country; they affect the wood of pine trees. The

group is easily recognized by the deeply channelled vertex, very long ♂ antennæ, scape with an apical cicatrix, long slender legs, the front pair much longer in the ♂ ; the lower lobe of the eyes is a little longer than wide. The prothorax has a strong lateral spine.

The last ventral segment in the ♂ is feebly, in the ♀ more strongly, truncate; the ventral segments are nearly equal in length.

#### Group II.—*Ptychodes*.

These have also very elongate antennæ, and slender legs, the front pair elongated in the ♂ ; the vertex is deeply and narrowly channelled ; the lower lobe of the eyes is broader than long. The first and 5th ventral segments are longer than the intermediate ones, the last is feebly truncate in the ♂, but more strongly in the ♀. The prothorax is cylindrical.

Our genera are as follows :—

Scape of antennæ with a large well-defined cicatrix ;	
Eyes nearly divided.	PTYCHODES.
Scape of antennæ without cicatrix ;	
Elytra rounded at tip.	DORCASHEMA.
Elytra pointed at tip.	HETEMIS.

#### Group III.—*Goes*.

I include in this group Lacordaire's tribe Batocerini, so far as it is represented in our fauna. Neither the difference in the apical cicatrix of the scape of the antennæ, nor the protuberance of the mesosternum seem to me to be of tribal value.

The body is more massive and less elongate than in the preceding groups. The vertex is broadly channelled, the lower lobe of the eyes is long in *Goes*, transverse in *Plectrodera*; the antennæ are but little longer than the body, and not very different in the sexes ; the legs are rather short, equal in length, and not different in the sexes. The ventral segments are nearly equal, and the 5th is more distinctly truncate in the ♀.

Three genera occur in our fauna, all in the Atlantic region :—

Scape of antennæ with a distinctly limited cicatrix	
Prothorax cylindrical.	CACOPLIA.
Prothorax with a lateral spine.	GOES.
Scape of antennæ with the cicatrix not sharply defined ;	
Prothorax with a strong lateral spine.	PLECTRODERA

Tribe VII.—**MESOSINI.**

This tribe has but a single representative, *Synaphæta Guexi*, in California; a rather large, stout insect clothed with gray pubescence; antennæ annulated, prothorax with two black vittæ, and elytra each with two angulated black bands.

The front is large and quadrate, labral support large, coriaceous; vertex deeply channelled; mouth large, palpi slender, pointed; eyes finely granulated, almost divided, lower lobe nearly quadrate; antennæ longer than the body in ♂, shorter in ♀, scape long with an oblique apical cicatrix; prothorax with a very obtuse lateral tubercle just behind the middle; elytra wider than thorax, nearly parallel, depressed on the back, suddenly inflexed at the sides, broadly rounded behind.

Front coxæ angulated, closed behind, with large trochantin; middle coxal cavities open externally; mesosternum protuberant; metasternum a little longer than the 1st ventral; 2-4 segments nearly equal, 5th in ♂ somewhat emarginate, longer, channelled, and more deeply emarginate in ♀. Legs rather short, equal, middle tibiæ without tubercle or sinus on the outer margin; tarsi short, and broadly dilated, claws divergent.

The species of this tribe resemble in appearance the stouter forms of the next two tribes, but differ by the strongly angulated front coxal cavities.

Tribe VIII.—**ACANTHODERINI.**

With this tribe commences a long series of genera having the claws divaricate; the front is large, quadrate, vertical, mouth large; support of labrum large, coriaceous; palpi slender; antennæ variable, sometimes excessively long in both sexes, sometimes (sub-tribe Acanthoderini) hardly longer than the body; vertex not much excavated, eyes finely or somewhat coarsely granulated, lower lobe nearly quadrate. Prothorax armed or not on the sides, position of spine variable. Elytra rounded or truncate at tip, usually flattened on the disk, rarely (Deetes) cylindrical.

Front coxal cavities rounded, closed behind, usually by a broad corneous space, sometimes (Deetes) very narrowly, so as almost to appear open. Middle coxal cavities closed externally; legs moderate, thighs usually strongly clavate, middle tibiæ with a tubercle on the outer margin, hind tarsi sometimes short, sometimes elongated.

