Notes on some little known Genera and Species of COLEOPTERA.

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The following pages contain the results of fragmentary studies made at various times, with notes on some genera sufficiently well known by name of which the descriptions have been necessarily imperfect.

Several new genera are described here for the first time, one being a contribution from Dr. LeConte in order that the description might accompany the figure. Species are described in several genera now for the first time known in our fauna as *Dasycerus* and *Oniticellus*.

Considerable space has been devoted to *Polymœchus* and many details given on the plate, the better to elucidate its systematic position, it being now accepted as a Rutelide rather than a Dynastide.

A few genera have been figured in order that the student might be able to acquire a better idea of their external form than that obtained from description alone.

One foreign genus has been studied and its affinities pointed out. *Myrmecospectra* seems not to have fallen under the observation of any careful student since the days of Motschulsky, and the position assigned it by that author as well as that given in the Catalogus are equally erroneous.

The species formerly placed in *Lichnanthe* and *Dasydera* have been synoptically treated and placed under *Amphicoma*, the two genera above mentioned not presenting characters sufficient for their separation.

LEPTINUS Müll.

Having had occasion to examine our species of this genus with the view of describing the parts of the mouth, several important differences between the two species have been observed which are of sufficient moment to require the creation of a new generic name for our larger form.

These characters in brief are as follows:

Head entirely without eyes; prosternum not separating the anterior coxæ. **Leptinus.**

Head with translucent eye spots at the hind angles of the head; prosternum separating the coxæ..... **Leptinillus.**

The latter genus based on *L. validus* Horn, being much larger than the other was used in preference for dissection, and the sketches on the accompanying plate were made from it.

The head viewed from above presents a well marked hemihexagonal frontal suture. The labrum is transverse, connate with the front, the suture well marked and nearly straight.

The mandibles are of irregular triangular form, thin and translucent, convex above, concave beneath, the inner edge finely fimbriate, the apex very acute and prolonged.

The maxillæ are bilobed, outer lobe longer with moderately long and rather dense ciliæ, inner lobe shorter, ciliate externally and with shorter and stouter hairs internally. The palpi are four-jointed as shown in the figure.

The mentum is transverse slightly concave beneath, narrowed in front, the hind angles prolonged in long slender processes over the gula. On the front of the mentum is an accessory piece. Ligula concealed behind the mentum, the paraglossæ prominent, alate, united on the median line and finely fimbriate along their margins. The palpi are short, three-jointed, the penultimate joint longer than the others, the basal support slightly projecting beyond the mentum causing the palpi to appear four-jointed.

The head is provided at the posterior angles, under the lateral margin with an oval translucent eye spot recalling a similar structure in *Adelops* or in some *Anophthalmi*.

The prosternum moderately separates the anterior coxæ and is fimbriate at tip, the coxal cavities open behind.

The plate gives in sufficient detail the under side of the body.

The legs are not long. The anterior and middle coxæ have a distinct trochantin. Anterior tibiæ slightly broader to tip, ciliate at the outer angle, the tarsi dilated in both sexes but more widely in the male, the fourth joint bilobed. Middle tibiæ stout, ciliate and finely spinulose externally, the tarsi dilated but less widely than on the anterior legs, the fourth joint less distinctly bilobed. Posterior tibiæ slender, ciliate and spinulose, tarsi slender, first joint nearly as long as the next two, the fourth joint slender. Tibial spurs all distinct.

The relationship of *Leptinus* has already been discussed by Dr. LeConte and will not be repeated here, and as fuller details of its structure will be given in a forthcoming work, merely enough is given here to render the accompanying plate intelligible.

Details of structure are illustrated on Plate V.

PLATYPSYLLA Ritsema.

This genus is founded on a curious parasite discovered on the American Beaver in captivity in the Zoological Gardens at Amsterdam. By Mr. Ritsema it was placed in a relationship not very remote from the true fleas. Prof. Westwood who described the insect about one month later believed it typical of a new order which he named *Achreioptera*.

In the Proc. Zool. Soc. London, Nov. 1872, Dr. LeConte gave in greater detail than had been done a description of its anatomy, especially of the mouth parts and expressed the opinion that *Platypsylla* was a Coleopteron not very remote in its affinities from *Leptinus*. With this opinion I fully agree.

I have before me the dissection of the mouth parts made by Mr. Matthews and another prepared by myself which are illustrated by the annexed plate. As these differ somewhat from those given by Dr. LeConte and subsequently by Westwood, (Thesaurus Oxoniensis, 1874), attention will be called to the differences.

The antennæ consist of a long basal joint followed by a broader cupuliform piece which seems to be composed of two joints. Within the cupule is an oval mass composed of six segments. Westwood and LeConte give a greater number of segments to the mass but do not mention the division of the cupule.

The mentum being easily seen without dissection, my figure does not differ essentially from that of those authors.

The maxillæ are composed of two lobes, both thin and translucent, the inner especially so. The outer is ciliate with long hairs on its outer side from the insertion of the palpus to its apex. The inner lobe is long, wedge-shaped, truncate at apex and ciliate with very short hairs. The palpus is four-jointed as shown in the figure.

When the mentum and maxillæ are removed and the head viewed from the under side the following structures become evident.

The frontal suture nearly straight defines the clypeus, which has at its middle a small oval dark spot being a point at which the chitin is denser. Immediately posterior to this spot is a small somewhat pentagonal piece articulated at its base a little in front of the frontal suture and which is the labrum. Posterior to the labrum on each side is a small oval spot.

