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ON THE GENERA OF THE EUPELMINÆ.

By WILLIAM H. ASHMEAD.

The *Eupelminæ* were first separated from Westwood's family *Encyrtidæ* as a distinct family under the name *Eupelmoidæ*

by Dr. Arnold Förster, in his Hymenopterologische Studien, in 1856, page 18, the type of the family being the genus *Eupelmus* Dalman, erected in 1820.

In this work Förster gives a table of the genera known to him, and tabulates seven genera—viz., *Halidea*, *Polymoria*, *Ratzeburgia*, *Calosoter*, *Eupelmus*, and *Charitopus*, of which five were new, the genus *Ratzeburgia* being a new name for *Eusandalum* Ratzeburg, preoccupied. *Halidea* is identical with *Metapelma* Westwood, which was unknown to Förster, although characterized as early as 1835.

Förster also overlooked the genera *Urocryptus* Westwood, founded in 1840, *Phleboenes* Perty, 1834, and *Prionopelma* Westwood, 1835. The latter I consider identical with *Phleboenes*.

A new genus, *Charilophus*, was erected by Haliday in 1862, from Algiers, while the following year Motschulsky founded his genera *Anastatus* and *Cacotropia* from Ceylon. Walsh's genus *Antigaster* was erected in 1869. It was suppressed by Howard in 1869, who considered it synonymous with *Eupelmus*. It is, however, a valid genus, but must give way to *Anastatus* Motschulsky, the older name.

*Balcha* was described by Walker in 1864, *Myrmecopsis* Walker, from Australia, in 1866, while in 1874 Förster described *Charitolophus*, a genus with branched antennæ, from Europe, and Westwood *Oodera* from the Malay Archipelago.

In 1883, Peter Cameron erected the genus *Solindenia*, from the Sandwich Islands, and in 1884, in *Biologia Centrali-Americana*, he describes three new genera—*Brasema*, *Lutnes*, and *Aseirba*. The last, however, has been shown recently by Dr. Howard to be identical with the genus *Cerchysius* Westwood, in the Encyrtinæ.

Finally, a remarkable genus, with branched antennæ in the males, was founded by Howard in 1890, under the name of *Tanaostigma*, who placed it with the Encyrtinæ, but which evidently belongs to this group on account of the distinct mesonotal furrows. It is one of the links that bind these two subfamilies together, and, as has already been suggested by Dr. Howard, will form a distinct tribe, with my *Tanaostigmodes*, a closely allied genus described below.

The above-mentioned genera are, so far as I know, all the described genera known up to the present time.

In studying recently some South American, West Indian, and Tropical *Eupelminæ* it became necessary for me to go over the literature on the subject very carefully, and the result is the discovery of several new genera, and as no complete table of the genera of this group has ever been published (the table in Mr.



Antennæ inserted below the middle of the face, the stigmal vein very long, curved.....(8) *Calosoter* Walk.

Antennæ inserted above the middle of the face, the stigmal vein very short.....(9) *Chirolophus* Hal.

Hind tibiæ with 1 spur (teste Cameron).

(10) *Solindenia* Cam.

Scutellum with a narrow base against the mesonotum, the axillæ approximate or united at base.

Second abdominal segment short, not incised at apical margin.

Stigmal vein not short; abdomen oval, narrower than the thorax, with the ovipositor subexserted.

(11) *Brasema* Cam.

Second, third and fourth abdominal segments usually incised at apical margins, the second segment the longest.

Eyes not or scarcely convergent above, the vertex not narrow; frons with a deep  $\wedge$ -shaped antennal furrow; antennæ 13-jointed, ringed with white, inserted close to the mouth .....(12) *Idoleupelmus* n. g.

Eyes slightly convergent above, but the vertex not very narrow; frons deeply grooved; antennæ 13-jointed, not ringed with white, clavate, obliquely truncate at apex from beneath, inserted on the middle of the face; abdomen longer than head and thorax united, dorsal segments 1-3 incised at apical margin.

(13) *Macreupelmus* n. g.

Eyes very large, strongly convergent above, the vertex narrow, the hind ocelli very approximate, the front ocellus placed far anteriorly.

Abdomen spatulate; occiput with a bunch of stiff black bristles behind the ocelli.

(14) *Tineobius* n. g.

Abdomen long, oblong-oval; occiput normal.

(15) *Ischnopsis* n. g.