Sub-tribes are indicated as follows :—

Scape of antennæ clavate.	ACANTHODERINI.
Scape of antennæ cylindrical, slender.	ACANTHOCININI.

Sub-Tribe 1.—**Acanthoderini.**

The scape of the antennæ is gradually thickened towards the tip, and shorter than the 3d joint, without apical cicatrix. The prothorax is armed with dorsal tubercles, and the lateral spine is large, acute, and situated about the middle; 1st joint of hind tarsi not much longer than the 2d; ventral segments 2-4 shorter in the ♀, 5th broadly emarginate in ♂, rounded in ♀.

I refer all our species to *Acanthoderes*, having the front tarsi of ♂ broader, and fringed with very long hairs. *Ætheopoetines Thomson*, founded upon *A. Morrisii* Uhler, does not seem to be sufficiently distinct; the lower lobe of the eyes is smaller, oblique and oval, rather than quadrate.

In *A. quadrigibbus* the eyes are less coarsely granulated than in the others; it and *A. decipiens* Hald. are referred by Lacordaire to *Psapharochrus Thomson*, but the genera seem to be founded on very feeble characters, and moreover not to be constant even in those differences.

Sub-Tribe 2.—**Acanthocinini.**

The scape of the antennæ is elongate and slender, scarcely thickened at tip, without apical cicatrix. The prothorax is either tuberculate on the disk, or not; the lateral spine is sometimes placed at the middle, sometimes behind the middle, sometimes even very near the base. The genera indicate four groups as follows :—

Lateral tubercle of prothorax about the middle.	LAGOCHIRI.
Lateral tubercle behind the middle;	
Prosternum wider behind the coxæ; body flattened above;	
♀ without elongated ovipositor.	LIOPH.
♀ with long ovipositor.	ACANTHOCINI.
roster very narrow, body cylindrical.	DECTES.

Group I.—**Lagochiri.**

Represented by the Mexican *Lagochirus obsoletus* Thom. which occurs in Lower California; a large, robust insect, with the disk of the prothorax tuberculate, the lateral tubercles very

large; the antennæ are very long, the 6th joint is a little thickened inwards at tip, and from the tubercle thus formed proceeds an acute slender tuft of stiff hairs, resembling a spine. The 1st joint of hind tarsi not elongated, scarcely equal to the 2d and 3d united.

#### Group II.—*Liopi*.

This group is represented by many species in our fauna, all of small or medium size, except one species from Arizona.

The lateral tubercle varies in position from near the middle to the base; in the former position it is very obtuse, but as it moves backwards it becomes more and more acute, and spiniform; the prothorax is feebly tuberculate in some species with obtuse lateral tubercle, and in the same species, the 1st joint of the hind tarsi is not elongated.

The genera may be thus arranged:—

Lateral tubercle submedial; outer joints of antennæ shorter;

1st joint of hind tarsi not elongated; mesosternum truncate;

Body and limbs with long erect hairs; lateral tubercle acute.

LOPHOPŒUM?

Pubescent only, lateral tubercle obtuse.

LEPTOSTYLUS.

Lateral tubercle of prothorax acute, post-medial; joints of antennæ from 3d nearly equal;

1st joint of hind tarsi as long as 2d and 3d united;

Lateral spine distant from base, body stouter; mesosternum truncate.

STERNIDIUS.

1st joint of hind tarsi very long; mesosternum acute behind;

Lateral spine distant from base, antennæ not ciliate beneath.

LIOPUS.

Lateral spine basal or nearly so, antennæ with a few ciliæ beneath;

Body slender.

LEPTURGES.

Body stout, depressed.

HYPERPLATYUS.

The new genus *Sternidius* is founded upon *Amniscus variegatus* Hald. and allies, contained in division C of my revision, Journ. Acad. Nat. Sci. Phil., 2d ser. ii. 172; it differs from *Leptostylus* only by the characters mentioned in the table.

#### Group III.—*Acanthocini*.

The insects of this group are of medium, or above medium, size, and elongate form; the lateral spine of the prothorax is well developed (though shorter in *Graphisurus*), and is very little behind the middle, except in *Eutessus*, where it is feeble, and near

the base. The antennæ, except in *Graphisurus*, are excessively long in both sexes, densely fringed beneath with soft hair in the ♂, and occasionally with an apical dilatation on the inner side of the 4th (*A. nodosus*), or 5th (*A. spectabilis*) joint. The 1st joint of the hind tarsi is very long, and the last abdominal segment of the ♀ is prolonged into an ovipositor, nearly half as long as the elytra.