Immediately behind the labrum the edge of the mandible can be detected. This organ is extremely thin and transparent and is with great difficulty defined. The illustration is as far as I have been able to follow its outline. That this is not merely a line of sculpture on the head has been rendered evident to me by the removal of the structure from the opposite side of the head, but I have not been able to isolate the mandible

Prof. Westwood was unable to find any trace of the mandible. After a very careful study of the piece which has been figured by Dr. LeConte as the mandible I am convinced that it is really one of the granules which occur behind the labrum, and that the apparently serrate edge

is a very irregular fracture. That this piece could hardly be even an aborted mandible seems evident, from the fact that it is a little less in size than the first or basal joint of the maxillary palpus.

The other parts of the body as described seem to need no further comment. Details are given on Plate V.

MONŒDUS* n. g. (Lathridiidæ).

I have established this genus on a very small species having the following remarkable characters:

Antennæ ten-jointed, joints 1—2 thick, third a little larger than the following 4—9, which are rounded but little longer than wide, tenth as long as the eighth and ninth, oval, obtuse, above one-half longer than wide. Eyes convex, prominent. Front coxæ not prominent, separated by the narrow prosternum, cavities closed behind. Legs rather short, tibiæ without distinct spurs; tarsi three-jointed, the first joint large, dilated, flat and spongy beneath, oval, not emarginate; second joint small arising from the upper surface of the first joint, about one-third from the distal end; third joint long, with rather large claws feebly toothed near the base. Upper surface very coarsely sculptured, elytra with rows of large fovæ and with the interstaces subcostate, alternately more elevated as in certain *Microrhopalæ*. Under surface nearly smooth.

M. guttatus Lec. n. sp.—Fulvous, antennæ black. Head flat, broadly impressed, opaque, alutaceous or finely punctulate. Prothorax quadrate, a little longer than wide, not wider than the head with the eyes, sides nearly straight, tip and base feebly rounded, the latter margined, angles, both front and hind, acute, slightly prominent; disc very coarsely punctured, with four shallow impressions; there is a slight vestige of a smooth elevated dorsal line behind the middle. Scutel visible, black. Elytra more than one-half wider than the prothorax, truncate at base, with rectangular humeri, rounded behind and covering completely the dorsal segments; sides parallel, strongly margined; disc moderately convex with nine rows of large cribrate punctures; these rows are somewhat confused by pairs, with the interspaces elevated and subcostate; they are marked with black spots as follows: one at four-fifths the length on the first and second row of punctures, and another very near the tip; two on the third and fourth row, the anterior one elongate, about the middle, the posterior one between the two spots of the inner rows; two elongate spots on the fifth and sixth rows, one before, the other behind the middle; and finally some elongate clouds on the seventh and eighth rows behind the middle. Length 2 mm. (Pl. IV, fig. 10).

One specimen, Cedar Keys, Florida; Mr. H. G. Hubbard. This odd form seems to lead to the Monotomidæ, but differs by many characters.

DASYCERUS Brongn.

This genus heretofore represented only in Europe by three species has been lately discovered within our fauna, two species having been almost simultaneously discovered on both sides of our continent. They are as follows:

* Through the kindness of Dr. LeConte I have been permitted to publish the description to accompany the figure I have drawn on Pl. IV.

D. carolinensis n. sp.—Brownish testaceous. Head triangular, each side impressed, lateral angles somewhat elevated, surface subopaque, granulate. Thorax transversely hexagonal, apex wider than base, lateral angles prominent but obtuse, disc convex with an obtuse, sinuous, costiform elevation extending from apex to base on each side of middle, surface granulate. Elytra broadly oval, a little more narrowed at apex, convex, each with the suture slightly elevated and three well defined sharp costæ, the margin also costiform, intervals concave, irregularly biseriately punctulate. Body beneath and legs somewhat paler than above. Length .07 inch; 1.75 mm. (Pl. IV, fig. 11).

Resembles the European *D. sulcatus* Brongn., but less robust, the thorax less transverse, and the humeri of the elytra more rounded.

Occurs near Morganton, North Carolina, (Morrison).

D. angulicollis n. sp.—Brownish testaceous. Head triangular, above granulate in lines, a smooth space over the insertion of the antennæ. Thorax very transversely hexagonal, the lateral angles acute and prominent, apex slightly prolonged at middle and on each side within the front angles emarginate, the latter prominent anteriorly, disc convex, on each side a slender carina diverging posteriorly bifurcating in front forming a Y, near the lateral margin anteriorly a short carina, surface variably granulate. Elytra broadly oval, humeri rounded, convex, suture slightly elevated, disc of each side tricostate the intervals densely and irregularly triseriately granulate-punctate, the marginal interval smoother at base. Body beneath somewhat paler than above, comparatively smooth. Length .07 inch; 1.75 mm. (Pl. IV, fig. 12).

Resembles more closely *D. sulcatus* and has the lateral angles of the thorax even more acute. It differs also from *sulcatus* and *carolinensis* in the form of the apex of the thorax. *D. sulcatus* differs from both our species in having the intervals of the elytra ornamented with a double series of very regularly placed coarse punctures, and by the humeri of the elytra quite distinctly angulate and not rounded.

Occurs in California and given me by Mr. Ulke.

PEPLOGLYPTUS Lec.

This genus was established by Dr. LeConte for a curious little Histeride allied to *Glymma*, (see Trans. Am. Ent. Soc. 1880, p. 189), differing especially in the position of the antennal fossæ. On plate VI, fig. 1, will be found a much enlarged representation of the upper surface; figure 2 gives a view of the head and thorax seen from the front. On the right side of the latter the antenna is extended so that the fossa under the anterior angle is seen. The scape when at rest is received in a groove at the side of the head extending to the labrum, the funiculus and club are folded backward as shown in the left side of figure 2.

PSEPHENUS Lec.