Second abdominal segment as long as all the others united, deeply incised at apical margin.....(16) *Lutnes* Cam.

Second, third, fourth and fifth dorsal abdominal segments incised or emarginate at apical margins.

Scape long, more or less compressed; post marginal vein very long, the stigmal vein not short, curved.

(17) *Cerambycobius* n. g.

7. Winged..... 8  
Apterous or subapterous.

Metathoracic angles spined; antennæ inserted close to the mouth; face with transverse furrows .....(18) *Myrmecopsis* Walk.

Metathoracic angles normal; antennæ a little below the middle of

the face, but never close to the mouth; face without transverse furrows.

Segments 2-6 not incised at apical margins.

(19) *Urocryptus* Westw.

Segments 2-6 incised or at least more or less emarginated at apical margins.....(20) *Eupelmus* Dalm.

8. Mesothorax convex, the scapulæ very short, the parapsidal furrows delicate but distinct and strongly convergent and meeting or almost meeting posteriorly in front of the scutellum, conforming to the axillar sutures .....II

Mesothorax depressed or concave medially, the scapulæ not short, the parapsidal furrows never strongly convergent posteriorly.

Abdomen clavate or spatulate, broadened behind, narrowed towards base, not as long as the thorax, and depressed or flat above, dorsal flap not incised or the incision not very deep... 10

Abdomen long, conic-ovate, oblong or conically acuminate, as long as or much longer than the head and thorax united, the dorsal flap always deeply incised at apex.

Ovipositor always much longer than the entire body..... 9

Ovipositor shorter than the body, usually shorter than the abdomen.

Antennæ inserted a little *below* the middle of the face, on an imaginary line drawn from base of the eyes, or a little below it.....(20) *Eupelmus* Dalm.

Antennæ inserted *above* the middle of the face.

Axillæ widely separated; wings not short, the marginal vein long, the stigmal very short, the post-marginal long; antennæ 13-jointed.

(21) *Charitolophus* Först.

Axillæ approximate; wings short; antennæ 9-jointed.....(22) *Cacotrophia* Motsch.

9. Scape compressed, extending far beyond the ocelli.

Basal dorsal flap and dorsal segments 2-4 incised at apex.

(23) *Plebopenes* Perty (= *Prionopelma* Westw.)

10. Postmarginal vein two or more times longer than the stigmal vein, rarely only as long.

Head viewed from in front about twice as wide as long, the antennal furrows very deep; eyes round, strongly convergent above; postmarginal vein not longer than the stigmal.

(24) *Lecaniobius* n. g.

Head viewed from in front at least as long as wide, rarely a little wider than long; antennal furrows not very deep and very short; eyes oblong or ovate.

Malar furrow distinct; no carina from the lower part of each eye to base of each antenna; antennæ inserted on or some-

what below an imaginary line drawn from base of eyes, rarely slightly above this line.

(25) *Anastatus* Motsch. (= *Antigaster* Walsh.)

Malar furrow indistinct or subobsolete; a distinct carina extends from lower part of each eye to base of each antenna; antennæ inserted just above the clypeus.

(26) *Arachnophaga* n. g.

11. Scape broadly dilated below.

Flagellum flattened, the joints of funicle subpedunculated and very much wider than long; postmarginal vein shorter than the stigmal, the latter long, nearly perpendicular with the anterior margin of the wing; abdomen not longer than the thorax, the ovipositor slightly exerted..(27) *Tanaostigma* How.

Flagellum subclavate, the joints of funicle a little longer than thick, cylindric; postmarginal vein not longer than the stigmal, the latter not short, but oblique; abdomen as long as or a little longer than the head and thorax united, the ovipositor subexserted.....(28) *Tanaostigmodes* n. g.

*Males.*

Posterior tibiæ and first tarsal joint simple, not much compressed or very broad..... 2

Posterior tibiæ and first tarsal joint compressed, broad.

Eyes hairy; flagellum subclavate, obliquely truncate at tip.

(1) *Metapelma* Westw.

2. Anterior femora normal..... 3

Anterior femora much swollen.

Anterior femora armed with minute spines beneath.

(2) *Oodera* Westw.

Anterior femora not armed with minute spines beneath.

(3) *Ooderella* Ashm.

3. Antennæ simple, never branched..... 4

Antennæ ramose or branched.

Flagellum with four long branches.

Mesonotum depressed, parapsidal furrows vaguely impressed or normal.