Antennæ not much longer than the body;

Pubescence mixed with erect hairs.

GRAPHISURUS.

Antennæ very long in both sexes; pubescence not mixed with erect hairs;

Joints of antennæ 3—11 equal in length.

ACANTHOCINUS.

3d and 4th joints very long, 5—11 shorter than 4th.

EUTESSUS.

The last genus is founded on a very singular insect from Lower California, of which only ♂ specimens are before me. I infer from the general appearance, and sexual characters, that the ♀ must have a long ovipositor. The outline of the prothorax is straight nearly to the base, as in *Liopus*, then armed with a short spine; the elytra are uneven with small elevations, as in certain *Leptostylus*. I have named it *Eu. granosus*.

Our species of *Acanthocinus* lead insensibly to *Eutrypanus*; the two species of the Western slope, *Ædilis obliquus* and *spectabilis* have the sides of the elytra suddenly compressed and declivous, with a distinct carina running from the humeri obliquely backwards; the same thing is observed in a less degree in *A. nodosus*, but very feebly in *Lamia obsoleta* Olivier, which is incorrectly referred by Lacordaire to *Graphisurus*.

#### Group IV.—*Dectes*.

A single genus, with one species in the Atlantic States and one in Texas, constitutes this group. The form is elongate, and cylindrical, the antennæ about one-fourth longer than the body, scape very long, cylindrical, outer joints diminishing slightly in length. The lateral spine of the prothorax is acute, and slender, placed near the base, directed obliquely and horizontally outwards. The elytra are slightly truncate at tip, not wider than the prothorax; the front coxal cavities are separated by the very narrow prosternum, which is not dilated behind; they are closed very narrowly, so that on superficial examination they seem to be widely open, and were erroneously described as such by me;\*

\* Journ. Acad. Nat. Sci. Phila., 2d ser. ii. 144.

the legs are short, the thighs not clubbed, the hind tarsi as long as the tibiæ, with the 1st joint equal to the two following united.

Ventral segments nearly equal; 5th slightly emarginate in both sexes, a little narrower and longer in ♀.

The surface is uniformly finely punctured, and densely clothed with gray pubescence, without elevations or irregularities.

#### Tribe IX.—**POGONOCHERINI.**

This tribe, as here defined, contains species of small size, and usually with long erect (flying) hairs, in addition to the ordinary pubescence. They are related to Acanthoderini, having, like them, the claws divaricate, the body generally rather stout, and the scape of the antennæ without cicatrix; the front quadrate, with coriaceous support to the labrum. They differ in having the scape of the antennæ rather shorter and stouter than in the group Liopi, to which they bear the strongest resemblance; the antennæ are only a little longer or shorter than the body, the outer joints gradually shorter; the eyes are moderately or very coarsely granulated (Eupogonius); the front coxal cavities are angulated externally, completely closed behind; the middle ones are angulated, but not open externally; the legs are short, thighs strongly clavate in some genera, but not so in Eupogonius and Lypsimena; the middle tibiæ have an external sinus in some genera, and are quite simple in others; the 1st joint of hind tarsi short or only slightly elongated.

The genera of this tribe are dispersed by Lacordaire among his groups, Estolides, Apodasyides, and Pogonocherides; with the exception of Hoplosia?, which resembles a Graphisurus; with the antennæ of Acanthoderes, the genera have a characteristic habitus.

Three groups are indicated:—

Middle tibiæ with an external sinus; thighs clavate;

Eyes more finely granulated, lower lobe elongate.

ESTOLÆ.

Eyes less finely granulated, lower lobe not elongate.

POGONOCHERI.

Middle tibiæ absolutely simple; thighs not clavate;

Eyes very coarsely granulated.

EUPOGONII.