In order that some points in the structure of this rather anomalous genus may be better understood I have prepared an outline sketch on plate VI, fig. 14, of the upper surface of a male. The sexual differences

in the maxillary palpi are also shown. Fig. 15 is a more enlarged view of a portion of the under side. It will be observed that the structure of the legs and antennæ is decidedly Elmide, that of the under side recalls strikingly some Dascyllidæ. *Psephenus* seems to be a genus with Elmide affinities pointing strongly in the direction of the Eubriide series of Dascyllidæ.

LARA Lec.

At the time of the description of this genus, the only specimen known was imperfect, having but three basal joints of the antennæ remaining. Having recently received a perfect specimen the outline on plate VI, fig. 16, has been prepared with the view of illustrating the missing organ and of giving a general idea of the species. The antennæ are rather long, scarcely at all serrate, first joint stouter, second oval much shorter, 3—11 subequal. The legs and tarsi do not differ notably from those of *Psephenus*.

ONITICELLUS Serv.

O. californicus n. sp.—Oblong, black, feebly shining, elytra more opaque. Thorax broad, emarginate in front, sides and base arcuate, surface with very coarse punctures, regularly but not densely placed, the intervals with finer punctures, a slight depression in front of the scutellum. Elytra finely seven-striate, striæ with punctures not closely placed, intervals opaque, very finely alutaceous and irregularly biseriately punctate, each puncture with a very fine hair. Pygidium opaque, sparsely punctate. Body beneath shining, coarsely punctate. Length .54 inch; 13.5 mm.

Male.—Head broad; clypeus expanded at the sides, slightly prolonged at middle and arcuate in front, bearing a moderately long, slightly arcuate horn which is feebly emarginate at tip, behind the horn the head is smooth; occiput transversely carinate and with a short compressed horn at middle; sides of head coarsely punctured. Thorax convex, anteriorly with a broad but shallow depression behind which is a small smooth tubercle. (Pl. VI, figs. 3—4).

Female.—Head oval, coarsely punctured; clypeus nearly semicircular, obtusely bidentate in front; vertex with a short obtuse horn situated immediately between the eyes; occiput with a transverse carina on a line with the posterior border of the eyes. Thorax regularly convex, more coarsely punctured than the male, without the anterior concavity but with a slight tubercle at middle behind the anterior margin.

The genus *Oniticellus* is closely related to *Onthophagus* and differs in having the antennæ eight-jointed and by the presence of a very distinct scutellum. This is the first instance of the occurrence of the genus in our fauna, in fact there is but one other, from Cuba, in the Western Hemisphere.

For this interesting addition we are indebted to Mr. Henry Edwards, who collected but one pair at the base of Mount Shasta, California.

AMPHICOMA Latr.

Under this generic name are included the North American species formerly placed in *Lichnanthe* and *Dasydera*.

Our species are as follows:

Elytra contiguous from suture to tip, their disc immaculate, labrum emarginate. **lupina.**

Elytra dehiscent posteriorly.
Labrum very feebly emarginate, almost truncate..... **ursina.**
Labrum deeply emarginate.
Elytra immaculate.
Thorax densely punctate over its entire surface..... **vulpina.**
Thorax with a smooth space in each hind angle..... **Edwardsi.**
Elytra with denser spots of pale pubescence in three irregular rows.
Pubescence above and beneath pale yellow..... **canina.**
Pubescence entirely black, that of the disc of thorax brownish-yellow. **Rathvoni.**

A. lupina Lec. (*Lichnanthe*), Journ. Acad. 1856, p. 288.—Piceous with slight greenish lustre, elytra testaceous. Body beneath sparsely clothed with yellowish hairs. Labrum deeply emarginate. Thorax broader than long, densely punctured over its entire surface and clothed with rather short yellowish hair. Elytra with very short and not dense black hair, contiguous along the entire suture, the sutural angle with a distinct tooth. Length .44 inch; 11 mm.

The antennal club is slightly longer in the male. The posterior legs are stouter in the female and shorter and the tarsi relatively longer. The posterior tibiæ are distinctly arcuate in ♂, straight in ♀. As a general rule the ♀ is much less pubescent than the ♂ and the hairs shorter, although the differences here are less marked than in the following species.

Occurs in New York, Pennsylvania, and the New England States.

A. ursina Lec. (*Dasydera*), Proc. Acad. 1861, p. 345; *Cooperi* Horn, Trans. Am. Ent. Soc. 1867, p. 164.—Piceous, shining, head and thorax with distinct æneous lustre, elytra testaceous. Labrum very feebly emarginate. Thorax narrowed in front, broader in ♀, surface densely punctured with a smooth space at each hind angle, clothed with silken white hairs longer in ♂. Elytra dehiscent posteriorly, sparsely clothed with short white hairs. Body beneath moderately densely clothed with white hairs, the abdomen smooth at middle and rufo-testaceous, without hairs in ♀, very sparsely pubescent even at sides and entirely rufous ♂. Legs piceous with æneous lustre, tibiæ and tarsi usually paler. Length .40—.60 inch; 10—15 mm.

In this species the legs, especially the tibiæ are more densely ciliate than in any other species. The sexual characters are as in *lupina*, the male being however more slender than the female.

The species described by me as *Cooperi* seems merely a feeble male.

Occurs in California near Sacramento.

A. vulpina Hentz, Journ. Acad. 1826, pl. xiii, fig. 3; Burm. Handb. iv, 1, p. 27, and iv, 2, p. 472; Lec. Journ. Acad. 1856, p. 287.—Piceous, moderately shining, terminal segments of abdomen rufo-testaceous. Head and thorax without metallic lustre, the latter densely punctured over its entire surface and clothed with long fulvous hair, shorter and less dense ♀. Elytra brownish testaceous, immaculate, sparsely clothed with very short black hairs, at tip dehiscent. Body beneath with long fulvous hair, denser at the sides. Legs piceous. Length .60 inch; 15 mm.