Eyes bare.....(9) *Chirolophus* Hal.

Eyes hairy.. (21) *Charitolophus* Först.

Mesonotum convex, the parapsidal furrows delicate but distinct, running off towards the sides and strongly convergent and meeting or nearly meeting at base of scutellum.

(27) *Tanaostigma* How.

4. Antennæ inserted just above the clypeus or below an imaginary line drawn from the base of eyes..... 7

Antennæ inserted on the middle of the face or above or on an imaginary line drawn from the base of eyes.

- Mesonotal furrows complete ..... 6  
 Mesonotal furrows incomplete, vaguely impressed or indicated only anteriorly and converging and ending near the middle of the scutum.  
 Axillæ united at base or not well separated..... 5  
 Axillæ well separated.  
 Stigmal and postmarginal veins short, the latter shorter than the former and always much abbreviated; hind sutures of axillæ curved; scape not compressed.  
 (7) *Ratzeburgia* Förster.  
 Stigmal and postmarginal veins not short, the latter a little longer than the former; hind sutures of axillæ straight; scape somewhat compressed.  
 (8) *Calosoter* Walk.
5. Hind tibiæ not compressed.  
 Pedicel not small, obconical, larger than the first funicular joint; scape subcompressed.....(20) *Eupelmus* Dalman.
6. Postmarginal vein twice or nearly twice as long as the stigmal.  
 Scape short; the flagellum filiform; pedicel minute, much smaller than first funicular joint.  
 Joints 1 to 7 of funicle always longer than thick, the club joints not very long.....*Cerambycobius* Ashm.  
 Joints of funicle very short, much wider than long, the club joints very long.. ....(25) *Anastatus* Motsch.
7. Hind tibiæ somewhat compressed.  
 Pedicel obconical, smaller than the first joint of funicle, all the joints of the funicle except sometimes 6 and 7 longer than thick.  
 Apical margin of none of the dorsal segments of abdomen incised or emarginate..... (26) *Arachnophaga* Ashm.

(3) *OODERELLA* new genus.(Type *O. smithii*.)

Head quadrate, wider than thorax, the temples broad, the frons impressed, but without antennal furrows, although there is an elevation between the antennæ; eyes large, rounded, convex, bare; ocelli triangularly arranged; maxillary palpi 4-jointed; labial palpi 3-jointed; manibles 3-dentate. Antennæ 13-jointed, long, inserted below the middle of the face; the scape, cylindrical, less than one-third the length of the flagellum, the latter long, subclavate, the pedicel shorter than the first funicle joint.

Thorax similar to *Eupelmus*, only the prothorax is longer, while the scutellum and mesonotum are more depressed and do not meet in an elevation or ridge; wings undeveloped, scale-like; legs as in *Eupelmus*, except the anterior femora are much swollen, shorter and much stouter than the middle and hind femora, similar to the genus *Heydenia*.

Abdomen ovate, convex above and beneath and not longer than the thorax, the apex pointed, with the ovipositor subexserted, the dorsal segments 1-5 with apical margins emarginated or incised medially.

This interesting new genus bears a slight resemblance to the Cleonymine genus *Heydenia* Förster.

(1) *Ooderella smithii* n. sp.

*Female*.—Length 3.5 mm. Head and abdomen black, the face metallic greenish; scape, prothorax, mesonotum, middle legs and hind legs *within*, except coxæ, ferruginous; anterior legs and hind legs *outwardly*, dark fuscous or fusco-æneous; mesosternum æneous black. Flagellum black,  $3\frac{1}{2}$  times the length of the scape, the pedicel obconical, much shorter than the first joint of the funicle. There is a tuft of silvery hairs on the middle of the mesonotum just in front of the scutellum, another on the anterior margin of the mesopleura and also on the hind coxæ.

Hab.—Chapada, Brazil, April. (H. H. Smith Collection.)

(4) CHARITOPUS Förster.

(1) *Charitopus schwarzii* n. sp.

*Female*.—Length 3.5 mm. Elongate, linear, the ovipositor a little longer than the abdomen. Bronze-green, shagreened; antennæ and ovipositor black; legs, except coxæ, brownish-yellow; middle tarsi, except first joint, tips of hind tibiæ and hind tarsi, except basal half of first joint, fuscous. Wings hyaline, the marginal and postmarginal veins very long, the stigmal vein very minute, subsessile.

