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BIOLOGIA
CENTRALI-AMERICANA.

INSECTA.

RHYNCHOTA.

HEMIPTERA-HOMOPTERA.

VOL. I.

BY

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AND

THE REV. CANON W. W. FOWLER, F.L.S.

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INTRODUCTION.

THIS Volume is devoted to the enumeration of eight families of Homoptera—the Cicadidæ, Fulgoridæ, Flatidæ, Derbidæ, Cixiidæ, Achilidæ, Issidæ, and Delphacidæ; the first two have been dealt with by Mr. W. L. Distant and the remainder by Canon Fowler. Altogether 323 species are enumerated, of which 208 are treated as new, with twenty-five new genera. The other families of Homoptera are reserved for Vol. II. of this series, and considerable progress has already been made with them. The Index to the two volumes will be given at the end of Vol. II. Of the thirteen coloured Plates accompanying Vol. I., six have been drawn by Mr. Purkiss and the remainder by Mr. Wilson. In the Appendix, four species are illustrated in the text.

ED.

March 1905.

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* *C. rudis*, var., on the Plate.

† *C. alacris* on the Plate.

‡ *C. alacris*, var., on the Plate.

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ERRATA ET CORRIGENDA.

Page	Line	
8	17	after **Cicada montezuma** *add* n. sp.
15	6, 19	*for* Tobago *read* Taboga.
20	41	after **Carineta cinara** *add* n. sp.
43	17	*for* Puris *read* Pirris.
61–64	..	Delete the references to **Flatoides basistigma** on p. 61, and deduct one from the number of each species to the end of the genus.
114	3	*for* HYPANCYLUS *read* HYPHANCYLUS.

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BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class INSECTA.

Order RHYNCHOTA.

Suborder HEMIPTERA-HOMOPTERA.

Fam. CICADIDÆ.

Stridulantes, Latreille, Fam. Nat. du Règne Anim. p. 426 (1825); Amyot & Serville, Hist. des Hém. p. 458 (1843).
Stridulantia, Burmeister, Handb. ii. 1, pp. 102, 170 (1835); Stål, Hem. Afr. iv. p. 1 (1866).
Cicadidæ, Westwood, Intr. Mod. Class. Ins. ii. p. 420 (1840); Arcan. Entomol. i. p. 91 (1843).
Cicadariæ, Packard (nec Latreille), Guide Stud. Ins. 5th edit. p. 533 (1876).

Of this large but at present imperfectly known family, twelve genera and forty-seven species are here enumerated as belonging to this fauna, being a considerable addition to our knowledge of these insects since Prof. Westwood, writing in 1840, alluded to the then best collection, contained in the Berlin Museum, which numbered 150 species only, seventy of which were from America; and Stål, in his 'Hemiptera Mexicana' (1864), referred to not more than thirteen species.

In the descriptive nomenclature here adopted for the venation of the tegmina I have followed Stål, but differ from that author in his use of the term "scutellum," which, in my opinion, is the "mesonotum"—in which I am supported by Burmeister and Westwood. The "scutellum," as used by Germar, apparently equals the "metathoracic cross" of Prof. Uhler; it is considered here (in agreement with Burmeister, and as may be proved by easy dissection) as part of the mesonotum, and is alluded to by me as the basal cruciform elevation of the same. I have also followed Prof. Westwood in the numeration of the abdominal segments, of which six are plainly visible—the basal one being described as the first, and the apical one as the sixth.

The "song" of the male insect is clearly of a sexual and of a non-protective character. The enemies of these insects are numerous. As regards birds, Belt has described how in Nicaragua during "April, when the Cicadæ are piping their shrill cry from morning until

night, individuals are often seen whose bulky bodies have been bitten off from the thorax by some bird; and the large and graceful Swallow-tailed Kite at that time feeds on nothing else. I have seen these Kites sweeping round in circles over the tree-tops, and every now and then catching insects off the leaves, so that on shooting them I have found their crops filled with Cicadæ." They also suffer much from other insects. Réaumur (as quoted by Westwood) states that the eggs of one of the European species are attacked by the larvæ of an ichneumon. Büchner relates that a friend (Herr Schlüter) saw a hornet catch a Cicada, sting it, and try to fly off with the bulky prey. Swinton refers to a writer in the 'Journal of the Asiatic Society of Bengal,' who, describing large numbers of Cicadidæ seen between Kandahar and Kabul, remarks that "the only enemies they appeared to have were some large dragon-flies, which pounced upon them and carried off what appeared to be double their own weight." They are also affected by fungoid growths. Mr. Peck, in his Annual Report on the New-York Museum of Natural History for 1878, refers to a fungus developed on the abdomen of *Tibicen septemdecim*, Linn., which, though not immediately fatal to the insect, manifestly incapacitates it for propagation. In the Proceedings of the Entomological Society of London for 1866 is a record of Mr. Wilson Saunders having exhibited two larvæ of a Cicada from Mexico, each of which had a large *Clavaria* growing from between its eyes. Some species, however, appear to have defence; for Bates when describing the habits of an Amazonian species * which was very common, "sometimes three or four tenanting a single tree, clinging, as usual, to the branches," says:—"On approaching a tree thus peopled, a number of little jets of a clear liquid would be seen squirted from aloft. I have often received the well-directed discharge full on my face; but the liquid is harmless, having a sweetish taste, and is ejected by the insect from the anus, probably in self-defence or from fear." I have also elsewhere stated my opinion that this originally sexual peculiarity may tend to have a secondary protective character, as on capturing the large Malayan *Pomponia imperatoria*, Westw., I found the vibration caused by stridulation sent a thrill through the nerves of my arm, and so considered that birds or other enemies of this insect would probably reject so startling a capture, and in time might recognize it by its appearance, which would thus ensure it some amount of immunity.

ZAMMARA.

Zammara, Amyot & Serville, Hist. des Hém. p. 468. 367 (1843); Stål, Ann. Soc. Ent. Fr. sér. 4, i. p. 616 (1861); Hem. Afr. iv. p. 1 (1866).

Zammara and the two following genera here enumerated, i. e. *Odopœa* and *Tettigades*, have a common and distinctive character in the produced and ampliated lateral margins of the pronotum. In *Zammara* the ulnar veins are contiguous at and for some little distance from their bases; and, as described by Stål, it is "area ulnari interiore retrorsum angustata."

* This species is evidently *Fidicina maculipennis*, Lap.

This truly Neotropical genus has not been recorded north of Mexico; nor does it probably extend in the opposite direction beyond the South-Brazilian subregion; it appears to be also absent from the Antillean fauna. About seven species of this genus are known, two of which are found in Central America. Some of the species are subject to great variation in the size and number of fuscous spots to the tegmina.

1. **Zammara smaragdina.** (Tab. I. figg. 1, 1 *a*, 1 *b*.)

Zammara smaragdina, Walk. List Hom. i. p. 33. 3[1]; ib. iv. t. 1. f. 4; Stål, Öfv. Vet.-Akad. Förh. 1862, p. 483.

Zammara angulosa, Walk. List Hom. i. p. 34. 4[2]; Stål, Öfv. Vet.-Ak. Förh. 1862, p. 483.

Hab. MEXICO[2]; NICARAGUA, Chontales (*coll. Dist.*); PANAMA, Volcan de Chiriqui (*Champion*).

A Nicaraguan specimen is figured. Walker[1] gave the origin of his type (*Z. smaragdina*) as "West coast of America," which habitat appears, from what I have observed with others of Walker's species thus localized, to be clearly referable to the Central-American region. Walker's figure is without structural detail; and no reference is made to it either in the description in part 1, or in the index appended to part 4 of his list. The specimens he has described as *Z. angulosa* are clearly faded female forms of *Z. smaragdina.* As in the following species, the macular markings of the tegmina are most inconstant, being either in agreement with typical forms, as the one here figured, or becoming confluent and forming an irregular transverse fascia. The three apical marginal spots are sometimes followed by two or three others. In one specimen examined these macular markings are asymmetrical on the right and left tegmina.

2. **Zammara calochroma.** (Tab. I. figg. 5, 5 *a*, 5 *b*.)

Zammara calochroma, Walk. List Hom. Suppl. p. 4[1].

Zammara smaragdula, Walk. Ins. Saund. Hom. p. 4.

Zammara callichroma, Stål, Stett. ent. Zeit. xxv. p. 57[2].

Hab. MEXICO[2] (*coll. Sallé, Mus. Berol.*), Orizaba (*Bilimek, Mus. Vind. Cæs.*); PANAMA (*Boucard*).—COLOMBIA, Bogota[1], Rio Magdalena (*Dr. Thieme, coll. Oberthür*).

The specimen figured is a typical *Z. calochroma,* Walk., from Mexico, in which the tegmina are ornamented with confluent fuscous macular markings, and agrees generally with the form described by Stål, of which, by the courtesy of Dr. Aurivillius, I have been enabled to examine a specimen. These fuscous markings become frequently less confluent and more diminished in area till the form *Z. smaragdula,* Walk., is reached, and again decrease in number and size, so that in a female specimen from Panama which is now before me they are only faintly indicated. The structural characters of the underside, however, are very distinct; and the pattern and markings of the pro- and mesonotum are always constant.

ODOPŒA.

Odopœa, Stål, Ann. Soc. Ent. Fr. sér. 4, vol. i. p. 616 (1861); Hem. Afr. iv. p. 1 (1866).

This genus differs from the preceding in having the ulnar veins clearly separated at the base. Stål also adds, "marginibus lateralibus areæ ulnaris interioris parallelis." *Odopœa,* though confined to the Neotropical Region, has a wider area of dispersal than that of *Zammara.* Though not recorded north of Mexico, it extends as far south as the Argentine Republic, and is well represented in the Antilles. About thirteen species are known, six of which have been found in Central America.

1. **Odopœa montezuma.** (Tab. III. figg. 5, 5 *a*, 5 *b*.)

Zammara montezuma, Walk. List Hom. i. p. 36. 6 [1].

Odopœa montezuma, Stål, Ann. Soc. Ent. Fr. sér. 4, i. p. 617; Öfv. Vet.-Ak. Förh. 1862, p. 484; Stett. ent. Zeit. xxv. p. 58. 383 [2].

Hab. MEXICO [1 2].

The figure is taken from a typical specimen in the collection of the British Museum. We have not yet received it in any of the collections sent to us from Central America.

2. **Odopœa imbellis.** (Tab. I. figg. 3, 3 *a*, 3 *b*.)

Zammara imbellis, Walk. List Hom. Suppl. p. 2 [1].

Odopœa imbellis, Stål, Ann. Soc. Ent. Fr. sér. 4, i. p. 617; Öfv. Vet.-Ak. Förh. 1862, p. 484; Stett. ent. Zeit. xxv. p. 58. 384 [2].

Hab. MEXICO [1 2] (*Heller, Mus. Vind. Cæs., Mus. Holm.*); GUATEMALA, Panima (*Champion*).

A Guatemalan specimen is figured.

3. **Odopœa azteca,** n. sp. (Tab. I. figg. 4, 4 *a*, 4 *b*.)

Body pale green. Head with the anterior margin, outer margins of ocelli, and an oblique narrow fascia from outer margins of ocelli to frontal margin of eyes black; ocelli red, eyes ochraceous. Pronotum with a central transverse fascia near anterior margin, two central longitudinal narrow fasciæ on disk, two oblique narrow fasciæ on each side, commencing from behind eyes, and outer and inner borders of dilated lateral margins black. Mesonotum with two large central obconical and curved spots on anterior margin, followed by a central longitudinal fascia on disk, on each side of which is a rounded spot, and on outer side of these central markings four elongate spots, placed in pairs obliquely, black. Abdomen above with a small black central transverse spot on anterior margin of first segment, and four small rounded fuscous spots near lateral margins of third, fourth, fifth, and sixth segments. Lateral margins of apical half of face, apex of rostrum, bases and apices of tibiæ (narrowly), anterior tarsi, excepting base of apical joint, and apices of posterior tarsi black. Tegmina pale hyaline, with the costa and radial veins greenish; basal half of tegmina with the veins greenish, outer half with the veins fuscous; claval margins testaceous, posterior edged with black near base. Wings pale hyaline, veins coloured as in tegmina, but claval margin darker.

Face somewhat depressed, lateral margins transversely striated and centrally and longitudinally sulcated. Lateral margins of pronotum much ampliated and obtusely angulated, posterior margins transversely striated. Tympana prominent, subconical, and subacutely angulated anteriorly. Opercula truncate

exteriorly, rounded posteriorly, obtusely pointed and rounded, but not meeting interiorly. Rostrum not passing posterior coxæ.

Long. 25 millim., exp. tegm. 83 millim.

Hab. MEXICO (*Mus. Berol.*).

Allied to *O. montezuma*, Walk., but differs by the much smaller size, different structure of the face and opercula, colour, markings, &c.

4. **Odopœa signoreti.** (Tab. I. figg. 10, 10 *a*, 10 *b*.)

Odopœa signoreti, Stål, Stett. ent. Zeit. xxv. p. 59. 385 [1].

Hab. MEXICO [1] (*coll. Dist.*).

5. **Odopœa diriangani,** n. sp. (Tab. III. figg. 10, 10 *a*, 10 *b*.)

♀. Ochraceous and unicolorous, obscurely pilose. Tegmina and wings hyaline, veins ochraceous. Face strongly carinate, its width and distance to outer margin of eyes being subequal. Eyes black, ocelli red. Pronotum with the lateral margins considerably ampliated and rounded, obtusely and obscurely angulated about middle. Mesonotum with two large but obscure obconical spots commencing on apical margin. Anterior femora with a strong spine about one third from apex, between which and apex are two smaller and much more obscure spines.

Long. 22 millim., exp. tegm. 69 millim.

Hab. NICARAGUA, Chontales (*Janson*).

This species is allied to *O. signoreti*, Stål, and *O. azteca*, Dist., from both of which it differs by the neuration of the tegmina being unicolorous, by the basal margin of the eighth apical area being almost straight and oblique, the ulnar veins abruptly divergent at base, and also by the strongly carinate face.

It is more than probable that some specimens of this species are green, and not ochraceous like the form here described.

6. **Odopœa medea.** (Tab. I. figg. 2, 2 *a*, 2 *b*.)

Odopœa medea, Stål, Stett. ent. Zeit. xxv. p. 60. 386 [1].

Hab. MEXICO, Oaxaca [1].

A typical female specimen in the Stockholm Museum is here figured; and Dr. Aurivillius informs me that in that collection this species has been placed under the genus *Zammara*. The ulnar veins, however, are distinctly separate at their origin; and I see no reason to doubt Stål's correctness in originally placing it in the genus *Odopœa*.

TETTIGADES.

Tettigades, Amyot & Serville, Hist. des Hém. p. 469. 369 (1843); Stål, Hem. Afr. iv. p. 2 (1866).

Tettigades differs from the two preceding genera by not having the basal area of the tegmina distinctly quadrangular; the lateral margins of the pronotum are also more obtusely rounded; and the venation, especially as regards the relative lengths of the ulnar and apical areas, is also very different.

Confined to the Neotropical Region, *Tettigades* possesses an extended area, from Chili to Mexico. This area is not known, however, to be continuous, but seems more than probably to be restricted altogether to the western portion of the southern continent. Five species are at present recorded, one of which, here described, has been received from Mexico.

1. **Tettigades mexicana,** n. sp. (Tab. II. figg. 9, 9 *a*, 9 *b*.)

♀. Head above black, front with an arcuated fascia at each side of base of face on anterior margin, an indistinct, narrow, broken, central longitudinal fascia on vertex, and a broad streak behind inner margin of eyes, luteous. Pronotum with the disk ochraceous, having a large reversed triangular spot on anterior margin, a large oblique patch on each side behind eyes, and a small central transverse line near posterior margin fuscous; anterior border narrowly, lateral and posterior borders broadly luteous. Mesonotum black, with two central pale lines commencing on anterior margin and terminating about one third the length of mesonotum; basal elevation with large horn-like and branching angles extending therefrom to about centre of disk, and frenum, luteous. Abdomen black, strongly pilose, with the posterior segmental borders narrowly ochraceous. Underside of body and legs luteous; base and central fascia to face, inner margin of eyes, some irregular marks on sternum and near coxæ, a linear streak on each side of femora, a spot on trochanters, a marginal segmental row of spots to abdomen, and a large quadrate spot on apical segment fuscous. Tegmina pale hyaline; radial and postcostal veins, and venation of apical third of tegmina fuscous; postcostal ulnar ramus and remaining venation luteous. Wings pale hyaline; basal half of venation luteous, apical half fuscous.

The face is moderately convex and gibbous, distinctly transversely striated, with a broad central longitudinal sulcation, the edges of which are slightly raised. The rostrum in the typical specimen has the apical joint mutilated, but apparently about reaches the posterior coxæ. The anterior femora are armed with two strong spines. Body very strongly pilose.

Long. 22 millim., exp. tegm. 68 millim.

Hab. Mexico (*Mus. Berol.*).

This species is allied to *T. compacta*, Walk., a species erroneously placed as a synonym of *T. chilensis*, A. & S., by Berg (Hem. Argent. p. 204). The habitat given by Walker is "West coast of America," which, as before observed, is likely to have referred to Central America. There is, however, no other or more detailed habitat to be found in the records of the British Museum; and it is therefore unadvisable to insert Walker's species in this fauna on such uncertain information.

CICADA.

Cicada, Linnæus, Syst. Nat. i. p. 704 (1766); Amyot & Serville, Hist. des Hém. p. 473. 374 (1843); Stål, Ann. Soc. Ent. de Fr. sér. 4, i. p. 614 (1861); Hem. Afr. iv. p. 7 (1866).

This genus is at once separated from the three preceding by the non-produced and non-ampliated lateral margins of the pronotum. The basal area of the tegmina is not twice longer than broad; the transverse vein at the base of the second apical area is oblique; and the space between the postcostal vein and ulnar ramus is linear, and not distinctly broader at the apex.

The genus *Cicada* is a very comprehensive one, and includes a large number of species, some of which superficially surveyed scarcely appear to be congeneric. Stål

has founded several subgenera, two of which, *Cicada* and *Diceroprocta*, are found in this fauna, the last appearing to apply to all the species with the exception of the first, which is stated by Stål to belong to his subgenus *Cicada*. In our present imperfect knowledge of the family it is impossible to give a correct or even fairly approximate estimate of the total number of species even described (for these are frequently wrongly ascribed to the genus) or existing unnamed in collections. It is well represented in Central America, fourteen species being here included.

♂. *Opercula long, broad and rounded, covering two thirds of the abdomen.*

1. **Cicada opercularis.**

Cicada tibicen, Linn. Syst. Nat. i. p. 707, var.?
Cicada opercularis, Oliv. Enc. Méth. v. p. 749. 12, t. iii. f. 1; Germ. in Thon's Ent. Arch. ii. p. 2. 45; Stål, Stett. ent. Zeit. xxv. p. 62. 390[1].
Stoll. Cig. fig. 13.

Hab. MEXICO[1].

This species is here included on the authority of Stål, who considered it a variety only of *C. tibicen*, Linn.; and if this view is correct, the species has a wide Nearctic range. Its habits have been studied in Bermuda by Mr. J. H. Jones; and some interesting details are given in that author's 'The Naturalist in Bermuda,' p. 122.

♂. *Opercula long, triangular, reaching the base of the fourth abdominal segment. Apices of the opercula obtuse; tegmina spotted with fuscous near the apex.*

2. **Cicada transversa.** (Tab. II. figg. 1, 1 *a*, 1 *b*.)

Cicada transversa, Walk. Ins. Saund. Hom. p. 15[1].
Cicada alacris, Stål, Stett. ent. Zeit. xxv. p. 62. 391[2].

Hab. MEXICO[2], Vera Cruz[1].

I am indebted to Dr. Signoret for the opportunity of comparing types of this species with those of Walker in the British Museum.

Apices of opercula acute; tegmina unspotted.

3. **Cicada ornea.** (Tab. III. figg. 3, 3 *a*, 3 *b*.)

Cicada ornea. Walk. List Hom. i. p. 137. 75[1].

Hab. MEXICO[1].

The type in the collection of the British Museum is here figured.

♂ *unknown.*

4. **Cicada bicosta.** (Tab. III. figg. 1, 1 *a*, 1 *b*.)

Cicada bicosta, Walk. List Hom. i. p. 112. 14.

Hab. MEXICO (*Mus. Vind. Cæs.*); COSTA RICA (*Mus. Berol.*).

A female Mexican specimen, belonging to the collection of the Vienna Museum, is here figured. The localities of Walker's types are unrecorded.

I have not seen a male specimen of this species, so cannot describe the opercula. Judging from the female, *C. bicosta* is allied to *C. rudis*, but differs by the more tumid face and the much less interspace between that and the eyes.

♂. *Opercula reaching the base of the second abdominal segment, overlapping, and with their apices rounded.*

5. **Cicada rudis.** (Tab. II. figg. 20, 20 *a*, 20 *b*.)

Fidicina rudis, Walk. List Hom. Suppl. p. 13[1].
Cicada rudis, Stål, Öfv. Vet.-Ak. Förh. 1862, p. 484.

Hab. MEXICO (*Mus. Berol.*; *Bilimek*, *Mus. Vind. Cæs.*; *Boucard*, *Mus. Holm.*), Orizaba[1].

The specimen figured is in the Vienna Museum. Walker described this species as nearly allied to *C. tibicen*; on the contrary, however, it much resembles the well-known European species *C. fraxini*.

♂. *Opercula reaching the apex of the first abdominal segment, inner margins contiguous.*

6. **Cicada montezuma.** (*C. rudis*, var., Tab. II. figg. 2, 2 *a*, 2 *b*.)

Allied to *C. rudis*, but smaller, the transverse veins at base of second and third apical areas infuscated; opercula only reaching to base of first abdominal segment, with the interior margins parallel and contiguous, but not overlapping. Face much narrower.

Long. 26 millim., exp. tegm. 75 millim.

Hab. MEXICO (*Mus. Berol.*).

♂. *Opercula reaching apex of first abdominal segment, inner margins divergent.*

7. **Cicada pallida,** n. sp. (Tab. II. figg. 7, 7 *a*, 7 *b*.)

Head pale greenish, with two small transverse spots on centre of front, two larger ones near inner margins of eyes, and two large lunate spots, partly surrounding the two posterior ocelli, black. Pronotum pale greenish and unicolorous. Mesonotum ochraceous, with two large obconical spots commencing on anterior margin, on each side of these a smaller and more oblique spot of the same description, a broken submarginal longitudinal fascia, and two small rounded spots on posterior portion of disk fuscous. Abdomen above ochraceous. Head beneath pale greenish. Sternum, legs, opercula, and underside of abdomen ochraceous. Tegmina pale hyaline; venation of about basal two thirds ochraceous, that of apical third fuscous. Wings pale hyaline; basal half of venation ochraceous, apical half fuscous.

The face is large, robust, and convex, faintly transversely striate, and with a faint central raised longitudinal line. Opercula rounded, divergent, meeting only at anterior angles, posteriorly reaching apex of first abdominal segment. Tympana somewhat large and prominent. The body alone is sparingly pilose, the frenum most densely so.

Long. 21 millim., exp. tegm. 61 millim.

Hab. MEXICO (*Mus. Berol.*).

♂. Opercula small, transverse, reaching base of first abdominal segment.
Face broad, transverse, depressed.

8. **Cicada nigriventris.** (Tab. II. figg. 6, 6 *a*, 6 *b*.)

Cicada nigriventris, Walk. List Hom. Suppl. p. 21[1].

Hab. MEXICO[1] (*Bilimek, Mus. Vind. Cæs.*); COSTA RICA (*coll. Dist.*).

The specimen figured is in the Vienna Museum.

Face compressed and gibbous.

9. **Cicada crucifera.** (Tab. III. figg. 6, 6 *a*, 6 *b*.)

Cicada crucifera, Walk. List Hom. i. p. 196. 147[1].

Hab. MEXICO[1] (*Mus. Berol.*).

A Mexican specimen in the collection of the Berlin Museum is here figured.

Body small, tympana large, opercula small and transverse.

10. **Cicada psophis.** (Tab. II. figg. 11, 11 *a*, 11 *b*.)

Cicada psophis, Walk. List Hom. i. p. 153. 92[1].

Hab. MEXICO[1] (*Mus. Berol.*).

A specimen in the Berlin Museum is here figured.

Head, including eyes, narrower than base of pronotum.

11. **Cicada hilaris,** n. sp. (*Cicada alacris*, Tab. II. figg. 10, 10 *a*, 10 *b*.)

♂. Body above black; head with a yellow spot at base and apex of front, one on each lateral and two on posterior margin; eyes dull ochraceous. Pronotum with the disk almost covered with large subconfluent dull testaceous spots; lateral and posterior margins black, with the outer edge yellow. Mesonotum with two faintly indicated large basal obconical spots, base of lateral margins, and cruciform elevation at base yellow. Anterior margins of tympana, lateral margins of first, second, and fifth, and basal margin of sixth abdominal segment creamy white. Underside of body much paler, and covered with whitish pubescence. Legs ochraceous and thickly pilose. Tegmina and wings pale hyaline. Tegmina with the basal half of the venation ochraceous, apical half fuscous, transverse veins at base of second and third apical areas broadly fuscous; costa pitchy, basal area dull ochraceous and opaque, inner claval margin pitchy.

The opercula are pale, not passing the base of the first abdominal segment; their apices are broad and rounded; and their inner margins considerably overlap. The face is moderately convex, thickly pilose, and with the sides strongly and transversely striated. The anterior femora are armed with two long acute spines.

Long. 20 millim., exp. tegm. 52 millim.

Hab. MEXICO (*Mus. Berol.*).

I originally considered this species the *C. alacris*, Stål; but since then, from an examination of Stål's type, I have found his species to be a synonym of *C. transversa*, Walk.; and I have therefore been compelled to provide this insect with a fresh name.

12. **Cicada intermedia,** n. sp.

Allied to the preceding species, but abdomen much wider, the anterior margins of tympana and sides of base of first abdominal segment creamy white only. Underside of body pale, but less covered with whitish pubescence than in *C. alacris*, and transverse vein at base of second apical area placed much nearer the base of the first, the second apical area being thus longer, and the first apical area shorter than in the corresponding tegminal areas of the other species.

Long. 22 millim., exp. tegm. 57 millim.

Hab. MEXICO (*coll. Dist.*).

13. **Cicada robusta,** n. sp. (*C. alacris*, var., Tab. II., figg. 3, 3 *a*, 3 *b*.)

Body above black; head, pronotum, and mesonotum marked as in two preceding species; abdomen with a large pale yellowish spot on lateral margins of first abdominal segment. Underside of body and legs pale castaneous. Tegmina and wings pale hyaline; tegmina with the costa, costal membrane, and basal half of venation ochraceous, radial vein and apical venation fuscous, basal area and base of clavus pitchy, transverse veins at base of second and third apical areas broadly fuscous. Wings pitchy at base.

The body is very broad and robust, as in *C. intermedia*; but the position and relative lengths of the first and second tegminal apical areas are as in *C. alacris*. The face, however, is broader and much more tumid than in that species; and the opercula are a little longer, reaching the apex of the first abdominal segment. This species is also much larger than the two others with which it is here compared, and the pale abdominal markings are different.

Long. ♂ 27 to 32 millim., exp. tegm. 74 to 80 millim.; ♀ 24 to 27 millim., exp. tegm. 70 to 76 millim.

Hab. MEXICO (*Mus. Holm.*), Cuernavacca (*Bilimek, Mus. Vind. Cæs.*).

The specimen figured is in the Vienna Museum. I had concluded that this species was but an extreme variety of *C. alacris*; but a long series which has passed through my hands since lettering the Plate has compelled me to believe in its distinct character.

14. **Cicada dissimilis,** n. sp.

Allied to the preceding species; but the opercula are longer, reaching the second abdominal segment; the head is much narrower and considerably less in width than the pronotum at base, the first apical area of tegmina very little longer than second, the upper transverse veins scarcely infuscated, the "limbus enervis" very broad, and basal area only slightly ochraceous and opaque.

Long. 24 to 26 millim., exp. tegm. 72 to 82 millim.

Hab. MEXICO (*coll. Dist. Mus. Berol.*).

The last four species here described may also be thus separated:—

Abdomen elongate, not wider than the base of pronotum . . . . . *C. hilaris.*
Abdomen broad, wider than base of pronotum.
  Tegmina with first apical area not much longer than second.
    Opercula reaching first abdominal segment . . . . . *C. intermedia.*
    Opercula reaching second abdominal segment . . . . . *C. dissimilis.*
  Tegmina with first apical area considerably longer than second . . . . . *C. robusta.*

TETTIGIA.

Tettigia, Kolenati, Mel. Ent. vii. p. 6 (1857); Stål, Hem. Afr. iv. pp. 7, 23 (1866).

Tettigia differs at once from *Cicada* in having the basal area of the tegmina twice

as long as broad. The species belonging to this genus are apparently not numerous, but somewhat widely distributed. It includes *T. orni* (Linn.), a well-known European insect, and is represented in Africa, Madagascar, Australia, and the Nearctic Region. Two species are here enumerated as found in this fauna.

1. **Tettigia hieroglyphica.** (Tab. III. figg. 2, 2 *a*, 2 *b*.)

Cicada hieroglyphica, Say, Complet. Writ. ii. p. 371. 1[1].
Cicada johannis, Walk. List Hom. i. p. 149. 87[2].
Cicada sex-guttata, Walk. List Hom. i. p. 154. 93.

Hab. North America, Pennsylvania, New Jersey[1], Florida[2].—Mexico (*Mus. Berol.*).

The figure is that of a Mexican specimen in the Berlin Museum, which not only agrees with Say's description, but also with some typical North-American specimens in the British Museum, which have probably been received under Say's name.

2. **Tettigia pennata,** n. sp. (Tab. II. figg. 12, 12 *a*, 12 *b*.)

♀. Head, pronotum, and mesonotum greenish. Head with the frontal marginal angles, a transverse streak on lateral margins, inner margin of eyes, and area of the ocelli black; ocelli red. Mesonotum with a central longitudinal suboblong spot, rounded posteriorly and angulated anteriorly, on each side of this a short oblique streak behind eyes, and a D-shaped spot near each lateral margin black. Mesonotum with four large, central, and somewhat irregular black-bordered obconical spots, a black spot on each lateral margin, and two small spots of the same colour in front of the basal cruciform elevation. Abdomen above dull testaceous, with the basal angles and anal appendage greenish, somewhat thickly clothed with white pile. Body beneath greenish; transverse striæ to face, bases and apices of coxæ, apex of rostrum, segmental incisures, and inner margins of anal appendage black. Legs greenish, apices of femora black, apices of tibiæ and tarsi dull testaceous, tarsal claws black. Tegmina pale hyaline. Neuration of basal half greenish, remainder fuscous; base of first ulnar area, transverse vein at base of second ulnar area, a central spot on the longitudinal vein enclosing third ulnar area, and transverse vein at base of eighth apical area, and claval margin black; a prominent white opaque spot at base of first ulnar area. Anastomoses, and a submarginal row of spots situated on veins, pale fuscous. Wings pale hyaline; veins fuscous, with some of the discal ones greenish.

The face is globose, strongly and transversely striate, with a central longitudinal sulcation; rostrum reaching the posterior coxæ; head small, with the eyes very globose, and much narrower than base of pronotum.

Long. 17 millim., exp. of tegm. 66 millim.

Hab. Guatemala, Senahu (*Champion*).

One female specimen has been received from Mr. Champion, the male being at present unknown to me.

PROARNA.

Proarna, Stål, Stett. ent. Zeit. xxv. p. 61 (1864); Hem. Afr. iv. p. 7 (1866).

This genus is easily separated from the two preceding by the character of having the transverse vein at the base of the second apical area frequently curved, and never or very slightly oblique. According to present knowledge the genus is confined to the Neotropical and Nearctic Regions, and, in comparison with the total number of described species, is well represented in Central America.

1. **Proarna pulverea.**

Cicada pulverea, Oliv. Enc. Méth. v. p. 759. 61[1]; Germ. in Thon's Ent. Arch. ii. 2, p. 43. 82.
Proarna pulverea, Stål, Stett. ent. Zeit. xxv. p. 61[2].
Stoll, Cig. f. 72.

Hab. MEXICO, Vera Cruz [2].—GUIANA, Surinam [1].

This species is inserted here on the authority of the late Professor Stål. We have not as yet received it from Central America.

2. **Proarna albida.** (Tab. III. figg. 9, 9 *a*, 9 *b*.)

Cicada albida, Oliv. Enc. Méth. v. p. 755. 39[1]; Walk. List Hom. i. p. 160. 99[2].
Proarna albida, Stål, Stett. ent. Zeit. xxv. p. 61.
Stoll, Cig. f. 125.

Hab. COSTA RICA, Irazu (*Rogers*).—TRINIDAD (*coll. Dist.*)—GUIANA, Demerara [2] (*coll. Dist.*), Surinam [1]; BRAZIL, Para [2].

This species is strikingly variable, both in size and also as regards the length of the second apical area of the tegmina. Stoll's figure being very unsatisfactory, I have here figured a specimen from Costa Rica.

Var. **insignis.**

Body much broader than in any varietal forms of *P. albida* which have passed through my hands, lateral margins of pronotum more ampliated, markings of the tegmina darker and more distinct.
♀. Long. 24 millim., exp. tegm. 63 millim.

Hab. NICARAGUA (*coll. Dist.*); PANAMA (*Boucard*).