The sexual characters are as in *lupina*. It will be observed however that in the posterior tarsus of the female the first joint is not conspicuously longer than the second, while it is so in both sexes of all the other species.

Occurs in the Middle and New England States.

A. Edwardsi Horn, (*Lichnanthe*), Trans. Am. Ent. Soc. 1870, p. 77.—Piceous black, surface with distinct æneous lustre, clothed with brownish-black hair. Clypeus emarginate. Thorax densely punctured with a smooth space near each hind angle. Elytra dehiscent at tip, brownish testaceous, sparsely clothed with very short black hair. Abdomen nearly smooth at middle, usually entirely piceous, sometimes with the last two segments rufous. Legs piceous, with æneous surface, sparsely pilose. Length .50—.60 inch; 13—15 mm.

The sexual characters as in *lupina*.

This is the only species at present known with the hair entirely dark.

Occurs in Oregon, Washington Territory and Nevada.

A. canina Horn, (*Lichnanthe*), Trans. Am. Ent. Soc. 1867, p. 164.—Piceous, clothed with pale yellowish hairs. Head and thorax with æneous lustre. Thorax densely punctured with a smooth space near each hind angle, hair moderate in length, uniformly yellowish. Elytra dehiscent posteriorly, brownish testaceous, sparsely clothed with very short black hair and with spots of short yellowish pubescence arranged in three irregular rows. Abdomen piceous with æneous lustre, the third segment nearly naked and with dark pubescence at the side margin only. Legs piceous, sparsely hairy, tarsi paler. Length .50—.60 inch; 13—15 mm.

Sexual characters as in *lupina*.

Occurs with the preceding.

A. Rathvoni Lec. (*Dasydera*), New Species, 1863, p. 76. Closely resembles *Edwardsi*, except that the pubescence of the disc of thorax is brownish-yellow and the elytra are maculate as in *canina*.

Occurs in California, Nevada and Washington Territory.

Which of the west coast species was seen by Doubleday and casually recorded (Loudon's Magaz. 1839, iii, p. 97), it is not possible to determine.

PLUSIOTIS Burm.

P. Lecontei n. sp.—Oblong oval, moderately convex, above brilliant green. Clypeus nearly semicircular, densely punctured and of cupreous color; head more sparsely punctured, the punctures finer posteriorly. Thorax twice as wide as long, narrower in front, sides anteriorly arcuate, posteriorly nearly straight, disc moderately convex, surface sparsely finely punctulate, color brilliant green, the

margins somewhat cupreous by transmitted light. Elytra wider than the thorax, broadest behind the middle, surface moderately deeply striate, the striæ finely punctured, intervals distinctly convex, very sparsely punctulate, the second interval with coarse punctures which extend from the base a little beyond the middle; a very distinct tuberosity at the apical termination of the third and fourth intervals. Pygidium green with golden lustre, sparsely punctulate. Body beneath fimbriate with pale hairs. Metasternum and posterior coxæ greenish with cupreous lustre. Abdomen very sparsely punctate with more evident cupreous lustre. Femora green, tibiæ more cupreous. Tarsi piceous with æneous surface. Length .80—.90 inch; 20—23 mm.

Specimens have been observed with the surface more or less suffused with cupreous, these seem rather immature than true varieties.

This species is closely related to *P. Lacordairei* Bouc., (Proc. Zool. Soc. London, 1875, p. 122, pl. xxiii, fig. 4), but differs in important characters. M. Aug. Sallé has kindly made comparisons for me and I repeat his words: "It is an entirely new species very different from all those described and the smallest of all, the under side is cupreous while in *Lacordairei* it is silvery, the thorax is more arcuate and the lateral border more dilated, the striæ of the elytra are deeper and the punctures in them larger and deeper, finally the green color is deeper and the legs more red."

The first specimen examined was from Tucson, Arizona, in the cabinet of Mr. H. Edwards, a second in the cabinet of Dr. LeConte was collected by Prof. Snow in New Mexico. The series in my cabinet came from near Prescott, Arizona.

I dedicate this species to a friend.

POLYMŒCHUS Lec.

Clypeus somewhat trilobed, the middle lobe bidentate, separated from the front by an elevated carina which is broadly interrupted at middle. Labrum transverse, slightly prolonged at middle, carinate above and densely ciliate. Mandibles pyramidal, the outer edge not toothed, the tip turned upward. Maxillæ stout at base, the inner lobe small, the inner edge double with three small teeth on each edge and with long ciliæ, the tip acute; palpi moderate in length, the last joint elongate-oval and equal to all the others. Mentum narrow, the base suddenly broader, above the base gradually wider to middle then narrowed to the apex which is slightly emarginate; sides of mentum with long ciliæ, under surface with short hairs. Ligula triangular in great part concealed behind the mentum, densely ciliate at tip; palpi short, three-jointed, the second joint very small, the terminal longer than the other two combined. Eyes large convex, larger in the male, deeply emarginate by the sides of the front. Antennæ ten-jointed, club three-jointed as long as the stem in the female, one-half longer in the male. Legs short, stout, tibiæ not longer than the femora, tarsi as long or longer than the tibiæ. Tarsal claws dissimilar in the sexes, those of the female simple feebly arcuate and alike on all the feet, those of the male as follows: front leg—anterior claw a little stouter than the other with a trace of a tooth at middle, posterior claw simple; middle leg—anterior or outer spur deeply divided, the lower division forming

a tooth as long as the upper, inner claw simple; posterior leg—claws as in the middle leg. Fourth joint of middle and posterior tarsi with a spiniform prolongation at apex beneath.

P. brevipes Lec., the only species known, is at all times a rare insect and until now the material at hand did not admit of the sacrifice of a specimen for dissection. The figures on the accompanying plate give an idea of the general form of the species as well as of its details.