#### Group I.—**Estolæ.**

To this group I would refer *Pogonocherus nubilus* Lec., Proc. Acad. Nat. Sci. Phila., 1862, 39. The eyes are rather finely granulated, the lower lobe elongate; the scape of the antennæ



stout, clavate, much shorter than the 3d joint. The lateral spines of the prothorax are large and situated at the middle; there are no dorsal tubercles. The pubescence is gray mottled with black, and there are short, scattered, erect hairs on the elytra; the antennæ are thinly fringed beneath with hairs. The thighs are strongly clavate, and the sinus of the middle tibiæ is distinct; the 1st joint of the hind tarsi is scarcely longer than the 2d. The 5th ventral segment is much larger in ♀, and subtruncate in both sexes.

This insect indicates a genus, which is perhaps identical with the European *Hoplosia*. The mesosternum is parallel and truncate behind; the prosternum in front of the coxæ is well developed and not declivous, so that the head is not retractile.

#### Group II.—*Pogonocheri*.

The eyes are not coarsely granulated, the lower lobe subquadrate or subtriangular, not elongate; the scape of the antennæ is stout, though less clavate than in the preceding group, and they are fringed with long flying hairs; the prothorax is either armed or not, and has faint dorsal tubercles. The body and legs are clothed with long flying hairs, and tufts of hair are seen on the elytra in *Pogonocherus*, but in *Ecyrus* the pubescence is short and close, with a few erect, short hairs proceeding from rows of granules on the elytra, which are carinate on the sides in both genera, sometimes truncate, sometimes rounded at tip. The 5th ventral segment is larger in the ♀, and truncate in both sexes. The thighs are clavate, the middle tibiæ have a small but distinct tubercle on the outer margin;\* the hind tarsi are short, with the 1st joint equal to the 2d.

Two genera occur in our fauna.

Flying hairs long; prothorax with lateral spines.	<i>POGONOCHERUS</i> .
Prothorax with feebly rounded sides, pubescence short.	<i>ECYRUS</i> .

The second genus resembles in appearance a small *Mesosa*, but differs essentially in the claws being absolutely divaricate, and fixed in position.

\* Lacordaire states that the middle tibiæ are simple.

Group III.—**Eupogonif.**

The eyes are very coarsely granulated, with the lower lobe not transverse, they are larger in *Lypsimena* than in *Eupogonius*; antennæ not longer than the body, scape feebly clavate, shorter than 3d joint; clothed with long flying hairs in *Eupogonius*, sparsely ciliate beneath in *Lypsimena*; prothorax densely punctured, without dorsal tubercles, armed on the side with a small acute spine; elytra sparsely punctured, with irregular mottlings of yellowish pubescence in some species, with only erect hairs in *Eu. subarmatus*. Body and legs clothed with erect hairs, which are usually very long, but shorter in the species just mentioned. Legs short, equal, middle tibiæ without sinus or tubercle; 1st joint of hind tarsi a little longer than the 2d. Last ventral rounded at tip, larger in ♀ than ♂.

*Eu. subarmatus* bears a deceptive resemblance to *Amphionycha*, and the first specimen which I obtained being mutilated, was described as belonging to that genus, from which it is abundantly distinct by the coarsely granulated eyes, and entire ungues.

Body with flying hairs;

Antennæ pilose, joints 5—10 shorter, equal.

EUPOGONIUS.

No flying hairs;

Antennæ sparsely ciliate beneath, outer joints very gradually shorter, prothorax unarmed.

LYPSIMENA.

My specimen of the second genus is imperfect, so that the form of the middle coxal cavities cannot be observed; Lacordaire states that they are open. The very coarsely granulated eyes induce me to believe that its strongest affinity is with *Eupogonius*.

Tribe X.—**DESMIPHORINI.**

The occurrence of *Desmiphora mexicana* Thomson in Texas requires the introduction of this tribe into our fauna. The front is large, the support of the labrum is *not visible*, and the labrum itself is of peculiar form, the basal half is densely pubescent, and the apical half obliquely truncate, presenting an obliquely declivous oval surface, which is finely carinated; the mandibles are large and the head is bent down to touch the prosternum. The eyes are coarsely granulated. The prosternum is short, prominent between the coxæ, and very declivous before and behind. The prothorax is armed with a strong lateral spine. The elytra

are parallel and cylindrical, rounded at tip. The front coxæ are angulated externally and closed behind. The mesosternum is protuberant and perpendicular in front; the middle coxæ are angulated, but scarcely open externally. The 5th ventral segment (in ♀) is as long as the three preceding united, and truncate at tip. The legs are short, equal, the thighs not clavate, the middle tibiæ sulcate externally, with a slight protuberance; 1st joint of hind tarsi not longer than the 2d; claws divaricate.