Type, No. 3458, U. S. N. M.

Hab.—Biscayne Bay, Florida. (E. A. Schwarz.)

This is the only genuine *Charitopus* yet recognized in our fauna, *Charitopus magnificus* Ashm. really belonging to the Cleonyminæ and representing a new genus which I call *Plinobius*.

(7) RATZEBURGIA Förster.

(1) *Ratzeburgia cyanea* n. sp.

*Female*.—Length 7 mm.; ovipositor 1.5 mm. Wholly cyaneous with slight greenish metallic reflections on mesonotum, mesopleura, apex of first abdominal segment, base of second, and middle of two or three of the following segments; tegulæ, knees and tarsi, light brownish.

Type, No. 3459, U. S. N. M.

Hab.—Arizona.

(2) *Ratzeburgia coquillettii* n. sp.

*Female*.—Length 4.5 to 5 mm. Head and thorax black; abdomen above bronzed green; legs, except coxæ and hind femora, brownish-yellow, hind



femora fuscous or blackish; wings hyaline with tips and a band across wing just beneath marginal vein, fuscous.

Type, No. 3460, U. S. N. M.

Hab.—Santa Cruz Mts. and Los Angeles, Cal. This species is dedicated to my friend, the distinguished Dipterist D. W. Coquillett, who reared a single specimen at Los Angeles, Cal., from a Cerambycid larva, *Oeme gracilis* Lec.

(3) *Ratzeburgia hubbardii* n. sp.

*Female*.—Length 4 to 5 mm. Head and thorax metallic brown-black, the face duller and sometimes blue-black, the abdomen very long, acuminate, bronzed green, the whole body sparsely clothed with a sparse whitish pubescence; legs æneous black or fusco-æneous, the extreme tips of anterior tibiæ, their tarsi, middle legs except coxæ and tips of hind tibiæ and their tarsi brownish-yellow. Wings clear hyaline.

Type, No. 3461, U. S. N. M.

Hab.—Crescent City, Fla.; District of Columbia.

Described from many specimens and dedicated to my friend Henry G. Hubbard, who bred it in numbers from the larva of a Coleopteron, *Leptostylus biustus* Lec., boring in orange trees.

(4) *Ratzeburgia hyalinipennis* sp. n.

*Female*.—Length 5 mm. Closely allied to *R. hubbardii* but the head is bronzed green, the abdomen not so acuminate at tip, the pubescence being more distinctly confined to the abdomen and exceedingly fine or microscopic, while the legs are nearly wholly ferruginous with sometimes only the coxæ and anterior femora æneous, although in one specimen all the tibiæ have a more or less distinct fuscous streak on their outer face. Wings clear, hyaline.

Type, No. 3462, U. S. N. M.

Hab.—Santa Cruz Mts., Cal. (Albert Kœbele.)

(8) CALOSOTER Walker.

(1) *Calosoter longiventris* sp. n.

*Female*.—Length 6.5 mm. Dull bronzed green; scape æneous, the flagellum black; legs, except coxæ, fuscous; sutures of trochanters, knees, tips of tibiæ and all tarsi brownish-yellow. Wings hyaline, tegulæ and veins brown, the postmarginal vein a little longer than the stigmal. Abdomen very acuminate, compressed,  $2\frac{1}{2}$  times as long as the head and thorax united, the terminal segment forming a long slender stylus.

*Male*.—Length 3 mm. Agrees with the female in color except the legs are æneous, with only the knees, extreme tips of tibiæ and the tarsi ferruginous; and in structure, except the abdomen is depressed, oblong and scarcely longer than the thorax.

Type, No. 3463, U. S. N. M.

Hab.—Santa Cruz Mts. and Argus Mts., Cal. (Albert Kæbele.)

(9) *CHIROLOPHUS* Haliday.

(1) *Chirolophus kæbelei* n. sp.

*Male*.—Length 3 mm. Bronzed green, the head in front blue-green; legs, except tarsi and extreme tips of tibiæ, black. Antennæ black, inserted *above* the middle of the face, the scape slightly compressed and extending above the ocelli; joints 1-4 of funicle each with a long slender compressed branch. Thorax as in *Calosoter* except the axillæ, although widely separated, are a little closer to each other than in that genus. Wings hyaline, the veins dark brown, the marginal and postmarginal veins long, the stigmal very short as in *Torymus*. Abdomen long, linear, a little longer than the head and thorax united.