Since the first description of the species (Proc. Acad. 1856, p. 23), the position of the genus has remained in doubt. In the Classification of the Coleoptera of North America it is placed in the tribe Orycto-morphi, a division of the Dynastide series. Our later studies show that *Polymœchus* is allied rather to *Parastasia* an East Indian genus associated with *Rutela* by Lacordaire.

The genera of Scarabæidæ seem to need revision, especially in the entire Pleurostict series. The Melolonthidæ are not satisfactorily grouped, the Cetonide genera not at all defined, while much remains to be cleared up in the doubtful ground between the Rutelides and Dynastides.

Details of structure will be found on Pl. VI, figs. 5—12.

APHONUS Lec.

Details of the structure of the oral organs are given on Pl. IV, fig. 13, in order that comparisons may be made between *Polymœchus* and *Aphonus*, the former being now referred to the Rutelini, the latter a true Dynastide superficially resembling *Polymœchus*.

ELATERIDÆ.

Since the days of Latreille many attempts have been made to define the families of that division of the serricorn series named by that author the Sternoxes, containing the Buprestidæ, Throscidæ, Eucnemidæ, Elateridæ, Cerophytidæ and Cebrionidæ, as they are accepted by one or other author.

The first two families are not only abundantly distinct from each other but possess characters which sharply separate them from those which follow. The last four families do not present any characters which are defined with sufficient sharpness to warrant their separation.

In the preceding volume of these Transactions I have attempted to demonstrate that the Cebrionidæ are not separable from the Elateridæ, the tribe Plastocerini filling the space which formerly existed between the two families.

The Eucnemidæ on the other hand seem more sharply defined.

Here we discover no trochantin to the middle coxæ which exists in all Elateridæ. If, however, *Perothops* be considered a member of the family, not only does this character fail but we have also present a form of front analogous to that of the Cebrionidæ, to all of which must be added a greater length of tibial spurs and serrate ungues.

In his elaborate monograph of the Eucnemidæ de Bonvouloir (excluding *Perothops*) includes *Cerophytum*, in which Lacordaire observed characters which seemed to him of sufficient importance to retain it as a family by itself. Neither course seems proper.

Cerophytum has a short transverse labrum, connate with the front, the suture however distinct, in this respect it resembles the Cebrionidæ. The front is gibbous and the clypeus obtusely carinate and the entire head resembles rather the Rhipiceridæ or the Macropogonini of the Dascyllidæ. The very long trochanters on the middle and posterior legs recall a similar character, less developed however, in the front and middle legs of the Macropogonini. The posterior coxæ have not the usual lamina observed in the Sternoxide series, but are sunken in the coxal cavities on the same plane with the metasternum and the abdomen.

The mode of insertion of the antennæ in the Eucnemidæ, in which the base of these organs is distant from the eyes and the front greatly narrowed, is a character to which due weight should be given. *Cerophytum* possesses it, but *Perothops* seems as nearly as possible intermediate between the Eucnemide and Elateride types.

In view of the facts above given what is the proper course to pursue? Should we recognize the Eucnemidæ, Elateridæ, Cebrionidæ, Perothopidæ and Cerophytidæ as distinct families each equal in value to the Buprestidæ, or should they be considered parts of a greater family which can safely be assumed to have that value? The latter course seems to me far more acceptable. The following table of the sub-families of the Elateride complex is therefore presented.

Posterior coxæ laminate. Trochanters small.
- Labrum concealed; ungues simple; antennæ somewhat distant from the eyes, their insertion narrowing the front.....EUCNEMINÆ.
- Labrum visible, free; ungues variable; antennæ arising near the eyes, front not narrowed.....ELATERINÆ.
- Labrum transverse, connate with the front.
  - Ventral segments six; ungues simple; antennæ as in the Elaterinæ; tibial spurs well developed.....CEBRIONINÆ.
  - Ventral segments five; ungues serrate; antennæ slightly distant from the eyes, front narrow; spurs moderate.....PEROTHOPINÆ.

Posterior coxæ not laminate. Trochanters of middle and posterior legs very long.
- Labrum short, transverse, connate with the front; front gibbous; ungues serrate.....CEROPHYTINÆ.

Having the sub-families arranged it will be observed that the Eucneminæ and Cerophytinæ have no visible trochantin to the middle coxæ. The Elaterinæ and Cebrioninæ have a well defined trochantin which is very small in the Perothopinæ.

In the first sub-family the mandibles are short, usually robust, their apices broad or bidentate. The vast majority of the species of the second sub-family have a similar type of mandible; in the final tribe (Plastocerini), the mandibles become prominent and acute at tip and in great part smooth, a modification which is exaggerated in the Cebrioninæ to become gradually reduced in the Perothopinæ and Cerophytinæ.

In their relationship with each other the first three sub-families form a very natural linear series. The fourth with Eucnemide affinity seems equally related to the Cebrionides. The Cerophytinæ seem to me to have less Eucnemide affinity than de Bonvouloir claims, but with some relationship with that series, and almost equally with the Perothopinæ, they lead very naturally to the Rhipiceridæ and Dascyllidæ.

CRYPTOSTOMA Latr.

The figure on the accompanying plate VI, fig. 13, will give an idea of the form and color of *Cryptostoma Dohrni* Horn. The color is bright blood-red the shaded part of the elytra black. I have seen but one specimen kindly given me by Dr. Dohrn who obtained it from a series of specimens collected near San Diego, California.

MYRMECOSPECTRA Motsch.