The antennæ (♀) are two-thirds the length of the body, and pilose, the scape rather stout, scarcely clavate, joints 4-11 gradually, but rapidly decreasing in length.

This insect is remarkable for being covered with very dense brown pubescence, with lines and crests of very long, fine whitish hairs looking like mould. Beneath it is very prettily variegated with darker spots each surrounded with a white line. Length 15 mm. The only specimen I have seen was sent from Texas to Mr. A. S. Fuller, and given me by Dr. Horn.

#### Tribe XI.—ONCIDERINI.

With this tribe commences a series in which the front coxal cavities are angulated externally and closed behind, the middle ones open externally, and the claws moderately divergent. The antennæ in the present tribe are longer than the body in the ♂, about as long as the body in the ♀, and the scape is stouter, subcylindrical, nearly as long as the 3d joint, and has no apical cicatrix. The front is very large, quadrate, vertical, and flat, the support of the labrum coriaceous, the mouth large, the palpi slender, last joint cylindrical, obtusely pointed. The prosternum is very short in front of the coxæ, prominent between them, declivous before and behind; mesosternum truncate between the coxæ. Ventral segments equal in length, 5th broadly emarginate in both sexes, and impressed in the ♀. Legs rather stout, equal; thighs moderately clavate, middle tibiæ with a tubercle on the outer margin, hind tarsi with the 1st joint broad, not longer than the 2d, last joint as long as the others united, claws approximate, slightly divergent.

*Oncideres cingulatus* is remarkable for placing the eggs in small branches of trees, especially hickory, and then cutting through the bark below, so as to kill the branch, which is after-

wards broken off by the wind;\* it will be remembered that *Elaphidion villosum* has the same curious habit.

Eyes not very finely granulated, lower lobe elongate;

Antennæ slender in both sexes, vertex flat.

ONCIDERES.

Eyes very finely granulated, lower lobe not elongate;

Antennæ with joints 1—4 thickened and hairy in ♂; vertex deeply concave.

TARICANUS.

The first genus is represented by one species in the Atlantic States, and two in Texas and Arizona; the second by *T. Truquii* Thoms., a Mexican species which occurs in Texas.

#### Tribe XII.—**ATAXIINI.**

Is represented in our fauna by *Ataxia crypta* (Say), (*A. sordida* Hald.), † a slender insect densely clothed with mottled brown and white pubescence, and remarkable for having the punctures of the elytra arranged in rows, from which proceed black sub-erect hairs.

The antennæ are as long as the body, slender, annulated, scape stouter, as long as the 3d joint; joints from the 3d diminishing very slightly in length. Front convex, rather broader than long, support of labrum coriaceous, mouth moderate in size, genæ very short; palpi slender, last joint acute. Prothorax as long as wide, with a small, acute, lateral spine; elytra a little wider than the prothorax, cylindrical, rounded or subtruncate at tip. Front coxæ angulated, closed, prosternum not abbreviated in front; mesosternum truncate between the coxæ, cavities angulated, but scarcely open externally. Ventral segments, 1st and 5th a little longer, 5th truncate at tip. Legs moderate, thighs feebly clavate, middle tibiæ without tubercle, hind tarsi with 1st joint nearly as long as the two following, last joint as long as the first, ungues approximate, divergent.

Specimens from the Southern States and Texas have the elytra obliquely subtruncate, and the hairs longer; in those from New Mexico the elytra are almost rounded at tip, and the hairs are shorter. I do not think these differences are of specific value.

\* Haldeman, Trans. Am. Phil. Soc. x, 52.

† Erichson considered this insect as *Saperda annulata* and *lineata* Fabr., described from South America. Vide Lacordaire, ix, 599.