Three females possessing this form have passed through my hands. As I have not seen the other sex, and can find no sufficient structural character in the female of specific value, I have felt it necessary to give a varietal name for the present, to prevent confusion.

3. **Proarna sallæi.** (Tab. I. figg. 8, 8 *a*, 8 *b*.)

Proarna salléi, Stål, Stett. ent. Zeit. xxv. p. 61. 388[1].

Hab. MEXICO, Vera Cruz [1].

The figure is from a typical specimen in the Stockholm Museum.

4. **Proarna championi,** n. sp. (Tab. II. figg. 14, 14 *a*, 14 *b*.)

Body above dull testaceous, somewhat sparingly pilose. Head with the frontal margin, a transverse fascia in front of eyes, and area of the ocelli black. Pronotum with two central longitudinal fasciæ, two oblique striæ on each side, and inner lateral margin black. Mesonotum with two large obconical basal spots, bordered on each side by a larger obconical fascia, and a small transverse fascia on disk, preceded by two small rounded spots, black. Abdomen above somewhat thickly covered with white pile, and with the basal segmental margins fuscous. Body beneath paler; anterior submarginal fascia to head, central fascia and transverse ridges to face, and apex of rostrum black. Legs unicolorous, apices of tibiæ and tarsi testaceous.

Tegmina pale hyaline; veins ochraceous, darker towards apex; base and apex of first apical area, and transverse veins at base of second and third apical areas, broadly fuscous; base of first ulnar area thickened, opaque, and fuscous. Wings pale hyaline, veins ochraceous.

The face is globose, strongly transversely striated, but not sulcated longitudinally; and in width it equals its distance from outer margin of eyes. The opercula are broad, not passing base of first abdominal segment, somewhat narrowed and almost meeting interiorly. (In the specimen figured the opercula are pale and unicolorous; in other specimens they are inwardly and broadly margined with black.)

Long. 14 to 16 millim., exp. tegm. 45 to 52 millim.

Hab. MEXICO (*Mus. Berol.*); GUATEMALA, Purula, Teleman (*Champion*); COSTA RICA (*Van Patten*).

This species is somewhat intermediate between *P. sallœi*, Stål, and *P. signifera*, Walk. In general appearance it much resembles *Selymbria modesta*, Dist. A Guatemalan specimen is figured.

5. **Proarna signifera.** (Tab. II. figg. 21, 21 *a*, 21 *b*.)

Cicada signifera, Walk. List Hom. Suppl. p. 22[1].

Hab. MEXICO, Orizaba [1], Valladolid in Yucatan (*Gaumer*); GUATEMALA, Torola (*Champion*).

A Guatemalan specimen is figured, in which the neuration of the right and left-hand tegmina is asymmetrical. This is also the case with the Mexican type in the British Museum, and with several other specimens of this species which I have examined.

6. **Proarna maura,** n. sp. (Tab. II. figg. 5, 5 *a*, 5 *b*.)

Body and legs black; frontal margin of head, posterior margin of pronotum, lateral margins of face, apices of femora, and bases of tibiæ dull obscure ochraceous; eyes luteous; lateral margins of sternum broadly margined with white pile. Tegmina pale hyaline, veins fuscous; basal area, costal membrane, and transverse veins at bases of second and third apical areas black. Wings hyaline, veins fuscous, basal area black.

Body very broad and robust, with the segmental apices acute; head, including eyes, much narrower than base of pronotum. Face with the sides strongly striated, centre not sulcated, its width equal to its distance from outer margin of eyes. Rostrum reaching posterior coxæ. Opercula large, oblong, black, straight outwardly, rounded posteriorly, slightly overlapping at inner margins near base.

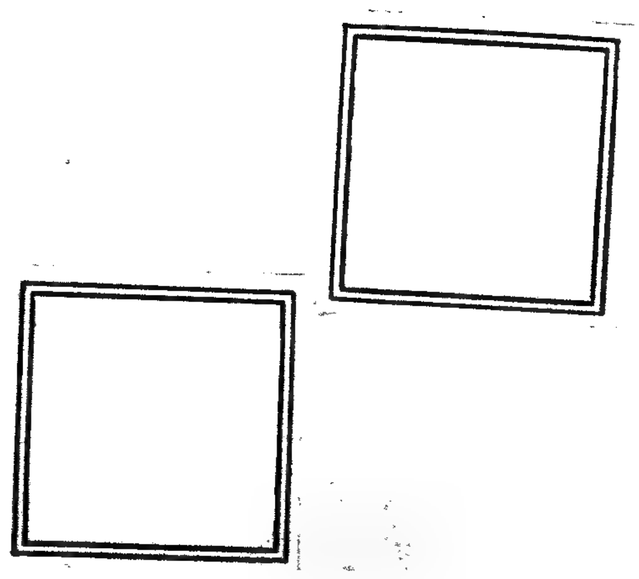
Long. 25 millim., exp. tegm. 70 millim.

Hab. MEXICO (*coll. Dist.*), Valladolid in Yucatan (*Gaumer*).

This species represents a distinct section of the genus, having the apices of the segments acute and the body very broad. This division, in every respect, including the black colour, exactly corresponds with a like divergence in the genus *Cicada*, as represented by *C. robusta*, Dist.

7. **Proarna longirostris,** n. sp. (Tab. II. figg. 4, 4 *a*, 4 *b*.)

Closely allied to *P. maura*, Dist., but differs by the greater amount of the ochraceous markings on the pro- and mesonotum, in having a large ochraceous spot on each lateral margin of the abdomen above, and a small spot of the same colour on each side of the anal appendage, in the much smaller black basal area to the tegmina, and the almost absence of the same to the wings. The body beneath, including the legs and



opercula, is ochraceous, the abdomen having the lateral margins and anal appendage black. Its principal structural difference is the length of the rostrum, which reaches the apex of the first abdominal segment.
Long. 24 millim., exp. tegm. 71 millim.

Hab. MEXICO (*Bilimek, Mus. Vind. Cæs.*).

SELYMBRIA.

Selymbria, Stål, Ann. Soc. Ent. de Fr. sér. 4, vol. i. p. 615 (1861); Hem. Afr. iv. p. 7 (1866).

In this and the two following genera the space between the postcostal vein and ulnar ramus is distinctly ampliated towards the apex. The lateral margin of the pronotum is not ampliated; and, as described by the author, "segmento ventrali ultimo feminarum profundissime sinuato."

One species is known from Central America.

1. **Selymbria modesta,** n. sp. (Tab. III. figg. 8, 8 *a*, 8 *b*.)

♂. Body dull testaceous. Head with the frontal margin, area of the ocelli, and posterior margin of eyes fuscous. Pronotum with two central fuscous fasciæ on anterior margin, and sometimes two smaller ones on posterior margin. Mesonotum with two large obconical central spots on anterior margin; on each side of these a longer and more obscure obconical fascia, and a transverse fascia on disk, preceded by two small spots, fuscous. Basal margins of scutellum and abdominal segments fuscous. Body beneath paler; anterior margin of head and inner margin of eyes black. Tegmina pale hyaline; neuration ochraceous or dull testaceous (sometimes with the basal half much paler); transverse veins at the base of second and third apical areas, and a submarginal row of spots on longitudinal veins of first, second, and third apical areas fuscous. Wings pale hyaline, with the nervures ochraceous or testaceous.

Head, including eyes, equal in breadth to base of pronotum; face with a very deep central longitudinal sulcation, and strongly and transversely striate. Opercula pale, broad, not passing base of first abdominal segment, and narrowed but not meeting interiorly.

Long. 16 millim., exp. tegm. 57 millim.

Hab. MEXICO (*Mus. Holm.*; *Bilimek, Mus. Vind. Cæs.*); NICARAGUA, Chontales (*Janson*).

This is the only Central-American species of the genus with which I am acquainted. It varies somewhat in the markings of the pronotum and mesonotum.

TYMPANOTERPES.

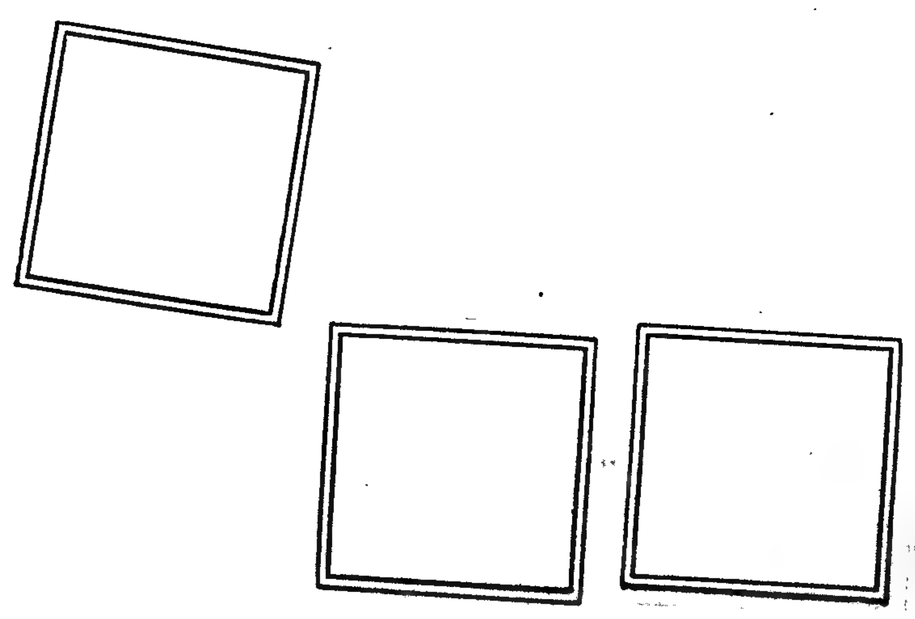
Tympanoterpes, Stål, Ann. Soc. Ent. de Fr. sér. 4, i. p. 614 (1861); Hem. Afr. iv. p. 7 (1866).

Tympanoterpes differs from *Selymbria* in having the lateral margins of the pronotum somewhat ampliated, and "segmento ventrali ultimo feminarum haud vel medio leviter emarginato."

The genus is possibly a purely Neotropical one; and but one species is here enumerated.

1. **Tympanoterpes gigas.** (Tab. I. figg. 9, 9 *a*, 9 *b*.)

Cicada gigas, Oliv. Enc. Méth. v. p. 750. 15, t. iii. f. 4; Walk. List Hom. i. p. 104. 3[1].
Cicada triupsilon, Walk. List Hom. i. p. 103. 2.
Cicada sonans, Walk. ibid. p. 104. 4.



Cicada consonans, Walk. List Hom. i. p. 106. 7[2].
Tympanoterpes sibilatrix, Berg, Hem. Argent. p. 210. 252[3].
Stoll, Cig. f. 117.

Hab. MEXICO (*Bilimek, Mus. Vind. Cæs.*), Valladolid in Yucatan (*Gaumer*); BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); GUATEMALA, Panzos, Panima, Torola, Paso Antonio, La Gavia (*Champion*).—ANTILLES [1], Trinidad (*coll. Dist.*), Tobago (*coll. Dist.*); COLOMBIA, Manaure (*Simons*); BOLIVIA (*Orton*); ARGENTINE REPUBLIC [3].

Stål treated this species as a synonym of *T. grossa*, Fabr. The type of the Fabrician species, however, is in the Banksian collection contained in the British Museum, and is very distinct, the opercula being large and rounded.

The figure given in the 'Encyclopédie Méthodique' is, like Stoll's, useless for any practical purpose. Among the habitats of this wide-ranging species is that given by Walker [2], "West coast of America," which, as before remarked in connexion with other species, seems clearly to refer to Central America. The forms inhabiting this region (of which a Guatemalan specimen is figured) appear to be somewhat smaller than more southern specimens, or do not exhibit the gigantic specimens which are frequently and commonly received from the southern portion of the Neotropical Region.

Mr. Gervase F. Mathew (Ent. Mo. Mag. xi. p. 175) gives some interesting details relating to this insect as observed at Tobago. As regards its powers of stridulation he writes of a "tropical afternoon:"—"Suddenly, from right above, you hear one or two hoarse, monotonous cries something like the croak of a tree-frog, and, looking upwards, wonder what it can be. But wait a moment; this is merely a signal; for the next minute everywhere above and around you these croaks are repeated in rapid and increasing succession until they merge into a long shrill whistle almost exactly similar to the whistle of a first-rate locomotive; this continues for nearly half a minute, and then abruptly terminates." "Presently similar cries will be heard in the far distance, as if in reply to those which have just died away overhead. The whistling pierces one's ears to such a degree that its vibrations can be felt long after it has ceased."

Mr. Mathew describes this species as frequenting trees growing in ravines where the soil is generally soft and damp, in which their larvæ and pupæ find no difficulty in burrowing. "When the latter are full-grown and ready for their last transformation, they emerge from the ground and crawl about four or five feet up the trunk of a tree, when they firmly fix themselves to the bark by means of their powerfully hooked fore tibiæ." "The flight of the mature *Cicada* is abrupt, rapid, and by no means graceful; and it does not appear to have the power of controlling itself when on the wing; for I have often seen it fly in an insane manner against the trunk of a tree, a branch, or any other object that might be in its line of flight; and when it has performed its journey without any accident, it alights abruptly and awkwardly. As a rule, however, it does not attempt to fly to any great distance at a time."

FIDICINA.

Fidicina, Amyot & Serville, Hist. des Hém. p. 472 (1843); Stål, Rio Jan. Hem. ii. p. 18 (1861); Ann. Soc. Ent. Fr. sér. 4, i. p. 614 (1861); Hem. Afr. iv. p. 7 (1866).
Hemisciera, Amyot & Serville, Hist. des Hém. p. 466 (1843).

This genus has the metasternum transversely elevated, a character which will distinguish it from the two preceding genera. *Fidicina* is very largely represented in the Neotropical Region; but much synonymy must be worked out, and many species described, before we can make any estimate as to the total number of species. Five species are here enumerated.

1. **Fidicina mannifera.**

Tettigonia mannifera, Fabr. Syst. Rhynch. p. 36. 13.
Cicada mannifera, Germ. in Silb. Rev. Ent. ii. p. 56. 1[1]; Burm. Handb. ii. 1, p. 183. 8[2]; Blanch. Hist. Ins. iii. p. 167. 15[3].
Cicada (*Fidicina*) *plebeia,* Linn., var. *Tettigonia mannifera,* Fabr., Erich. in Schomb. Reise n. Guiana, iii. p. 616[4].
Fidicina mannifera, Walk. List Hom. i. p. 79. 2[5]; Stål, Rio Jan. Hem. ii. p. 18. 1[6]; Hem. Fabr. ii. p. 7. 1.
Merian, Ins. Surinam, pl. 49[7].
Stoll, Cig. fig. 126.

Hab. PANAMA, David (*Champion*).—COLOMBIA, Bogota (*coll. Dist.*); GUIANA[4], Surinam[7]; BRAZIL[1 2 3 5], Para (*Bates*), Rio Janeiro[6].

2. **Fidicina picea.** (Tab. I. figg. 7, 7 *a*, 7 *b*.)

Fidicina picea, Walk. List Hom. i. p. 81. 6[1].
Fidicina determinata, Walk. List Hom. Suppl. p. 14[2].
Fidicina pertinax, Stål, Stett. ent. Zeit. xxv. p. 62. 389[3].

Hab. MEXICO[1 3] (*coll. Sallé*; *Bilimek, Mus. Vind. Cæs.*).—VENEZUELA[3]; GUIANA, Demerara (*coll. Dist.*).

I have been enabled to compare a typical specimen of *F. pertinax,* Stål, with Walker's types at the British Museum, and to satisfy myself of the identity of these described forms.

3. **Fidicina pronoe.** (Tab. I. figg. 6, 6 *a*, 6 *b*.)

Cicada pronoe, Walk. List Hom. i. p. 144. 82.
Fidicina vinula, Stål, Öfv. Vet.-Ak. Förh. 1854, p. 242[1]; 1862, pp. 482, 500.
Cicada compacta, Walk. Ins. Saund. Hom. p. 14.

Hab. MEXICO (*coll. Sallé*); GUATEMALA, Panima, Rio Maria Linda (*Champion*); COSTA RICA (*Mus. Berol., Van Patten*); PANAMA (*Boucard*).—COLOMBIA, Manaure (*Simons*); TRINIDAD (*coll. Dist.*); BRAZIL[1].

This species exhibits little variation; and the two specimens described by Walker under the above names are identical. The habitats of these were unrecorded.

4. **Fidicina spinicosta.** (Tab. II. figg. 15, 15 *a*, 15 *b*.)

Cicada spinicosta, Walk. List Hom. i. p. 126. 64[1].
Cicada lacrines, Walk. ibid. p. 132. 70; Stål, Öfv. Vet.-Ak. Förh. 1862, p. 481.
Fidicina lacrines, Stål, ibid. p. 485.

Hab. COSTA RICA (*Mus. Berol.*); PANAMA (*coll. Dist.*).—GUIANA, Cayenne (*coll. Sign.*); BRAZIL, Para[1].

Walker, under the name of *C. spinicosta,* subsequently incorporated specimens of his other species, *C. semilata*; and Stål necessarily thus wrote *C. lacrines*=*C. spinicosta* ("ad partem"). There can, however, be no doubt as to the type, which I have examined in the British Museum, and which agrees with the Costa-Rican specimen here figured contained in the collection of the Berlin Museum.

5. **Fidicina semilata.** (Tab. III. figg. 7, 7 *a*, 7 *b*.)

Cicada semilata, Walk. List Hom. i. p. 122. 59[1].
Cicada passer, Walk. ibid. p. 124. 61[2]; Stål, Öfv. Vet.-Ak. Förh. 1862, p. 481.
Cicada brizo, Walk. ibid. p. 125. 63.
Cicada melisa, Walk. ibid. p. 127. 65[3].
Cicada melina, Walk. ibid. p. 128. 66.
Cicada panyases, Walk. ibid. p. 133. 71[4].
Cicada pidytes, Walk. ibid. p. 134. 72.
Cicada physcoa, Walk. ibid. p. 135. 73.
Cicada braure, Walk. ibid. p. 136. 74[5].
Cicada solemnis, Walk. ibid. p. 143. 81[6].
Fidicina semilata, Stål, Öfv. Vet.-Ak. Förh. 1862, p. 485.

Hab. COSTA RICA (*van Patten*; *coll. Dist.*).—ST. LUCIA[1 6]; VENEZUELA[2 3]; GUIANA, Demerara[4], Cayenne[1]; TRINIDAD (*coll. Dist.*); BRAZIL, Para[5], Ega (*de Mathan*; *coll. Oberthür*).

This species is not of an exceedingly variable nature, as the above synonymy would apparently indicate, but is rather an example of the late Mr. Walker's treatment of the subject. It is allied to *F. spinicosta,* but differs by the longer and less robust body, the more elongate and less tumid face, shape of the opercula, &c.

6. **Fidicina fumea,** n. sp. (Tab. IV. figg. 4, 4 *a*, 4 *b*.)*

♀. Head and thorax above olivaceous. Head with the front marked with a central lunate spot, a central longitudinal line and the basal margin black; vertex broadly black between the eyes, which are bronzy;

* On the preceding page it was stated that five species of *Fidicina* were enumerated. The present (sixth) species was received from Mr. Champion since that statement was printed.

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the ocelli pale shining castaneous. Pronotum with an elongate black spot on centre of inner border of posterior margin. Mesonotum with the following black spots and markings :—anterior margin with two central obconical spots, followed laterally on each side by a much larger and more pointed spot ; between the anterior angles of the cruciform elevation is a longitudinal and somewhat wedge-shaped spot, pointed anteriorly and widened and rounded posteriorly ; on each side of this is a small rounded spot and a basal and lateral streak ; cruciform elevation greenish ochraceous. Abdomen black. Body beneath black, sparsely and ochraceously pilose ; legs castaneous and more or less streaked and marked with black. Rostrum pale castaneous, the apex pitchy. Tegmina and wings pale smoky hyaline, the first with the base opaque and pitchy, and the basal half of the venation and the costal membrane greenish ochraceous, the apical venation more or less pitchy. Wings like tegmina, with the base opaque and pitchy, and the margins of the claval area of the same colour.

Long. 28 millim., exp. tegm. 88 millim.

Hab. PANAMA, Bugaba (*Champion*).

We have as yet only received female specimens of this species from Mr. Champion. It is allied to *F. opalina*, Germ., from which it is easily differentiated by the much narrower abdomen and different colour of the same, different markings of the mesonotum, the smoky tegmina, &c.

TIBICEN.

Tibicen, Latreille, Fam. Nat. p. 426 (1825) ; Stål, Hem. Af. iv. pp. 8, 25 (1866).

This and the following genera differ primarily from all the preceding by the tympana being posteriorly detached from the surface of the adjoining abdominal segment.

Tibicen is another wide-spread genus, being found in all the great zoological regions, two of the best-known species being the European *T. hæmatodes*, Linn., and the North-American *T. septemdecim*, Linn. One species alone has been received from Central America, which is here described.

1. **Tibicen guatemalenus**, n. sp. (Tab. II. figg. 8, 8 *a*, 8 *b*.)

♂. Obscure castaneous, somewhat thickly covered with ochraceous pilosity. Area of the ocelli, a central fascia to pronotum (which is ampliated and produced on each side at anterior and posterior margins), some obscure and irregular spots on mesonotum with cruciform elevation at base, and abdomen above fuscous. Body beneath much paler and very densely pilose ; head, sternum, and opercula ashy grey; abdomen pale ochraceous. Tegmina pale hyaline ; costal membrane, basal area, and claval base pale castaneous ; veins pale fuscous. Wings pale hyaline ; veins and suffusion at abdominal area pale fuscous.

Head, including outer margin of eyes, broader than pronotum ; face with a broad central lougitudinal sulcation and somewhat faintly transversely striate ; rostrum not quite reaching posterior coxæ ; opercula reaching base of second abdominal segment, narrowest at base, with the outer margins truncate, widened and rounded posteriorly, but not quite meeting inwardly.

Long. 20 millim., exp. tegm. 57 millim.

Hab. GUATEMALA, Purula (*Champion*).

CALYRIA.

Calyria, Stål, Hem. Afr. iv. p. 9 (1866).

Calyria is at once separated from the two preceding genera by the venation of the wings, which is divided into five apical areas only.

But few species are at present recorded, and those all from the Neotropical region: the two following have alone been received by us from Central America.

1. **Calyria occidentis.** (Tab. II. figg. 17, 17 *a*, 17 *b*.)

Cephaloxys occidentis, Walk. List Hom. Suppl. p. 36 [1].
Calyria virginea, Stål, Stett. ent. Zeit. xxv. p. 56. 379 [2].

Hab. MEXICO [1], Vera Cruz [2].

By the kindness of Dr. Signoret I have been enabled to compare a typical specimen of *C. virginea*, Stål, with Walker's species.

2. **Calyria cuna.** (Tab. III. figg. 4, 4 *a*, 4 *b*.)

Cicada cuna, Walk. List Hom. i. p. 166. 109 [1].
Calyria cuna, Stål, Öfv. Vet.-Ak. Förh. 1862, p. 484.
Cicada blanda, Stål, Rio Jan. Hem. ii. p. 22. 8 [2]; Öfv. Vet.-Ak. Förh. 1863, p. 483.

Hab. COSTA RICA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—BRAZIL [1], Rio Janeiro [2].

CARINETA.

Carineta, Amyot & Serville, Hist. des Hém. p. 482. 376 (1843); Stål, Ann. Soc. Ent. Fr. sér. 4, i. p. 617 (1861).

Carineta is thus diagnosed by Stål:—"Areola tegminum apicalis octava septima brevior. Venula transversa basin areolæ apicalis octavæ claudens, venula basin areolæ septimæ formante interdum brevior, nunquam longior."

This genus is apparently confined to Tropical America. We here enumerate eight species.

1. **Carineta viridicata,** n. sp. (Tab. IV. figg. 1, 1 *a*, 1 *b*.)

Head and pronotum bright grassy green; the first with the area of the ocelli pale brownish, the eyes dark brownish. Mesonotum greenish ochraceous, with two curved darker lines at anterior margin connected near their apices by two waved lines, which form the anterior margins of a large greenish patch situate in front of the cruciform basal elevation, a lateral greenish fascia and the base rather strongly pilose. Abdomen pale ochraceous, the lateral margins slightly suffused with greenish. Body beneath and legs ochraceous, the face, opercula, and lateral margins of the abdomen pale greenish. Rostrum ochraceous, with the apex slightly pitchy. Tegmina and wings pale hyaline, the basal venation of both and the costal membrane of the first pale greenish, the apical venation more or less ochraceous.

The face is very tumid; the rostrum just passes the intermediate coxæ; the anterior femora are armed with three strong spines, the first and longest near base, the other two near apex; the opercula are very small and obliquely rounded. The first apical area of the tegmina is twice the length of the second.

Long. 24 millim., exp. tegm. 64 millim.

Hab. PANAMA, Bugaba (*Champion*).

This species is allied to *C. rufescens*, Fabr.

2. **Carineta æstiva,** n. sp. (Tab. IV. figg. 3, 3 *a*, 3 *b*.)

♂. Head pale castaneous, very hirsute, the front ocelli and eyes ochraceous. Pronotum ochraceous tinged with greenish, the anterior and posterior margins olivaceous, the last inwardly fuscous. Mesonotum dull dark ochraceous, with two faintly indicated central obconical spots at anterior margin, two large and contiguous black spots between the anterior branches of the basal cruciform elevation, a more obscure black spot on each side of the same, and the basal lateral margins pale greenish. Abdomen above and beneath castaneous. Head and thorax beneath ochraceous and pilose; legs pale castaneous; coxæ, femoral apices, and tibial bases ochraceous. Rostrum pale castaneous, the base ochraceous, the apex pitchy and reaching the posterior coxæ. Tegmina and wings pale and very slightly smoky hyaline; venation ochraceous towards base, and pale fuscous towards apex; first apical area much longer than second, and about equal in length to fourth, fifth, and sixth.

The face is long, moderately convex, with a distinct narrow longitudinal sulcation and somewhat faint transverse striations. Anterior femora armed beneath and near apex with three spines, the first, long an prominent, the others small.

Long. 23 millim., exp. tegm. 68 millim.

Hab. PANAMA, Volcan de Chiriqui, 4000 to 6000 feet (*Champion*).

3. **Carineta verna,** n. sp. (Tab. IV. figg. 2, 2 *a*, 2 *b*.)

♂. Head with the vertex pale castaneous, the front greenish and the eyes fuscous. Pronotum green, tinged with ochraceous. Mesonotum dull ochraceous, with two faintly indicated central obconical spots at anterior margin, a small rounded black spot near each anterior branch of the cruciform basal elevation, and the basal lateral margins pale greenish. Abdomen above and beneath pale castaneous. Head and thorax beneath pale greenish ochraceous and pilose; legs ochraceous, more or less tinged with greenish, tarsal claws and the extreme apices of intermediate and posterior tibiæ fuscous. Rostrum ochraceous, the apex pitchy and reaching the posterior coxæ. Tegmina and wings pale hyaline, the venation greenish and ochraceous; first apical area much longer than second, and about equal in length to fourth, fifth, and sixth. Anterior femora armed beneath near apex with three prominent and distinct spines, gradually decreasing in size.

Long. 20 millim., exp. tegm. 63 millim.

Hab. PANAMA, Volcan de Chiriqui, 4000 to 6000 feet (*Champion*).

This species is very closely allied to the last, but differs in many essential points, such as the much smaller abdomen, the different markings of the mesonotum, and the different colour of the eyes; in the former species the wings and tegmina are slightly but still distinctly infuscated, whilst in *C. verna* they are perfectly clear; and the face of the last is less robust and convex than that of the former. In *C. verna* the femoral spines are considerably more prominent than in *C. æstiva*.

4. **Carineta trivittata.** (Tab. II. figg. 13, 13 *a*, 13 *b*.)

Carineta trivittata, Walk. Ins. Saund. Hom. p. 22[1].

Hab. MEXICO[1]; GUATEMALA, San Gerónimo, Panima (*Champion*); COSTA RICA (*Mus. Berol.*); PANAMA, Volcan de Chiriqui (*Champion*).

A Guatemalan specimen is here figured.

5. **Carineta cinara.** (Tab. III. figg. 11, 11 *a*, 11 *b*.)

♀. Body above castaneous, sparingly covered with greyish pubescence. Front of head pale ochraceous, with a central longitudinal impression. Pronotum with a central ∑∑-shaped space, denoted and bordered by striæ, on each side of which are two oblique striæ, the outer one submarginal and somewhat curved. Meso-

notum darker in colour, with two very ill-defined discal paler fasciæ; cruciform elevation at base ochraceous. Body beneath concolorous, with the face pale ochraceous. Tegmina and wings pale smoky hyaline; tegmina with a central pair of longitudinal smoky fasciæ in apical areas (excluding first), those in the eighth area indistinct, and a single series of the same on outer margin.

The head, including eyes, is about equal in width to mesonotum, and narrower than base of pronotum. The face has a narrow central longitudinal sulcation, the sides are strongly transversely striated, with the interstices wide apart. The abdomen beneath has the lateral margins much raised. The anterior femora are armed with three long and strong spines, and the posterior tibiæ with three inner and two outer long, slender, marginal spines. First apical area of the tegmina very much longer than the second.

Long. 17–18 millim., exp. tegm. 48–54 millim.

Hab. PANAMA, Volcan de Chiriqui, 2000 to 3000 feet (*Champion*).

Two female specimens of this species have been received from Mr. Champion; but as yet I have not seen the male. It seems, however, of a distinct nature, the length of the smoky longitudinal striæ to the tegmina being a distinctive character. The venation is also slightly different from any other species with which I am at present acquainted.

6. **Carineta indecora.** (Tab. II. figg. 18, 18 *a*, 18 *b*.)

Cicada indecora, Walk. Ins. Saund. Hom. p. 18[1].

Hab. COSTA RICA (*coll. Dist.*).—COLOMBIA[1], Bogota (*coll. Dist.*).

A Costa-Rican specimen is here figured. The abdomen beneath has a wide central longitudinal black fascia, a character not mentioned by Walker in his description.

7. **Carineta marginella.** (Tab. II. figg. 16, 16 *a*, 16 *b*.)

Cicada marginella, Walk. List Hom. Suppl. p. 21[1].

Carineta ancilla, Stål, Stett. ent. Zeit. xxv. p. 57. 380[2].

Hab. MEXICO[2] (*Bilimek, Mus. Vind. Cæs.*; *Mus. Berol.*), Orizaba[1]; BRITISH HONDURAS, river Sarstoon (*Blancaneaux*); GUATEMALA, Zapote (*Champion*); PANAMA, Volcan de Chiriqui, 2000 to 3000 feet (*Champion*).

In some specimens the typical black markings on the head and lateral margins of the pronotum are absent. A Guatemalan specimen is figured.

8. **Carineta lugubrina.** (Tab. II. figg. 19, 19 *a*, 19 *b*.).

Carineta lugubrina, Stål, Stett. ent. Zeit. xxv. p. 57. 381[1].

Hab. MEXICO[1] (*Mus. Berol.*).

Fam. FULGORIDÆ.

Fulgorellæ, Latreille, Gen. iii. p. 163 (1807); Spin. Ann. Soc. Ent. Fr. sér. 1, viii. pp. 133 & 202 (1839).

Fulgoridæ, Leach, Edinb. Encycl. ix. (1817); Westw. Intr. Mod. Class. Ins. ii. p. 427 (1840); Fieb. Verh. d. zool.-bot. Ges. Wien, xvi. p. 497 (1866).

Fulgorina, Burm. Handb. ii. 1, pp. 102 & 144 (1835).

Fulgorida, Stål, Hem. Afr. iv. p. 128 (1866).

Most authorities are now content to follow the excellent diagnosis of this family as given by Stål, in which he has systematically and accurately separated its divisions or subfamilies, and which arrangement will be followed here. Mr. Pascoe has recently (Ann. & Mag. N. H., ser. 5, ix. p. 424 *et seq.*) published a "Note on the Classification of the Homoptera," in compiling which he does not seem to have consulted Stål's writings, as he makes no reference to them. In this classification he has elevated some of these subfamilies to family rank; and the only reason I have not quoted him in the synonymical notes above is that he describes his "Fulgoridæ" as having the "head prolonged anteriorly," a character which I cannot consider as of at all universal application.

Subfam. *FULGORINÆ.*

Fulgorides, Amyot & Serville, Hist. des Hém. p. 488 (1843).
Fulgorida, Stål, Hem. Afr. iv. pp. 129 & 131 (1866); Stett. ent. Zeit. xxxi. pp. 255 & 282 (1870).
Fulgorina, Berg, Hem. Argent. p. 213 (1879).

In this subfamily the anal area of the wings is reticulated, and, to use the further diagnosis of Stål, "carina frontem et genas separante in latera clypei continuata."

LATERNARIA.

Laternaria, Linnæus, Mus. Lud. Ulr. p. 152 (1764); Stål, Hem. Afr. iv. p. 132 (1866); Stett. ent. Zeit. xxxi. p. 284 (1870).
Fulgora, subg. *Fulgora,* Burm. Gen. Ins. 18 (1840).

The extraordinary elongation, dilatation, and inflation of the head render the species of this genus of extremely easy recognition, and in a work of this kind requires no further elucidation. The differentiation of the species, however, owing to their great superficial resemblance, is a labour of greater complexity; and I have therefore given a rough synoptical key of the same. Of the five species thus enumerated three have already been received from Central America, the other two are distinguished by an asterisk.