Head oval, broadest between the eyes and arcuately narrowed behind them. Antennæ arising under a slight frontal ridge and more distant from the eyes than from the front, *apparently* ten-jointed. Labrum transverse, feebly emarginate, concealing the mandibles. Maxillary palpi with the second and last joints equal in length, the third very short and transverse the terminal flat, oval and obliquely truncate. Labial palpi short, the terminal joint cylindrical, acute at tip, more slender than the preceding but equal in length. Thorax ovate, convex, the base prolonged, basal margin reflexed, hind angles feebly prominent, anterior angles with large extensible vesicles. Scutellum moderate, rounded at tip. Elytra oval, rounded at tip, humeri obtusely prominent, disc very convex posteriorly, behind the base transversely impressed. A large extensible vesicle behind the humeri. Body apterous. Abdomen conically prolonged beyond the elytra. Legs slender. Tarsi five-jointed in both sexes. Claws with membranous appendages.

Antennæ ♂.—First joint elongate pyriform, slightly arcuate, second very small almost concealed, third large, quadrate, a little broader than long, distal edge emarginate, joints 3—10 subequal, eleventh slightly longer.

Antennæ ♀.—First joint large, triangularly dilated, second narrower and one-half shorter, third a half shorter than the second and the smallest of all, 4—7 longer than the third, 8—11 a little longer and broader.

Through the kindness of Dr. H. A. Hagen of the Museum of Comparative Zoology, I have been enabled to study this genus which appears to have been passed in silence since its description by Motschulsky. The male only has been examined, the description of the female antennæ are after the latter author.

It is to me a matter of great surprise that Motschulsky, and after him the authors of the Catalogus, should have placed such a characteristic insect so far from its natural relationship. The presence of extensible vesicles and the structure of the male antennæ are sufficient to have suggested its place at once. It is placed by Motschulsky as a Ptinide.

There can be no doubt but that *Myrmecospectra* is allied to *Collops*. The antennæ are however more distinctly eleven-jointed than in the latter genus, while the true third joint is similarly dilated in both. The tarsi are similar in the sexes, the anterior pair being five-jointed in both, while in *Collops* they are four-jointed in the males. While it is related to the latter genus in its antennal structure the form of body and even the color and markings reproduce *Temnopsophus* Horn, (Trans. Am. Ent. Soc. 1872, p. 111), which however has the tarsi as in *Collops*.

M. Nietneri Motsch. Etudes Ent. 1858, pp. 65 and 122, fig. 17.

This is the only species at present known, it is found in Ceylon. The original specimens were collected by Nietner, one of them having reached Dr. Hagen to whom I am indebted for the privilege of examining it as well as for one of the outline sketches which will be found on the accompanying plate VI, figs. 18—19.

MECOMYCTER n. g. (*Dasytini*).

Antennæ eleven-jointed, arising midway between the eyes and the margin of the front, under a slight ridge, first joint pyriform, second oval, third and fourth narrower than the second, five to ten gradually broader, somewhat triangular, eleventh longer, oval. Head oval, prolonged to a flat beak of moderate length. Eyes oval, moderately prominent. Labrum semicircular, membranous at base. Mandibles moderately prominent, acute, feebly arcuate. Maxillæ with inner lobe prolonged and ciliate within, the palpi moderately long, the terminal joint longest and slightly ciliate. Mentum narrow and long, the palpi slender and glabrous, the last two joints equal. Thorax oval, broadest at base. Scutellum distinct, quadrangular. Elytra wider than the thorax, oval, broader behind, apices entire, rounded. Legs slender. Tarsi five-jointed, slightly ciliate beneath, first four joints equal, fifth longer. Ungues slender and simple, without lobes.

This genus presents a curious combination of characters found separately in various genera of Dasytini. The prolonged head allies it to *Arthrobrachus* and the Prionocerides of Lacordaire, and its simple ungues to *Melyris*. By the structure of its tarsi it resembles *Dasytes*.

M. omalinus n. sp.—Body beneath piceous. Head flat above, coarsely punctured, orange-yellow, piceous behind the eyes. Antennæ piceous, four or five basal joints pale. Thorax oval, narrowed in front, a little longer than wide, apex truncate, base feebly arcuate, hind angles rounded, disc convex, coarsely and moderately densely punctured, surface orange-yellow sometimes with a median piceous stripe. Elytra coarsely punctured, the punctures gradually finer to apex, surface finely pubescent, color orange-yellow with a common sutural piceous stripe broader at either end, not attaining the apex, sides posteriorly piceous, this color sometimes extending and joining the sutural stripe, forming an anchor. Legs pale yellow. Length .14—.16 inch; 3.5—4 mm. (Pl. VI, fig. 17).

In the male the last ventral segment is feebly emarginate, and entirely piceous in color. In the female arcuate and tipped yellow.

Occurs in western Kansas, collected by Dr. H. A. Brous.

In the accompanying figure the head is represented fully extended. In nature it is deflexed and inserted nearly as far as the eyes. The first glance at the species recalls some of the forms of Omalini (*Trigonodemus*), hence the specific name.

Synopsis of the species of the tribe LEBIINI.

BY GEORGE H. HORN, M. D.

During the past few years Baron Chaudoir has excited an interest in the truncatipenne series of Carabidæ by his numerous monographic publications, which show a conscientious and profound study of the genera and species of this group. While I have been able to follow him satisfactorily in all the minor details of his work, I have utterly failed to see in his larger subdivisions any evidence of a systematic treatment of the subject.

It will be evident to any one studying Chaudoir's essays on the truncatipenne series that the ligula and paraglossæ play an important part in the diagnoses of the divisions whether called tribes or groups. Thinking that the key to the system might be found by a careful study of these organs, dissections were prepared and drawings made of the parts, for comparison, and the conclusion was forced upon me, as it will be on any one who will adopt the same course, that the mouth organs are of very little value in defining groups higher than genera and when used at all must be used with extreme caution.

With the desire of doing full justice to the subject dissections were made of all accessible genera many of which have been published in the preceding volume. The further the dissections were made the more evident it became that the ligula must be discarded as the basis

EUCÆRUS Lec.