Tribe XIII.—**HIPPOPSINI.**

The body is extremely slender, the antennæ very long in the first group, short in the others; the front is very long and inflexed, so that the mouth is near to the prosternum; it is small, and the mandibles are nearly perpendicular to the inflexed front; the support of the labrum coriaceous, the palpi not slender and the last joint almost conical and pointed. The eyes are coarsely granulated, emarginate or divided, in the latter case, the upper lobe is sometimes (*Spalacopsis*) wanting. Prothorax long, cylindrical; elytra elongate. Front coxæ angulated in *Hippopsis*, rounded in the others, closed behind, middle ones open externally, mesosternum truncate between the coxæ. Ventral segments nearly equal, the 1st sometimes longer, 5th broadly truncate. Legs rather short, equal, middle tibiæ with an external tubercle, tarsi as long as the tibiæ, 1st joint of hind pair short, or slightly elongated (*Hippopsis*), last joint rather long, claws divergent.

Our three genera indicate different groups.

Front coxæ angulated;

Antennæ very long.

**HIPPOPSIS.**

Front coxæ rounded; antennæ short;

Antennæ very pilose, scape not longer than 3d joint; head not elongated, eyes emarginate, upper lobe narrow.

**DORCASTA.**

Antennæ sparsely pilose, scape very long; head as long as prothorax, eyes divided, upper lobe wanting.

**SPALACOPSIS.**

*Dorcasta Pascoe* is equivalent to *Ægilopsis Horn*, and one species, *D. cinerea* Horn, occurs in Texas.

*Spalacopsis* occurs in Florida and Texas; *Eutheia* || Guer., *Eulhuorus* Duval, was established upon a Cuban species, differing from ours by the antennæ much more hairy, and the scape somewhat longer. These differences do not seem to be generic.

\* Tribe XIV.—**SAPERDINI.**

Insects of cylindrical form, of large or medium size, with large, flat, quadrate, vertical front, coriaceous labral support, and finely granulated, deeply emarginate eyes. The palpi are less slender than in the *Acanthoderoid* series, the last joint more or less oval, truncate at tip. The antennæ are as long as the body, or a little shorter; the scape is nearly cylindrical, a little shorter than the 3d joint, without apical cicatrix; the outer joints

scarcely diminish in length. The prothorax is cylindrical, entirely unarmed, and without tubercles; the elytra are wider than the prothorax, cylindrical, usually rounded at tip, rarely (*calcarata*) the suture is armed with a spine, or (*obliqua*) the tip is attenuated and acuminate.

The front coxæ are angulated externally with distinct trochantin, and closed behind; the middle coxal cavities are angulated, open externally, with distinct trochantin. The prosternum is very narrow between the coxæ, and the mesosternum acute behind. The side pieces of the metasternum are very broad in front, and narrowed behind; a character not seen in the preceding tribes. The ventral segments are nearly equal, the 5th somewhat longer, somewhat truncate (♀) or emarginate (♂). Legs moderate, nearly equal, thighs not clavate, middle tibiæ without tubercle or sinus; hind tarsi with 1st joint not much elongated; last joint rather short in general, claws divaricate; the inner one of the front and middle pair in the ♂ of most of our species armed with a rounded lobe or tooth, which is wanting in *S. moesta*, and *concolor*, and in the European species.

The genus *Saperda* alone is represented in our fauna. Thus far, none have been found on the Pacific slope, except *S. moesta*, a northern species, which extends from Canada to Oregon.

Some of the species are very destructive to cultivated trees, boring into the wood, or destroying the subcortical tissues of the roots.

#### Tribe XV.—**PHYTECHINI.**

This tribe contains all those species in which the claws are similar, appendiculate or cleft in both sexes; except in *Phæa* and *Oberea* the claws are divergent; in the last named genus they are divaricate in the front tarsi, and either divergent or divaricate (*O. Schaumii*) on the hind pair; in *Phæa* they are divaricate on all the tarsi.

The front is moderately convex, broader than long, the eyes are finely granulated, emarginate or divided; palpi slender, last joint elongate oval, nearly pointed; antennæ shorter, or at most not longer than the body, scape cylindrical, more slender and shorter than 3d joint (*Oberea*), stouter and nearly equal to 3d joint in the others. Prothorax cylindrical, or obtusely tuberculate on the sides; elytra cylindrical, rounded or truncate at tip.