Ocellated spot to wings conjointly bipupillate.
- Head longer than abdomen . . . . . **L. phosphorea,* Linn.
- Head shorter than abdomen . . . . . *L. castresii,* Guér.

Ocellated spot to wings distinctly and separately bipupillate.
- Smaller pupillate spot partly fuscous.
  - Pupillate spots contiguous.
    - Length of head equal to distance from posterior apex of mesonotum to apex of abdominal anal appendage . . . . *L. lampetis,* Burm.
  - Pupillate spots remote.
    - Length of head shorter than distance from posterior apex of mesonotum to apex of abdominal anal appendage . . *L. servillei,* Spin.
- Smaller pupillate spot entirely white . . . . . **L. lucifera,* Germ.

Laternaria is a truly Neotropical genus; and it was to one of its species that the attribute of luminosity was first applied. The evidence for and against the luminosity of the Fulgorinæ has been so thoroughly stated, and the negative evidence in the writer's view so thoroughly established, that little need be added, save that Dr. Hagen (Ent. Mon. Mag. i. p. 250) has proposed the alternative hypothesis that the species are "only luminous at certain seasons, or, which is very credible, the luminosity may be confined to one sex."

1. **Laternaria castresii.**

Fulgora castresii, Guér. Mag. Zool. t. 173 & t. 174. ff. 3 & 4[1]; Westw. Trans. Linn. Soc. xviii. p. 138. 2[2]; Spin. Ann. Soc. Ent. Fr. viii. p. 214. 3; Burm. Gen. Ins. i. 8, Rhyn. Cic. Fulg. 4[3].

Hab. Mexico[1 2 3] (*Mus. Berol.*), Playa Vicente (*Höge*); Valladolid, in Yucatan (*Gaumer*).

2. **Laternaria lampetis.**

Fulgora lampetis, Burm. Gen. Ins. 1, 8, Rhyn. Cic. Fulg. 2[1].
Stoll, Cig. fig. 1.

Hab. Costa Rica (*Mus. Berol.*); Panama, Chiriqui (*coll. Dist.*).—Brazil, Bahia[1].

3. **Laternaria servillei.** (Tab. V. figg. 1, 1 *a*, 1 *b*.)

Fulgora servillii, Spin. Ann. Soc. Ent. Fr. viii. p. 214. 2; Burm. Gen. Ins. i. 8, Rhyn. Cic. Fulg. 3[1]; Stål, Rio Jan. Hem. ii. p. 1. 1[2].

Hab. Panama, Bugaba 800–1500 feet, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).—Brazil, Rio Janeiro[1 2].

I have no hesitation in identifying these Panama specimens as belonging to Spinola's species, owing to their agreement with Burmeister's description of that species in several most important and essential particulars. Thus, of the head "supra utrinque nigro-maculato," and "colore viridiore," and "ventre sanguineo" are characteristic descriptions which prove most applicable to the specimens now before me, one of which is here figured.

PHRICTUS.

Phrictus, Spinola, Ann. Soc. Ent. Fr. viii. p. 216 (1839); Stål, Hem. Afr. iv. p. 132 (1866); Stett. ent. Zeit. xxxi. p. 284 (1870).

In this genus the head is very much produced, the prolongation being porrect and dentate, the apex recurved and angularly or dentately lobate.

Phrictus, according to our present knowledge, is a genus very small in extent, and quite confined to Tropical America, where apparently it is not found south of the Brazilian subregion, nor so far north as Mexico.

Two species have at present been received from Central America.

1. **Phrictus diadema,** var. (Tab. IV. figg. 5, 5 *a*, 5 *b*.)

Fulgora diadema, Linn. Syst. Nat. i. 2, p. 703. 2; Gmel. Syst. Nat. i. 4, p. 2089. 2; Lindenb. Naturg. xiii. p. 20, t. 3. f. 3; Fabr. Syst. Ent. p. 673. 2; Mant. Ins. ii. p. 260. 3; Sp. Ins. ii. p. 313. 3; Ent. Syst. iv. p. 2. 3; Syst. Rhynch. p. 2. 3; Oliv. Enc. Méth. vi. p. 567. 3, t. 109. f. 2; Donov. Nat. Repos. v. p. 145; Germ. Thon. Arch. ii. 2, p. 46. 3; Burm. Handb. i. 169. 4; Blanch. Hist. Nat. Ins. iii. p. 169. 3[1]; Westw. in Drury, Ins. edit. 2, p. 78; Trans. Linn. Soc. xviii. p. 147. 24.

Fulgora armata, Drury, Ins. iii. p. 76, t. 50. f. 4.

Phrictus diadema, Spin. Ann. Soc. Ent. Fr. viii. p. 219; A. & S. Hist. des Hém. p. 495. 1[2].

Phrictus diadema, var., Walk. List Hom. ii. p. 264[3].

Stoll, Cig. fig. 22.

Hab. British Honduras[3]; Nicaragua, Chontales (*Janson*).—Guiana, Cayenne[2]; Brazil[1].

The Nicaraguan variety here figured agrees with that described by Walker from Honduras[3].

2. **Phrictus quinquepartitus,** n. sp. (Tab. IV. figg. 8, 8 *a*, 8 *b*.)

♂. Head castaneous, the prolongation armed on each side with two pairs of spines arranged one above the other, with their apices fuscous, the apex recurved as in *P. diadema*, but furnished with five spines or angles, the central longest; this prolongation terminates posteriorly behind the eyes in a long, suberect and posteriorly directed black spine on each side, with their bases deeply excavated; beneath is a central rugosity, on each side of which it is deeply excavated. Pronotum pale castaneous, with a prominent central longitudinal carination, on each side of which it is distinctly foveate, and with the lateral angles acute and ornamented with a broad black fascia on each side. Mesonotum ochraceous, tinged with fuscous, with three black spots, one near each anterior angle, and one larger and less well defined near apex. Abdomen above black, with the base more or less suffused with a white waxy excrescence, and with the apical margin pale castaneous. Body beneath ochraceous, suffused with fuscous; the legs fuscous, with the knees castaneous; posterior tibiæ armed with a series of five spines, and with an irregular cluster of spines at apex. Tegmina bright castaneous, crossed by a waved subapical fascia, bifurcate posteriorly, and inwardly white and outwardly pale obscure ochraceous; and more or less margined on each side with black; before this fascia the veins are greenish ochraceous; and beyond are a number of greenish ochraceous suffusions; a costal series of black spots, an obscure outer submarginal black line preceded by some small spots of the same colour. Wings with the abdominal area pale fuscous, and with the reticulated veinlets greyish; basal area red, marked with some large irregular blackish spots and a few minute whitish spots; apical area blackish, with a few very pale bluish spots.

Long. ♂ 30 to 34 millim., ♀ 37 to 41 millim., exp. tegm. ♂ and ♀ 68 to 80 millim.

Hab. Panama (*Boucard*), Volcan de Chiriqui 3000 to 4000 feet, Bugaba (*Champion*). —Colombia, Bogota (*Chesterton, coll. Dist.*).

This species is at once structurally differentiated from both *P. diadema* and *P. ocellatus* by the five-spined lobate apex of the prolonged head.

DIAREUSA.

Diareusa, Walker, List Hom., Suppl. p. 43 (1858).

This is a well-marked genus, and, according to Walker, "connects *Phrictus* and *Hotinus* *, resembling the former in the structure of the fore wings, and the latter in the structure of the head." This is but a statement of apparent resemblance or rough approximation to the position of the genus; it, however, seems best placed after *Phrictus* and before *Enchophora* in this enumeration.

Diareusa, according to our present knowledge, contains but one species, and that apparently confined to Central America and the Colombian subregion.

This generic name has apparently been overlooked; it is not included in the 'Nomenclator Zoologicus' of Mr. Scudder, nor has Stål referred to it in his "Conspectus Generum" of the American Fulgoridæ.

1. **Diareusa annularis.**

Fulgora annularis, Oliv. Enc. Méth. vi. p. 568. 6; Westw. Trans. Linn. Soc. xviii. p. 140. 9[1].
Flata annularis, Germ. in Thon's Arch. ii. 2, p. 47. 3.
Pyrops annularis, Spin. Ann. Soc. Ent. Fr. sér. 1, viii. p. 240. 8.
Phrictus annularis, Walk. List Hom., ii. p. 264. 2[2].
Diareusa annularis, Walk. List Hom., Suppl. p. 44[3].
Stoll, Cig. fig. 69.

Hab. MEXICO (*Sallé*); GUATEMALA[3]; PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).—COLOMBIA[3], Bogota[3]; GUIANA, Surinam[1 2].

Mr. Champion has contributed the following note respecting this species:—"The colour of the tegmina changes after death; during life it is a mossy green, which makes the insect difficult to distinguish when resting on mossy tree-trunks. Only found in forests of high elevation."

AMYCLE.

Amycle, Stål, Stett. ent. Zeit. xxii. p. 148 (1861); Hem. Afr. iv. p. 136 (1866); Stett. ent. Zeit. xxxi. p. 291 (1870).
Cyrpoptus, sect. ii. *Amyele* (sic), Stål, Berl. ent. Zeitschr. vi. p. 305 (1862).

This genus I only know from Stål's description and Prof. Westwood's figure of the typical species. It is evidently, from the structure of the cephalic protuberance, allied to *Diareusa*.

Had Stål lived, he would doubtless have catalogued the Homoptera with his usual lucidity and thoroughness. It becomes, however, both a puzzle and waste of time to attempt to unravel the many genera he founded in this family either without specifying types, or alluding to such subsequently, in other publications of a miscellaneous

* Now usually considered a synonym of the Eastern genus *Fulgora*.

character. The present genus is somewhat a case in point; it was founded in 1861, and here the type was given; but in 1862 Stål proposed the genus *Cyrpoptus*, in which he sank his previously-described genus *Amycle* as a section—a course of nomenclature which ought not to be followed. I can find no trace of *Cyrpoptus* in the same author's "Conspectus Generum" of the Fulgoridæ, published in 1866 in his 'Hemiptera Africana,' where *Amycle* only is noticed; but in 1870, in his 'Die amerikanischen Fulgoriden-Gattungen,' he diagnoses both *Amycle* and *Cyrpoptus* as distinct genera, an alternate view which I gladly follow, as the structural characters seem not only distinct but divergent.

1. Amycle amabilis.

Fulgora (*Episcius*?) *amabilis*, Westw. Ann. & Mag. Nat. Hist. ix. p. 119; Arc. Ent. ii. p. 89, t. 71. f. 1[1].
Episcius (?) *amabilis*, Walk. Cat. Homopt. ii. p. 283. 2.
Amycle amabilis, Stål, Stett. ent. Zeit. xxii. p. 148. 1.
Cyrpoptus (*Amycle*) *amabilis*, Stål, Berl. ent. Zeitschr. vi. p. 305. 2.
Cyrpoptus amabilis, Stål, Stett. ent. Zeit. xxv. p. 50. 349[2].

Hab. MEXICO [1 2].

We have not received a single example of this species in any of our Central-American collections, and I only know it from Prof. Westwood's figure.

2. Amycle sodalis.

Amycle sodalis, Stål, Stett. ent. Zeit. xxii. p. 148. 2[1].
Cyrpoptus (*Amycle*) *sodalis*, Stål, Berl. ent. Zeitschr. vi. p. 305. 3.
Cyrpoptus sodalis, Stål, Stett. ent. Zeit. xxv. p. 50. 350[2].

Hab. MEXICO [1 2].

This species is only known to me from the original description.

ENCHOPHORA.

Enchophora, Spinola, Ann. Soc. Ent. Fr. sér. 1, viii. pp. 202, 221 (1839); Amyot & Serville, Hist. des Hém. p. 496 (1843); Stål, Hem. Afr. iv. p. 133 (1866); Stett. ent. Zeit. xxxi. p. 284 (1870).
Fulgora, subg. *Enchophora*, Burmeister, Gen. Ins. t. 19.

The salient features of this genus have been well epitomized by Stål, as follows:—"Processu capitis maxime recurvo, apice trilobo; thorace carina valde elevata, basi oblique truncata, instructo; tegminibus densissime reticulatis; antennarum articulo secundo valde transverso."

Comparatively little is known of this genus, which is evidently focussed in the heart of the Neotropical region. The number of species (certainly not exhaustive) here enumerated as found in Central America indicate that the great Brazilian subregion itself must contain very many undiscovered species, and therefore little at the present

moment can be said as to the specific extent or restricted distribution of *Enchophora*, which may probably prove to be not uncommon in the Antilles.

1. **Enchophora stillifer.** (Tab. IV. figg. 14, 14 *a*, 14 *b*.)

Phrictus stillifer, Stål, Berl. ent. Zeitschr. vi. p. 303. 1 [1].
Enchophora stillifera, Stål, Stett. ent. Zeit. xxv. p. 49. 346 [2].

Hab. MEXICO [1 2] (*Höge, coll. Dist.*); GUATEMALA, Sabo in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

This species is not uncommon in Central America. It was formerly very rare in collections, the type in that of Dr. Signoret being the only specimen I was acquainted with. It has since, however, been found not uncommonly by Mr. Champion, and who to three specimens appended the following note:—"These specimens had one or two parasitic living larvæ firmly attached to the abdomen and enveloped in the white fluff with which the bodies of these insects are covered when alive" *.

2. **Enchophora rosacea,** n. sp. (Tab. IV. figg. 11, 11 *a*, 11 *b*.)

Head, pronotum, and mesonotum greenish, mottled with dull ochraceous; eyes castaneous; antennæ carmine. Tegmina pale stramineous, with the veins greenish, the basal and claval areæ blotched with carmine; the apex dull dark stramineous, minutely spotted with greyish and preceded by an irregular transverse greyish fascia. Wings pale greyish, the apex somewhat palely infuscated and the base narrowly pale greenish. Abdomen above pale dull ochraceous, with a longitudinal median fuscous fascia, somewhat greenish at the lateral margins, and with a narrow transverse greyish fascia before the anal appendage. Body beneath dull ochraceous, margined and shaded with greenish; legs greenish, with the tarsi castaneous.

The central frontal carina is keeled and does not reach the posterior margin, thus agreeing with the structure of *E. stillifer*; but the cephalic protuberance is much shorter than in that species.

Long. excl. tegm. 21 millim., exp. tegm. 54 millim.

Hab. NICARAGUA, Chontales (*coll. Dist.*).

This beautiful and distinct species is at present represented in my collection by a single specimen. It was obtained from Mr. Janson, and was probably captured and sent home by his son.

3. **Enchophora sanguinea,** n. sp. (Tab. IV. figg. 16, 16 *a*, 16 *b*.)

Head, pronotum, and mesonotum brown, mottled with fuscous; eyes pale brownish. Tegmina pale dull reddish, the veins somewhat olivaceous, and with dark olivaceous reticulations; apical area brownish-ochraceous, preceded by a pale waved transverse fascia, and containing a few minute greyish spots. Wings pale sanguineous, the apex (broadly) and the posterior margin pale fuscous. Abdomen above sanguineous. Body beneath as above; legs dark olivaceous, with their basal portions more or less dark sanguineous.

The central pronotal carina is much less prominent than in the preceding species, and reaches the posterior margin; the rostrum does not reach the penultimate segment.

Long. excl. tegm. 21 millim., exp. tegm. 50 millim.

Hab. GUATEMALA (*coll. Dist.*); PANAMA (*Boucard*).

* Prof. Westwood (Trans. Ent. Soc. Lond. 1876, p. 519, t. 7. figg. 1–17) has described and figured a Lepidopterous insect, *Epipyrops anomala*, the larva of which is parasitic in a similar way on *Fulgora candelaria*.

I have no precise localities for the two specimens of this species. The one from Guatemala formed part of a collection of Rhynchota purchased from Mr. Janson some years since, and that from Panama was procured from M. Boucard.

4. **Enchophora florens,** n. sp. (Tab. IV. figg. 12, 12 *a*, 12 *b*.)

Enchophora sanguinea, var. ?

This species is closely allied to *E. sanguinea*; it principally differs by the colour and pattern of the tegmina, which are either wholly pale greenish or olivaceous (as in the specimen figured) or spotted with reddish-ochraceous. In other respects it resembles the preceding species, and I have been unable to find any good structural differential characters.

Long. excl. tegm. 18 to 21 millim., exp. tegm. 42 to 45 millim.

Hab. NICARAGUA, Chontales (*Janson*); COSTA RICA, Cache (*Rogers*).

An allied species is found in Colombia *.

5. **Enchophora subviridis,** n. sp. (Tab. IV. figg. 17, 17 *a*, 17 *b*.)

Head and pronotum olivaceous; mesonotum brownish-olivaceous; eyes very pale castaneous. Tegmina pale olivaceous, the apical area somewhat brownish, minutely spotted with greyish. Wings ochraceous, with a bronzy hue, the apex and outer margins broadly fuscous. Abdomen above fuscous, beneath sanguineous. Head and thorax beneath and the legs olivaceous.

The central pronotal carina is similar to that in *E. sanguinea* and *E. florens*, and, as in these species, reaches the posterior margin; but the rostrum is longer and about reaches the terminal segment.

Long. excl. tegm. 19 to 20 millim., exp. tegm. 42 to 47 millim.

Hab. PANAMA (*Boucard*), Bugaba (*Champion*), Chiriqui (*Arcé*).

Var. *a*. (Tab. IV. figg. 15, 15 *a*, 15 *b*.)

All the olivaceous coloration replaced by bronzy-ochraceous or pale brownish.

Hab. PANAMA, Chiriqui (*Ribbe*, *Mus. Vind. Cæs.*).

COANACO, gen. nov.

This genus is allied to *Enchophora*, from which it differs by the absence of the strongly raised central thoracic carina and by the broader pronotum; the lateral and grooved margins of the pronotum attain to almost the centre of the eyes, and are not distinctly posterior to and separated from the eyes as in *Enchophora*.

Two species are here enumerated, one of which (*C. guttata*, White) is taken as typical of the genus. White evidently saw the generic distinctness of his species, as he appended to his description the remark "seems to form a connecting-link between *Enchophora* and *Aphana*."

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* **Enchophora longirostris,** n. sp.

Resembling *E. florens*, but the tegmina pale greenish-grey, mottled with a few irregular shadings or spots of pale olivaceous. Other colour-markings generally as in *E. florens*, but the rostrum reaching the base of the anal appendage.

Dimensions as in *E. florens*.

Hab. COLOMBIA.

1. **Coanaco guttata.** (Tab. IV. figg. 10, 10 *a*, 10 *b*.)

Enchophora guttata, White, Ann. & Mag. Nat. Hist. 1846, xvii. p. 331 [1].
Aphæna guttata, Walk. List Hom. ii. p. 276. 14.

Hab. MEXICO, Jalapa (*Höge*); GUATEMALA, San Isidro (*Champion*); PANAMA, Bugaba, Tolé (*Champion*).

White gave the somewhat vague locality "South America" [1], a habitat in any case too loose for any scientific purpose, and, in this instance, possibly erroneous.

2. **Coanaco ornanda,** n. sp. (Tab. IV. figg. 13, 13 *a*, 13 *b*.)

Head, pronotum, and mesonotum fuscous. Tegmina fuscous, the claval area much paler; the apical area ornamented with pale spots, and the basal area with scattered black spots, some of which have red centres. Wings dark fuscous, with about two thirds of the area from the base ornamented with bluish-grey spots, and with a few minute greyish spots at the apex. Abdomen above dark sanguineous, the two basal segments, some median segmental spots, and the anal appendage black. Body beneath and the legs dull reddish, the face and the margins of the prosternum dull luteous.
Long. excl. tegm. 16 millim., exp. tegm. 45 to 48 millim.

Hab. PANAMA, Chiriqui (*Ribbe, Mus. Vind. Cæs.*), Bugaba, Tolé (*Champion*).

OBIA, gen. nov.

The face in this genus is distinctly longer than broad, the outer margin carinate, slightly sinuate at about the middle of the lateral margins, and moderately ampliated posteriorly; it has three central subparallel carinæ. The arrangement of the claval veins is as in *Aphana* and *Amantia*.

1. **Obia tenebrosa,** n. sp. (Tab. V. figg. 17, 17 *a*.)

Head, pronotum, and mesonotum ochraceous-brown; the pronotum with a black cruciform impression, and the mesonotum with blackish spots and markings. Tegmina reddish-ochraceous, the basal area with blackish markings, the apical area duller in hue and marked with large irregular greyish spots. Wings sanguineous, with the apical, posterior, and abdominal margins broadly blackish. Abdomen above blackish, with the lateral margins brownish-ochraceous; head beneath and the sternum and legs, pale brownish-ochraceous, more or less spotted and marked with blackish; abdomen beneath blackish, the tibiæ somewhat distinctly annulated with that colour.
Long. excl. tegm. 15 millim., exp. tegm. 46 millim.

Hab. MEXICO, Jalapa (*coll. Dist.*).

AMALIVACA, gen. nov.

In this genus the face is longer than broad, and its lateral margins are ampliated and sublaminate posteriorly; it has two central carinæ united before the apex, and the surface between the carinæ is concavely excavated; the facial base is angularly deflexed.

The head above is broad, with the apex of the face appearing as a slight and sub-obsolete protuberance in front. The tegmina and wings are elongate and narrow.

I am unable to find any described genus which agrees with the very peculiar facial characters noticed above, and which are given in outline as represented in the typical species (Tab. V. fig. 18 *a*).

1. **Amalivaca fucata,** n. sp. (Tab. V. figg. 18, 18 *a*.)

Head, pronotum, and mesonotum obscure olivaceous. Tegmina with the basal area purplish, spotted with black, the largest spot a little beyond the middle; claval area pale olivaceous; costal area pale olivaceous, spotted with purplish; apical area subhyaline, the veins brownish, and with irregular reticulated brownish markings. Wings blackish, with some basal resplendent greenish streaks and two spots of the same colour above the anal angle, and a large pale subhyaline marginal spot a little before the apex. Abdomen above blackish; body beneath and the legs obscure ochraceous; the legs spotted and annulated with purplish-brown; apex of the abdomen blackish.

Long. excl. tegm. 15 millim., exp. tegm. 40 millim.

Hab. Costa Rica, Cache (*Rogers*).

AMANTIA.

Amantia, Stål, Stett. ent. Zeit. xxv. p. 49 (1864); Hem. Afr. iv. p. 136 (1866); Stett. ent. Zeit. xxxi. p. 289 (1870).

This genus is easily recognized by the structure of the head, "caput latissimum, antice rotundatum," at least so far as the genera of this fauna are concerned.

Two species only are recorded—one which is here enumerated; the other is found in Colombia.

1. **Amantia imperatoria.** (Tab. IV. figg. 7, 7 *a*.)

Poiocera imperatoria, Gerst., in Wiegm. Archiv f. Naturg. xxvi. p. 231, t. 11. f. 7[1].

Hab. Costa Rica (*Mus. Berol.*[1], *Van Patten*); Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The specimen figured is the original type described by Gerstaecker, for the loan of which we are indebted to the authorities of the Berlin Museum. A coloured figure has not previously been given.

ACRÆPHIA.

Acraephia, Stål, Hem. Afr. iv. p. 136 (1866); Stett. ent. Zeit. xxxi. p. 289 (1870).

This genus is allied to *Amantia*, but not only differs by the smaller and less-developed head, but also by the sinuated posterior margin of the pronotum.

It is a genus of considerable extent, and its distribution is at least focussed in the Neotropical region. Although only two species are here enumerated as representing *Acræphia* in our fauna, others doubtless remain to be discovered.

1. **Acræphia perspicillata.**

Cicada perspicillata, Fabr. Sp. Ins. ii. p. 322. 1; Mant. Ins. ii. p. 268. 1; Ent. Syst. iv. p. 27. 1; Gmel. Syst. Nat. i. 4, p. 2104. 115.

Lystra perspicillata, Fabr. Syst. Rhyn. p. 59. 13, 2; Germ. Mag. Ent. iii. p. 227. 2; Germ. in Thon's Arch. ii. 2, p. 55. 27.

Fulgora perspicillata, Oliv. Enc. Méth. vi. p. 574. 34.

Pœocera perspicillata, Burm. Handb. Ent. ii. 2, p. 165. 1 [1]; Blanch. Hist. Nat. Ins. iii. p. 171, Hém. t. 13. f. 1 [2]; Amy. & Serv. Hist. des Hém. p. 500. 1 [3].

Poiocera perspicillata, Spin. Ann. Soc. Ent. Fr. viii. p. 277. 1 [4]; Walk. List Hom. ii. p. 291. 2 [5]; Suppl. p. 49 [6].

Lystra luctuosa?, Guér. Voy. Coq. p. 188.

Cicada atrata, Fabr. Ent. Syst. iv. p. 31. 19.

Stoll, Cig. fig. 5.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*); GUATEMALA, San Gerónimo (*Champion*); PANAMA, Bugaba, David (*Champion*).—GUIANA, Cayenne [3]; BRAZIL [2 4 5], Bahia [1].

This species is of a variable character, as pointed out by Walker [6]. The tegmina are sometimes nearly black, and sometimes greenish-luteous obscurely spotted with testaceous; in the last case the head and thorax above also partake of the same hue.

2. **Acræphia fastuosa.** (Tab. IV. figg. 9, 9 *a*.)

Poiocera fastuosa, Gerst. in Wiegm. Archiv f. Naturg. xxvi. p. 221. 13, t. 11. f. 3 [1].

Hab. MEXICO [1].

We have not received specimens of this species in any of the collections made by Mr. Champion. The type contained in the Berlin Museum is here figured.

POBLICIA.

Poblicia, Stål, Hem. Afr. iv. p. 138 (1866); Stett. ent. Zeit. xxxi. p. 290 (1870).

This and some other allied genera appear to be most readily distinguished by the shape and surface-markings of the face, for which our plates may be consulted. Stål, in his 'Conspectus,' thus diagnoses *Poblicia*:—"Fronte clypeoque in eodem plano distincte jacentibus, hoc apice leviter inflexo."

Three species are now included in our fauna.

1. **Poblicia misella.** (Tab. V. figg. 6, 6 *a*.)

Pœocera misella, Stål, Stett. ent. Zeit. xxiv. p. 239. 1 [1]; xxv. p. 49. 347.

Poblicia misella, Stål, Berl. ent. Zeitschr. 1866, p. 390.

Hab. MEXICO, Oaxaca [1] (*Mus. Holm.*).

The type in the collection of the Stockholm Museum is here figured.

2. **Poblicia constellata.** (Tab. IV. figg. 6, 6 *a*.)

Poiocera constellata, Walk. List Hom., Suppl. p. 50[1].

Poiocera tricolor, Gerst. in Wiegm. Archiv f. Naturg. xxvi. p. 238, t. 11. f. 11[2].

Hab. MEXICO [1 2], Jalapa (*Höge*); GUATEMALA, San Gerónimo, San Joaquin in Vera Paz (*Champion*).

The typical specimen described by Gerstaecker under the name of *P. tricolor* is here figured.

3. **Poblicia atomaria.** (Tab. V. figg. 2, 2 *a*.)

Poiocera atomaria, Walk. List Hom., Suppl. p. 49[1].

Hab. MEXICO [1]; GUATEMALA, Calderas (*Champion*).

This name is not a synonym of *P. constellata,* as stated by Stål (Œfv. Vet.-Ak. Förh. 1862, p. 486), who was evidently led into the error by only examining the "unset" specimens of the species in the British-Museum collection.

DOMITIA.

Domitia, Stål, Hem. Afr. iv. p. 138 (1866); Berl. ent. Zeitschr. 1866, p. 390; Stett. ent. Zeit. xxxi. p. 290 (1870).

I place the following species in this genus, of which I fortunately possess specimens of the type as given by Stål, viz. *D. basistella,* Walk., an Antillean insect. With this type our species generally agree, excepting in the form of the carinal markings of the face, a character alone too insignificant for fresh generic subdivision.

1. **Domitia neotropicalis,** n. sp. (Tab. V. figg. 3, 3 *a*.)

Head and eyes ochraceous; pronotum olivaceous-green, with discal black spots; mesonotum olivaceous-green, tinged with ochraceous, with four central longitudinal and a marginal series of rounded black spots; abdomen dull sanguineous, the base and a series of transverse discal streaks black; the posterior segmental margins narrowly pale greenish-ochraceous. Tegmina fuscous, with the veins and reticulations green spotted with ochraceous; the costal spots very distinct; apical area pale fuscous-hyaline; the venation fuscous. Wings pale fuscous-hyaline, the venation fuscous; the basal third black, with pale bluish-green reticulations and some basal spots of the same colour. Face and sternum pale olivaceous, shaded with brown; legs brownish-olivaceous. Abdomen beneath as above, but duller in hue. Rostrum reaching the penultimate segment.

Long. excl. tegm. 16 to 19 millim., exp. tegm. 54 to 58 millim.

Hab. MEXICO, Jalapa, environs of city (*Höge*); GUATEMALA, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Janson*); PANAMA, David (*Champion*).

This species is allied to *D. flavo-punctata* (Perty), from which it differs by the greater hyaline area of the wings, different colour of the abdomen, &c.

2. **Domitia obscura,** n. sp. (Tab. V. figg. 10, 10 *a*.)

Smaller than *D. neotropicalis*; the wings relatively narrower. Body generally as in the preceding species, but ochraceous instead of olivaceous. Tegmina with more than the basal half ochraceous, with darker markings between the reticulations; some costal spots and its apical margin fuscous; the remaining apical area pale fuscous-hyaline, the venation fuscous. Wings obscure hyaline, pale, the venation fuscous; the basal third black with pale stramineous reticulations, and with some basal spots of the same colour. Face, sternum, and legs ochraceous; abdomen beneath and the rostrum brownish-ochraceous, the rostrum extending to the base of the apical segment.

Long. excl. tegm. 15 millim., exp. tegm. 45 millim.

Hab. MEXICO, Presidio (*Forrer*).

I include the following species in this genus with considerable hesitation, owing to the greater width of the head between the eyes compared with the lateral margins of the pronotum. On the other hand, the general characters and the form of coloration pertain to *Domitia*; and I have found it absolutely impossible to determine whether it may not belong to some other genus of Stål, of which the description is contained only in a "conspectus generum" without the type being given, or, when given, referable to some described but unfigured species originally referred to another genus. As remarked before, owing to the premature death of Stål, his Homopteral work is in a somewhat confused and unravelled condition, and is in striking contrast to the Heteropteral work, which is thoroughly digested and elaborated.

3. **Domitia (?) miscella,** n. sp. (Tab. V. figg. 7, 7 *a*.)

Head, pronotum, and mesonotum olivaceous, the mesonotum generally tinged with ochraceous; metanotum, scutellum, and the base of the abdomen blackish; abdomen sanguineous. Tegmina with the basal two thirds very dark olivaceous, the veins and reticulations pale olivaceous and spotted with ochraceous, some costal spots being very prominent; apical area dull ochraceous and subhyaline, the venation very pale olivaceous. Wings pale hyaline, the venation fuscous, the basal third blackish with blue basal spots. Face, clypeus, and sternum olivaceous-green; abdomen beneath dull reddish, the basal margins of the segments somewhat broadly ochraceous, the apical margins narrowly pale olivaceous; legs castaneous, the tarsi piceous. Tegmina beneath with the venation and reticulation of the basal two thirds bluish.

Long. excl. tegm. 15 millim., exp. tegm. 35 to 42 millim.

Hab. PANAMA (*Boucard*), Bugaba (*Champion*).

HYPÆPA.

Hypæpa, Stål, Berl. ent. Zeitschr. 1862, p. 306; Hem. Afr. iv. p. 137 (1866); Stett. ent. Zeit. xxi. p. 291 (1870).

We are in no doubt as to this genus, Stål having specified *H. costata*, Fabr., as the type.

Three species are here included, and the genus will probably be found to be well represented when these little-collected insects have been properly sought in the Neotropical region.

1. **Hypæpa illuminata,** n. sp. (Tab. V. figg. 5, 5 *a*.)

Head, pronotum, and mesonotum olivaceous mottled with blackish. Abdomen ochraceous. Tegmina with the basal two thirds ochraceous and opaque, the veins paler and with some pale spots at the costal and claval margins; apical area pale hyaline, the venation ochraceous and with some scattered irregular fuscous markings. Wings pale fuscous-hyaline, the veins fuscous; a large basal patch bright ochraceous, beyond which, for a short distance, moderately infuscated. Head beneath, the sternum, rostrum, and legs pale olivaceous, more or less spotted with blackish.

Long. excl. tegm. 12 millim., exp. tegm. 30 to 35 millim.

Hab. GUATEMALA, San Gerónimo, Zapote (*Champion*).

2. **Hypæpa zapotensis,** n. sp. (Tab. V. figg. 8, 8 *a*.)

Head and thorax above olivaceous, tinged and spotted with ochraceous and black; scutellum reddish; abdomen above purplish-black, the base and lateral margins reddish. Head beneath, the sternum, rostrum, and legs pale olivaceous; the tarsi black, and the tibiæ annulated with the same colour; abdomen beneath reddish. Tegmina with the basal two thirds castaneous mottled with paler hues, the costal margin darker spotted with greenish-ochraceous, the claval margin obscurely and narrowly greenish with small castaneous spots; apical area pale hyaline, the venation and some cloudy markings fuscous. Wings pale hyaline, the venation fuscous; a large basal patch bright vermilion-red, the anal angle fuscous.

Long. excl. tegm. 9 millim., exp. tegm. 28 millim.

Hab. GUATEMALA, Zapote (*Champion*).