Type, No. 3464, U. S. N. M.

Hab.—Australia. (Albert Kæbele collector.)

(12) *IDOLEUPELMUS* new genus.

(Type *I. annulicornis*.)

*Female*.—Head transverse, as wide as the thorax, antero-posteriorly rather thin, the temples flat, seen from in front rounded, the frons with a distinct  $\Lambda$ -shaped antennal furrow; eyes oblong oval, pubescent and somewhat convergent above, the vertex not, however, specially narrowed; ocelli triangularly arranged; antennæ 13-jointed, inserted just above the clypeus; scape slender, cylindrical, the flagellum ringed with white. Thorax as in *Eupelmus*; wings marked with brown and white, the postmarginal vein longer than the stigmal; legs as in *Eupelmus*. Abdomen as in *Anastatus* (= *Antigaster* Walsh), except it terminates in a long ovipositor.

(1) *Idoleupelmus annulicornis* sp. n.

*Female*.—Length 1.6 mm.; ovipositor 5 mm.  $\mathcal{A}$ eneous-black; abdomen, except at base which is pale, blue-black; parapsides, scutellum, mesopleura posteriorly, mesosternum and base of abdomen brownish-yellow; legs honey-yellow, the coxæ and hind femora and tibiæ metallic; middle and anterior femora fuscous medially, the anterior tibiæ with a white band near the base. Wings fuscous, with the base and a subapical band white. Eyes hairy, slightly convergent above, the face with a  $\Lambda$ -shaped furrow.

Antennæ black, joints 7 to 9 white; ovipositor yellowish, the extreme tip black.

Hab.—St. Vincent. (H. H. Smith.)

Described from 1 specimen.

(13) *MACREUPELMUS* new genus.(Type *M. brasiliensis*.)

Head transverse, about twice as wide as thick antero-posteriorly, a little wider than the thorax viewed from in front, the frons a little wider than long, with deep antennal furrows; eyes large, oval, pubescent, slightly converging above but the vertex not very narrow; ocelli arranged in an equilateral triangle; maxillary palpi 4-jointed; labial palpi 3-jointed; mandibles bidentate, the inner tooth broad; antennæ 13-jointed, inserted above an imaginary line drawn from base of eyes, the scape slightly curved, clavate; flagellum clavate, the club obliquely and strongly truncate at apex above, pedicel shorter than the first joint of funicle, joints 1-3 of funicle very slightly shortening but also thickening, but much longer than thick, the first being four or more times longer than thick, funicle joints 4-6 wider than long.

Thorax as in *Eupelmus*, except the axillæ are somewhat separate at inner basal angles; wings more or less clouded, the marginal vein very long, as long as the submarginal or a little longer; the stigmal vein oblique, not especially long and ending in a little uncus; postmarginal vein very long; legs as in *Eupelmus*.

Abdomen long, longer than head and thorax united, clavate, depressed, rounded off at apex and ending in a prominent ovipositor, the dorsum flat with the apical margin of segments 1-4 incised or emarginate, the first two being very deeply incised; venter sub-convex.

(1) *Macreupelmus brasiliensis* sp. n

*Female*.—Length 4.5 to 5 mm. Blue-black, with a slight æneous tinge, and clothed with sparse whitish hairs, hairs on pronotum and anterior femora black. Antennæ, except spot at tip of scape, black, the flagellum much incrassated toward tip and strongly obliquely truncate at apex from above; eyes brown pubescent. Front wings fuscous, paler at base and tips, with an oblique whitish or hyaline streak extending from the marginal vein backwards towards base of the wing. Legs black, the front tarsi ferruginous, middle and hind trochanters and a spot at base of hind tibiæ white. Mesosternum with a white spot in front of middle coxæ. Ovipositor as long as the first two joints of hind tarsi, brownish-yellow.

Hab.—Santarem, Brazil. (H. H. Smith Coll.)

(14) *TINEOBIUS*, new genus.(Type *T. citri*.)

Head transverse, a little wider than the thorax, antero-posteriorly very thin, the frons without distinct antennal furrows or these only slightly indicated toward insertion of antennæ; occiput very flat, the temples scarcely visible back of the eyes, with cluster of black hairs back of ocelli; eyes large, long-oval, pubescent and rather strongly convergent above;

ocelli subtriangular arranged, the front ocellus a little farther away from the hind ocelli than are these to each other; maxillary palpi 4-jointed; antennæ 13-jointed, widely separated at base, inserted rather close to the mouth, or below an imaginary line drawn from base of eyes, the scape long, cylindrical, slightly curved; flagellum rather slender, subclavate, the pedicel longer than the first joint of funicle.