Front coxæ conical, protuberant, cavities angulated, closed behind, separated by very narrow prosternum; middle coxæ open externally, episterna and epimera separate (*Mecas*, *Oberea*, *Tetraopes*), or nearly connate (*Tetrops*, *Amphionycha*). Ventral segments nearly equal in our genera, 5th more or less different in the sexes, and usually somewhat longer in ♀. Legs short, thighs not clavate, middle tibiæ simple, hind tarsi with 1st joint not elongated, last joint rather long; claws variable in position as above stated, always appendiculate or cleft.

The side pieces of the metathorax are narrower behind; they are rather wide (as in *Saperdini*) in the first group, but less developed in the others.

The genera seem to indicate several groups, but without study of the foreign forms it is unnecessary to define them at present, and I have included them in a single table.

Episterna of metathorax wide;

Epipleuræ indistinct; unguis feebly toothed or cleft. MECAS.

Epipleuræ distinct; unguis broadly appendiculate. OBEREA.

Episterna of metathorax moderate;

Eyes broadly divided; prothorax dilated on the sides;

Unguis broadly appendiculate. TETROPS.

Unguis cleft. TETRAOPES.

Eyes not divided; unguis cleft.

Antennæ pilose, outer joints suddenly shorter. AMPHIONYCHA.

The American species of *Tetrops* are referable to *Phæa Newman*, which seems not sufficiently distinct from the European genus to be retained in a natural classification.

The species of *Tetraopes* are numerous and very similar, being of a bright red color with small black spots on the prothorax and elytra; they live exclusively upon plants of the genus *Asclepias*.

#### Tribe XVI.—METHINI.

This tribe contains the lowest organized of the Lamiidæ; undifferentiated forms, which exhibit strong relationships to *Oeme* and its allies among the Cerambycidæ.

The body is elongate, the prothorax cylindrical, the elytra shorter than the abdomen, separately rounded at tip, and the wings are extended along the dorsum of the abdomen, and very imperfectly folded at tip.

The eyes are sparsely pilose, very large, coarsely granulated,

deeply emarginate; less coarsely granulated and divided in *Dysphaga*; the front short and perpendicular, labrum obsolete, or connate; mandibles short, but very stout at base, and trigonal; palpi unequal, short, and cylindrical, the labial nearly pointed, the maxillary truncate, with a terminal oval cicatrix or mammilla representing the last joint in *Methia*; still more feeble and nearly atrophied in *Dysphaga*. The prosternum is elongate in front of the coxæ, which are conical and prominent; the cavities are *confluent*, separated behind by a very narrow point of prosternum, widely angulated externally and *open behind*. Middle coxæ conical, prominent, contiguous, cavities confluent, widely open externally; hind coxæ nearly contiguous, also prominent. Ventral segments equal in length, cylindrical in *Styloxus*, with the 5th broadly emarginate, and 6th visible; of softer consistence, 5th longer with a large hairy vulva-like excavation in three (♂) specimens of *Methia* before me; flat with the segments imbricate at the sides (as in *Lampyridæ*) in *Dysphaga*, 5th joint deeply emarginate in ♀, longer in ♂, with the same vulva-like excavation as in *Methia*, but broader and patulous, so as to become triangular; the abdomen is black in ♀ but yellow in ♂ of *Dysphaga*.

The legs are moderate in *Styloxus*, with the thighs clavate; more slender, with the thighs not clavate in *Methia*; very feeble in *Dysphaga*; the tarsi are short, and the last joint is as long, or nearly so, as the others united; the claws are small and divaricate.

The antennæ are longer than the body in both sexes; pilose in *Methia*, sparsely ciliate in the other two genera. The scape is short in *Styloxus* and *Dysphaga*, and is armed at tip with a stout spine in the former; it is longer and more slender in *Methia*; the 2d joint is distinct in *Styloxus*, but obsolete in *Methia* and *Dysphaga*, so that only ten joints are visible.

*Methia pusilla* Newman, occurs in the Southern States; *Dysphaga tenuipes* (♂ ventralis) Hald., in Pennsylvania, in hickory twigs, *D. lævis* Lec., in Illinois; they are similar in size and form, but the prothorax is coarsely and densely punctured in *D. tenuipes*, while it is shining and only sparsely punctured in *D. lævis*.

*Styloxus* is founded on a species from Lower California, somewhat larger than *Methia pusilla*, but also of a uniform brown color. I have named it *S. lucanus*.