This species is allied to *H. costata*, Fabr.

3. **Hypæpa rubricata,** n. sp. (Tab. V. figg. 4, 4 *a*.)

Head, pro-, meso-, and metanotum black; abdomen ochraceous, the anal appendage black. Tegmina blackish, crossed by a narrow curved sanguineous fascia near the apex. Wings dark fuscous-subhyaline, the venation black, the base and some large basal streaks pale bluish-green. Body beneath and the legs black; coxæ greenish-ochraceous.

Long. excl. tegm. 11 to 12 millim., exp. tegm. 30 to 33 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Mr. Champion only met with this species in the State of Panama. An allied, but very distinct species (*H. rufifascia*, Walk.) is found in Colombia.

ACMONIA.

Acmonia, Stål, Hem. Afr. iv. p. 137 (1866); Berl. ent. Zeitschr. 1866, p. 390[1]; Stett. ent. Zeit. xxi. p. 290 (1870)[2].

I place the following two species in this genus, owing to their general characters agreeing as a rule with those sketched out by Stål[1] as applicable to *Acmonia*; and also by their agreeing in general appearance with some of those species figured by Gerstaecker which are stated by Stål to either belong or to seem to belong (verisimiliter etiam) to his genus. The most divergent characters, however, are the distinct carinæ to the face, which as referable to *Acmonia* do not quite agree, Stål having written "Fronte carina media longitudinali nulla vel brevi instructa"[2].

Not having seen the type of the genus, I am disinclined to propose a new one, especially as the aim of this work is faunistic rather than classificatory.

1. **Acmonia (?) trivia,** n. sp. (Tab. V. figg. 14, 14 *a*.)

Head sanguineous; eyes dull luteous; pronotum and mesonotum olivaceous, shaded with ochraceous; metanotum and scutellum reddish, shaded with blackish. Abdomen above sanguineous, with transverse streaks and spots of black. Body beneath and legs sanguineous; legs spotted with black. Tegmina dull olivaceous, thickly covered with small green spots; the apical area a little paler and much more finely spotted. Wings sanguineous, the apex and posterior margin broadly fuscous.

Long. excl. tegm. 8 to 10 millim., exp. tegm. 21 to 28 millim.

Hab. GUATEMALA, Capetillo, Cerro Zunil (*Champion*).

This species not only varies in size, but also in the colour of the body and legs beneath, which are sometimes ochraceous and not sanguineous.

2. **Acmonia (?) procris,** n. sp. (Tab. V. figg. 12, 12 *a*.)

Head and pronotum dull reddish; eyes luteous; mesonotum olivaceous-brown. Abdomen above reddish, the base black; body beneath and the legs dull reddish, the legs spotted with black. Tegmina dark shining fuscous, the basal two thirds obscurely spotted with blackish, its base reddish, the costal margin very narrowly greenish; apical area very finely spotted with dull ochraceous, the apex pale subhyaline. Wings pale smoky subhyaline, with large basal fuscous and reddish shadings.

Long. excl. tegm. 10 to 11 millim., exp. tegm. 25 to 27 millim.

Hab. PANAMA, David in Chiriqui (*Champion*).

CYRPOPTUS.

Cyrpoptus, Stål, Berl. ent. Zeitschr. vi. p. 304 (1862); Stett. ent. Zeit. xxi. p. 292 (1870).

This genus may be readily recognized by several superficial characters, such as the obliquely truncated apices of the tegmina, the bifoveolate pronotum, the dilated anterior femora, &c.

Cyrpoptus is allied to *Calyptoproctus*, and only one species has at present been described.

1. **Cyrpoptus suavis.** (Tab. V. figg. 15, 15 *a*.)

Cyrpoptus suavis, Stål, Berl. ent. Zeitschr. vi. p. 304 (1862); Stett. ent. Zeit. xxv. p. 50. 351 [1].

Hab. MEXICO [1]; GUATEMALA, San Gerónimo (*Champion*).

This species appears to vary greatly in size. Stål gave the expanse of the tegmina as 30 millim., but the smaller of two specimens collected by Mr. Champion measures only 25 millim.

CALYPTOPROCTUS.

Calyptoproctus (1st subdiv. A), Spinola, Ann. Soc. Ent. Fr. viii. p. 269 (1839); Stål, Hem. Afr. iv. p. 137 (1866); Stett. ent. Zeit. xxi. p. 293 (1870).

This genus is readily distinguished by the characters given by Spinola:—"*Cinquième anneau dorsal* tricaréné en dessus, aussi long que les trois précédents pris ensemble."

Two species have been received from Central America.

1. **Calyptoproctus elegans.**

Fulgora elegans, Oliv. Enc. Méth. x. p. 576. 36.
Calyptoproctus elegans, Spin. Ann. Soc. Ent. Fr. viii. p. 269. 2[1]; Walk. List Hom. ii. p. 288. 2[2]. Stoll, Cig. t. 21. fig. 111.

Hab. HONDURAS[2]; COSTA RICA (*coll. Dist.*).—VENEZUELA[2]; BRAZIL[1].

2. **Calyptoproctus guttipes.** (Tab. V. figg. 9, 9 *a*.)

Poiocera guttipes, Walk. List Hom., Suppl. p. 50[1].
Calyptoproctus guttipes, Stål, Œfv. Vet.-Ak. Förh. 1862, p. 486.

Hab. MEXICO[1]; GUATEMALA, San Isidro, Pantaleon (*Champion*).

SCARALIS.

Scaralis, Stål, Hem. Afr. iv. p. 139 (1866); Berl. ent. Zeitschr. 1866, p. 389; Stett. ent. Zeit. xxi. p. 294 (1870).

This is a purely Neotropical genus, and its specific extent cannot at present be estimated. One species has been received from the southern limits of our fauna.

1. **Scaralis spectabilis.** (Tab. V. figg. 16, 16 *a*.)

Poiocera spectabilis, Walk. List Hom., Suppl. p. 55[1].

Hab. PANAMA, David in Chiriqui, San Feliz (*Champion*).—BRAZIL, Pará[1].

ATALANTA.

Atalanta, Stål, Hem. Afr. iv. p. 139 (1866); Stett. ent. Zeit. xxi. p. 288 (1870).

This genus is remarkable for the extreme development of the waxy appendages to the abdomen which all its known species exhibit. I am now able to describe two new species, thus bringing up the number to three, all of which are found in our fauna.

1. **Atalanta auricoma.**

Phenax auricoma, Burm. Handb. Ent. ii. 1, p. 168. 2[1]; Walk. List Hom. ii. p. 336. 2[2].

Lystra auricoma, Burm. Gen. Ins., *Lystra*, t. 7. fig. 1.
Atalanta auricoma, Stål, Stett. ent. Zeit. xxv. p. 49. 348 [3].
Lystra bombycida, J. Blasq. Nat. Mex. i. p. 288, figs. 13 & 15 [4].

Hab. MEXICO [1 2 3 4]; PANAMA, Veragua (*coll. Dist.*).

Mr. Champion did not meet with this fine species during his sojourn in Central America.

2. **Atalanta ærata**, n. sp. (Tab. V. figg. 11, 11 *a*.)

Head and thorax above very dark olivaceous; abdomen above fuscous, sometimes clothed with greyish tomentosity, and always with a long greyish-white waxy anal appendage. Body beneath and the legs dark olivaceous. Tegmina with the basal two thirds bronzy-green spotted with ochraceous, and separated from the apical area (which is bronzy in hue) by a transverse greyish fascia. Wings pale greyish-subhyaline, the base very pale greenish, the apex fuscous.
Exp. tegm. 46 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

I have not attempted to give the length of the body, as the development of the waxy secretion prevents such a measurement being taken with any degree of accuracy, and this remark applies also to the following species.

3. **Atalanta violacea.** (Tab. V. figg. 13, 13 *a*.)

Head and thorax above very dark violaceous. Abdomen above apparently of the same colour, but clothed with greyish tomentosity, and with a long waxy greyish-white anal appendage. Body beneath and the legs dark violaceous, but much covered with greyish tomentosity. Tegmina pale violaceous, the basal two thirds spotted with dark violaceous, and separated from the apical area by a dark violaceous transverse fascia; the apical area violaceous-brown, pale violaceous near the transverse fascia. Wings pale hyaline, the apical margin and the venation fuscous.
Exp. tegm. 45 to 54 millim.

Hab. GUATEMALA, Coban and Sabo in Vera Paz (*Champion*).

Mr. Champion found this species resting on coffee-plants.

PTERODICTYA.

Pterodictya, Burmeister, Handb. Ent. ii. 1, p. 155. 1 (1839); Stål, Hem. Afr. iv. p. 139 (1866); Stett. ent. Zeit. xxi. p. 288 (1870).

This is one of the most easily recognized genera in the whole group, the talc-like and reticulated tegmina being very distinct and peculiar. Only one species is at present recorded.

1. **Pterodictya ephemera.**

Tettigonia ephemera, Fabr. Ent. Syst. iv. p. 25. 34; Syst. Rhyn. p. 43. 52.
Lystra reticularis, Germ. in Thon's Archiv, ii. 2, p. 52. 3.

Pterodictya ephemera, Burm. Handb. Ent. ii. 1, p. 155. 1 [1]; Amy. & Serv. Hist. des Hém. p. 503. 1 [2]; Walk. List Hom. ii. p. 336 [3], & iv. t. 3. fig. 1.
Stoll, Cig. t. 1. fig. 4.

Hab. PANAMA, Bugaba, and near David in Chiriqui (*Champion*).—GUIANA, Surinam [1 2]; BRAZIL, Pará [3].

Panama appears to be the northern limit of the range of this species. Mr. Champion sometimes found four or five specimens together on tree-trunks in the forest, which on being approached would immediately retreat to another tree, but always upward and more out of reach. "The flight is peculiar and different from that of any other insect observed, being spiral and perpendicular, generally from tree to tree; and one kind of tree being alone frequented, the trunk of which is covered with long sharp spines, between which the insect rests, thus adding to the difficulty of its capture."

Subfam. *DICTYOPHARINÆ.*

Dyctiophoroides (pars), Spinola, Ann. Soc. Ent. Fr. viii. p. 283 (1839).
Pseudophanides (pars), Amyot & Serville, Hist. des Hém. p. 502 (1843).
Dictyopharida, Stål, Hem. Afr. iv. p. 129 (1866).
Dictyopharina, Berg, Hem. Argent. p. 217 (1879).

CLADYPHA.

Cladodiptera, Spinola, Ann. Soc. Ent. Fr. viii. p. 316 (1839).
Cladypha, Amyot & Serville, Hist. des Hém. p. 502 (1843); Stål, Hem. Afr. iv. p. 149 (1866).
Cladopteryx, Westwood, Arc. Ent. ii. p. 90 (1844).
Diacira, Walker, Insect. Saundersiana, p. 34 (1850).

The proper choice of the above names is somewhat perplexing. Spinola first proposed that of *Cladodiptera*, for which Amyot and Serville subsequently substituted that of *Cladypha* on the ground that the name *Cladodiptera* was wrong in construction and should be *Cladoptera*, which, however, had been already used by one of them in Orthoptera. Prof. Westwood afterwards showed that this was again an error, as *Cladoxerus* was the name used by Serville, and not *Cladoptera*; and he, retaining Spinola's name, "but altering its termination," again makes a proposition that the name should be *Cladopteryx*. Under these circumstances I follow Stål in adopting the word *Cladypha*, which was the first new name proposed when a change became necessary.

Walker elucidated the question by describing some species as belonging to the genus *Poiocera*, afterwards correctly recognizing Spinola's genus and describing a species as a *Cladodiptera*; and subsequently describing another species under a new genus, *Diacira*, a name almost simultaneously proposed by Stål for another genus of Homoptera.

1. **Cladypha interlita,** n. sp. (Tab. VI. fig. 1.)

Body above castaneous-brown; eyes black; abdomen darker in hue, but variegated with ochraceous, the anal appendage ochraceous. Face black, the anterior margin and a broad transverse fascia a little beyond the centre ochraceous. Body beneath dark castaneous; the margins of the pro- and mesosternum broadly ochraceous. Legs castaneous; anterior and intermediate femora near the apex, and the anterior and intermediate tibiæ at the apex, annulated with ochraceous; posterior tibiæ armed with three strong spines and with a cluster of spines at the apex; anterior femora moderately and laminately ampliated beneath, the anterior tibiæ only very slightly and scarcely perceptibly ampliated at the apex. Tegmina palely infuscated, the venation fuscous, the transverse veins on the apical area and the apical areolets darkly infuscated. Wings pale hyaline, with the venation fuscous.

Long. excl. tegm. 11 millim., exp. tegm. 30 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

DICTYOPHARA.

Dictyophara, Germar in Silb. Rev. Ent. i. p. 175 (1833); Stål, Hem. Afr. iv. pp. 151 & 154 (1866); Berg, Hem. Argent. p. 217.

Pseudophana, Burmeister, Handb. ii. 1, pp. 146 et 159; Amyot & Serville, Hist. des Hém. p. 506 (1843).

Dyctiophora (pars), Spinola, Ann. Soc. Ent. Fr. viii. p. 290 (1839).

Chanithus, Kolenati, Mel. Ent. vii. p. 29 (1857).

Nersia, Stål, Bidr. Rio Jan. Hem. ii. p. 62 (1858).

This genus is almost universally distributed, and is well represented in our fauna. It is difficult to properly describe the species by words alone, and therefore it is very probable that some amount of synonymy exists between those described by Walker and others described by Stål. This is the more probable when we notice that many of the species inhabiting Central America are also found in Brazil. In this work, however, synonymy between these authors will not affect the nomenclature, as the species are mostly identified from Walker's List, which was published at an earlier date than Stål's work on the Hemiptera of Rio Janeiro.

Although the species of this genus have a considerable superficial resemblance, excellent differential characters exist in the size and shape of the head, and, in a more subsidiary sense, according to the nature and extent of the carina or carinæ on the upper surface of the same; and on these characters the writer has relied, thus allowing the descriptions of two new species to be verbally short, as in both cases the artist has diagrammatically illustrated the structure of the head.

1. **Dictyophara chlorochroma.**

Dictyophora chlorochroma, Walk. List Hom. ii. p. 311. 21[1], & iv. t. 3. f. 5.

Dictyophora compressifrons, Walk. List Hom., Suppl. p. 62[2].

Nersia nigro-lineata, Stål, Stett. ent. Zeit. xxv. p. 50. 354[3].

Hab. MEXICO[2 3]; GUATEMALA, San Juan in Vera Paz (*Champion*); HONDURAS[1]; PANAMA, Bugaba, Volcan de Chiriqui 4000 to 5000 feet (*Champion*).

This is a very well-marked species, the length and the black linear markings of the prolongated head rendering it easily recognizable.

2. **Dictyophara ferocula,** n. sp. (Tab. VI. fig. 2.)

Head very long, about equal in length to that of the intermediate tibiæ. The prolonged head is pale castaneous, the carinæ greenish; pronotum and mesonotum pale obscure castaneous, with the carinæ greenish. Tegmina pale hyaline, pale greenish at the base, the venation pale fuscous. Legs pale brownish, the extreme apices of the tibiæ and tarsi a little darker.

Long. excl. tegm. 18 millim., long. head 7 millim., exp. tegm. 32 millim.

Hab. PANAMA, Matachin (*coll. Dist.*).

The great length of the head is sufficient to adequately separate this species from any of the others here enumerated.

3. **Dictyophara nodivena.** (Tab. VI. fig. 3.)

Dictyophora nodivena, Walk. Insect. Saundersiana, p. 37 [1].

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).—BRAZIL, Pará [1].

4. **Dictyophara curviceps.** (Tab. VI. fig. 4.)

Nersia curviceps, Stål, Bidr. Rio Jan. Hem. p. 64 [1]; Stett. ent. Zeit. xxv. p. 50. 353 [2].
Dictyophora dioxys, Walk. List Hom., Suppl. p. 61 [3].

Hab. MEXICO [1 2 3]; GUATEMALA, Zapote, Panzos in Vera Paz (*Champion*).

Stål's publication is dated January 1858, and Walker's List bears the date March 1858, so Stål's name seems clearly to have priority.

5. **Dictyophara brachyrhina.** (Tab. VI. fig. 5.)

Dictyophora brachyrhina, Walk. List Hom. ii. p. 317. 31 [1].

Hab. GUATEMALA, El Reposo, Zapote (*Champion*).—COLOMBIA [1].

6. **Dictyophara obtusifrons.** (Tab. VI. fig. 6.)

Dictyophora obtusifrons, Walk. List Hom. ii. p. 318 [1].

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 4000 feet, David (*Champion*).—GUIANA; AMAZONS; ANTILLES (*coll. Dist.*).

This insect is allied to *D. truncata,* Walk., a species recorded from Pará, and of which I possess a good series from Demerara and the Antilles. It principally differs from *D. truncata* in the shorter and more quadrate prolongation of the head. No locality is affixed to Walker's description [1].

7. **Dictyophara herbida.** (Tab. VI. fig. 7.)

Dichoptera herbida, Walk. List Hom. ii. p. 306 [1].
Dictyophora inexacta, Walk. Ins. Saundersiana, p. 38 [2].

Hab. MEXICO, Presidio (*Forrer*); GUATEMALA, San Gerónimo (*Champion*); PANAMA (*Boucard, in coll. Dist.*), Bugaba (*Champion*), Matachin (*coll. Dist.*).—COLOMBIA [2]; VENEZUELA [1].

8. **Dictyophara florens.** (Tab. VI. figg. 8, 8 *a.*)

Nersia florens, Stål, Bidr. Rio Jan. Hem. ii. p. 64. 15 [1]; Stett. ent. Zeit. xxv. p. 50. 352 [2].

Hab. MEXICO [1 2] (*Bilimek, in Mus. Vind. Cæs.*), Orizaba (*H. H. Smith & F. D. G.*), Tierra Colorada in Guerrero and Teapa in Tabasco (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*), Temax in N. Yucatan (*Gaumer*); GUATEMALA, San Gerónimo, Cerro Zunil (*Champion*); PANAMA, David (*Champion*).

This species appears to agree well with Stål's description, and I feel little hesitation in thus identifying it.

9. **Dictyophara orbiculata,** sp. n. (Tab. VI. figg. 9, 9 *a.*)

Head short, rounded in front, almost or about twice the length of pronotum, with a central carina which bifurcates posteriorly, thus enclosing a triangular space at base. Thorax above and tegmina either greenish or pale greenish-stramineous; the legs concolorous with the upper surface.

Long. excl. tegm. 9 millim., exp. tegm. 20 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*), Valladolid and Temax in Yucatan (*Gaumer*); GUATEMALA, Cerro Zunil, San Juan in Vera Paz (*Champion*).

The shape and size of the head and the bifurcating carina on the upper surface of the same are the distinctive characteristics of this species.

10. **Dictyophara tumidifrons.**

Dictyophora tumidifrons, Walk. List Hom. Ins., Suppl. p. 65 [1].

Hab. PANAMA, David (*Champion*).—AMAZONS, Santarem [1].

One specimen in indifferent condition is all that is before me from Panama, but there can be no question as to its being a representative of Walker's species.

11. **Dictyophara scriptiventris.**

Cladodiptera scriptiventris, Walk. List Hom. Ins., Suppl. p. 76 [1].
Nersia scriptiventris, Stål, Öfv. Vet.-Ak. Förh. 1862, p. 487 [2].

Hab. PANAMA, Bugaba (*Champion*).—AMAZONS, Santarem [1].

12. **Dictyophara vitrata.**

Flata vitrata, Fabr. Syst. Rhyng. p. 48. 13 [1]; Germ. in Thon's Arch. ii. 2, p. 49. 41 [2].

Dictyophara (Nersia) vitrata, Stål, Hem. Fabr. ii. p. 91. 2[3].
Cladodiptera viridifrons, Walk. Ins. Saunders. p. 41[4].

Hab. MEXICO, Acapulco and Tierra Colorada in Guerrero (*H. H. Smith*); PANAMA (*Boucard*).—AMAZONS[4].

SUPPLEMENT.

My last contribution to the Homopterous portion of the Rhynchota as detailed in this work was in 1887. Since then I have been much away from England, and during my absence Canon Fowler undertook and carried on the enumeration and description of these insects. In leaving the remainder of this Suborder under his own classification and control, I supplement the groups on which I have written, viz. Cicadidæ, Fulgorinæ, and Dictyopharinæ, by such additions to the fauna as have reached our hands since the date of the previous publication.

Fam. CICADIDÆ (p. 1).

CICADA (p. 6).

7 (A). **Cicada oleacea.** (Tab. VI. figg. 17, 17 *a, b.*)
Fidicina oleacea, Dist. Ann. & Mag. Nat. Hist. (6) viii. p. 294[1].

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*[1]).

By an unaccountable slip, the description of this species was published under the generic nomenclature of *Fidicina.* The highly developed tympanal coverings in the male will at once prevent it being placed in that genus, while it is allied to *Cicada pallida,* Dist.

TYMPANOTERPES (p. 14).

2. **Tympanoterpes ruatana.** (Tab. VI. figg. 13, 13 *a, b.*)
Tympanoterpes ruatana, Dist. Ann. & Mag. Nat. Hist. (6) viii. p. 294[1].

Hab. HONDURAS, Ruatan Island (*Gaumer*[1]).

FIDICINA (p. 16).

7. **Fidicina amœna.** (Tab. VI. figg. 15, 15 *a, b.*)
Fidicina amœna, Dist. Ann. & Mag. Nat. Hist. (7) iv. p. 112[1].

Hab. COSTA RICA, Vallé du Diguis, Pacific slope (*Pittier, in coll. Dist.*[1]).

8. **Fidicina cachla.** (Tab. VI. figg. 16, 16 *a, b.*)
Fidicina cachla, Dist. Ann. & Mag. Nat. Hist. (7) iv. p. 112[1].

Hab. COSTA RICA, Rosario de Desamparados (*Biolley, in coll. Dist.*[1]).

DORACHOSA (to follow the genus *Tibicen*, p. 18).

Dorachosa, Distant, Ann. & Mag. Nat. Hist. (6) x. p. 63 (1892).

1. **Dorachosa explicata.** (Tab. VI. figg. 14, 14 *a*, *b*.)

Dorachosa explicata, Dist. Ann. & Mag. Nat. Hist. (6) x. p. 64[1].

Hab. PANAMA, Matachin (*coll. Dist.*[1]).

Fam. FULGORIDÆ (p. 21).

FULGORINÆ (p. 22).

PHRICTUS (p. 23).

3. **Phrictus serratus.**

Fulgora serrata, Fabr. Sp. Ins. ii. p. 313. 2[1]; Mant. Ins. ii. p. 260. 2[2]; Ent. Syst. iv. p. 2. 2[3]; Syst. Rhyn. p. 2. 2[4]; Seba, Mus. iv. t. 77. figg. 5, 6[5]; Lindenberg, Naturf. xiii. p. 19, t. 3. figg. 1, 2[6]; Oliv. Enc. Méth. vi. pp. 563, 567. 2, t. 109. fig. 1[7]; Stoll, Cic. p. 170, t. 29. fig. 170[8]; Gmel. ed. Syst. Nat. i. 4, p. 2089. 10[9]; Germ. in Thon's Arch. ii. p. 2, fig. 46. 4[10]; Burm. Handb. Ent. ii. 1, p. 169. 3[11]; Westw. Trans. Linn. Soc. xviii. p. 147. 23[12].

Pyrops serratus, Spin. Ann. Soc. Ent. Fr. viii. p. 235. 2[13].

Phrictus serratus, Walk. List Hom. Ins. ii. p. 264. 3[14].

Hab. COSTA RICA, Guaitil de Puris, Pacific slope (*Biolley, in coll. Dist.*).—BRAZIL[14].

AMYCLE (p. 25).

Amycle amabilis (p. 26).

To the locality given, add:—GUATEMALA, Aceituno, Guatemala city (*Salvin, in Mus. Brit.*).

HYPÆPA (p. 33).

4. **Hypæpa diversa.** (Tab. VI. figg. 18, 18 *a*.)

Hypæpa diversa, Dist. Ann. & Mag. Nat. Hist. (7) iv. p. 113[1].

Hab. COSTA RICA, Las Delicias, Santa Clara (*Biolley, in coll. Dist.*[1]).

ATALANTA (p. 36).

Atalanta auricoma (p. 36).

To the localities given, add:—BRITISH HONDURAS, Cayo (*Blancaneaux*).

M. Blancaneaux has recently sent us three specimens of this remarkable insect from the interior of British Honduras.

DICTYOPHARINÆ (p. 38).

The descriptions of the following species have been handed to us by Canon Fowler, and are published by his authority and in his name:—

CLADYPHA (p. 38).

2. **Cladypha bugabensis,** sp. n. (Fowler). (Tab. VI. fig. 12.)

C. interlitæ affinis, sed minor, tegminibus utrinque ad apicem maculâ elongatâ fuscâ marginem attingente, areolis apicalibus haud fuscatis; fronte ad medium, marginibusque pro- et mesosterni albis.

Allied to *C. interlita*, Dist., but smaller, and easily distinguishable by having a moderately broad, longitudinal, fuscous band on the costa of the tegmina, ceasing a little before the apex, and the apical areolets not infuscate; the colour of the abdomen is also more uniform, and the centre of the forehead has a white longitudinal band, the margins of the pro- and mesosternum being also broadly white.

Long. excl. tegm. 9 millim., exp. tegm. 26 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

3. **Cladypha rufivena,** sp. n. (Fowler). (Tab. VI. fig. 11.)

Præcedenti affinis, sed major, parum nitida; corpore, capite, pronoto rufescentibus, fronte ad medium marginibusque pro- et mesosterni albido-flavis, tegminibus haud infuscatis, venis rufis.

Allied to the preceding (*C. bugabensis*), but less shining and more evidently pubescent, rufous; forehead with a yellowish-white band in the middle and with the sides of the pro- and mesosternum of the same colour; the veins of the tegmina are bright red, and there is no trace of infuscation; legs reddish, slightly pitchy towards the base of the anterior and intermediate femora.

Long. excl. tegm. 11 millim., exp. tegm. 30 millim.

Hab. MEXICO, Omealca, Orizaba (*M. Trujillo*).

DICTYOPHAROIDES, gen. nov. (Fowler) (to follow the genus *Dictyophara*, p. 39).

Dictyopharæ affinis, sed angustior et magis parallelus; processu capitis longo, tenui, apice haud dilatato, spatio inter oculos multo angustiori, pronoto mesonotoque fere lævibus, tegminibusque ad apicem minus subtiliter reticulatis, facile distinguendus.

Allied to *Dictyophara*, but narrower; head long, narrow between the eyes (which are large), produced into a long and very slender process which is not dilated at the apex; pronotum and mesonotum almost smooth, with slight traces of a central line; tegmina with fine elongate veins in front, apical third rather coarsely reticulate; posterior tibiæ with four spines.

1. **Dictyopharoides tenuirostris,** sp. n. (Fowler). (Tab. VI. figg. 10, 10 *a*.)

Testaceus, fusco-variegatus; capite ante oculos flavescenti, processu utrinque fusco, medio dilute testaceo; fronte viridescenti, pronoto mesonotoque fusco-testaceis; tegminibus hyalinis, venis rufo-fuscis, suturâ ad apicem late, maculisque ad marginem apicalem castaneo-brunneis; pedibus piceis.

Of a fusco-testaceous colour, but probably in part greenish in life; the process of the head is fuscous on each side, and the grooved centre is light testaceous; at the base of the process are two large, black, eye-shaped, shining spots, which in some lights look as if they carried an extra ocellus; antennal knobs large, dark brown; tegmina hyaline, with rufous or rufous-brown veins, and with the suture from a little behind the middle to the apex castaneous, the margins towards the apex also marked irregularly with the same colour, one or two spots being darker than the rest; legs testaceous; underside of the abdomen light, with two rows of dark spots.

Long. ab apice processus capitis usque ad apicem tegminum 16 millim.; lat. ad hum. 3 millim.; long. proc. cap. $3\frac{1}{2}$ millim.

Hab. MEXICO, Orizaba, Omealca (*M. Trujillo*).

Fam. FLATIDÆ *.

The Flatidæ are here regarded as a separate family, and as including three subfamilies, the Acanaloniinæ, Flatinæ, and Ricaniinæ; these subfamilies are by some authors regarded as distinct families, whereas others treat the Flatidæ as merely a subfamily of the Fulgoridæ. Strictly speaking, the Cixiidæ † would seem naturally to follow immediately after the Fulgoridæ, through *Dictyophara*; but, on the other hand, they form a very natural transition to the Delphacidæ (*Copicerus* &c.), and as, for convenience' sake, I prefer to leave the latter to the end of the volume, I have departed from the order observed by several authors, and placed the Flatidæ immediately after the Fulgoridæ, to which many of them bear a sort of relation through their large size and conspicuous coloration. The Derbidæ form an abnormal group, of somewhat uncertain position, related to the Fulgoridæ, Issidæ, Flatidæ, and Delphacidæ. The Issidæ might naturally follow the Flatidæ; in fact, certain species of the former family appear to differ from some of the Ricaniinæ in little else besides the form of the scutellum and the non-carinate sides of the clypeus; and the transition from certain Issidæ to the Cixiidæ is not very abrupt.

The Flatidæ, as above stated, may be divided into the following subfamilies:—

I. Tegmina without parallel nervures along the outer border, and with the ordinary venation, which is usually more or less reticulate, continued to the margins . . . . . ANACALONIINÆ.

II. Tegmina furnished with more or less distinct parallel transverse nervures along the outer border.

1. Clavus more or less indistinct and blunt, or confused with the corium at the apex; vertex not separated from the frons by a sharp and distinct raised transverse keel ‡ . . . . . FLATINÆ.
2. Clavus always distinct and sharp at the apex; vertex separated from the frons by a distinct transverse raised keel . . . . . RICANIINÆ.

Subfam. *ACANALONIINÆ.*

This subfamily includes a considerable number of species, with the tegmina ample and as a rule more or less semicircular, without transverse nervures on the costal margin. Their colour is usually a vivid green, which often fades to brownish-yellow in dried specimens. The original type of the genus *Acanalonia* (*A. servillei*, Spin.) has the

* By W. W. FOWLER.

† The composition of this family is very uncertain and will be alluded to later on.

‡ In some of the species of Flatinæ in which the head is not produced there is a more or less evident raised line between the vertex and the frons but this is easily distinguished from the sharp raised keel of the Ricaniinæ.

vertex very short and not produced conically. In the 'Bidrag til Rio Janeiro-Traktens Hemipter-Fauna' [part ii. p. 69 (1858)], Stål introduces his other genera as belonging to the family—*Thiscia*, which has the head conically produced, and *Philatis*, which is distinguished by the absence of wings. The latter genus is closely allied to the Issidæ, and its type is given as *Mycterodus productus*, Stål,—*Mycterodus* having been described by Spinola as a genus of his family Issites. Stål, however, appears latterly to have dropped the genus *Thiscia*, as in his "Hemiptera Mexicana" (Stett. ent. Zeit. xxv. p. 56) he describes two species with conically-produced heads under the name *Acanonia*, which is the abbreviated form of Spinola's name adopted by Amyot and Serville (Hist. Nat. des Ins. Hémipt. p. 520).

ACANALONIA.

Acanalonia, Spinola, Ann. Soc. Ent. Fr. viii. p. 447 (1839).
Acanonia, Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 520.

The delicate raised venation of the tegmina, which is more or less reticulate and is continued to the margins, is very characteristic of this genus, which includes a large number of species.

The genus may be roughly divided as follows:—

I. Head conical, distinctly pointed, about as long as or distinctly longer than broad . . . . . Subgen. THISCIA, Stål (ex parte).
II. Head truncate or obtusely and slightly produced, distinctly broader than long . . . . . Subgen. ACANALONIA, Spin. (i. sp.).

As, however, there are one or two somewhat transitional species, the subdivision is not quite satisfactory in all cases.

I. *Head conical, distinctly produced.*

1. **Acanalonia producta.**

Acanonia producta, Stål, Stett. ent. Zeit. xxv. p. 56[1].

Hab. MEXICO (*coll. Signoret, in Mus. Vind. Cæs.*), Jalisco (*Schumann*).

2. **Acanalonia decens.**

Acanonia decens, Stål, Stett. ent. Zeit. xxv. p. 56[1].

Hab. MEXICO (*coll. Signoret*[1], *in Mus. Vind. Cæs.*), Amula in Guerrero 6000 feet (*H. H. Smith*); GUATEMALA, Senahu in Vera Paz (*Champion*).

3. **Acanalonia dubia,** sp. n. (Tab. VII. figg. 1, 1 *a*.)

Læte virescens; capite producto, acuto, pronoto longiori, antice saltem carinato; tegminibus amplis, ante medium latissimis, inde marginibus extra et intra fere parallelis vel subparallelis, apice late sat truncato; alis lacteis, venis virescentibus; corpore albido; pedibus virescentibus.

Of a bright green colour; head produced, very slightly reflexed at the tip, carinate at least in front, and with

distinct margins for about half its length; pronotum much shorter than the head; scutellum with traces of a central line, and with two more or less distinct minute dark spots at the apex, which appear to be present in most of the species belonging to the genus; tegmina with the anterior margins rounded from the base to a little before the middle and from thence almost straight and subparallel to the interior margin, which is nearly straight for the greater part of its length, the apex broadly subtruncate; wings clear milky-white, with fine green veins; body whitish; legs of a very light greenish colour.