Thorax as in *Anastatus*, the scutellum with narrow base against mesonotum but the axillæ do not quite meet at base; wings clouded, the stigmal vein nearly as long as the submarginal, the stigmal vein oblique, subclavate, about half the length of the postmarginal, which is about two-thirds the length of the marginal; legs as in *Eupelmus* except the hind tibiæ are distinctly flattened, but not so broad as in *Metapelma*.

Abdomen clavate, narrowed toward base, depressed and ending in a long ovipositor, as long as, or nearly as long as, the abdomen; dorsal segments 1-3 incised at apical margins medially.

Resembles the genus *Anastatus* but differs in shape of head in having the hind tibiæ flattened, by the pubescent eyes, long ovipositor and by the incisions of dorsal abdominal segments.

(1) *Tineobius citri* n. sp.

*Female*.—Length 3.5 mm. General color brownish-yellow or light ferruginous; flagellum black; eyes brown-black, pubescent; face below and between antennæ metallic green; pronotum at sides and disk of mesopleura violaceous, clothed with *silvery* pubescence; mesonotum, except the elevation anteriorly which is metallic green, the short metanotum and the abdomen except basal segment above and beneath which is white, æneous black; ovipositor as long as abdomen, black ringed with white before apex. Hind legs fuscous, hind femora paler beneath, the sharp ridge of hind tibiæ and spot at base of first tarsal joint white; middle tibiæ dusky outwardly. Wings, except basal one-third and extreme apex which are hyaline, fuscous.

Type, No. 3465, U. S. N. M.

Hab.—Paramatta, New South Wales.

Described from one female bred by A. Koebele from a Tineid larva predaceous upon *Chionaspis citri*.

(1) *Tineobius californicus* n. sp.

*Female*.—Length 3.5 mm. Stature and general color similar to *T. citri* but the face below antennæ is not metallic, the prothorax is entirely brownish-yellow, the mesonotum has only a slight metallic tinge, the disk of the lobes being fuscous, the mesopleura have a silvery sheen due to a fine silvery pubescence, while joints 1-3 of middle tarsi and joints 2-4 of hind tarsi are white, the basal joint being entirely fuscous without the white spot, the hind tibiæ, however, and the legs otherwise, except the middle tibia is not fuscous outwardly, are as in *T. citri*. The abdomen,

however, is entirely æneous, not white at base, while the ovipositor is entirely light brown.

Type, No. 3466, U. S. N. M.

Hab.—Kern County, California.

Described from one female taken by Mr. A. Kœbele.

(15) *ISCHNOPHYSIS* new genus.

(Type *I. ophthalmica*.)

*Female*.—Head transverse, as wide as the thorax antero-posteriorly, not especially thin, seen from in front rounded, the frons with a distinct  $\Lambda$ -shaped antennal furrow; eyes large, oval, pubescent and strongly convergent above, nearly contiguous, the vertex in consequence very narrow; hind ocelli very approximate, the front ocellus placed far anteriorly; antennæ 13-jointed, inserted below an imaginary line drawn from base of eyes; scape compressed, sharp-edged beneath; the flagellum subclavate, pubescent, the pedicel as long or a little longer than the first joint of funicle, joints 5 and 6 of funicle a little wider than long, the preceding all longer than wide.

Thorax as in *Metapelma*; legs as in *Eupelmus*. Abdomen elongate clavate, ending in a prominent ovipositor, the first dorsal segment the longest and deeply incised at apical margin.

(1) *Ischnopsis ophthalmica* sp. n.