E. varicornis Lec. Trans. Amer. Philos. Soc. 1853, p. 387.

PENTAGONICA Schmidt-Goebel.

P. flavipes Lec. (*Didetus*) Trans. Amer. Philos. Soc. 1853, p. 377.
bicolor Lec. (*Rhombodera*) New Species 1863, p. 7.
americana Motsch. Bull. Mosc. 1864, iii, p. 224.

P. angulata Boh. (*Lebia*) Eugen. Resa p. 7, is probably from South America. The name *goniodera* proposed by Harold is unnecessary.

ONOTA Chaud.

O. Floridana Horn, Trans. Am. Ent. Soc. ix, p. 157, pl. iv, fig. 4.

EXPLANATION OF PLATE IV.

Fig. 1. Elytral markings of *Melanophila miranda* Lec.
" 2. " " " *consputa.*
" 3. " " " *notata.*
" 4. " " " *consputa,* a variety.
" 5. " " " *fulvoguttata.*
" 6. " " " *notata,* a variety.
" 7. *Xenorhipis Brendeli* Lec. ♂.
" 8. " " ♀.
" 9. Antenna of 7, more enlarged.
" 10. *Monœdus guttatus* Lec.
" 11. *Dasycerus carolinensis* Horn.
" 12. " *angulicollis* Horn.
" 13. Mouth parts of *Aphonus tridentatus* Say.

EXPLANATION OF PLATE V.

Fig. 1. *Leptinillus validus* ♀ Horn, much enlarged.
" 2. Under side of same.
" 3. Lateral view of head and thorax showing the eye-spot at *e*.
" 4. Maxilla of *Leptinillus*.
" 5. Mentum of same.
" 6. Mandibles of same.
" 7. *Platypsylla castoris* Ritsema, greatly enlarged.
" 8. Under side of dissected head showing the labrum at *a*, and the partial outline of the mandible posterior to it.
" 9. Antenna of *Platypsylla* with the club (*a*) more enlarged, showing the apparent number of its joints.
" 10. Maxilla of same.
" 11. Mentum of same.
" 12. Mandible of *Platypsylla* as previously figured (*a*) with the same piece as figured (*d*), as seen by me under higher power with oblique light. This piece from its size appears to be one of the tubercles broken off which are shown in fig. 8, behind the labrum.

—o—

EXPLANATION OF PLATE VI.

Fig. 1. *Peploglyptus Belfragei* Lec.
" 2. Head and thorax, showing the position of the antennæ free and at rest.
" 3. *Oniticellus californicus* ♂ Horn; *a*, antenna; *b*, head of ♀.
" 4. Same, lateral view.
" 5. *Polymœchus brevipes* ♂ Lec.
" 6—7—8. Anterior, middle and posterior legs seen from the front or under side.
" 9. Labrum of *Polymœchus*.
" 10. Maxilla of same.
" 11. Mentum of same.
" 12. Mandible, viewed laterally.
" 13. *Cryptostoma Dohrni* Horn.
" 14. *Psephenus Lecontei* Hald.
" 15. Under side of same.
" 16. *Lara avara* Lec.
" 17. *Mecomycter omalinus* Horn.
" 18. *Myrmecospectra Nietneri* Motsch.
" 19. Lateral view of same. A small insect (.14 inch; 3.5 mm.), from Ceylon.

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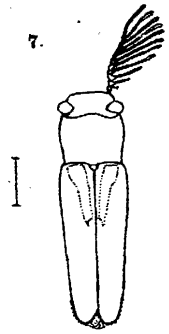

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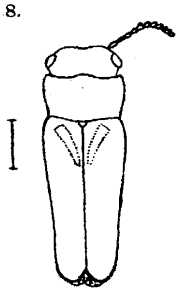

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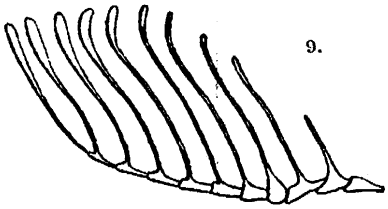

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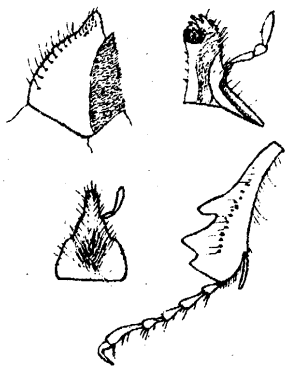

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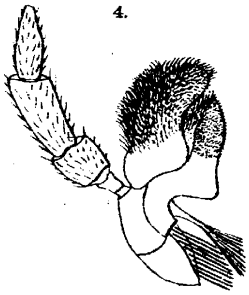

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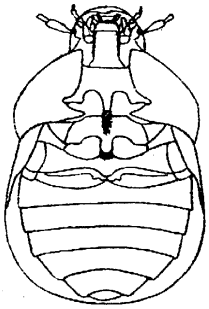

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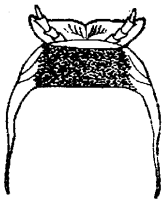

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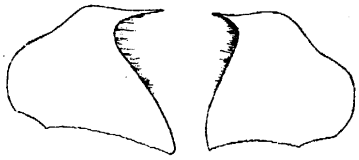

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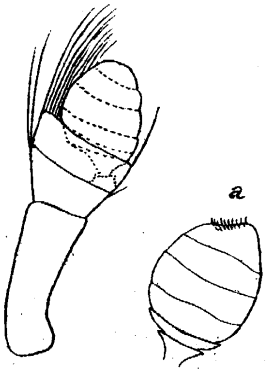