Long. 9–12 millim.; lat. ad hum. 2–2½ millim.; exp. tegm. 16–21 millim.

Hab. MEXICO, Sierra Madre, Tepic (*Richardson*), Omealca, Orizaba (*M. Trujillo*), Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Juan, Tamahu, Chiacam, and Teleman in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

This species is very closely allied to the two preceding; the general shape of the tegmina, however (although it is not quite constant in our large series), and the somewhat sharper head seem to distinguish it; moreover, Dr. Aurivillius has examined one of our specimens and states that it does not agree with any of those in the Stockholm Museum. An example from Teapa is figured.

4. **Acanalonia panimæ,** sp. n. (Tab. VII. figg. 2, 2 *a*.)

Præcedenti affinis, sed capite lævi haud carinato nec reflexo, et tegminibus longioribus, lateribus magis parallelis, distinguenda.

Allied to the two preceding species: from *A. dubia* it differs in having the head smooth, without a trace of a raised central keel and not reflexed; the tegmina are longer, and the costal margin is not rounded in front: from *A. decens*, which it resembles in the shape of the tegmina, it may be known by its elongate and differently-shaped head.

Long. 14 millim.; lat. 2–2½ millim.

Hab. GUATEMALA, Panima in Vera Paz (*Champion*).

I have felt some doubt in describing this species, but it does not agree satisfactorily with any other that I have seen, and I believe it to be quite distinct.

5. **Acanalonia cælata,** sp. n. (Tab. VII. fig. 3, 3 *a*.)

Virescens; capite acute triangulariter producto, pronoto duplo longiori, oculis prominulis; tegminibus amplissimis, semicircularibus, fortiter reticulatis, callo paullo ante medium distincto, fusco; alis lacteis.

Green, with the body brighter; head produced triangularly in an acute point, the eyes rather prominent; pronotum half as long as the head; scutellum with traces of a central line, and with two distinct black spots behind the middle; tegmina large, rounded, with very strongly raised reticulation, and with a distinct raised fuscous callus a little before the middle, the apical margin with the extreme edge marked with fuscous spots; wings milky-white, with very distinct venation.

Long. 11 millim.; lat. ad hum. 3 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

One female specimen. At first I referred this species to *Philatis*, to which it is very closely allied, but as the chief characteristic of the last-named genus is the absence of wings, I have placed it under *Acanalonia*, as on closer examination I found the wings were well developed.

6. **Acanalonia pinniformis,** sp. n. (Tab. VII. figg. 4, 4 *a*.)

Virescens; capite longo, acuto, pronoto fere triplo longiori, oculis vix prominulis, tegminibus amplis, subsemicirculariter rotundatis, pone medium latissimis, et inde ad apicem angulatum oblique subtruncatis; corpore pedibusque dilutioribus, albidis vel albido-virescentibus.

Green; head long and sharp, produced in an isosceles-triangle, about three times as long as the pronotum, slightly reflexed when viewed from the side, the eyes a little prominent; tegmina ample, rounded, broadest behind the middle, and from thence obliquely subtruncate to the apex, the apical margin forming with the costal margin a distinct angle less than a right angle, which from the side appears slightly reflexed; the reticulation close and distinct; legs light green or greenish-testaceous.

Long. 11 millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

A small series.

7. **Acanalonia affinis,** sp. n. (Tab. VII. figg. 5, 5 *a*.)

Præcedenti valde affinis, sed capite paullo breviori, et tegminibus magis rotundatis, margine apicali rectiori, facile distinguenda.

Closely allied to the preceding, but easily distinguishable by its rather shorter head and by the different shape of the tegmina, which are more evenly rounded and have the apical margin straighter, forming with the costal margin a blunt right angle, whereas in *A. pinniformis* the angle is about 60°.

Long. 10–11 millim.; lat. $2\frac{1}{2}$ millim.

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

The differences between *A. affinis* and its allies will be at once apparent from our Plate; they are somewhat difficult to describe, and, in fact, it may be taken as practically impossible to distinguish many of Stål's species belonging to the group owing to the want of figures.

8. **Acanalonia gaumeri,** sp. n. (Tab. VII. fig. 6.)

Virescens; capite breviori, obtuse triangulariter producto, pronoto distincte longiori, oculis prominulis; tegminibus amplis, fere semicirculariter rotundatis, sat dense reticulatis, marginibus externis et apicalibus peranguste brunneis; alis lacteis.

Green, with the body and legs whitish-green; head short, obtusely produced in a triangle, not carinate, with the eyes somewhat prominent; tegmina large and ample, broadest behind the middle, but almost semicircular, rather thickly reticulate, with the extreme costal and apical margins brownish; wings milky-white.

Long. 12 millim.; lat. ad hum. 3 millim.

Hab. HONDURAS, Ruatan I. (*Gaumer*).

This species appears to be nearly allied to *Pœciloptera viridissima*, Walk., but may be easily separated from it by the shape of the head. It is intermediate between the two groups, the head being not strongly produced, but much more so than in *A. virescens*.

II. *Head truncate or obtusely and slightly produced.*

9. **Acanalonia virescens.** (Tab. VII. figg. 7, 7 *a.*)

Acanonia virescens, Stål, Stett. ent. Zeit. xxv. p. 56 [1].

Hab. MEXICO (*Mus. Holm.* [1]; *Bilimek, in Mus. Vind. Cæs.; Sallé*), Orizaba (*F. D. Godman & H. H. Smith*), Temax and Valladolid in Yucatan (*Gaumer*); GUATEMALA, Lanquin, Cahabon, and San Gerónimo in Vera Paz, El Reposo (*Champion*); PANAMA, Caldera, Bugaba, Volcan de Chiriqui (*Champion*).

I have felt great difficulty with regard to this insect, and it is possible that there may be two species in our series; in fact, I had described one as distinct from *A. virescens,* but the occurrence of intermediate examples, in one instance from the same locality, led me on further examination to withdraw it. The specimen in question has the tegmina more oblong and less rounded on the costal margin, but otherwise does not appear to differ in any material point.

An example from Bugaba is figured.

10. **Acanalonia delicatula,** sp. n. (Tab. VII. fig. 8.)

Parva, pallide virescens, hyalina; capite perbrevi, vertice subtruncato; pronoto perangusto; scutello longo, leviter tricarinato; tegminibus sat angustis, subparallelis, virescenti-hyalinis, marginibus extremis peranguste brunneis.

A very small, pale green insect, with transparent tegmina; head very short, plainly ridged between the vertex and the frons, subtruncate in front; scutellum long, with traces of three carinæ; tegmina narrow, subparallel, of a transparent pale greenish colour, with the extreme edges brownish; wings large, milky-white.

Long. 6½ millim.; lat. vix 2 millim.

Hab. PANAMA, Bugaba (*Champion*).

11. **Acanalonia concinnula,** sp. n. (Tab. VII. figg. 9, 9 *a.*)

Parva, dilute virescens; capite perbrevi, haud producto; pronoto brevissimo; scutello lato, simplici; tegminibus amplis, latis, rotundatis, margine externo corii testaceo-brunneo; alis parvis, lacteis.

A very small, light green species, with the head very short, not much longer than the pronotum, truncate and not produced, the eyes prominent, large; scutellum broad, smooth; tegmina large, strongly rounded, rather finely reticulate, with the outer edge of the corium brownish-testaceous; wings small in proportion to the tegmina; legs fuscous, but probably more or less green in life.

Long. 5 millim.; lat. ad hum. 1–1½ millim.

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*), Jalisco (*Schumann*), Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

One of our specimens from Chilpancingo appears to have two dark markings on the outer margin of each tegmen, but they are evidently nothing but stains when closely examined.

An example from Chilpancingo is figured.

Subfam. *FLATINÆ.*

This subfamily includes a large number of conspicuous insects, which are very widely distributed and bear a close resemblance to certain forms of Lepidoptera, and are often most brilliantly coloured; some of them, however, are obscure and small, and are difficult to determine with accuracy. Five genera are represented in our collection; these may be separated roughly as follows:—

I. Tegmina decumbent.
  1. Ocelli absent . . . . . PŒCILOPTERA, Germ.
  2. Ocelli present.
    i. Tegmina without a strongly raised callosity behind the shoulders.
      A. Apical portion of the tegmina with no distinct and regular series of parallel veins, or with one only . . . . . FLATA, Fabr.
      B. Apical portion of the tegmina with two distinct and regular series of parallel veins, separated by a sharp line of transverse veins . . . . . ORMENIS, Stål.
    ii. Tegmina with a strongly raised callosity behind the shoulders, the apical portion with two or three series of short parallel veins, separated by two rows of transverse veins, the whole presenting a more or less reticulate appearance . . . . . DASCALIA, Stål.
II. Tegmina not decumbent; upper surface rugose . . . . . FLATOIDES, Guér.

PŒCILOPTERA.

Pœkilloptera, Latreille, Gen. Crust. et Ins. iii. p. 165 (1807).
Pœcilloptera, Germar, Mag. Ent. iii. p. 218 (1818).
Pœciloptera, Signoret, Ann. Soc. Ent. Fr. 1838, p. 420.

This genus, as at present constituted, is distinguished by the absence of ocelli, the broadly rounded apex of the ample tegmina, and the irregular transverse marginal venation, which is confined to the outer edge, and is often more or less indistinct.

1. Pœciloptera phalænoides.

La Cigale Phalénoïde, Stoll, Cigal. p. 23, t. 2. fig. 9[1].
Cicada phalænoides, Linn. Syst. Nat. ed. 12, i. 2, p. 710[2].
Flata phalænoides, Fabr. Ent. Syst., Suppl. p. 517[3].
Pœcilloptera phalænoides, Germ. Mag. Ent. iii. p. 221[4].
Pœciloptera phalænoides, Spinola, Ann. Soc. Ent. Fr. 1839, p. 423[5]; Walk. Cat. Homopt. Ins. ii. p. 442[6].

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, Panima in Vera Paz (*Champion*); NICARAGUA, Chontales (*Janson*); COSTA RICA, Santa Clara Valley (*Zurcher*); PANAMA (*Boucard*). — COLOMBIA; VENEZUELA; GUIANA[1 6]; ECUADOR, Guayaquil; AMAZONS, Pará[6]; BRAZIL[5 6]; TRINIDAD.

This conspicuous insect, which is one of the best known of all the Homoptera, appears to be common in Brazil and the northern part of South America; in Central America it becomes scarcer, and I only know of one specimen from Mexico.

FLATA.

Flata, Fabricius, Ent. Syst., Suppl. pp. 511, 517 (1798).
Colobesthes, Amyot et Serville, Hist. Nat. des Ins. Hém. p. 522 (1843).
Phyllyphanta, Amyot et Serville, loc. cit. p. 523.
Cromma, Walker, List of Homopt. Ins., Suppl. p. 120.
Carthæa, Stål, Bidrag till Rio Janeiro-Traktens Hem.-Fauna, p. 69.

This genus is here taken as including those species which have the costal margin of the tegmina furnished with a more or less regular series of transverse veins; the apical margin, as a rule, has a very indistinct series of similar veins, and where there is one distinct row there is never a second bounded by a definite line, as in *Ormenis*. The presence of ocelli separates the genus from *Pœciloptera*; it may be divided into two sections as follows:—

I. Head more or less strongly produced triangularly . . . . . PHYLLYPHANTA, A. et S. (CARTHÆA, Stål).
II. Head not produced triangularly . . . . . FLATA, i. sp.

I. *Head produced triangularly.*

1. **Flata championi**, sp. n. (Tab. VII. figg. 10, 10 *a*.)

Læte viridis; capite ante oculos acute triangulariter producto, oculis prominentibus, ad medium carinato; pronoto capite breviori, ad latera dilatato, ad medium fortiter carinato; scutello sat fortiter tricarinato; tegminibus amplis, margine costali ad basim rotundato, apicem versus fere recto, margine interiori ad apicem valde reflexo, angulo apicali fortiter acuto; corpore cum pedibus plus minusve virescentibus.

Of a bright green colour; head strongly produced triangularly before the eyes, which are prominent; pronotum distinctly shorter than the head, dilated at the sides; a strong carina runs down the centre of the vertex, pronotum, and scutellum, and the latter has a distinct carina on each side of this; tegmina ample, exterior or costal margin rounded, interior margin nearly straight till near the apex, where it curves upwards into a strong point, the apical angle being distinctly acute; the apical margin is almost straight or very gently excised, the costal apical angle being a right angle or very slightly obtuse; reticulation close, fine, and distinct, the costal margin only being furnished with a distinct row of transverse nervures; body and legs testaceous, more or less suffused with green.

Long. 13–22 millim.; lat. ad hum. $2\frac{1}{2}$–4 millim.

Hab. GUATEMALA, Purula in Vera Paz, San Isidro, Cerro Zunil, Zapote, Mirandilla (*Champion*); PANAMA, Bugaba, David, Volcan de Chiriqui (*Champion*).

A specimen from David is figured.

2. **Flata rotundior,** sp. n. (Tab. VII. figg. 11, 11 *a.*)

Præcedenti affinis, sed dilutius virescens, et margine costali tegminum magis rotundato, angulo exteriori toto sensim rotundato, et margine apicali obliquiori facile distinguenda.

Closely allied to the preceding, but of a lighter green colour, with the tegmina (viewed from the side) distinctly narrower, and the costal margin more gradually rounded, the exterior angle being entirely and gradually rounded off, and the apical margin somewhat oblique; the reticulation, moreover, is coarser; the head not quite so much produced, but the difference in this character is very slight.

Long. 16–17 millim.; lat. ad hum. 3–4 millim.

Hab. MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, Panima and Senahu in Vera Paz (*Champion*).

I have found one specimen of this distinct species among the unnamed undetermined material belonging to the Vienna Museum. We figure a specimen from Panima.

3. **Flata punctata,** sp. n.

Præcedenti affinis, sed minor, marginibus tegminum magis parallelis, margine interiori recto, angulo apicali obtuso haud reflexo, margine exteriori fere recto, angulo apicali obtuse rotundato, margine apicali levissime rotundato; tegminibus subtiliter reticulatis.

Allied to *F. rotundior*, but smaller, with the margins of the tegmina somewhat parallel, interior margin straight, with the inner apical angle obtuse (not reflexed and acute, as in the two preceding species), exterior margin nearly straight, with the outer apical angle obtusely rounded, apical margin very slightly rounded; reticulation very fine.

Long. 13 millim.; lat. ad hum. 3 millim.

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*).

The single specimen above described stands in the Vienna Museum under the name of *Phyllyphanta punctata*, Signoret; this, however, as is the case with so many species of Signoret, is simply a manuscript name, for the species does not appear to have been described. It is very distinct.

4. **Flata rufocinctata,** sp. n. (Tab. VII. figg. 12, 12 *a.*)

Prasina, nitidiuscula, marginibus tegminum peranguste rufo-limbatis; capite brevi, perobtuse triangulariter producto; pronoto ad medium carinato; scutello tricarinato; tegminibus haud latis, margine exteriori leviter obliquo, angulo apicali obtuse rotundato, margine interiori recto, angulo apicali recto, margine apicali truncato; pedibus testaceis; tarsis tibiisque rufis.

Green, with the margins of the tegmina very narrowly bordered with red, the colour almost ceasing towards the base on the costal margin; head short, obtusely, triangularly produced; pronotum about as long as the head, with a central carina; scutellum tricarinate; tegmina comparatively narrow, exterior margin slightly oblique, with the apical angle obtusely rounded, interior margin straight, with the apical angle a sharp right angle, almost acute, apical margin straight, truncate; reticulation fine and very distinct; legs mostly red.

Long. 12 millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

This is a very distinct and pretty species; it is intermediate between those with the head sharply produced and those which have the vertex truncate, and not or scarcely produced before the eyes.

II. *Head not produced triangularly.*

5. **Flata monticola,** sp. n. (Tab. VII. figg. 13, 13 *a*.)

Quoad formam staturamque præcedenti valde affinis, sed haud nitida, farinosa, colore albido-virescente, venisque majoribus tegminum minus exstantibus, et præcipue capite brevissimo, ante oculos haud producto, truncato, facile distinguenda.

Of a dull whitish-green, with the veins of the tegmina very plainly marked in a darker colour, but with the larger veins not standing out as in most species of the genus; upper surface farinose; head very short, not produced before the eyes, truncate, shorter than the pronotum; scutellum with a longitudinal depression in the middle; tegmina with the extreme costal and apical margins reddish, exterior angle rounded, interior angle slightly acute, well marked; legs with a reddish tinge.

Long. 12 millim.; lat. ad hum. 2½ millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

6. **Flata corrupta,** sp. n. (Tab. VII. fig. 14.)

Capite testaceo, parvo, pronoto angustiori, hoc virescenti; capite longiori; scutello testaceo, fere usque longo ac lato; tegminibus sat angustis, virescentibus, limbo lato irregulari brunneo-testaceo circumcinctis, apicem versus sensim dilatatis; corpore subtus cum pedibus testaceis, plus minusve virescentibus.

A rather long insect in proportion to its width; head testaceous, small, narrower than the pronotum, which is greenish; scutellum testaceous, about as long as broad; tegmina rather narrow, green, with a broad irregular border running round the whole margin; this is broader in some parts than in others, and at the middle of the internal margin is dilated into a triangular patch, the apex of which nearly reaches the middle of the tegmen, where it encloses a small smooth lighter-coloured spot; the transverse venation on the costal and apical margins is distinct, and the reticulation on the disc is plain, but not strongly raised; body and legs more or less green.

Long. 9½ millim.; lat. ad hum. 2 millim.

Hab. GUATEMALA, San Gerónimo 3000 feet (*Champion*).

7. **Flata regularis,** sp. n. (Tab. VII. figg. 15, 15 *a*.)

Parva, virescens, margine costali tegminum usque ad tertiam partem apicalem dilute testaceo; capite brevi, haud producto, oculis valde prominentibus; pronoto capite longiori; tegminibus haud latis, marginibus subparallelis, angulis apicalibus rotundatis vel obtuse rotundatis, margine exteriori leviter rotundato, hoc et margine apicali regulariter transversim venosis, disco regulariter reticulato; alis lacteis; pedibus testaceis.

A small green species, with the greater part of the costal margin of the tegmina narrowly testaceous, and part of the other margins very narrowly brownish; head shorter than the pronotum, vertex truncate, eyes very prominent; tegmina considerably longer than broad, with the external margins gently rounded, and the apical angle rounded off, internal apical angle obtusely rounded; the costal and apical margins are very regularly and plainly venose transversely, and the disc is regularly reticulate; legs testaceous, probably greenish in life.

Long. 8 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

8. **Flata perpusilla,** sp. n. (Tab. VII. fig. 16.)

Parva, nitida, dilute virescens; capite haud producto, oculis prominulis, lineâ transversâ angustâ rufâ a vertice ad apicem scutelli extensâ; tegminibus postice latissimis, margine apicali et marginibus cæteris in partem distincte fusco limbatis, angulo exteriori rotundato, angulo interiori fere recto; alis virescentibus; pedibus testaceis.

A very small, rather shiny, yellowish-green species, with the head not produced, truncate; from the vertex to the scutellum there is a fine red central line; tegmina short and broad, broader behind, with the larger veins well marked, but with the reticulation indistinct; the costal margin has a dark brown spot behind the middle, and from this extends a rather broad brown border round the truncate apical margin and for about a third of the costal margin; the exterior angles are rounded, and the interior angle is almost a right angle; legs testaceous.

Long. 6 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

One specimen. This is a very distinct species, and although our specimen is a bad one, yet it is easily recognizable by the above description. The small size, the red line on the front parts, and the brown border of the apical portion of the tegmina can hardly fail to distinguish it.

9. **Flata conspersa.** (Tab. VII. figg. 17, 17 *a*.)

Pœciloptera conspersa, Walk. Ins. Saunders., Homopt. p. 51[1].

Hab. PANAMA, Bugaba (*Champion*).—AMAZONS, Pará[1]; PERU.

The single specimen in our collection is of a lighter colour than is usual with this species, and has the black markings continued for a less space on the tegmina. The species is a large one, with the tegmina arranged for more or less of their length with rows of black spots and lines (the costal row being more linear), these becoming fainter as they are further removed from the base. The head is not produced and is elevated at the sides, and the pronotum is longer than the vertex; the scutellum is faintly carinate; the tegmina are large, broadest just before the apex, the apex being furnished with regular rows of raised lines, and the space before these being finely and regularly reticulate; the wings are milky-white, with distinct and widely separated veins.

This insect, at first sight, appears to be an *Ormenis*, as the raised lines before the apical raised lines are very straight and regular, but on a closer examination it will be found that all the lines in the second row are divided by transverse nervures, which thus form a regular reticulated series of small squares; it is possible that *F. conspersa* ought to be referred to a separate genus.

There is a very fine *Flata* in our collection, with an expanse of wing of about 40 millim., labelled "Santa Clara Vall." Alt. 1200 ft. Costa Rica, F. A. Zurcher. It has the tegmina fawn-colour, shaded with white, with a greenish tinge on the costa, and with two small black spots on the disc, which are traversed by red veins; the wings are milky-white; the head is not produced; the interior angles of the tegmina were plainly curved and produced acutely, but the whole apical margin is broken off, and as, besides this, the colour is plainly very much faded, it would be only misleading to name the insect, which evidently belongs to an undescribed species.

ORMENIS.

Ormenis, Stål, Bidrag till Rio Janeiro-Traktens Hem.-Fauna, ii. p. 68 (1858); Hemipt. Afr. iv. p. 236 (1866); Kongl. Svensk. Vet.-Ak. Handl. Band 8, no. 1 (Hem. Fabr.), p. 109 (1869).

The chief characteristics of this genus appear to be as follows:—"Corium with two more or less distinct and regular rows of transverse venules towards the apex; ocelli distinct; posterior tibiæ bispinose before the apex." It seems to be very closely allied to *Petrusa*, Stål, from which it is said chiefly to differ in having the posterior tibiæ furnished with two spines before the apex, those in *Petrusa* being unispinose; the latter character is not, I believe, always a reliable one, but as all our specimens, with one doubtful exception, appear to belong to *Ormenis*, we need not here discuss the matter further.

The species differ very much in size; some of them are conspicuous insects, while others are very small and insignificant.

1. **Ormenis pulverulenta.** (Tab. VII. figg. 18, 18 *a*.)

Pœciloptera pulverulenta, Guér. Icon. Règne Anim., Ins. p. 361 [1].
Ormenis pulverulenta, Stål, Stett. ent. Zeit. 1864, p. 54 [2].

Hab. MEXICO [2] (*Mus. Vind. Cæs.*), Rinconada (*Schaus*), Vera Cruz (*Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*), Bay of Campeachy [1].

This species looks very different when denuded of the violet or whitish-violet, waxy, scale-like covering which is usually present on the tegmina; the reticulation seems as if it might form a character, but this is found to vary in different specimens; the size, too, is very variable, the expanse of the wings ranging from 23–38 millim.

Walker, List of Homopt. Ins. ii. p. 468, gives "Ceylon" as the locality for *P. pulverulenta*, but he adds a query as to the species.

A specimen from Rinconada is figured.

2. **Ormenis nigrolimbata,** sp. n. (Tab. VII. figg. 19, 19 *a*.)

Albida, tegminibus maculâ communi parvâ post medium nigrâ, et limbo perangusto ante hanc maculam deficiente fuscato; capite perbrevi, sat lato, truncato, oculis prominentibus, pronoto vertice fere longiori; scutello æquilongo ac lato; tegminibus apicem versus paullo latioribus, apice fere recto late truncato; alis lacteis; corpore virescente.

Entirely white above, with a distinct black common round spot on the tegmina; from this towards the apex proceeds a very narrow fuscous border, which is continued completely round the outer edge, though not so distinctly at the costal apical angle; the suture in front of the spot is not bordered; head very short, with the eyes, which are prominent, as broad as the pronotum and about the same length; scutellum about as long as broad; tegmina with the sides nearly straight, wider at the apex, the apex broadly truncate; body greenish; legs light, probably greenish in life.

Long. $9\frac{1}{2}$ millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

This is one of the most distinct of the smaller members of the genus.

Adexia Melch = 3. **Ormenis erminia,** sp. n. (Tab. VII. figg. 20, 20 *a*.)

Alba vel pallide virescenti-alba, tegminibus ad costam et basim versus maculis vel lineis parvis fuscis instructis; capite perbrevi, oculis prominulis; pronoto vertice distincte longiori, leviter tricarinato; tegminibus apicem versus dilatatis, apice late et sat oblique truncato; corpore pedibusque albidis.

White or very pale greenish-white, with regular rows, of variable length, of small dark spots or dashes on the tegmina extending from the shoulders to behind the middle; head very short and without the eyes, which are prominent, distinctly narrower than the pronotum, which is longer than the vertex; pronotum tricarinate on the disc; tegmina broadest at the apex, the apex broadly and somewhat obliquely truncate; body and legs whitish.

Long. 15 millim.; lat. ad hum. 3 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); PANAMA, Bugaba (*Champion*).

A specimen from Bugaba is figured.

4. **Ormenis leucophæa.**

Ormenis leucophæa, Stål, Stett. ent. Zeit. 1864, p. 55 [1].

Hab. MEXICO (*Mus. Vind. Cæs., Mus. Holm.* [1]).

I cannot satisfactorily identify this species in our collection; we have two specimens from Atoyac, Vera Cruz, which may perhaps be discoloured examples of it.

5. **Ormenis infuscata.**

Ormenis infuscata, Stål, Stett. ent. Zeit. 1864, p. 55 [1].

Hab. MEXICO (*coll. Signoret* [1], *in Mus. Vind. Cæs.*), Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

This is an obscure little species; I have referred one example in our collection to it, but somewhat doubtfully.

6. **Ormenis dolabrata,** sp. n. (Tab. VII. figg. 21, 21 *a*.)

Brunnea, variegata; capite testaceo, perbrevi, lato, cum oculis valde prominentibus pronoto distincte latiori, hoc et scutello testaceis, nigro sat late limbatis; tegminibus brunneis, plagâ magnâ testaceo-albidâ plus minusve irregulari ab humeris usque ad paullo ante apicem continuatâ, prope apicem marginem attingenti; alis plus minusve fumatis; corpore plus minusve ad latera virescente; pedibus testaceis.

Brown, variegated with whitish-testaceous; head and pronotum yellow-testaceous, the former very short and broad, eyes very large and prominent; pronotum dark at the sides, longer than the vertex; scutellum testaceous, with the sides broadly darker (the colour, however, of the front parts is very deceptive, and often appears to fade into a uniform brown after death); tegmina brown, with a broad whitish-testaceous irregular band reaching from the shoulders to a little before the apex, where it joins the margin; the claval suture and a broader or narrower line before the outer margin are also light-coloured, the colour being much more extended in some specimens than in others; wings smoky, darker towards the apex; abdomen greenish at the sides; legs testaceous.

Long. 9–10 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Cuernavaca and Miacatlan (*Bilimek, in Mus. Vind. Cæs.*), Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

A small series. At first I thought that these specimens might be referred to

O. leucophæa, Stål, but they do not agree with the only typical example of that species which I have seen: this is in the Vienna Museum. I have, moreover, received examples of *O. dolabrata* among unnamed specimens from that collection. We figure an example from Chilpancingo.

7. **Ormenis squamulosa,** sp. n. (Tab. VII. figg. 22, 22 *a*.)

Fusca, plus minusve subcyaneo-pruinosa; capite testaceo, lato, perbrevi, oculis prominentibus; pronoto perbrevi, sed vertice longiori; scutello ad latera albido-squamoso; tegminibus marginibus supra et infra fere parallelis, apice subtruncato; pedibus testaceis

A rather small fuscous species, with a more or less distinct whitish-cyaneous deposit on the upper parts; head testaceous, vertex very short, eyes large and prominent; pronotum longer than the vertex; scutellum thickly squamose at the sides; tegmina with the upper and lower margins subparallel, and the apex somewhat obliquely truncate; body in fresh specimens more or less greenish; legs testaceous.

Long. $8\frac{1}{2}$–$9\frac{1}{2}$ millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Acapulco in Guerrero (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); GUATEMALA, San Juan in Vera Paz (*Champion*).

This species is very like *Pœciloptera glaucescens*, Walk., from San Domingo, but the head is differently shaped; it is also allied to *O. infuscata*, but is larger and has the head broader. A specimen from Acapulco is figured.

8. **Ormenis albescens,** sp. n. (Tab. VII. figg. 23, 23 *a*.)

Quoad formam staturamque præcedenti affinis, sed tegminibus totis albidis et capite angustiori distinguenda.

Very like the preceding in size and shape, but distinguished by having the tegmina entirely of a dirty-white colour and not squamulose, and by the narrower head; the front-parts are testaceous.

Long. 9 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Jalisco (*Schumann*).

9. **Ormenis griseoalba,** sp. n. (Tab. VII. figg. 24, 24 *a*.)

Griseo-albescens; capite perbrevi, lato, oculis prominulis; pronoto vertice distincte longiori; scutello longitudine fere latiori; tegminibus subfarinosis albescentibus, apicem versus plus minusve late fuscescentibus; corpore pedibusque albido-testaceis.

Of a greyish-white colour; head very short, broad, with the prominent eyes about as broad as the pronotum; pronotum longer than the vertex; scutellum almost broader than long; tegmina presenting a somewhat mealy appearance, more or less broadly infuscate towards the apex; body and legs whitish-testaceous.

Long. 10 millim.; lat. ad hum. $2\frac{1}{2}$–3 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*); PANAMA (*Boucard*), David in Chiriqui (*Champion*).

This species is allied to *O. squamulosa*, from which it differs chiefly in its coloration and somewhat larger size. We figure an example from San Gerónimo.

NOTE.—There is a specimen of a rather fine species belonging to this group in our collection (12 millim. in length), from Cahabon, Vera Paz; it is, however, too imperfect to describe; the colour is dark grey, mottled with brown and whitish.

10. **Ormenis pallescens.**

Ormenis pallescens, Stål, Stett. ent. Zeit. 1864, p. 55 [1].

Hab. MEXICO (*Mus. Holm.*[1], *Sallé*), La Venta and Dos Arroyos in Guerrero (*H. H. Smith*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

11. **Ormenis pallidicosta.**

Ormenis pallidicosta, Walk. List of Homopt. Ins., Suppl. p. 115 [1].

Hab. MEXICO (*Sallé*), Cordova (*Rümeli*), Atoyac in Vera Cruz (*H. H. Smith*).

This species is closely allied to *O. pallescens*, and may prove to be inseparable from it, in which case Walker's name will have priority: the size is larger, the colour is somewhat deeper green, and the external and internal borders of the tegmina are less parallel, the interior angle, moreover, being more pronounced. It is possible that the single specimen from Cordova may belong to another species, as it has the interior angle decidedly acute and reflexed.

12. **Ormenis inferior,** sp. n. (Tab. VII. figg. 25, 25 *a.*)

O. pallescenti maxime affinis, sed multo minor; capite ante oculos (a latere viso) minus producto, et marginibus tegminum exteriore et interiore magis parallelis distinguenda.

Very closely allied to *O. pallescens*, and chiefly distinguished by its much smaller size; head (viewed from the side) not produced before the eyes; scutellum flatter and less convex; exterior and interior margins of the tegmina more parallel, the anterior margin being straighter and less rounded.

Long. 8–11 millim.; lat. ad hum. $1\frac{1}{2}$–2 millim.

Hab. MEXICO, Cuernavaca and Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Teapa and Frontera in Tabasco (*H. H. Smith*); COSTA RICA, Caché (*Rogers*).

This is a very puzzling species, and is so closely allied to the preceding that it is hard to distinguish them in some cases; it appears, however, to be distinct, and is separated from *O. pallescens*, though without a name, in the Vienna Museum. There is a specimen from the Volcan de Atitlan, Guatemala, in our collection which appears to be intermediate in size, and which may belong to another species, but I prefer to consider it doubtfully as belonging to *O. inferior*. A specimen from Teapa is figured.

13. **Ormenis tortricina.**

Pœcilloptera tortricina, Germ. Mag. Ent. iv. p. 103 [1].

Hab. MEXICO [1]; HONDURAS (*Mus. Brit.*).—BRAZIL [1].

I have seen only one faded specimen of this insect. I am inclined to think that it is to be referred to the preceding species, or to *O. pallescens*, in which case, of course, Germar's name must stand; but, on the other hand, I do not care to assign all our series of fresh specimens to *O. tortricina* without further confirmation.

DASCALIA.

Dascalia, Stål, Bidrag till Rio Janeiro-Traktens Hemipter-Fauna, ii. p. 69 (1858)[1]; Hem. Afr. iv. p. 235 (1866)[2].

Stål[1] characterizes this genus as follows:—"Venis tegminum longitudinalibus apicem versus simplicibus, haud furcatis, seriebus duabus continuis regularibus venularum transversarum conjunctis," thus separating it from *Ormenis*, *Flata*, &c., which are described as "venis tegminum longitudinalibus compluribus apice furcatis, venis transversis vario modo dispositis." Subsequently[2] he gives the characters somewhat differently:—"Tegminibus apicem versus seriebus duabus transversis maxime regularibus venularum instructis, venis longitudinalibus inter et pone series illas simplicibus nec furcatis." The only insect belonging to this genus which I have seen is one in the Vienna Museum, presented by Signoret and labelled *Dascalia nietoi* (a manuscript name); this certainly differs from *Ormenis*, but it does not answer well to Stål's description, for although the short apical veins are not (or only in one or two cases) forked, the regular series of transverse veins are not distinct, and in specimens in our collection which appear to belong to the same species they are very irregular.