*Female*.—Length 4 mm.; ovipositor 1 mm. Bluish, with a metallic green tinge, shagreened; antennæ æneous or submetallic, the flagellum subclavate, with a dense black pubescence, the funicle joints long, the first the longest, the two following about three times as long as thick, the 4th half the length of the 3d, those beyond transverse. Eyes abnormally large, pubescent, convergent and almost meeting above, leaving a very narrow vertex. Face with a deep  $\Lambda$ -shaped furrow, the bottom of the furrow deep violet. Mesonotum flat, but not deeply impressed; scutellum and axillæ on the same plane, the former obconic, the latter triangular. Tegulæ and venation pallid; wings fuscous, the base and outer margin broadly to base of stigmal vein and a large spot at the apical middle white or hyaline; the marginal vein is as long as the submarginal, a little thickened at base; stigmal vein curved, clavate; postmarginal vein long. Legs brownish-yellow, with the anterior femora and tibiæ, except the knees, and the middle and posterior femora and a band at apex of hind tibiæ, brown or black. Abdomen clavate, as long as the thorax, convex beneath, flat above, the first dorsal segment the longest, strongly emarginate at the middle; ovipositor half the length of the abdomen, ferruginous.

Hab.—St. Vincent. (H. H. Smith.)

Described from a single specimen.

## (17) CERAMBYCOBIUS new genus.

(Type *Eupelmus cleri* Ashm.)

Head transverse, as wide as widest part of thorax, viewed from in front rounded, not longer than wide; temples narrow; face with a  $\Lambda$ -shaped antennal furrow; clypeus not separated; maxillary palpi 5-jointed; labial palpi 3-jointed; mandibles 3-dentate; eyes large, oblong oval, pubescent; antennæ 13-jointed, inserted below an imaginary line drawn from base of eyes, widely separated at base, the scape long, slightly compressed, the flagellum subclavate, the pedicel longer than the first joint of funicle.

Thorax long as in *Eupelmus*; wings with the marginal vein as long or nearly as long as the submarginal, the stigmal vein not short, oblique, subclavate, about one-third the length of the marginal, slightly curved, the postmarginal very long, nearly as long as the marginal; legs as in *Eupelmus*.

Abdomen long, longer than the head and thorax united, and ending in a prominent ovipositor, depressed above, convex or carinate beneath, the apical margins of the dorsal segments 1-5 incised or emarginate medially.

## (24) LECANIOBIUS new genus.

(Type *cockerellii*.)

Head transverse, wider than the thorax, viewed from in front twice as wide as long, the face being very short; frons with a deep  $\Lambda$ -shaped antennal furrow; eyes rounded, bare; ocelli triangularly arranged; maxillary palpi 4-jointed, the last joint the longest; labial palpi 2-jointed; mandibles indistinctly tridentate; antennæ 13-jointed, inserted a little below the middle of the face, widely separated at base, the flagellum subclavate, obliquely truncate at tip from beneath.

Thorax as in *Anastatus*, the scutellum with some long black bristles; wings with a fuscous discoidal band or cloud. The marginal vein long, the stigmal vein rather short, ending in a small knob, the postmarginal vein not longer than the stigmal, usually a little shorter; legs as in *Eupelmus*, except that the hind tibiæ are somewhat flattened.

Abdomen much shorter than the thorax, as seen from above flat and ovate in outline, although in dried specimens usually appearing spatulate from the retraction of the terminal segments, beneath triangularly carinated, the ovipositor not exerted or at the most subexserted; the apical margins of dorsal segments are all apparently straight, not at all emarginate or excised.

(1) *Lecaniobius cockerellii* n. sp.

*Female*.—Length 2 mm. Head light brown, the vertex usually with metallic reflections and sometimes surrounding the ocelli, more or less æneous; scape of antennæ brownish-yellow, the pedicel and flagellum brown-black. Thorax mostly æneous, strongly iridescent; plate in front of tegulæ, upper surface of prothorax and coxal cavities light brown;

scutellum proper, but not axillæ, red with some black bristles in disk. Legs mostly æneous or fusco-æneous; anterior coxæ at base, their trochanters and their femora and tibiæ within, middle coxæ beneath, their trochanters and most of the femora and tibiæ, except outwardly, light brown, their tarsi whitish; hind legs mostly æneous or fuscous, while the outer surface or ridge of the tibiæ white. Wings hyaline, with a large brown cloud across the wing below the marginal and stigmal vein; abdomen æneous, brownish at base beneath, the ovipositor not exerted.

Type, No. 3467, U. S. N. M.

Hab.—Antigua, British West Indies.

Described from 12 female specimens bred by Prof. T. D. A. Cockerell, from *Lecanium fraternum* Ckll.

(25) ARACHNOPHAGA new genus.

(Type *Eupelmus piceus* Riley.)