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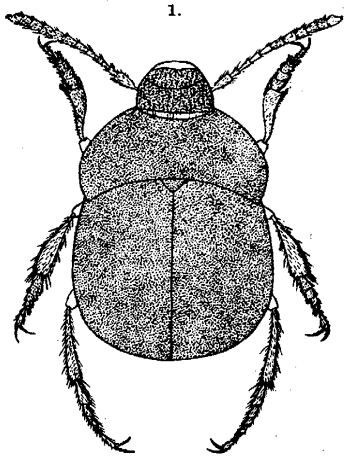

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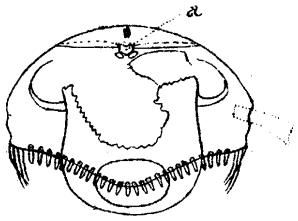

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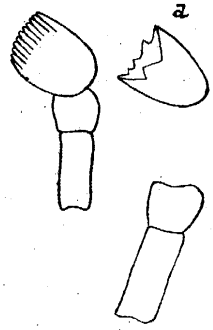

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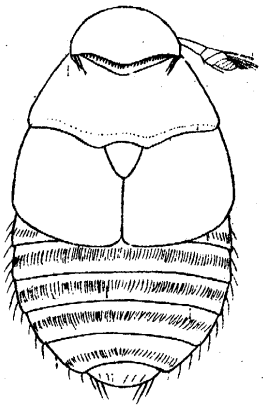

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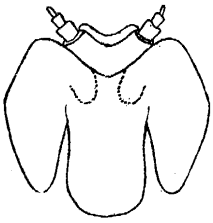

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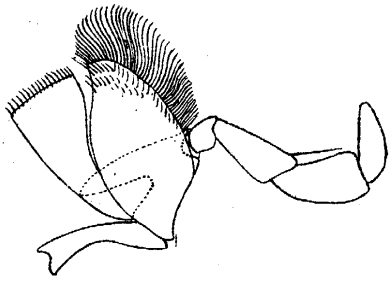

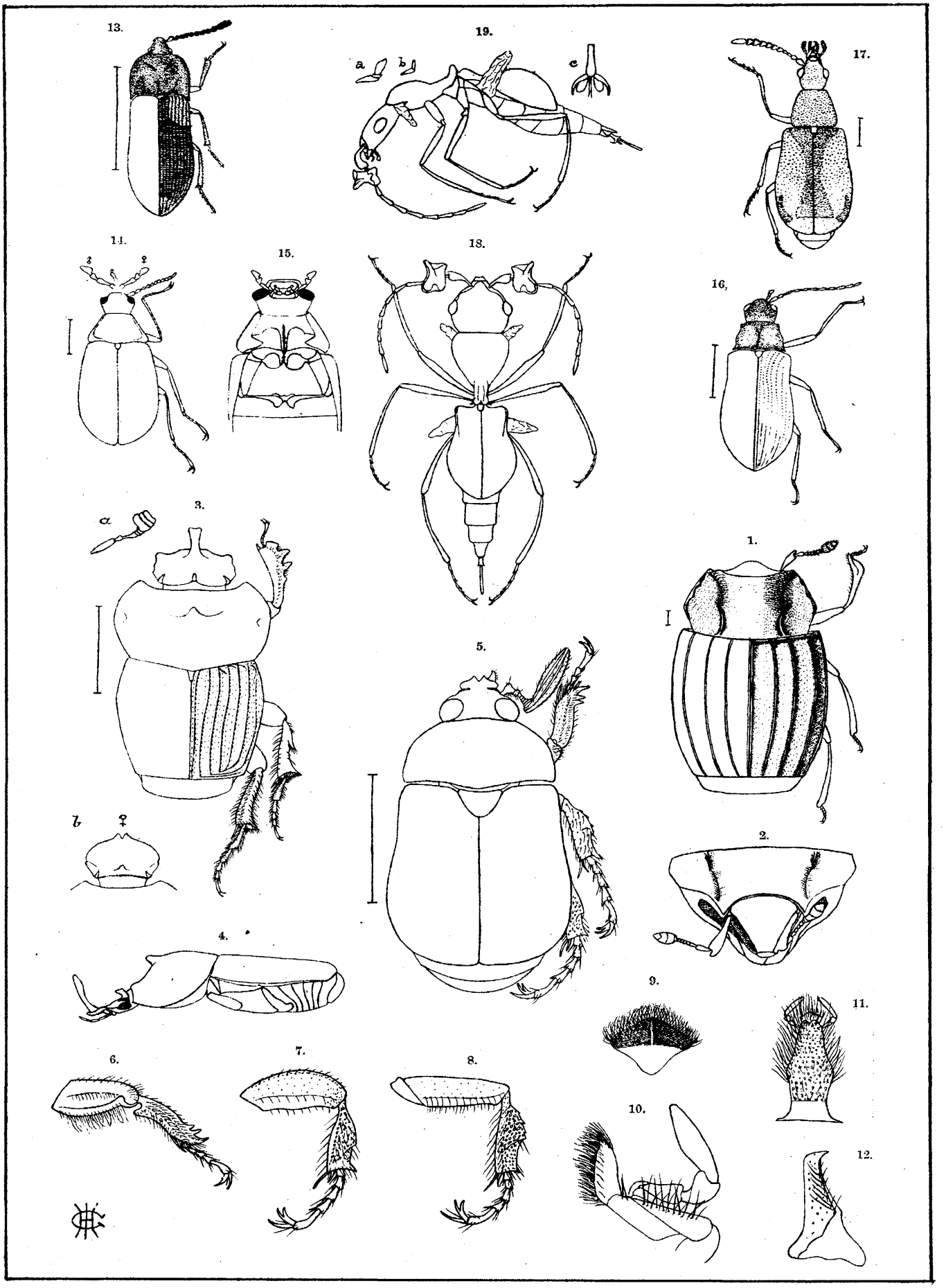
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