The genus is very distinct, and, apart from venation, may be known by its very short and broad truncate head, the very prominent shoulders and large tegulæ, and the strongly raised callosity on each side of the tegmina behind the shoulders, which gives the insect a swollen appearance if viewed from above; it seems to form in some way a sort of connecting-link between *Flatoides* and *Ormenis*.

1. **Dascalia nietoi**, sp. n. (Tab. VII. figg. 26, 26 *a*.)

Viridescens vel fusco-virescens, colore variante, nigro vel fusco variegata; capite lato brevissimo, haud vel vix ante oculos producto, truncato, oculis prominulis; fronte suboblongâ, ad medium plus minusve distincte carinatâ; pronoto capite longiori, antice rotundato; scutello convexo, plus minusve nigro notato; tegminibus fusco vel nigro notatis aut partim reticulatis, margine interno (a latere viso) ad apicem elevato, leviter venosis; pedibus et abdomine testaceis, vel plus minusve infuscatis.

Very variable in colour, being light green with strong irregular dark markings, or greenish-fuscous, or fuscous-brown with darker markings, which on the tegmina are sometimes reticulate; head very broad and short, truncate, not or scarcely produced before the eyes, which are very prominent; forehead slightly longer than broad, with a more or less distinct central keel; pronotum distinctly longer than the head, rounded in front; scutellum convex, about as broad as the head including the eyes, more or less marked with black spots, or variegated with black; tegmina not strongly veined, with the inner margin produced at the apex, so that when viewed from the side (when closed) it appears elevated; callosity behind the shoulders strong and prominent; legs and abdomen more or less agreeing with the general colour, the former bispinose.

Long. 10–12 millim.; lat. ad hum. 3–4 millim.

Hab. MEXICO (*Mus. Vind. Cæs.*); GUATEMALA, San Juan in Vera Paz, San Isidro (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

A specimen from Mexico is figured.

FLATOIDES.

Flatoides, Guérin, Icon. Règne Anim., Ins. p. 362 (1829–1838).
Elidiptera, Spinola, Ann. Soc. Ent. Fr. 1839, p. 304.
Phalænomorpha, Amyot et Serville, Hist. des Ins. Hém. p. 525 (1843).
Atracis, Stål, Hem. Afr. ii. p. 250 (1866).

This genus includes a number of obscurely coloured species, which in several cases are very hard to distinguish one from another. These insects are found, I believe, on boughs or trunks of trees among lichen, and they afford a very good example of protective resemblance or mimicry, as in such a situation it would be very difficult to detect them; not only are they of a dull brown or greenish colour, but many of them have larger or smaller stain-like markings on the tegmina, and some are furnished with more or less conspicuous callosities, all of which make the resemblance to their surroundings more accurate.

Stål separates the genus into two—*Atracis,* with unispinose posterior tibiæ, and *Flatoides,* in which the tibiæ are bispinose; as this, however, appears to be the only tangible difference, it would be best to regard the character as merely separating them for convenience' sake into two divisions.

I. Posterior tibiæ with one large spine on its outer edge, about, or a little behind, the middle.

1. **Flatoides humeralis.** (Tab. VIII. figg. 1, 1 *a.*)

Flatoides humeralis, Walk. List of Homopt. Ins. ii. p. 405 [1].
Elidiptera basistigma, Walk. List of Homopt. Ins., Suppl. p. 69 [2].
Phalænomorpha sordida, Stål, Stett. ent. Zeit. xxv. p. 54 [3].

Hab. MEXICO [2 3] (*Mus. Vind. Cæs.*); GUATEMALA, San Joaquin in Vera Paz, Pantaleon (*Champion*); PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).—AMAZONS, Pará [1].

This appears to be a somewhat variable species; it may be distinguished amongst its allies by the more or less truncate and emarginate head, the comparative closeness of the transverse veins at the apex of the tegmina, and the rather strongly waved costal margin. The single example from Bugaba may belong to another species, but at present I prefer to treat it as a variety of *F. humeralis.* Stål (Bidrag till Rio Janeiro-Traktens Hemipter-Fauna, ii. p. 70) assigns *F. humeralis,* Walker, to his genus *Vutina*; apparently, however, he was unacquainted with the species, as he subsequently appears to have described it again as *Phalænomorpha sordida.* The single specimen which I have received from the Vienna Museum under the name of *F. humeralis* has the above synonymy attached to it; this was presented by Signoret, and it was on a type from Signoret's collection that Stål described *P. sordida,* so that the determination is evidently correct. We figure an example from Chiriqui.

2. **Flatoides basistigma.**

Elidiptera basistigma, Walk. List of Homopt. Ins., Suppl. p. 69[1].

Hab. MEXICO (*Sallé*[1]).

3. **Flatoides quadripunctulus,** sp. n. (Tab. VIII. fig. 2.)

Subparallelus, testaceo-brunneus; capite fere æque longo ac lato, oculis prominulis; pronoto angulis anterioribus obtusis; scutello utrinque carinato ad basim utrinque maculâ nigrâ instructo; tegminibus sat rugosis, maculis parvis utrinque ad medium haud procul a saturâ longitudinaliter dispositis, margine costali dense transversim venato; tibiis posticis fortiter unispinosis.

A somewhat parallel, testaceous-brown species; head about as long as broad, vertex excavate, almost truncate in front; pronotum about as long as the head, very slightly emarginate in front, with the anterior angles obtuse; at the base there is a small black spot on each side; tegmina with four small black spots near the middle, two on each side, and other small dark splashes and markings, costal margin with closely-set transverse veins; posterior tibiæ with one strong spine on each.

Long. 14 millim.; lat. ad hum. 6 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

4. **Flatoides scaber,** sp. n. (Tab. VIII. figg. 3, 3 *a*.)

Griseo-brunneus, fusco irregulariter maculatus; capite longo, latitudine longiori, antice obtuse subrotundato, late excavato, oculis prominentibus; pronoto sat longo, antice rotundato; scutello leviter utrinque carinato; tegminibus sat nitidis, scabris, margine costali lato, sinuato, minus dense transversim venoso, disco fusco maculato; tibiis posticis fortiter unispinosis.

Of a greyish-brown colour, with irregular fuscous markings; head long, longer than broad, vertex broadly and shallowly excavate, anterior margin obtusely rounded, almost truncate, eyes prominent; pronotum comparatively long, rounded in front, and very slightly sinuate in the centre of the anterior margin; scutellum about as long as the head and pronotum together, finely carinate laterally, with a small black spot on each side at the base; tegmina rough, rather shiny, with a broad, somewhat crinkled costal margin, the transverse nervures on which are set rather far apart, except towards the apex, where they are thicker; the disc is irregularly set with little fuscous callosities, and the discal veins are more or less dark; wings milky-white; posterior tibiæ with one strong spine on each.

Long. 11 millim.; lat. ad hum. 5 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

This species may easily be known from the preceding by its much longer head and differently shaped and sculptured tegmina, and also by the broader and rounder plate at the apex of the abdomen in the female.

5. **Flatoides lævior,** sp. n.

Subparallelus, testaceo-brunneus; capite brevi, longitudine latiori, oculis prominulis; pronoto antice rotundato; scutello, capite et pronoto plane longiori; tegminibus unicoloribus, haud rugosis, margine costali et apicali minus dense regulariter transversim venato; corpore subtus ad partem virescente; tibiis posticis unispinosis.

Subparallel, of a uniform testaceous-brown colour above; head very short, broader than long; pronotum about as long as the head, rounded in front, sometimes with a dark spot on each side at the base; scutellum longer than the head and pronotum together, very finely carinate at the sides; tegmina comparatively smooth, with the costal margin broad and furnished with regular and not very closely-set transverse

nervures; at the apex there are two very regular rows of similar nervures; posterior tibiæ with one strong spine on each; underside more or less green (in fresh specimens probably mostly of a greenish tinge).

Long. 15 millim.; lat. ad hum. 8 millim.

Hab. MEXICO, Jalapa (*Höge*); GUATEMALA, Calderas (*Champion*).

This insect is closely allied to *F. humeralis*, of which it may be merely a variety, but it differs from that species in its more parallel form and smoother tegmina, and in the arrangement of the transverse costal nervures, which are not so near together and are more regular.

6. **Flatoides pollutus,** sp. n. (Tab. VIII. fig. 4.)

Latus, virescens, plus minusve fusco vel griseo-fusco notatus; capite brevi, æque longo ac lato, perobtuse producto vel subtruncato, margine verticis levissime emarginato, oculis prominulis; pronoto antice rotundato; scutello brevi, latitudine longiori; tegminibus latis, amplis, fusco-vittatis vel ad marginem late maculatis, colore variante; margine costali et apicali dense transversim venoso; tibiis posticis unispinosis.

A broad, green or greenish species, more or less marked with fuscous or greyish-brown; head short, about as long as broad, vertex very obtusely produced or subtruncate, slightly emarginate on its front margin; pronotum about as long as the head, rounded in front; scutellum comparatively short, broader than long; tegmina large and broad, with an oblique fuscous vitta reaching from the shoulders to the margins, or with more or less distinct stain-like patches at the sides, or with indistinct sinuous bands or markings; the costal margin is thickly set with transverse nervures; posterior tibiæ with one strong spine on each.

Long. 12–14 millim.; lat. ad hum. 8–11 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 6000 feet, Bugaba (*Champion*).

The males are smaller than the females and differently coloured.

7. **Flatoides simillimus,** sp. n.

Præcedenti maxime affinis, sed capite breviori, haud producto; fronte etiam breviori, et tegminibus magis decumbentibus, brunneis, lineâ fuscâ sinuatâ intra marginem costalem decurrente, aliaque latiori fortiter sinuatâ ante apicem, præcipue distinguendus.

A small species, very like the male of *F. pollutus*, but of a fuscous-brown colour, with the head shorter and more truncate, and the forehead, in consequence, shorter and broader; the tegmina are more decumbent, and inside the broad costal margin there is a sinuate fuscous line continued from the base to near the apex; before the apex is a broader, strongly sinuate, fuscous line, and there is a broad dark line near the claval suture; posterior tibiæ unispinose.

Long. 10 millim.; lat. ad hum. 6 millim.

Hab. GUATEMALA, Teleman in Vera Paz (*Champion*).

One female example. I had at first treated this insect as a variety of *F. pollutus*, but it appears to be distinct. There is a single specimen of the last-named species in our collection which closely resembles it as regards the shape of the head.

II. Posterior tibiæ with two distinct spines towards the apex.

8. **Flatoides griseus,** sp. n.

Griseus; capite brevi, transverso, antice truncato, maculâ parvâ nigrâ, minutâque alterâ utrinque instructo, oculis prominulis; pronoto sat longo, notis nigris minutis, antice rotundato, haud emarginato; scutello brevi, longitudine latiori; tegminibus latis, haud decumbentibus, margine costali dense, margine apicali rarius transversim regulariter venatis, vittâ angustâ, fuscâ, ante apicem fortiter sinuatâ; tibiis posticis bispinosis.

Femina. Laminâ apicali abdominis haud transversâ, maximâ.

Of a greyish colour, with more or less obscure fuscous markings, mostly insignificant; head short, transverse, truncate, with a small black spot just at the front edge of the vertex and a black dot on each side; pronotum comparatively long, rounded in front, dotted with black; scutellum broader than long; tegmina large, not decumbent, broadest just behind the shoulders, with a strongly marked sinuate fuscous band before the apex, and the humeral calli partly surrounded with dark colour; costal margin thickly and regularly set with transverse nervures, which are much less close at the apex; posterior tibiæ with two large spines towards the apex.

Female with the apical plate of the last abdominal segment very large.

Long. 13 millim.; lat. ad hum. 8 millim.

Hab. Guatemala, Mirandilla 1700 feet (*Champion*).

This species very closely resembles *F. simillimus*, from which, however, it differs in having bispinose tibiæ, a character which, according to Stål, places it at once in a separate genus.

There are two specimens in our collection with the posterior tibiæ bispinose—one from Jalapa, Mexico (*Höge*), and the other from Dueñas, Guatemala (*Champion*), which I thought at first might be referred to *F. griseus*; they are, however, plainly different, and probably belong to quite distinct species; they are scarcely in a condition to describe on single examples.

9. **Flatoides isabellinus,** sp. n. (Tab. VIII. figg. 5, 5 *a*.)

Griseus, isabellinus; capite brevissimo, triangulariter producto, oculis prominulis; pronoto capite fere longiori, antice rotundato; scutello latitudine longiori; tegminibus pæne unicoloribus, margine costali dense, margine apicali crasse et rarius transversim venosis; alis plus ninusve infuscatis; tibiis posticis distincte et sat fortiter bispinosis.

Of a greyish dun-colour; head very short, in the form of a broad-based triangle; pronotum almost longer than the head, rounded in front; scutellum longer than broad; tegmina nearly unicolorous, a little lighter in parts, with some scattered minute fuscous dots, and with or without a somewhat indistinct fuscous band before the apex; costal margin with thickly set and rather indistinct transverse veins, those on the apical margin being coarse and very distinct and more widely separated; wings smoky; posterior tibiæ bispinose.

Female with a moderate-sized laminal abdominal plate at the apical segment of the abdomen.

Long. 11–13 millim.; lat. ad hum. 5–8 millim.

Hab. Panama, Caldera, Volcan de Chiriqui (*Champion*).

10. **Flatoides atrilinea.**

Elidiptera atrilinea, Walk. List of Homopt. Ins., Suppl. p. 69 [1].

Hab. Mexico (*Sallé* [1]).

11. **Flatoides obliquus.** (Tab. VIII. figg. 6, 6 *a*.)

Elidiptera obliqua, Walk. List of Homopt. Ins., Suppl. p. 70 [1].

Sat magnus, albescens; capite testaceo, vertice latitudine longiori, antice obtuse producto, oculis prominentibus; pronoto virescente, capite breviori; scutello magno, testaceo, utrinque carinato; tegminibus amplis, albidis, regulariter reticulatis, margine costali dense transversim venato, suturâ ad medium elevatâ; corpore testaceo, plus minusve virescente; tibiis posticis distincte bispinosis.

A large whitish species, with the front-parts testaceous and the pronotum greenish; head long, evidently longer than broad between the eyes, which are very prominent, frons longer than broad, with a dark spot at the apex; pronotum shorter than the head, with the anterior lateral angles sharp, and with two small distinct impressions in front; scutellum large, carinate on each side; tegmina ample, finely and regularly reticulate, the dilated costal margin with closely-set and more or less bifurcate transverse veins; just behind the middle the suture is raised in a callosity, which is fuscous behind, and a little behind this are two small black dots and some minute black markings at the suture a little before the apex; body testaceous, more or less greenish; posterior tibiæ with two distinct, rather strong, spines.

Long. 18 millim.; lat. ad hum. 9 millim.

Hab. Mexico (*Sallé* [1], *in Mus. Brit.*); Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

This is a very distinct and rather large species, of a pale whitish or greenish-white colour, with but few markings. Walker's type does not answer to his description [1], and I have therefore redescribed the insect from our Panama specimens: one of its chief characteristics is the long vertex of the head, but Walker especially says "*vertex transversus.*"

Subfam. *RICANIINÆ.*

The Ricaniinæ, like the Flatinæ, are very widely distributed, and many of them are large and conspicuous forms, although they are much more sombrely coloured than most of the insects belonging to the last-named group. They differ very much *inter se* in general appearance; many of them bear a close resemblance to certain species of Hymenoptera, while others, again, are very like certain dark-coloured Lepidoptera.

The genera represented in our collection may be roughly characterized as follows:—

I. Clypeus distinctly separated from the frons; costal margin of tegmina with more or less distinct and regular transverse nervures along its whole length.

1. Tegmina ample, usually much narrowed behind.

i. Forehead broader than long, or at most as broad as long; the sides of the clypeus not or very indistinctly carinate; tegmina mostly opaque . . . . . Ricania, Germ.

ii. Forehead plainly longer than broad, or, at most, as long as broad; in the latter case the sides of the clypeus very distinctly carinate; tegmina mostly vitreous.

A. Size larger; tegmina vitreous, with distinct dark markings; clypeus with the sides distinctly carinate.

a. Tegmina with four veins proceeding from the basal areola; frons unicarinate . . . . . Nogodina, Stål.

b. Tegmina with three veins proceeding from the basal areola; frons tricarinate . . . . . SASSULA, Stål.

B. Size smaller; tegmina entirely vitreous, with, at most, a dark spot or two on the costal margin; clypeus without, or with very indistinct, raised margins . . . . . GÆTULIA, Stål.

2. Tegmina narrow and parallel-sided . . . . . BLADINA, Stål.

II. Clypeus not distinctly separated from the frons; general form cylindrical; costal margins of the tegmina without transverse nervures, except a few near the apex . . . . . APATESON, gen. nov.

RICANIA.

Ricania, Germar, Mag. der Ent. iii. p. 325 (1818).

Ricania originally included a large number of species, many of which have now been assigned to separate genera. As here restricted, it is characterized by the broad, truncate head, which is scarcely or only slightly produced before the eyes, and has the front of the vertex strongly carinated; the distinct ocelli; the strongly tricarinate scutellum; the large and ample tegmina, which are widened towards the apex, and, as a rule, not or not strongly decumbent, with a distinct apical area furnished with more or less closely-set parallel veins; the often small wings; the usually bispinose posterior tibiæ, which, however, are sometimes furnished with three distinct spines, and occasionally appear to have one only.

1. **Ricania bugabensis,** sp. n. (Tab. VIII. figg. 7, 7 *a.*)

Sat parva, fusco-brunnea; capite paullo ante oculos producto, truncato; pronoto interdum dilutiori, ad medium carinato; tegminibus amplis, fusco-brunneis, maculâ apicem versus costali hyalinâ, notisque nigris quibusdam in disco instructis; fronte et pectore testaceis; pedibus plus minusve infuscatis.

Rather a small species, of a dark fuscous-brown colour, with the front-parts sometimes lighter; forehead not carinate; pronotum about as long as the head, which is slightly produced; tegmina ample, not or moderately decumbent, strongly veined, of a dark brown colour, with a light hyaline costal patch before the apex, and other more or less obscure light markings on the costa towards the base; on the disc there are several rather large black impressed spots on each side, which are somewhat variable (they are very distinct on lighter specimens, but in the dark ones almost merge into the ground-colour); the apical veins are strong, and separated from the basal portion of the tegmina by a very distinct ridge; wings small; frons and chest and part of the abdomen testaceous; legs testaceous, more or less infuscate.

Long. 9–10 millim.; lat. ad hum. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Several examples.

2. **Ricania feralis,** sp. n. (Tab. VIII. figg. 8, 8 *a.*)

Major, fusco-brunnea; capite vix producto, pronoto multo breviori; tegminibus amplis, costâ antice dilatatâ, regulariter, disco fortiter et irregulariter, transversim venosis, venis apicalibus dense dispositis; colore unicolori, maculâ irregulari discali, alterâ ad costam ante apicem, aliisque ad marginem apicis hyalinis; corpore pedibusque fusco-testaceis.

Much larger than the preceding species, of a dark fuscous-brown colour; head scarcely produced, much shorter than the pronotum; pronotum produced and rounded in front, carinate, with an impression in front on each side; tegmina ample, with the costal margin dilated towards the base, and set very regularly with strong transverse veins, the apical portion with the parallel veins set very close together (and not divided from the basal portion by a strong raised ridge as in the preceding species), of a dark fuscous-brown colour, with a conspicuous irregular hyaline patch on the disc just beyond the middle, and another smaller one on the margin before the apex, the apex itself having two hyaline narrow patches on its extreme margin; body and legs fuscous or fusco-testaceous.

Long. 14–15 millim.; lat. ad hum. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

NOGODINA.

Nogodina, Stål, Bidrag till Rio Janeiro-Trakt. Hem.-Fauna, ii. p. 70 (1858); Berl. ent. Zeitschr. 1859, p. 326.

This genus appears to have been formed by Stål to include the well-known *Flata reticulata*, Fabr.; it may be distinguished by the fact that four veins proceed from the basal areola, and by the forehead being comparatively short, broad, and unicarinate.

1. **Nogodina reticulata.**

Flata reticulata, Fabr. Syst. Rhyng. p. 47 (1803)[1].

La cigale à Ailes de Gaze, Stoll, Cig. p. 29, t. 4. fig. 19[2].

Ricania reticulata, Burm. Handb. Ent. ii. 1, p. 161[3]; Spinola, Ann. Soc. Ent. Fr. 1839, p. 403[4]; Am. et Serv. Hist. Nat. Hém. p. 529[5]; Melichar, Ann. k.-k. naturhist. Hofmuseums, xiii. p. 306[6].

Ricania klugii, Spinola, Ann. Soc. Ent. Fr. 1839, p. 408[7].

Hab. CENTRAL AMERICA[6]; HONDURAS[6].—SOUTH AMERICA[1], Colombia[6], Cayenne[2 6], Pará, Brazil[4 5 7], Peru[6], Nauta, Tabatinga.

I am very doubtful whether this species really occurs in Central America. It is not represented in our collection, and Mr. Kirby (who has kindly compared the species for me) tells me that Walker's *R. reticulata*, labelled as from Honduras, is really *Sassula pictifrons*. The above references to Central America and Honduras are given solely on the authority of Dr. Melichar[6], who may have been under some misapprehension in the matter.

SASSULA.

Sassula, Stål, Öfv. Vet.-Ak. Förh. xxvii. p. 769 (1870).

Sassula was introduced by Stål as a subgenus of *Miriza*, and as including *M. osmyloides*, Walk., and *M. sorurcula*, Stål. *Miriza* appears to be regarded by Dr. Melichar as synonymous with *Nogodina*, Stål, and he gives as the reference for the genus "*Nogodina*, Berl. ent. Zeitschr. iii. p. 326 (1859); *Miriza*, Stål, Öfv. Vet.-Ak. Förh. xxvii. p. 769 (1870)." The genus *Sassula* differs from *Nogodina* by the fact that three veins only proceed from the basal areola of the tegmina (instead of four, as in the first-named genus), and the claval veins are united into one at or a little beyond

the middle; the frons, too, is longer and tricarinate. The two species which Stål regards as typical of the genus are both Eastern forms, and differ very much *inter se*, the reticulation of the tegmina of *S. sorurcula* being somewhat like that of a *Varcia*, while *S. osmyloides* differs considerably from the common Central-American *S. pictifrons* in this respect. It is possible that the latter may have to be taken as the type of a separate genus, but I prefer to follow the recent work of Dr. Melichar; if slight differences of reticulation are to be taken into account, the number of genera of the Ricaniinæ must be largely increased.

1. **Sassula pictifrons.** (Tab. VIII. figg. 9, 9 *a*, 10, 11.)

Nogodina pictifrons, Stål, Stett. ent. Zeit. xxv. p. 53 [1].
Sassula pictifrons, Melichar, Ann. k.-k. naturhist. Hofmuseums, xiii. p. 311 [2].
Ricania reticulata, Walk. List of Homopt. Ins. ii. p. 422 (nec Fabr.) [3].

Hab. MEXICO [1], Vera Cruz [1 2], Atoyac in Vera Cruz (*Schumann*); GUATEMALA, Teleman in Vera Paz, San Isidro, El Reposo, Mirandilla (*Champion*); HONDURAS [2 3], Ruatan I. (*Gaumer*); PANAMA [2], Bugaba, Volcan de Chiriqui, and David (*Champion*).

We have a large series of this insect in our collection, comprising nearly sixty examples; at first sight they would appear to belong to several distinct species, but I cannot detect any structural difference of importance. They certainly vary very much, *inter se*, in colour and markings; but the specimens from different localities run one into another and are evidently not distinct, even as varieties, with the exception of one local race from Ruatan Island, Honduras. Our series may be divided into groups as follows, it being understood that, with the one exception just noted, intermediate examples occur in each case:—

1. Markings extremely dark; subapical band very distinct; subapical and subbasal costal spots strongly marked, and about equal in size. (Fig. 9.)
   Hab. GUATEMALA, Teleman in Vera Paz.

2. Markings dark; subapical band distinct; subapical costa spot, as a rule, larger than the subbasal one.
   Hab. MEXICO, Atoyac in Vera Cruz; GUATEMALA, San Isidro, El Reposo; PANAMA, Bugaba, David, Volcan de Chiriqui.

3. Markings lighter; subapical band much less distinct; subbasal costal spot very small or absent.
   Hab. GUATEMALA, Mirandilla; PANAMA, Bugaba, Volcan de Chiriqui.

4. Veins and markings light brown; subapical band absent; subbasal costal spot absent. (Fig. 10.)
   Hab. PANAMA, Bugaba, Volcan de Chiriqui.

5. Tegmina with two very narrow, irregular, dark bands, which are widened into more or less distinct spots at the costal margin, and are more or less interrupted towards the suture; subapical band absent. (Fig. 11.)
   Hab. HONDURAS, Ruatan Island.

The last-mentioned insect, no. 5, seems to represent a distinct insular variety, and may be separated as such under the name *ruatanensis*. We figure specimens from Teleman, Ruatan Island, and the Volcan de Chiriqui.

2. **Sassula costalis,** sp. n. (Tab. VIII. figg. 12, 12 *a*.)

S. pictifronti affinis, sed capite paullo magis producto, fronte unicolori, et costâ tegminum latiori et magis regulariter et rarius transversim venosâ, facile distinguenda.

Rather smaller than the average specimens of *S. pictifrons*, from which it differs in having the head a little more produced before the eyes, and the costal margin of the tegmina somewhat broader, and with the transverse veins further apart and more regular; the front, moreover, is unicolorous and without the rows of minute black spots on either side which are so characteristic of *S. pictifrons*; the colour is light brown, and the tegmina have the subapical band wanting and replaced at the apex by one or two light brown spots; the subapical costal spot is small and the subbasal spot minute; abdomen and legs yellow, the latter in part slightly infuscate.

Long. 13 millim.; lat. ad hum. $3\frac{1}{2}$ millim.

Hab. NICARAGUA, Chontales (*Janson*).

GÆTULIA.

Gætulia, Stål, Stett. ent. Zeit. xxv. p. 54 (1864).

This genus is allied to *Nogodina*, Stål, from which it differs chiefly, according to Stål, in the narrow vertex, and in having the sides of the clypeus not carinate; the vertex, however, is somewhat variable in length, and consequently in proportional breadth. The insects are smaller than in *Nogodina* and have a more vitreous appearance.

1. **Gætulia plenipennis.** (Tab. VIII. figg. 13, 13 *a*.)

Ricania plenipennis, Walk. List of Homopt. Ins., Suppl. p. 104[1].
Gætulia pudibunda, Stål, Stett. ent. Zeit. xxv. p. 54[2].

Hab. MEXICO [1 2], Sierra de las Aguas Escondidas in Guerrero 7000 feet (*H. H. Smith*); GUATEMALA, Tamahu, Senahu, and Panzos in Vera Paz, Cerro Zunil (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

A more or less defined dark costal spot is present in most specimens between the middle of the tegmina and the apex; it is, however, sometimes absent.

Var. *nigrocarinata*, n.

Vertice breviori, carinisque scutelli plus minusve nigris distinguenda.

Closely allied to the type-form, but easily distinguished by the shorter vertex and the three keels on the scutellum being black.

Hab. GUATEMALA, Cubilguitz, Purula, and Senahu in Vera Paz (*Champion*).

This might perhaps be regarded as a separate species, but for the fact that intermediate specimens occur. We figure a specimen of the type-form from Guerrero.

2. Gætulia fulva.

Gætulia fulva, Melichar, Ann. k.-k. naturhist. Hofmuseums, xiii. p. 328, t. 14. figg. 10 *a*, *b* [1].

Hab. GUATEMALA (*Mus. Stuttgart* [1]).

The following is Dr. Melichar's description of this insect:—

"In form and size very like *G. plenipennis*; the strongly projecting vertex, however, is plainly narrowed behind, the body is bright yellow, almost bright orange-yellow, in colour, the margins of the vertex black, the carinæ on the pronotum and scutellum bright red. Ocelli red; the third antennal joint and the antennal setæ black; tegmina diaphanous, shining, veins bright yellow, stigma pale yellow; on the back of the abdomen is a row of reddish spots; wings diaphanous; legs pale yellow, claws dark. ♀. Length of the body without the tegmina 12 mm."

I feel certain that *G. fulva* is merely a variety of *G. plenipennis*; apart from the shape of the vertex, which is very variable in the latter species, the characters appear to rest entirely on colour-differences, which are very unreliable in these diaphanous insects. As, however, I have not seen the specimen on which the species has been described, I prefer to let it stand provisionally.

BLADINA.

Bladina, Stål, Berl. ent. Zeitschr. iii. p. 324 (1859); Bidrag till Rio Janeiro-Trakt. Hem.-Fauna, ii. p. 70.

This genus is distinguished by having the forehead only a little longer than broad, with a strong central carina; the head broad, with the vertex very short; and, especially, by the long, narrow, almost parallel-sided tegmina, which have the veins towards the apex very thickly set and parallel. The species that I have seen are very closely allied and appear to differ in hardly any other point, except to a certain extent in size.

It is probable that *Pœciloptera ricanioides*, Spinola (Ann. Soc. Ent. Fr. 1839, p. 442, t. 6. fig. 6), from Northern Mexico or California, belongs to this genus; this insect was described from a single female specimen, and that, to judge from the description, an abnormal one.

1. Bladina magnifrons. (Tab. VIII. figg. 14, 14 *a*.)

Bladina magnifrons, Walk. Insecta Saunders., Homopt. p. 56 [1].

Bladina fuscana, Stål, Bidrag till Rio Janeiro-Trakt. Hem.-Fauna, ii. p. 13 [2].

? *Flatoides rudis*, Walk. List of Homopt. Ins. ii. p. 421 [3].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Coatepeque and Torola (*Champion*).—VENEZUELA [3]; AMAZONS, Pará [1]; BRAZIL, Rio Janeiro [2].

There is a large series of this species in our collection. Our specimens are somewhat smaller than *B. fuscana*, Stål, an example of which has been kindly sent to me for comparison by Dr. Sjöstedl, of the Stockholm Museum, and they are also smaller than those I have seen from the Amazons. *B. magnifrons* bears a close superficial resemblance to certain species of *Issus*. The specimen figured is from Teapa.

APATESON, gen. nov.

Elongatum, angustum, parallelum, cylindricum, vertice brevissimo, antice carinato, fronte longâ, excavatâ, suturâ clypeali indistinctâ, lateribus valde elevatis, carinatis; oculis prominulis, ocellis distinctis; pronoto brevissimo, antice rotundato; scutello prælongo, sat fortiter tricarinato; tegminibus opacis, sat corneis, angustis, parallelis, venis vix elevatis, venâ radiali a basi, venâ ulnari a medio furcatâ; margine costali ad apicem venis quibusdam transversis instructo; alis opacis cum tegminibus concoloribus; tibiis posticis unispinosis.

Elongate, narrow, and parallel, with the vertex very short, elevated at the sides between the eyes, which are prominent; ocelli distinct, between the eye and the margin of the frons; frons and clypeus divided by an indistinct suture, apparently forming one long piece, which is excavate and strongly carinate at the sides; pronotum very short, rounded in front; scutellum long, tricarinate; tegmina long, narrow, and parallel, somewhat convex, with the veins not strongly marked, the radial vein being forked from the base, and the ulnar vein from the middle; the costal margin at the apex has about nine or ten transverse veins, not set very close together; wings dark, concolorous with the tegmina; posterior tibiæ unispinose.

I have referred this genus to the Ricaniinæ, as the ridge dividing the vertex and frons is distinct, but I do not feel sure as to its position.

1. **Apateson albomaculatum,** sp. n. (Tab. VIII. figg. 15, 15 *a*.)

Nigrum, cylindricum, fronte et clypeo albido-marginatis; scutello ad basim maculis duabus albidis instructo; tegulis, postscutello, et decem maculis tegminum albescentibus; apice tegminum hyalino; abdomine nigro vel fusco, pectore pedibusque infuscatis; alis nigrescentibus, opacis; pedibus spinâ unâ pone medium instructis.

Black, with the front edged with white; on each side of the scutellum, touching the margin towards the base, is a white spot; the tegulæ are large and white, and the postscutellum is wholly or partly of the same colour; the tegmina are long, narrow, and parallel, with six white spots (three on each side) at the suture, the hinder pair being transverse, an irregular oblique white spot on the disc towards the base, and a spot on the costal margin beyond the middle; the apex of the tegmina exteriorly is hyaline, the hyaline portion being crossed by a transverse dark band, and the apex itself is dark; wings opaque fuscous-black; posterior tibiæ with one spine a little behind the middle.

Long. 11–12 millim.; lat. 3 millim.

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*), Valladolid in Yucatan (*Gaumer*); Nicaragua, Chontales (*Mus. Brit.*); Panama, Bugaba (*Champion*).

The specimen figured is from Teapa.

Fam. DERBIDÆ *.

The members of this family are chiefly noted for the development of the antennæ, which is very marked in certain genera; the posterior tibiæ are usually simple. They differ considerably *inter se* in general appearance, but are, for the most part, very delicate insects, some bearing a close resemblance to certain Lepidoptera and Neuroptera.

The position of the group is somewhat doubtful: Spinola regards the "Derboïdes" as

* By W. W. Fowler.

a subfamily or subtribe of the "Issites," the other subfamilies being the "Issoïdes" and "Flatoïdes"; Amyot and Serville place it between the Delphacidæ and the Issidæ, while Stål assigns it a position between the "Achilida" and "Tropiduchida" on the one hand, and the "Lophopida," "Issida," and "Ricaniida" on the other; as a matter of fact, it appears to be related to several families.