*Female*.—General facies of *Anastatus* Motschulsky (= *Antigaster* Walsh) but the head is larger, wider than the thorax and antero-posteriorly much thinner, the temples very narrow, flattened; the frons is smooth without antennal furrows, the antennæ being inserted just above the clypeus or much below an imaginary line drawn from base of eyes; there is also a strong carina extending from base of each eye to each antennal socket, while the malar furrow is wanting or subobsolete, never distinct as it is in *Anastatus*; maxillary palpi 4-jointed, the last joint as long as the three preceding; labial palpi 3-jointed; mandibles tridentate; antennæ 13-jointed, the scape long, slender, slightly curved; flagellum subclavate. Thorax as in *Eupelmus*; wings with a large discoidal blotch, the venation similar to *Anastatus*; legs as in *Anastatus*, except the hind tibiæ are somewhat flattened.

Abdomen spatulate, shorter than the thorax and with a prominent ovipositor, the first segment the longest and the apical margins of all the dorsal segments except the fifth, which is obtusely triangularly emarginated, are straight, not incised or emarginate.

(28) TANAOSTIGMODES new genus.

(Type *T. howardii*.)

*Female*.—Head transverse, as wide as the thorax, the vertex subacute, the temples very narrow, flat, the frons foveated just above the antennæ; eyes oval, bare; ocelli in a straight line; clypeus small, indistinctly separated, with a slight median incision anteriorly; mandibles not large, indistinctly tridentate; maxillary palpi 4-jointed, labial palpi 3-jointed; antennæ 13-jointed, inserted below the middle of the face, the scape broadly dilated below, flagellum subclavate, the tip truncate, the joints cylindrical, the funicular joints a little longer than thick.

Thorax subovoid, about two and one-half times as long as wide, con-

vex above; pronotum very short, abruptly rounded off anteriorly; mesonotum convex, not longer than wide and only two-thirds the length of the scutellum, the parapsidal furrows delicate but distinct, strongly convergent and meeting or almost meeting at base of scutellum, but anteriorly they take a strong divergent curve off to one side so that the scapulæ are rather short and considerably wider at base than long, conforming very nearly in size and shape with the axillæ; scutellum very large, a little more than one-half longer than the mesonotum, the axillæ triangular in outline and barely meet at basal angles, their suture *vis a vis* with the parapsidal furrows, scutellum proper fully twice as long as wide at widest part; metathorax very short, the spiracles small, oval; wings ample, the submarginal vein nearly three times as long as the marginal, the costal cell rather broad; stigmal vein a little more than two-thirds the length of the marginal vein, oblique, with a slight curve, ending in a small uncus.

Abdomen sessile, oblong-ovate, not longer than the head and thorax, concave above, convex beneath, the basal segment the longest, about twice as long as any of the following which are subequal; the apical margin of all the segments except the first, which has a slight median incision, are straight, not incised; ovipositor not prominent, at the most subexerted.

This genus is closely allied to *Tanaostigma* Howard, but is readily separated by the great difference in shape of the flagellum and by the venation of front wings. The ♂ is unknown but will probably be a form with branched antennæ, as has been suggested to me by Mr. Howard.

(1) *Tanaostigmodes howardii* n. sp.

*Female*.—Length 2.5 to 3 mm. General color brownish-yellow, the thorax above and the abdomen finely shagreened; eyes and abdomen above, except at margins, brown-black, venter subfuscous; funicle joints 1-5 light brown, funicle joint 6 and the club white; tegulæ, propleura and tarsi beneath whitish.

Types, No. 3468, U. S. N. M.

Hab.—San Diego, Los Angeles, Cal., and Arizona.

Described from many specimens reared by D. W. Coquillett from a gall on *Prosopis*.

(2) *Tanaostigmodes tychii* n. sp.

*Female*.—Length 2.5 mm. Black, finely coriaceous; scape, antennæ, tips of coxæ, trochanters, knees, anterior tibiæ and tarsi and hind tarsi, and sheaths of the ovipositor brownish-yellow or light brown. Parapsidal furrows posteriorly meeting a little before the base of scutellum. Abdomen broadly oval, much shorter than thorax; tegulæ large, brownish-



yellow; wings hyaline, veins light brown, the stigmal vein a little shorter than the marginal, ending in a distinct uncus.

Hab.—San Bernardino, Cal.

Type, No. 3469, U. S. N. M.

Described from one female bred by D. W. Coquillett from larva of *Tychius semisquamosus* Lec. living in the seeds of *Lupinus sparsifloris*.