We have not given any table of the genera, as these are by no means satisfactorily differentiated at present. The difficulty of determination is much increased by the extreme delicacy of the insects: the bodies shrivel up and lose colour after death, and it is almost impossible to reset many of the species. Much more material also is required before the group can be monographed with any approach to accuracy.

DERBE.

Derbe, Fabricius, Syst. Rhyng. p. 80 (1803); Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 515.

The insects belonging to this genus bear a superficial resemblance to certain species of Neuroptera. The head is narrow and compressed; the antennæ have the first joint short, and the second large and swollen and truncate at the apex, the third consisting of a fine seta; the tegmina are very long and narrow, much larger than the wings, and both are vitreous, with strong dark venation, and occasionally with more or less obscure darker markings. The large number of long and narrow and very regular apical areas is one of the best characteristics of the genus.

1. **Derbe westwoodi**, sp. n. (Tab. VIII. figg. 16, 16 *a*.)

Vitrea, fortiter brunneo-venosa; capite angusto, vix ante oculos permagnos producto; pronoto angusto, antice producto, ad medium carinato; scutello tricarinato; tegminibus et alis apicibus plus minusve infuscatis, vel (venis exceptis) unicoloribus; pedibus gracilibus, testaceis.

Vitreous, with strong brown veins; the interspaces of these are sometimes partly filled with brown lines on the tegmina, and both the tegmina and wings are often more or less fuscous at the apex; head narrow, excavate, scarcely produced before the large and prominent eyes; tegmina narrow, broadest at about the middle, about twice the length of the wings; legs long and slender, testaceous.

Long. 12–15 millim.; lat. ad hum. 3 millim.; exp. tegm. 24–32 millim.

Hab. GUATEMALA, Cubilguitz in Vera Paz (*Champion*); PANAMA, Bugaba (*Champion*). —COLOMBIA.

This insect appears to be closely allied to *D. semistriata* and *D. strigipennis*, Westw., both from Brazil. There are several examples of it from Bugaba in our collection, which differ considerably one from another in size and markings; the single specimen from Cubilguitz is darker, but must, I think, be referred to the same species. There is also an unnamed example from Colombia in the British Museum, which seems to belong here.

We figure a specimen from Bugaba.

MYSIDIA.

Mysidia, Westwood, Trans. Linn. Soc. xix. p. 7 (1842).
Derbe, Fabricius, Syst. Rhyng. p. 81 (ad partem).

This genus, as far as structure is concerned, is closely allied to *Derbe*, under which it is included by the older authors; the swollen second joint of the antennæ is, however, as a rule, more pointed and less truncate. In general appearance these insects are very different from the members of the last-mentioned genus, having the veins much less marked and being for the most part of a white and more or less opaque colour; the apical areas of the tegmina, moreover, are wider and fewer in number. Several of the species closely resemble certain small white Geometrid moths.

Mr. E. A. Austen, of the British Museum, who has taken a considerable number of specimens of a small species of this genus in the Amazons region, informs me that they run very swiftly on the upper surface of leaves, with their wings partially raised.

1. **Mysidia albipennis.**

Mysidia albipennis, Westw. Trans. Linn. Soc. xix. p. 7, t. 1. fig. 3 [1].

Hab. MEXICO, Vera Cruz [1]; HONDURAS (*Mus. Brit.*).

I cannot satisfactorily identify this insect with any species in our collection.

2. **Mysidia acidalioides,** sp. n. (Tab. VIII. figg. 17, 17 *a.*)

Albida, unicolor; capite ante oculos magnos vix producto, excavato; pronoto perangusto; tegminibus amplis, sat latis, alis quoque amplioribus quam quod in hoc genere usitatum est; corpore pedibusque testaceis.

A rather large white species, unicolorous, except for a minute spot on the costal margin and two others on the interior margin of the tegmina; head scarcely produced beyond the large eyes; pronotum very narrow; tegmina and wings broader and ampler than is usual in this genus; venation distinctly but not strongly marked; legs and body testaceous; legs very slender, with the small apical spines of the tibiæ more marked than in some of the allied species.

Long. 15 millim.; lat. ad hum. 3 millim.; exp. tegm. 28 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

3. **Mysidia costata.** (Tab. VIII. figg. 18, 18 *a.*)

Derbe costata, Fabr. Syst. Rhyng. p. 81 [1].
Derbe squamigera, Fabr. loc. cit. p. 81 [2].
Mysidia costalis, Walk. List of Homopt. Ins. ii. p. 398 [3].

Hab. GUATEMALA, San Isidro (*Champion*); PANAMA, Bugaba (*Champion*).—AMAZONS, Pará [3].

An example from Bugaba is figured.

4. **Mysidia nebulosa.** (Tab. VIII. figg. 19, 19 *a*.)

Mysidia nebulosa, Walk. List of Homopt. Ins., Suppl. p. 97 [1].

Hab. GUATEMALA, Cahabon in Vera Paz, Zapote (*Champion*); PANAMA, Bugaba, David, Volcan de Chiriqui (*Champion*).—AMAZONS, Santarem [1].

The insects belonging to this species differ considerably, some having the tegmina feebly suffused with fuscous, while in others the colour is much more marked and more or less testaceous.

A specimen from Zapote is figured.

5. **Mysidia parviceps,** sp. n. (Tab. VIII. figg. 20, 20 *a*.)

M. nebulosæ præcipue affinis, sed capite minori, tegminibusque haud nebulosis, distinguenda.

Very closely allied to *M. nebulosa*, of which it may be a plain variety, but distinguished by its somewhat less average size, small head, and the absence of nebulose markings on the tegmina; the body is evidently more or less green in life.

Long. 10 millim.; lat. ad hum. 2 millim.; exp. tegm. 16–18 millim.

Hab. GUATEMALA, Zapote (*Champion*).

6. **Mysidia maculicosta,** sp. n. (Tab. VIII. figg. 21, 21 *a*.)

Lacteo-albescens, pellucida; capite perangusto, ante oculos paullo producto; pronoto angustissimo; tegminibus longis, costâ ad basim irregulariter et sat late fusco maculatâ; alis maculâ unâ fuscâ ad medium instructis; pedibus testaceis.

Of a transparent milky-white colour; head very narrow, distinctly produced before the eyes and plainly longer than the pronotum; tegmina long and narrow, with an irregular fuscous patch occupying the base of the costa; the transverse veins are marked by small dark spots, the exterior one being the largest, and the subapical margin is furnished with minute dark spots at the apex of the veins and with a small patch before the middle; there is a dark patch on each wing; these markings are probably variable; legs testaceous, very slender.

Long. 12–13 millim.; lat. ad hum. 2 millim.; exp. tegm. 22 millim.

Hab. GUATEMALA, Pantaleon (*Champion*); COSTA RICA, Caché (*Rogers*).

7. **Mysidia elatior,** sp. n. (Tab. VIII. fig. 22.)

Præcedenti affinis, sed capite latiori subtriangulari facile distinguenda; pronoto angulariter producto; tegminibus fusco notatis, maculâ ad medium costæ præcipue conspicuâ; pedibus testaceis.

Allied to *M. maculicosta*, but differing from it in having the head broader and plainly produced before the eyes in an isosceles triangle, which is rounded or subtruncate at the apex; the frons is very narrow, narrower than in the preceding species; the tegmina are spotted with fuscous, a dark irregular patch at about the middle of the interior margin being most conspicuous; the transverse subapical veins of the wings are dark, but there is no distinct fuscous patch; legs testaceous.

Long. 10 millim.; lat. ad hum. 2 millim.; exp. tegm. 20–21 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Several specimens.

8. **Mysidia delicatissima,** sp. n. (Tab. VIII. figg. 23, 23 *a*.)

Parva, lacteo-albida, nitidula, fere unicolor; capite perbrevi, vix ante oculos producto, fronte perangustâ; tegminibus modice elongatis; pedibus testaceis.

A small, semitransparent, somewhat shining, white species, with some of the veins faintly darker at places, and with a minute spot on the interior margin towards the base; head very short, scarcely produced before the eyes; tegmina comparatively shorter than in many of the species of the genus, broadest a little beyond the middle; legs testaceous.

Long. 7–7½ millim.; lat. ad hum. 1 millim.; exp. tegm. 14 millim.

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*).

9. **Mysidia (?) spreta,** sp. n.

Flavescens, unicolor, abdomine supra nigro-vittato; capite parvo, excavato, antice truncato, oculis nigris; antennis perbrevibus; scutello magno, sat indistincte carinato; tegminibus concoloribus; pedibus testaceis.

Of a uniform flavescent colour, with the eyes, edges of front, and bands on the upperside of the abdomen dark; head small, truncate in front, antennæ very short; pronotum narrow, considerably dilated at the sides; scutellum large, with the central carina fairly distinct and with traces of other carinæ at the sides; tegmina rather small and shining; legs testaceous.

Long. 8 millim.; lat. ad hum. 1½ millim.; exp. tegm. 15 millim.

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*).

This species has very short and thick antennæ, and in this respect may be classed with *Mysidia*; but the venation of the tegmina appears to be quite different, and I have no doubt that, when more specimens have been discovered, it will have to be placed in a separate genus.

OTIOCERUS.

Otiocerus, Kirby, Trans. Linn. Soc. xiii. p. 16 (1821); Westwood, Trans. Linn. Soc. xix. p. 12.
Cobax, Germar, Mag. Ent. iv. p. 1 (1821).
Hynnis, Burmeister, Handb. Ent. ii. 1, p. 154 (1835).

The members of this genus are in most cases distinguished by the extraordinary development of the second joint of the antennæ, which appears, in fact, to consist of two long and more or less curled joints proceeding from a very short and thick first joint; in *O. degeeri*, however, the female has the second joint very short, as short as in *Mysidia*, but bilobed, and in our collection there is a species (which I have doubtfully referred to the genus) in which the second joint is short and simple. Burmeister described *O. degeeri* as distinct from *Otiocerus* under the name of *Hynnis rosea*, on account of the angle of the fore wings being dilated into an angular projection; this is evidently, however, not a generic character, and the venation of the wings is the same as that of *O. coqueberti*, in which the dilatation is not evident.

1. **Otiocerus montanus,** sp. n. (Tab. VIII. figg. 24, 24 *a*.)

Rufescens; capite prælongo, supra viso albo-marginato, antennis robustis, rufis; pronoto brevissimo; scutello magno, medio late albido, lateribus rufescentibus; tegminibus vitreis, venis latis, roseis; alis albidis; abdomine ad medium albido-testaceo; pedibus albidis; stylis maris longis, tenuibus.

Rufescent; head very long, distinctly longer than the pronotum and scutellum taken together, broad if viewed from the side, very narrow if viewed from above, with the edges broadly white, covered with what appears to be a waxy deposit, which is often present in the genus; antennæ stout and large, more or less ferruginous; pronotum very short; scutellum large, broadly white in the centre, rufescent at the sides; tegmina and wings transparent, somewhat milky and iridescent, the former with distinct red veins, and a small opaque patch bordered with red at the apex of the costal margin; abdomen above whitish-testaceous in the centre; legs whitish-testaceous, with a pink tinge; styles of the males long and slender.

Long. 12 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 20 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero, 9500 feet (*H. H. Smith*); PANAMA, Volcan de Chiriqui (*Champion*).

It is possible that the three examples from the Volcan de Chiriqui may belong to a different species, but I cannot satisfactorily separate them.

A specimen from Guerrero is figured.

2. **Otiocerus interruptus,** sp. n.

Subroseus; capite longo, a latere viso pellucido; antennis prælongis, testaceis; scutello ad medium dilutiori; tegminibus subroseis, margine interiori duabus maculis testaceis interrupto; alis lacteis; pedibus abdomineque testaceis.

Of a dark subroseate colour; head large, if viewed from the side almost transparent, except the upper portion; antennæ very long and slender; scutellum darker at the sides than at the middle; tegmina dull reddish, with the veins of a brighter red colour; on the interior margin there are two testaceous spots, the one nearer the apex rather large and triangular, the other narrow and small; these are joined by a very narrow dark line at the extreme margin, and there is also a dark line on the costal margin, which is very narrowly bordered with testaceous; wings milky-white; legs and abdomen testaceous.

Long. 11 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 20 millim.

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

3. **Otiocerus venustus,** sp. n. (Tab. VIII. fig. 25, 25 *a*.)

Præcedenti affinis, sed multo minor; capite sat longiore, tegminibusque limbo costali latius testaceo, maculisque aliis subapicalibus distinguendus.

Allied to the preceding, but considerably smaller, with the head longer in proportion and the tegmina with the two patches on the interior margin much the same, but without a trace of a dark line; the costal margin, however, is rather broadly testaceous, and near the apex there is a bright red marginal spot followed by a large subapical testaceous patch, opposite to which there is a smaller spot on the subapical portion of the interior margin; legs and abdomen testaceous, probably more or less red in life; the markings seem somewhat variable.

Long. 9 millim.; lat. ad hum. 1 millim.; exp. tegm. 17–18 millim.

Hab. GUATEMALA, Chiacam in Vera Paz (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

4. **Otiocerus griseus,** sp. n. (Tab. VIII. fig. 26.)

Griseo-pellucidus; capite a latere viso pellucido, supra rufo, nigro lineato, margine inferiori anguste nigro; pronoto cum scutello capite breviori; tegminibus griseo-albidis, venis crassis albis, interstitiis plus minusve obscure dilutius infuscatis, margine apicali peranguste miniato; alis opacis, lacteis; abdomine testaceo; pedibus albidis.

A somewhat large species, of a transparent greyish colour; head large, if viewed from the side transparent,

red above, with a distinct black line, lower margin narrowly black; tegmina with the veins large, white, interstices more or less infuscate, apical margin very narrowly scarlet; wings opaque, milky-white, with a dark line in the centre of the margin; legs of a clear whitish colour.

Long. 14 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 23 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

5. **Otiocerus gracilior,** sp. n. (Tab. VIII. fig. 27.)

Præcedenti affinis, sed minor et gracilior; capite a latere viso longiori et minus lato, et tegminibus raro minute nigro-maculatis distinguendus.

Allied to the preceding, but considerably smaller; head, viewed from the side, longer and narrower in proportion; tegmina with a more or less distinct fuscous band proceeding from the shoulders for about one-third of their length, continuing a dark line on the head and scutellum, the disc and apex marked with a few minute but distinct black spots; legs whitish-testaceous.

Long. 10–11 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 18–19 millim.

Hab. GUATEMALA, Panima and San Gerónimo in Vera Paz, Cerro Zunil 4000 to 5000 feet (*Champion*).

The specimen from San Gerónimo is very imperfect, but appears to belong to the same species. We figure an example from Cerro Zunil.

6. **Otiocerus breviceps,** sp. n. (Tab. IX. fig. 1.)

Parvus, albidus; capite a latere viso brevi, latiori, supra viso perangusto, oculis prominulis; tegminibus vitreis, venis distinctis; alis lacteis; pedibus abdomineque albido-testaceis.

A small, obscure species, which may be known by the shape of the head; this is much shorter than in the other species of the genus described above, if viewed from the sides; the antennæ are short; the tegmina are transparent white, with distinctly marked veins, which have a slight reddish tinge, and the costal margin is very narrowly scarlet for a short distance before the tip (this is hardly noticeable, and the whole disc is unicolorous); legs and abdomen whitish-testaceous.

Long. 8 millim.; lat. ad hum. $1–1\frac{1}{3}$ millim.; exp. tegm. 15 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

7. **Otiocerus (?) rubescens,** sp. n. (Tab. IX. fig. 2.)

Rufo-testaceus; capite parvo, rufo; scutello convexo, nitido; tegminibus pellucidis, testaceis, venis magnis rufescentibus; abdomine pedibusque testaceis.

Of a rufo-testaceous colour, with the head small, red (probably in life the front-parts are much more rufescent); scutellum convex, shining, with four small black spots, two at the sides (not always present) and two at the base; tegmina pellucid, somewhat corneous, testaceous, with distinct and strong reddish veins; abdomen and legs testaceous.

Long. 9–10 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 17–18 millim.

Hab. MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*).

The head and antennæ of this species differ from those of the true *Otioceri*, but in the venation of the tegmina it is closely allied to them.

ANOTIA.

Anotia, Kirby, Trans. Linn. Soc. xiii. p. 20, t. 1. figg. 9–11, 15 (1821).

This genus is chiefly characterized by the great length of the second joint of the antennæ—in some species it is flat on both sides, and in others more or less cylindrical; these may perhaps be typical characteristics of separate genera, but the various forms are here included under *Anotia*. The enlarged joint, when subcylindrical, is sometimes constricted at or behind the middle, so that it might at first sight be regarded as formed of two joints, but examination under a high magnifying-power shows that this is not the case. Kirby's figures of *A. bonnetii* are misleading, as in the entire insect (15) the second joint looks convex, whereas in the separate structural figures (9, 10) it looks flat.

I. *Second joint of the antennæ broad and flat.*

1. **Anotia smithi**, sp. n. (Tab. IX. figg. 3, 3 *a*.)

Albescens; capite parvo, antice a latere viso rotundato, reflexo: antennis articulo secundo maximo, lato, deplanato, utrinque subexcavato, fuscescente, marginibus nigris; pronoto brevissimo; scutello magno, convexo, sat nitido, testaceo, ad latera piceo; tegminibus vittâ irregulari obliquâ ante medium et quibusdam aliis maculis fuscis; alis lacteis; abdomine pedibusque albido-testaceis.

Of a whitish colour; head small, rounded in front if viewed from the side, very small and narrow if viewed from above; antennæ with the second joint very large and flat, pitchy, with black edges; pronotum very short, scarcely visible; scutellum large, convex, somewhat shining, testaceous, with the margins pitchy; tegmina milky-white, with an irregular oblique fuscous band before the middle, and with other small dark markings, one small black spot just before the apex being conspicuous; wings milky-white; abdomen and legs whitish-testaceous.

Long. 9 millim.; lat. ad hum. $1\frac{1}{2}$ millim.; exp. tegm. 17 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero 9500 feet (*H. H. Smith*).

2. **Anotia marginicornis**, sp. n. (Tab. IX. figg. 4, 4 *a*.)

Parva, albida; capite parvo, antennis articulo secundo maximo, depresso, subexcavato, pellucido, fusco-marginato; scutello convexo; tegminibus vitreis, iridescentibus, unicoloribus, venis albidis; alis lacteo-vitreis; pedibus albido-testaceis.

A small species, with the tegmina transparent, unicolorous, with white veins, and with traces of white opaque spots at the margins; head small; antennæ with the second joint very large, transparent, with dark margins; scutellum convex; legs whitish-testaceous.

Long. 8 millim.; lat. ad hum. $1\frac{1}{4}$ millim.; exp. tegm. 15 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

3. **Anotia pellucida**, sp. n.

Præcedenti affinis, sed minor, capite breviori; antennarum articulo secundo breviori et minus lato, unicolori; capite, pronoto et scutello albis; tegminibus totis vitreis; pedibus albido-testaceis.

A very small white species, allied to the preceding, but with the head shorter and the second joint of the antennæ smaller, unicolorous; the front parts are all white; the tegmina are transparent, with the veins finely marked; legs testaceous.

Long. 6–7 millim.; lat. ad hum. 1 millim.; exp. tegm. 12 millim.

Hab. MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.*).

4. **Anotia ruficollis,** sp. n. (Tab. IX. figg. 5, 5 *a*.)

Parva, albescens; capite minimo, antennis articulo secundo maximo, rufo-testaceo; pronoto brevissimo, miniato; scutello convexo; tegminibus vitreo-lacteis, iridescentibus, maculis quibusdam indistinctis fuscescentibus, margine costali sub apicem miniato; alis lacteis; abdomine pedibusque albido-testaceis.

A small white species; head very small, with the second joint of the antennæ very large, reddish-testaceous (probably red in life); pronotum very short, scarlet; scutellum convex; tegmina transparent milky-white, iridescent, with obscure fuscous markings, and with the costal subapical margin scarlet; wings milky-white; abdomen and legs whitish-testaceous.

Long. 7½ millim.; lat. ad hum. 1¼ millim.; exp. tegm. 14 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

The antennæ are not so large and flat in this and the preceding and succeeding species as in *A. smithi* and *A. marginicornis*.

5. **Anotia venustula,** sp. n. (Tab. IX. figg. 6, 6 *a*.)

Parva, testacea, plus minusve fuscata; capite parvo, antennis articulo secundo magno, deplanato, piceo; scutello ad latera piceo; tegminibus angustis, vitreis, iridescentibus, fusco-maculatis, venis plerumque læte rufescentibus; pedibus albido-testaceis.

A small species, more darkly marked than those above described; head small, more or less pitchy, with the second joint of the antennæ large, fuscous; pronotum very small; scutellum dark at the sides; tegmina vitreous, strongly iridescent, with distinct fuscous markings, especially towards the apex, and with the veins from about one-third the distance from the base clear red, one before the costal margin being most strongly marked for its posterior half; legs whitish-testaceous.

Long. 5½ millim.; lat. ad hum. 1 millim.; exp. tegm. 10 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

This is one of the smallest, as well as one of the most distinct and pretty, species belonging to the genus.

II. *Second joint of the antennæ more or less cylindrical.*

6. **Anotia tenella,** sp. n. (Tab. IX. fig. 7.)

Albido-testacea; capite parvo, antennarum articulo secundo magno, cylindrico, testaceo; pronoto brevissimo; tegminibus lacteo-pellucidis, maculis quibusdam indistinctis obscure fuscis, lineisque duabus vel quatuor minutis ad marginem costalem subapicalem miniatis; alis lacteis; pedibus albido-testaceis.

Whitish-testaceous, with the head small, but somewhat larger in proportion than in the succeeding species; second joint of the antennæ large, cylindrical; pronotum very short; tegmina pellucid, with a few indistinct and obscure fuscous markings, and some minute scarlet spots and lines near the costal subapical margin, the surface striated with very closely-set fine lines; wings milky-white; legs whitish-testaceous.

Long. 9 millim.; lat. ad hum. 1½ millim.; exp. tegm. 17 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

In size and general appearance this species much resembles *A. smithi*, from which it may at once be known by the shape of the second joint of the antennæ, as well as by its coloration.

7. **Anotia invalida,** sp. n. (Tab. IX. fig. 8)

Rufo-testacea; capite minimo, antennarum articulo secundo prælongo, tenuiori, cylindrico; tegminibus pellucidis, maculis quibusdam indistinctis obscure fusco-testaceis, venis testaceis, margine costali subapicali plus minusve miniato; pedibus albido-testaceis.

Light testaceous, with a reddish tinge (probably much more rufescent in life); head very small, second joint of the antennæ very long and slender; tegmina pellucid, with obscure fusco-testaceous markings, testaceous veins, and the costal subapical margin more or less lined and spotted with scarlet; legs whitish-testaceous.

Long. 6–7 millim.; lat. ad hum. 1 millim.; exp. tegm. 11–12 millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*); PANAMA, Bugaba (*Champion*).

PATARA.

Patara, Westwood, Trans. Linn. Soc. xix. p. 13, t. 2. figg. 6 *a*–6 *d* (1842).

This genus is allied to *Anotia*, and was separated by Westwood chiefly on the characters presented by the venation of the tegmina, which he describes as "cellulis tribus discoidalibus contiguis subquadratis inter venam postcostalem et medianam."

The first joint of the antennæ is long and compressed, and of equal breadth throughout. The Central-American species referred to it differs somewhat apparently from *P. guttata* and *P. albida*, Westw., from St. Vincent, but it has the discoidal areas of the tegmina very distinct.

1. **Patara marmorata,** sp. n. (Tab. IX. figg. 9, 9 *a*.)

Parva; capite perangusto, testaceo, oculis magnis, nigris; antennis nigris; pronoto perbrevi, fusco, ad medium testaceo; scutello piceo, distincte tricarinato; tegminibus vitreis fusco-marmoratis, margine apicali maculis quibusdam minutis miniatis instructo; alis vitreis; corpore piceo; pedibus dilute testaceis.

A small species, with a very small testaceous head; eyes black, very large; antennæ stout, black; pronotum very short, fuscous, with a testaceous line at the centre; scutellum piceous, with three distinct carinæ, the central one complete, those at the sides extending scarcely beyond the middle; tegmina vitreous, with irregular dark markings, and with minute scarlet spots on the extreme margin extending from just behind the middle of the costa round the apex; wings vitreous; body piceous; legs clear whitish-testaceous.

Long. 6 millim.; lat. ad hum. 1 millim.; exp. tegm. 11 millim.

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

There is a specimen of a clear amber-coloured species from Chiriqui in our collection which differs very much in venation from both *Mysidia* and *Otiocerus*. I described the insect at first as a doubtful *Mysidia*, but as one antenna is missing, and, on further examination, I cannot feel sure that the other is entire, it is best to omit it, until additional examples have been found.

Fam. CIXIIDÆ *.

The Cixiidæ are here treated, for convenience, as a separate family, but there is no definite distinction between them and the Dictyopharinæ, of the family Fulgoridæ. The presence or absence of a frontal ocellus does not hold good, nor does the further character given for the Cixiidæ which do not possess a frontal ocellus, viz. that "if the frontal ocellus is absent, the clypeus is not keeled." In both groups species occur with a distinct cephalic process, although in this case the venation of the tegmina affords a good character for distinction. The Cixiidæ, together with the Dictyopharinæ, the Achilidæ, Derbidæ, Issidæ, and Delphacidæ, should be regarded as tribes or subfamilies of the Fulgoridæ, under which Stål and others include as subfamilies the Flatidæ, Acanoniidæ, and Ricaniidæ.

The following genera of Cixiidæ are represented in our collection:—

I. Vertex produced into a long snout; apex of tegmina not reticulate; frontal ocellus distinct . . . . . RHAMPHIXIUS, gen. nov.

II. Vertex not produced into a snout.

i. Frontal ocellus present, usually very distinct.

1. Sides of frons produced at sides and auriculate, if viewed from above; tegmina not tectiform or adpressed to the sides.

A. Frons and clypeus together forming an isosceles triangle with the vertex at base . . . . . BOTHRIOCERA, Klug.

B. Frons narrowed towards base, widest towards apex . . BOTHRIOCERODES, gen. nov.

2. Sides of frons not produced or auriculate, except very rarely, in which case the tegmina are upright and adpressed to the sides.

* Tegmina more or less evidently (though sometimes very slightly) dilated behind the apex of the clavus; mostly obscure, more or less opaque, dark species, with the tegmina adpressed . . . . . METABRIXIA, gen. nov.

** Tegmina not dilated behind the apex of the clavus, not adpressed to the sides, almost always vitreous and transparent.

A. Vertex extremely narrow, reduced to a mere slit between the eyes . . . . . ŒCLEUS, Stål.

B. Vertex broader than long, or at most not much longer than broad.

a. Scutellum with five keels . . . . . OLIARUS, Stål.

b. Scutellum with three keels.

aa. Tegmina with the veins coarsely granulate. . . CIXIUS, Latr.

bb. Tegmina with the veins not or scarcely visibly granulate . . . . . HAPLAXIUS, gen. nov.

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* By W. W. FOWLER.

ii. Frontal ocellus absent.

1. Small species (length 3½–5 mm.), with the veins of the tegmina coarsely granulate.
   - A. Vertex large and long, produced in an obtuse triangle; granulations of tegmina with distinct upright setæ . . MICROLEDRIDA, gen. nov.
   - B. Vertex short, not or scarcely produced before eyes; granulations of tegmina without distinct setæ . . . . PACHYNTHEISA, gen. nov.
2. Very small species (length 3–3½ mm.), with the veins of the tegmina not, or scarcely visibly, granulate.
   - A. Vertex narrower; posterior margin of the pronotum distinctly emarginate; costal membrane very large . . MICRIXIA, gen. nov.
   - B. Vertex broader; posterior margin of pronotum almost straight; costal membrane moderate . . . . . EPARMENE, gen. nov.
3. Large species (length 10 mm.), with the veins of the tegmina not granulate . . . . . MNEMOSYNE, Stål.

RHAMPHIXIUS, gen. nov.

Capite longo, vertice perangusto in rostrum plus minusve elongatum prolongato, oculis longis, subtus emarginatis, ocello utrinque prope oculos tertioque frontali conspicuo, fronte perangustâ; pronoto perbrevi, ad latera paullo ampliato; scutello magno, distincte tricarinato; tegminibus sat amplis, venâ radiali et venâ interiori ulnari pone medium æquidistanter furcatis, areis tribus subapicalibus obliquis; tibiis simplicibus.

Head long, with the vertex extremely narrow and produced into a longer or shorter process, which is flattened at the sides, truncate at the apex, and sulcate above and beneath, the underside forming the continuation of the very narrow frons, the latter slightly widened in the centre and having the frontal ocellus very distinct; eyes elongate; pronotum widened at the sides; scutellum long, distinctly tricarinate; tegmina widened behind, with the radial and interior ulnar veins rather widely forked at about an equal distance from the apex, and with three oblique subapical areas; tibiæ simple.

The position of this genus is somewhat hard to determine; at first sight it appears to be near *Dictyophara*, but the distinct frontal ocellus places it not far from *Cixius*; the venation of the apical portion of the tegmina is somewhat like that of *Lycoderes* among the Membracidæ.

1. **Rhamphixius championi**, sp. n. (Tab. IX. figg. 10, 10 *a*, *b*.)

Subpellucidus, testaceus, oculis fronteque nigris, processu frontali ad latera fusco-testaceo; scutello lævi, carinis tribus distinctis; tegminibus suturâ late, maculis marginalibus et apicibus infuscatis, venis distincte granulatis; abdomine subtus pedibusque testaceis.

Testaceous, with the sides of the frontal process darker, and with the eyes and frons black; scutellum smooth, with the three carinæ very distinct; tegmina subpellucid, with the suture and apex more or less broadly infuscate, and with a fuscous marginal spot at the sides before the apex, the veins very distinctly granulate; abdomen and legs testaceous.

Long. cum tegm. (sed sine processu frontali) 6 millim.; cum processu frontali 7½–8 millim.; lat. ad hum. 2 millim. (♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*); PANAMA, Bugaba (*Champion*).

Four specimens. This insect appears to secrete a considerable amount of waxy material, which is more compact than in *Cixius*. An example from Bugaba is figured.

BOTHRIOCERA.

Bothriocera (Klug), Burmeister, Handb. Ent. ii. 1, p. 156 (1835).
Adana, Stål, Ofv. Vet.-Ak. Förh. 1856, p. 163.

The species belonging to this genus are of small size. They have the upper portion of the frons produced at the sides into short ear-like processes, which, when viewed from above, look like two small blunt horns; the frons and clypeus together form an isosceles triangle, with the vertex of the head as the base; the pronotum is very short, and the scutellum large, with the carinæ not strongly marked; the tegmina, as a rule, are much widened behind, but in some species they are subparallel; the frontal ocellus is very distinct.

1. **Bothriocera tinealis.** (Tab. IX. figg. 11, 11 *a*; 12, var. *westwoodi*.)

Bothriocera tinealis (Klug), Burm. Handb. Ent. ii. 1, p. 156 [1].
Adana westwoodi, Stål, Öfv. Vet.-Ak. Förh. 1856, p. 163 [2].
Bothriocera westwoodi, Stål, Stett. ent. Zeit. xxv. p. 50 (1864) [3].

Hab. Mexico [3], Atoyac, Fortin, Vera Cruz, Teapa (*H. H. Smith*), Cuernavaca (*coll. Ball*).—Brazil, Bahia and Pará [1].

This insect varies considerably in size and markings. In the male the last abdominal segment appears to be bisinuate, more or less produced in the middle, and the styles are rather large, but the characters are more pronounced in some specimens than in others. The examples from Atoyac and Fortin, all females, may prove to be specifically distinct. There is also in our collection an imperfect female, taken by Mr. Rogers at Irazu, Costa Rica, that comes very near *B. tinealis*.

B. westwoodi, Stål, appears to be a variety of *B. tinealis*, in which the dark and light colour is more broken up behind. We figure a typical specimen from Teapa, and also one of the var. *westwoodi* from Atoyac.

2. **Bothriocera signoreti.** (Tab. IX. figg. 13, 13 *a*.)

Bothriocera signoreti, Stål, Stett. ent. Zeit. xxv. p. 50 (1864) [1].

Hab. Mexico [1], Cuernavaca in Morelos and Amula in Guerrero (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*).

A very distinct species, with regular and constant markings. It may easily be known from the preceding by having the hind margin of the tegmina always broadly black and opaque: in *B. tinealis* it is more or less hyaline. In the male the genital segment is bisinuate at the apex and produced into a sharp minute tooth in the centre, and the styles are long. We figure a specimen from Amula.

3. **Bothriocera venosa,** sp. n. (Tab. IX. figg. 14, 14 *a*.)

Hyalina, capite flavescente; scutello ferrugineo, leviter tricarinato; tegminibus postice ampliatis, pellucidis, venis distinctis, fasciâ brunneâ ante medium, et maculâ magnâ marginali ad medium instructis, venis transversis utrinque fuscis, areis apicalibus longis regularibus; abdomine nigrescente; pedibus testaceis.

Head yellow; scutellum ferruginous, with three keels; tegmina enlarged behind, hyaline, with the veins well-marked, dark, with a brown band before the middle, a black marginal spot about the middle, and the posterior transverse veins marked with fuscous, the apical areas long and regular; abdomen black, underside of front-parts light yellow; legs testaceous.

Long. cum tegm. 5 millim.; lat. ad hum. 2 millim. (♀.)

Hab. Guatemala, Las Mercedes (*Champion*).

4. **Bothriocera excelsa,** sp. n. (Tab. IX. figg. 15, 15 *a*.)

Subpellucida, nitidiuscula; vertice fronteque flavis vel flavo-brunneis, pronoto angustissimo, scutello abdomineque supra nigrescentibus sed sæpe dilutioribus; tegminibus haud fortiter ampliatis, plus minusve fuscis, margine costali plerumque, duabusque vittis irregularibus in alis indistincte nebuloseque continuatis, instructis; corpore subtus variante; pedibus testaceis, tarsis plus minusve fuscis; pygofero nigro.

Somewhat transparent and shining; head and frons yellow or brownish-yellow, colour of the rest of the body variable; tegmina not strongly widened behind, more or less smoky or fuscous, with lighter patches, and with the costal margin and two very irregular bands fuscous, the latter more or less indistinctly indicated on the wings, which are smoke-coloured with darker markings; legs mostly testaceous; pygofer black.

Long. cum tegm. 5 millim.; lat. ad hum. 2 millim. (♀.)

Hab. Mexico, Amula, Xucumanatlan, Sierra de las Aguas Escondidas, and Omilteme, all in Guerrero, 6000 to 8000 feet (*H. H. Smith*).

I had at first included the insects belonging to this species under *B. tinealis*, but they appear to be distinct; the tegmina are narrower, and the characteristic dark colour at the tip of the apical vein, which is so distinct in *B. tinealis*, is quite wanting, as is also the row of small spots in the apical areas, which is nearly always found in the last-named species.

5. **Bothriocera pellucida,** sp. n. (Tab. IX. figg. 16, 16 *a*.)

Pellucida, sat nitida; vertice flavescente, fronte utrinque nigro-maculata, oculis nigris; pronoto perangusto, flavescenti; scutello magno, nigro, leviter sed distincte tricarinato; tegminibus immaculatis, pellucidis, dilute flavescentibus, venis distinctis; alis vitreis; abdomine supra subtusque nigro; prosterno, sterno, metasterno pedibusque dilute testaceis.

Transparent and rather shining; vertex yellowish; frons with a large spot on each side of the central keel and the space round the extra ocellus black; pronotum very narrow, yellowish; scutellum large, black, distinctly, but not strongly, tricarinate; tegmina without spots, lightish straw-coloured towards the base, the colour being less marked towards the apex; wings vitreous; abdomen black above and beneath; under surface of the front-parts of the body and the legs testaceous.

Male with the genital or last abdominal segment considerably produced in the centre into a blunt point, and with two small projections at the sides, the styles short and thick.

Long. cum tegm. 5–5½ millim.; lat. ad hum. 2 millim.

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

6. **Bothriocera albidipennis,** sp. n. (Tab. IX. figg. 17, 17 *a*, ♀; 18, ♂, tegminal segments of abdomen, from beneath.)

Subparallela, postice vix ampliata; vertice fronteque flavescentibus, hâc utrinque nigro-maculata; pronoto perangustissimo, flavescenti, sub oculis nigro; scutello nigro, pernitido, leviter carinato; tegminibus longis, flavescenti-albidis, nitidis; alis lacteo-fumosis; abdomine supra subtusque nigro; pedibus dilute testaceis.

Subparallel, not much widened behind; vertex and forehead yellowish, the latter with a large spot on each side of the central carina and the margins of the ear-like processes black; pronotum yellowish, dark beneath the eyes; scutellum large, black, very shining, with three distinct carinæ, and with traces of two others on each side of the central one; tegmina long, shining, whitish-yellow, slightly fuscous at the sides towards the apex, folded one over the other at rest so as to conceal more than half the suture; abdomen black; front-parts of the underside of the body and the legs whitish-testaceous.

Male with the genital segment of the abdomen produced triangularly beneath and angled at the sides, and the styles short and thick.

Long. cum tegm. $5\frac{1}{2}$–6 millim.

Hab. Mexico, Omilteme in Guerrero (*H. H. Smith*).

This and the next species have at first sight the appearance of a small *Plectoderes*, rather than of a *Bothriocera*; they have the vertex, frons, and clypeus, however, shaped just as in the latter genus, and the extra ocellus at the apex of the frons is very distinct. It is possible that these two insects may hereafter be treated as generically distinct. The single male specimen received is smaller than the other two, which are females.

7. **Bothriocera nigra,** sp. n. (Tab. IX. figg. 19, 19 *a*.)

Præcedenti quoad formam structuramque valde affinis, sed minor et angustior; capite rufo-flavo; pronoto angustissimo, flavescenti, sub oculis fuscato; scutello tegminibusque nigris, nitidis, his parallelis, postice haud ampliatis, humeris flavescenti-rufis, ad apicem extremum subpellucidis; abdomine nigro, corpore subtus antice colore variante; pedibus flavis ad partem infuscatis.

Closely allied to the preceding, but smaller and narrower, entirely of a dark or black colour, with the exception of the head, pronotum, shoulders, and legs, which are reddish-yellow; the very narrow pronotum has dark spots under the eyes, and the legs are in part infuscate; the scutellum is large, tricarinate; and the tegmina are very shiny, not narrowed behind, and folded one over the other as in *B. albidipennis*.

Male with the genital segment deeply emarginate, and the styles long, slender, much thickened at their apex.

Long. cum tegm. $4\frac{1}{2}$–5 millim.; lat. ad hum. 2 millim.

Hab. Mexico, Cuernavaca in Morelos (*H. H. Smith & Ball*).

The single example in our collection is much more shining than four specimens which I have received from Mr. Ball from the same locality; the latter, too, are sprinkled with a greyish secretion, such as is found in certain of the Flatidæ.

BOTHRIOCERODES, gen. nov.

Genus *Bothriocerœ* affine, sed lateribus frontis supra visis minus elevatis, et fronte ipsâ pone medium dilatatâ distinguendus; vertice brevi, ocello frontali conspicuo; pronoto brevissimo; scutello magno, tricarinato; tegminibus amplis, subparallelis, vel apicem versus leviter ampliatis; tibiis posticis simplicibus.

Closely allied to *Bothriocera*, but easily distinguished by the shape of the frons and clypeus, which in the last-

mentioned genus form an isosceles triangle with the vertex as base, but in *Bothriocerodes* is narrowed towards the base, and is widest towards the apex; vertex transverse; pronotum very short; scutellum large, tricarinate, the carinæ being sometimes more or less obsolete; tegmina long and ample, subparallel or somewhat widened towards the apex; posterior tibiæ simple.

Unfortunately all the specimens of this genus in our collection are females: *B. variegatus* is taken as the type, *B. metallicus* perhaps not being truly congeneric.

1. **Bothriocerodes variegatus,** sp. n. (Tab. IX. figg. 20, 20 *a*.)

Elongatus, subparallelus, vertice brevi, fronte distincte carinata, lateribus elevatis, brunneâ, carinâ marginibusque testaceis; pronoto brevissimo; scutello castaneo, distincte tricarinato; tegminibus subpellucidis, brunneo-testaceo et fusco variegatis; pedibus dilute testaceis.

Subparallel, with the head short, and the frons with strongly raised sides and the central keel well-marked; scutellum castaneous, with the three carinæ and the connecting-lines very strongly marked and lighter; tegmina somewhat shining, semitransparent, fusco-testaceous, with darker and lighter markings; just about the middle is a broad, convex, fusco-testaceous band, bordered with darker colour, followed by a lighter band, and behind this a dark one with the veins light; the apex is semi-vitreous at the sides, with a dark triangular spot reaching from the margins inwards, and a dark line behind it, the extreme apex being narrowly fuscous; abdomen more or less testaceous; legs light testaceous.

Long. cum tegm. 7 millim.; lat. ad hum. 2–2½ millim. (♀.)

Hab. GUATEMALA, Senahu in Vera Paz (*Champion*).

Two specimens. This is a very distinct and pretty insect, the variegation being uncommon in the family.

2. **Bothriocerodes castaneus,** sp. n. (Tab. IX. figg. 21, 21 *a*, *b*.)

Subparallelus, postice paullo ampliatus, vertice et pronoto castaneis; fronte testaceâ, nigro late marginatâ, haud ad medium carinatâ; clypeo carinato, suturâ clypeali rectâ; pronoto brevissimo; scutello tricarinato, carinis plus minusve indistinctis; tegminibus castaneo-pellucidis, vittâ irregulari fuscâ, vel maculâ ad marginem, pone medium instructâ, margine costali antice opacâ castaneâ; abdomine plus minusve fusco; corpore subtus antice pedibusque dilute testaceis.

In form like the preceding, with the vertex transverse, castaneous; frons testaceous, with broad dark margins, not carinate in the middle; clypeus with distinct central carina; pronotum very short; scutellum with three keels, which, especially the central one, are not strongly marked; tegmina somewhat widened behind, semitransparent, testaceous, with a large dark spot at the margins behind the middle, which is more or less indistinctly continued across the disc; abdomen fuscous; underside of the body in front and the hind tibiæ light testaceous.

Long. cum tegm. 7 millim.; lat. ad hum. 2–2½ millim. (♀.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Two specimens.

3. **Bothriocerodes metallicus,** sp. n. (Tab. IX. figg. 22, 22 *a*.)

Præcedentibus multo minor, parallelus, opacus, niger, tegminibus metallicis, iridescentibus; vertice brevi, hoc et fronte carinatis; fronte nigrâ, testaceo marginatâ; pronoto perbrevi, nigro; scutello magno, nigro, distincte tricarinato; tegminibus metallicis, virescentibus, pernitidis, fortiter asperate sculpturatis; corpore subtus nigro, testaceo variegato; pedibus dilute flavis.

Much smaller than the preceding, parallel, blunt, shining, with the tegmina metallic; vertex short, carinate; frons with central carina black, with broad testaceous margins; pronotum black, very short; scutellum

large, black, distinctly tricarinate; tegmina very shining, metallic green, strongly and closely asperate; underside dark, variegated with testaceous; legs light yellow.

The female with a very long ovipositor.

Long. cum tegm. $5\frac{1}{2}$ millim.; lat. ad hum. $1\frac{1}{2}$ millim. (♀.)

Hab. PANAMA, Bugaba (*Champion*).

Two specimens. This species is very unlike the others in general appearance, and may have to be separated from the genus *Bothriocerodes*.

METABRIXIA, gen. nov.

Capite pronoto angustiori; vertice a fronte carinâ transversâ separato; oculis fere integris; fronte longâ, sursum sensim angustatâ, carinâ centrali perdistinctâ, lateribus carinatis, ocello frontali magno; clypeo ad medium et ad latera carinato; pronoto brevissimo; scutello tricarinato; tegminibus tectiformibus, apicem versus sensim angustatis, pone clavum leviter dilatatis, venis radiali et ulnari exteriori ante medium furcatis; pedibus longis, tibiis posticis spinis parvis variantibus instructis.

Mas segmento ultimo ventrali processu parvo medio, stylis longis, apicibus plus minusve securiformibus.

Head narrower than the pronotum; vertex separated from the forehead by a transverse keel; eyes large, almost entire, or very slightly flattened or minutely emarginate on their lower side; forehead and clypeus long, with a central carina, which is interrupted by the large ocellus, the sides carinate; pronotum very short; scutellum distinctly tricarinate; tegmina gradually widened towards the apex, tectiform, closely adpressed to the sides at rest, more or less dilated behind the clavus*; legs long, posterior tibiæ with one or two larger, and sometimes one or two smaller, spines.

In general appearance the insects here included under the genus *Metabrixia* are closely allied to *Brixia*, Stål, and it is probable that many of the species now assigned to the latter genus will have to be transferred. Stål founded the genus *Brixia* (Ofv. Vet.-Ak. Förh. 1856, p. 162) to include a single species which he had described in the previous year as *Derbe natalicola*. In the 'Hemiptera Africana' [iv. p. 175 (1865)] he places four species under it—the one just mentioned, and another which he had previously described as *Delphax bohemani*, and also *Triopsis fasciata*, Sign., and *Derbe lunulata*, Am. et Serv. It is obvious, therefore, that *Brixia* gave him considerable difficulty, and his descriptions, moreover, of the genus are not quite consistent. In general facies the species described below (which are obscure and inconspicuous insects) would appear to resemble *Brixia*, but the transverse carina between the vertex and the frons, the almost entire eyes, the strong frontal and clypeal carinæ, and the one- or two-spined tibiæ sufficiently distinguish them, apart from the difference of locality—*Brixia* proper being, apparently, confined to the Old World.

1. **Metabrixia delicata**, sp. n. (Tab. IX. figg. 23, 23 *a*.)

Subpellucida, nitidiuscula, vertice testaceo ante oculos paullo producto, ad medium carinato; fronte suturali testaceâ, carinis mediâ et lateralibus dilutioribus; pronoto et scutello dilute testaceis, ad latera late

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* In one or two species this is not very evident, but it will be seen if a specimen of this genus and of *Cixius* are compared side by side. The general facies of *Metabrixia* is easily recognized, although the actual differences are somewhat hard to define satisfactorily.

nigrescentibus; tegminibus griseo-brunneis, marginibus plerumque peranguste dilute testaceis; alis lacteis, venis fuscis; pedibus testaceis.

Mas segmento ultimo ventrali processu medio instructo, stylis ad basim semicirculariter separatis, deinde approximatis, ad apicem subsecuriformibus.

Semitransparent, scarcely shiny, with the vertex truncate in front and carinate in the centre; forehead and clypeus together subovate; pronotum and scutellum light testaceous, with broad dark sides, the colour being distinctly marked; tegmina greyish-brown, with two small irregular spots near the margins, and the margins themselves narrowly, light testaceous; abdomen pitchy; legs testaceous.

Male with the process of the last ventral segment distinct, the styles long, separated in a semicircle near the base, and then approximate, diverging, and subsecuriform, and furnished with long hairs towards the apex.

Female with the last ventral segment truncate in the middle, and the ovipositor very long and strongly developed.

Long. cum tegm. 7 millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. MEXICO, Presidio (*Forrer*), Chilpancingo in Guerrero, Teapa in Tabasco (*H. H. Smith*).

A specimen from Chilpancingo is figured.

2. **Metabrixia aspersa,** sp. n. (Tab. IX. figg. 24, 24 *a*.)

Sat brevis, robustior, vertice ante oculos paullo producto, ad medium carinato, hoc et fronte brunneo-testaceis; oculis magnis, subtus levissime emarginatis, fere integris, brunneis nigro-variegatis; pronoto scutelloque ad medium rufo-piceis vel testaceis, ad latera nigrescentibus; tegminibus brunneis, testaceo-variegatis, venis crasse granulatis; alis lacteis, venis piceis; abdomine piceo; pedibus brunneis, testaceo-variegatis.

Mas segmento ultimo ventrali processu brevi instructo, stylis magnis, approximatis, ad apicem securiformibus.

A rather short and robust species; head a little produced before the eyes; forehead and clypeus lozenge-shaped; pronotum and scutellum variable, rufo-piceous or testaceous in the centre, darker at the sides; tegmina brown, variegated with lighter and darker testaceous, this colour forming two or three more or less irregular patches towards the apex and base, the veins strongly marked, brown, with light tips at the apex, and marked with strong, brown, raised granulations; wings opaque, milky, with dark veins; abdomen pitchy; legs testaceous, somewhat variegated.

Male with the last ventral segment furnished with a short process, and with the styles large, approximate, and strongly securiform at the apex.

Long. cum tegm. 5–6 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); COSTA RICA, Irazu (*Rogers*).

This species differs considerably from the rest, and may belong to another genus: it is broader, with the tegmina less adpressed to the sides at rest, and the dilatation behind the clavus scarcely evident. A specimen from Teapa is figured.

3. **Metabrixia germana,** sp. n. (Tab. IX. figg. 25, 25 *a*.)

Præcedenti affinis, sed dilutior et angustior, vertice ante oculos ad latera utrinque producto, elevato; fronte longiori; pronoto scutelloque ad medium testaceo, ad latera fusco; tegminibus subpellucidis, venis minus distincte granulatis; pedibus testaceis.

Mas segmento ultimo ventrali processu brevi medio instructo, stylis longis, approximatis, apicibus securiformibus.

Closely allied to the preceding, but distinguished from it by the produced and raised sides of the vertex, if viewed from above, and by the longer and narrower frons; the tegmina are much less coarsely granulate,

with the granulations sometimes indistinct, their colour, too, being more or less concolorous with a few fuscous markings in the interstices, and the more or less distinct markings on the margins towards the apex.

Male-characters much as in the preceding, except that the styles are a little less strongly securiform at the apex.

Long. cum tegm. 6–7 millim.; lat. $1\frac{1}{2}$ millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); COSTA RICA, Rio Sucio, Irazu (*Rogers*).

We figure a specimen from Teapa.

4. **Metabrixia tacta,** sp. n. (Tab. X. figg. 1, 1 *a*.)

Sat robusta, vertice sat longo, antice truncato, haud ad medium carinato; fronte longa, ocello frontali perconspicuo; pronoto scutelloque ad medium piceo, ad latera nigro; tegminibus subpellucidis, nigro irregulariter vittatis, venis crassis, variegatis; alis lacteis, venis fuscis; pedibus testaceis.

Mas segmento ultimo ventrali processu brevi instructo, stylis longis divergentibus, apicibus subsecuriformibus.

A very distinct and rather robust species, with the vertex produced before the eyes and not raised at the margins; forehead long; eyes large, only slightly flattened beneath; pronotum and scutellum pitchy-brown in the centre, darker at the sides; tegmina semitransparent, very irregularly banded with black, and with the apex dark, the markings in front being more irregular than behind, the veins thick; wings milky, with the veins dark; legs testaceous.

Male with the process of the last ventral segment small, and with the styles long and divergent, and subsecuriform towards the apex.

Long. cum tegm. $7\frac{1}{2}$ millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

5. **Metabrixia maculata,** sp. n. (Tab. X. figg. 2, 2 *a*.)

Sat magna, vertice ante oculos producto, ad latera, supra viso, auriculato-elevato; fronte longâ, angustâ, hac et vertice dilute testaceis; pronoto testaceo; scutello piceo; tegminibus subpellucidis, fusco-variegatis, venis crassis, brunneo-maculatis; alis plus minusve fumosis; pedibus dilute testaceis.

A rather large species, with the vertex produced before the eyes and raised at the sides; forehead long and narrow, broadest just before the frontal ocellus; vertex, forehead, and pronotum testaceous; scutellum pitchy; tegmina semitransparent, variegated with brownish-fuscous or brown, the veins large, spotted, the spots giving the appearance of granulations; wings smoky; legs light testaceous.

Long. cum tegm. 9 millim.; lat. ad hum. 2 millim. (♀.)

Hab. GUATEMALA, Panima in Vera Paz (*Champion*).

One specimen. There are two other females in our collection, taken by Mr. Champion at Cerro Zunil, Guatemala, which are allied to this species, but seem to be distinct; the group, however, is so obscure that I prefer not to describe them at present. We have also obscure and imperfect specimens belonging to this genus from Senahu in Vera Paz, the Volcan de Chiriqui, and David.

ŒCLEUS.

Œcleus, Stål, Berl. ent. Zeitschr. vi. p. 306 (1862).

This genus is easily distinguished by the very narrow vertex, which is reduced to a mere slit between the eyes; in other respects it appears to be closely allied to *Oliarus* and *Cixius*.

I. *Pronotum with three distinct carinæ only; tegmina with all the veins, or at least the veins on the apical half, without granulations.*

1. **Œcleus seminiger.** (Tab. X. figg. 3, 3 *a*.)

Œcleus seminiger, Stål, Berl. ent. Zeitschr. 1862, p. 307 [1].

Hab. MEXICO (*coll. Signoret* [1]), Atoyac in Vera Cruz (*H. H. Smith*).

Œ. seminiger and the next two species have only three distinct carinæ on the pronotum, and bear much the same relation to the others here referred to the genus as *Cixius* does to *Oliarus*. The present species has traces of the fourth and fifth keels, but these are sometimes found in species of *Cixius*.

2. **Œcleus tenellus,** sp. n. (Tab. X. figg. 4, 4 *a*.)

Parvus, vertice angustissimo, nigro, marginibus dilutis, fronte totâ genisque albido-testaceis; pronoto testaceo partim fuscato; scutello nigro, carinis tribus testaceis; tegminibus vitreis, venis haud granulatis, pone medium sat late fuscatis, maculâ fuscâ ad marginem supra et infra instructis; alis vitreis; pedibus albido-testaceis.

A small species, with the tegmina vitreous, the veins being scarcely marked on the anterior portion, while from a little behind the middle to the apex they are strongly marked with fuscous, and on both the exterior and anterior margins just behind middle there is a fuscous spot; the vertex is very narrow, black, with testaceous margins, and the whole of the forehead is testaceous; the scutellum is black, with three light-coloured carinæ; abdomen black; legs light testaceous.

Long. cum tegm. 4–4½ millim.; lat. ad hum. 1½ millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

I am unable to make out the characters of the male satisfactorily on our single specimen, as it has the abdomen a good deal shrivelled at the apex, but the last segment appears to be rather deeply and squarely emarginate, and slightly produced in the centre of the emargination.

3. **Œcleus teapæ,** sp. n. (Tab. X. figg. 5, 5 *a*.)

Quoad staturam præcedenti affinis, sed oculis majoribus, vertice ante oculos minus producto et fronte latiori distinguendus; fronte nigrâ, marginibus et carinâ mediâ testaceis; pronoto perbrevi; scutello fusco, testaceo-variegato, tricarinato; tegminibus pellucidis, venis distinctis, haud granulatis; abdomine fusco, testaceo-variegato; pedibus dilute testaceis.

Of about the same size as the preceding, but with larger eyes, and with the vertex less produced before them; forehead narrow between the eyes and then gradually widened, black, with the central keel, except at the base, and the margins, testaceous; pronotum very short; scutellum testaceous, with the spine on each side of the keel dark; tegmina transparent, with distinct dark veins, which are not, apparently, granulate; abdomen more or less fuscous; legs light testaceous.

Long. cum tegm. 5 millim.; lat. ad hum. 1¾ millim. (♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

A very distinct little species.

II. *Pronotum with five distinct carinæ.*

1. *Tegmina with the veins distinctly granulate towards the base, the granulations towards the apex being more or less merged in the dark veins.*

4. **Œcleus decens.** (Tab. X. figg. 6, 6 *a*; 7, ♀, terminal segments of abdomen from beneath.)

Œcleus decens, Stål, Berl. ent. Zeitschr. 1862, p. 307 [1].

Hab. Mexico [1], Chilpancingo and Amula in Guerrero (*H. H. Smith*).

In the typical specimen of this insect the granulations on the veins of the tegmina are scarcely visible on the posterior third, the fuscous lines being continuous. In the male the last abdominal segment is emarginate on each side and produced between the emarginations into a rectangular plate, which is sharply angled on each side at the apex, and is produced in the centre; the apices of the styles, which are securiform and hooked, do not project far beyond this plate.

2. *Tegmina with the veins granulose throughout.*

5. **Œcleus pellucens,** sp. n. (Tab. X. figg. 8, 8 *a*, ♀; 9, ♂, terminal segments of abdomen from beneath.)

Præcedenti valde affinis, sed plerumque dilutior, venis tegminum distincte nigro-granulatis, interdum vittâ plus minusve distinctâ instructis, colore et magnitudine variante.

Mas segmento ultimo ventrali utrinque emarginato, in medio late producto tridentato, stylis longis, apicibus securiformibus.

Variable in size and colour, much resembling *Œ. decens*, but with the veins of the tegmina more distinctly granulose; the apical veins are sometimes quite free from the surrounding colour, sometimes more or less fuscous, and occasionally there is a distinct band across the tegmina just behind the middle; the chief character, however, appears to be in the last ventral segment of the male, which is emarginate at the sides and produced into a broad but short plate in the centre, this plate being furnished with three distinct sharp teeth, and with an appendix in the centre, which is shorter than the styles, the latter being long, slender, and thickened at the apex.

Long. cum tegm. 5–7 millim.; lat. ad hum. 1–1½ millim.

Hab. Mexico, Chilpancingo in Guerrero, Teapa in Tabasco (*H. H. Smith*).

It is possible that the specimens with a fuscous band on the tegmina may belong to another species.

6. **Œcleus minimus,** sp. n. (Tab. X. figg. 10, 10 *a*, *b*, ♂.)

Præcedenti valde affinis, sed multo minor, segmento ultimo maris ad medium late producto, haud dentato, facile distinguendus.

Very closely resembling the preceding, from which it is only distinguished by its small size and the characters of the last abdominal segment of the male, the latter being deeply excised and produced into a short plate in the centre, the apex of which is minute and has a short dark appendix in the middle; the styles are long, securiform, and somewhat hooked.

Long. cum tegm. vix 4 millim.; lat. ad hum. 1 millim.

Hab. Mexico, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

Before carefully examining the male-characters I had included this species under the preceding as a very small variety.

7. **Œcleus brunneus,** sp. n. (Tab. X. figg. 11, 11 *a*.)

Fusco-brunneus, capite supra viso æque longo ac lato, vertice inter oculos magnos perangusto, indistincte marginato; fronte nigrâ carinâ dilutiori, clypeo brunneo; scutello quinquecarinato, carinis et lateribus dilutioribus; tegminibus maculâ nigrâ ad marginem pone medium, notâ albidâ parvâ antice prætentâ; corpore subtus plus minusve fuscato; pedibus dilute testaceis, tarsis anticis fuscis.

Of a fusco-brunneous colour, with the pronotum, the keels and sides of the scutellum, and part of the underside lighter; vertex extremely narrow between the eyes and scarcely margined; tegmina with a dark spot at the margins behind the middle, bounded in front by a small white mark, the granulations of the veins dark; legs testaceous, anterior tarsi more or less fuscous.

Long. cum tegm. 7 millim.; lat. ad hum. $2\frac{1}{2}$ millim. (♀.)

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*).

This insect may be only a variety of *Œ. pellucens*, as it closely resembles it in structure.

3. *Tegmina with the granulations indistinct, especially towards the base.*

8. **Œcleus concinnus,** sp. n. (Tab. X. figg. 12, 12 *a*, *b*, ♂.)

Flavescens, opacus, vertice perangusto, nigro, flavescenti-albido marginato; fronte nigrâ, marginibus et carinâ mediâ plerumque flavescentibus, oculis brunneis; pronoto nigro, flavo-albido marginato; scutello nigro, carinis quinque perdistinctis maculisque ad latera flavescentibus vel flavo-rufis; tegminibus flavescentibus, opacis, indistincte granulosis; abdomine pedibusque nigris, plus minusve flavo-notatis.

Mas segmento ultimo ventrali utrinque emarginato in medio late obtuse triangulariter producto, subdenticulato, processu brevi nigro instructo.

A very pretty species, with the yellow keels and margins of the head, pronotum, and scutellum distinctly marked on a black ground; tegmina of an opaque yellowish colour, somewhat shining, with the veins concolorous and scarcely visibly granulose unless viewed from the side; abdomen and legs mostly black.

Male with the last ventral segment of the abdomen produced into a bluntly triangular plate, which at its apex (when seen under a high magnifying-power) is roughly denticulate, with a short blunt process in the middle; styles short.

Long. cum tegm. 6–7 millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Several specimens. We have an example from Caldera, Panama, which closely resembles this species, but it has the vertex less produced and the veins of the tegmina are plainly granulose.

9. **Œcleus addendus,** sp. n. (Tab. X. figg. 13, 13 *a*.)

Parvus, parallelus, pellucidus, nitidus, vertice angustissimo, vix inter oculos producto; fronte brunneâ, marginibus carinâque centrali testaceis; pronoto perangusto; scutello rufo-brunneo, distincte quinquecarinato, carinis testaceis; tegminibus pellucidis, venis testaceis, indistincte granulatis; abdomine rufo-brunneo, ad partem nigro; pedibus testaceis.

Mas segmento ultimo ventrali in medio leviter late producto, apice sinuato, ad medium leviter triangulariter producto.

A very distinct little species, of a rufescent-brownish colour, with the margins and keels testaceous; the vertex

is extremely narrow and not produced in front; the tegmina are transparent and shining, with testaceous veins, and very indistinct granulations, which are set wider apart than in other species of the genus; abdomen reddish-brown or partly black; legs testaceous.

Male with the last abdominal segment slightly produced and angled at the sides, the apical plate being sinuate and somewhat sharply produced in the centre.

Long. cum tegm. 4–5 millim.; lat. ad hum. 1–1½ millim. (♂ ♀.)

Hab. GUATEMALA, Volcan de Chiriqui (*Champion*).

In our collection there are also several single specimens belonging to this genus, from Cuernavaca, Chilpancingo, San Isidro, Rio Naranjo, and Caldera, but they can hardly be described without more material.

OLIARUS.

Oliarus, Stål, Berl. ent. Zeitschr. vi. p. 306 (1862).

In this genus the vertex is a little longer than broad, subquadrate, or transverse, and is angularly notched behind; the frons and clypeus taken together are broadest about the middle, and have the central carina distinct. In the typical species the scutellum has five complete and distinct carinæ, the frontal ocellus is very distinct, and the frontal carina just at the vertex is minutely forked or thickened, so as to form a small triangle with the margin of the vertex as its base. These characters, however, are variable, and the genus appears to merge into *Hyalesthes*. It is also very closely allied to *Cixius*.

1. **Oliarus excelsus,** sp. n. (Tab. X. figg. 14, 14 *a*.)

Niger, sat robustus, vertice subquadrato, postice latiori, fronte carinâ mediâ marginibusque testaceis; pronoto nigro, testaceo anguste marginato; scutello magno; tegminibus vitreis, fusco indistincte vittatis, venis fuscatis, granulatis; alis ad apicem fuscatis; abdominis segmentis anguste testaceo marginatis; pedibus testaceis.

Rather a robust species, black, with the margins of the frons, pronotum, and scutellum, and of the segments of the abdomen, narrowly testaceous; vertex subquadrate, slightly narrowed in front; scutellum large; tegmina with more or less distinct fuscous vittæ or spots, and similarly-coloured veins, the latter granulate and furnished with scanty hairs, the transverse veins before the apex appearing thickened with fuscous colour; legs testaceous.

Long. cum tegm. 6–7 millim.; lat. ad hum. 2 millim. (♀.)

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

Two specimens. There is an imperfect male of an *Oliarus* in our collection from Cuernavaca in Morelos, which may belong to this species.

2. **Oliarus concinnulus,** sp. n. (Tab. X. figg. 15, 15 *a*, *b*, ♂.)

Parvus, concinnus, parallelus, vertice latitudine longiori nigro testaceo marginato; oculis sat magnis, dilutis, infra leviter emarginatis; pronoto brevissimo; scutello nigro vel fusco, quinque-carinato; tegminibus pellucidis, venis testaceis, ad apicem fuscis, plus minusve distincte granulatis; abdomine plerumque nigro; pedibus testaceis, ad partem fuscatis.

Mas segmento ultimo ventrali profunde emarginato, basi emarginationis truncatâ, in medio producto; stylis permagnis ad apicem fortiter rotunde dilatatis.

Parallel; vertex slightly longer than broad, projecting a little beyond the eyes, which are large, light-coloured, and slightly emarginate behind; vertex, frons, and pronotum dark, with the margins and the frontal keel testaceous; frontal ocellus distinct; scutellum dark or fuscous, with five distinct keels, which are sometimes lighter than the disc; tegmina transparent, with the veins distinct and finely granulated, and with a dark spot at the margins behind the middle; abdomen for the most part black; legs testaceous, more or less infuscate.

Male with last ventral segment deeply emarginate, the emargination truncate and produced in the middle; the styles large and long, and much dilated at the apex.

Long. cum tegm. 4–4½ millim.; lat. ad hum. 1½ millim.

Hab. MEXICO, Atoyac in Vera Cruz, Chilpancingo in Guerrero (*H. H. Smith*).

The waxy secretion of the female seems to be very abundant for so small an insect. A single female from Teapa ought, perhaps, to be referred to this species, although it is slightly larger and somewhat different.

I have received specimens of a closely allied form from Mr. Ball, from British Guiana and Peru; these, so far as I can judge from Stål's description, should be referred to *O. lunatus* (Fabr.), and it is possible that our insect may have to be referred to the same species. *O. concinnulus* appears, however, to be darker-coloured and to differ somewhat in the apical venation of the tegmina.

3. **Oliarus propior,** sp. n. (Tab. X. figg. 16, 16 *a*, *b*, ♂.)

O. concinnulo affinis, sed major, vertice latitudine distincte longiori, oculis magnis; scutello plus minusve distincte quinque-carinato; tegminibus pellucidis, venis distinctis, fuscis, apicem versus haud evidenter granulatis; abdomine nigro; pedibus testaceis, plus minusve fuscatis.

Mas segmento ultimo emarginato ad medium acute producto, stylis magnis, robustis, apicibus fortiter dilatatis.

An obscure species, larger than the preceding, with the vertex longer than broad and the eyes large; scutellum with the interior pair of carinæ not always very distinct; tegmina transparent, with fuscous veins, which, at any rate towards the apex, are scarcely visibly granulate; abdomen black; legs testaceous, more or less infuscate.

Male with the last ventral segment of the abdomen deeply emarginate, with a sharp process in the centre, the styles long, robust, and very strongly and almost circularly dilated at the apex.

Long. cum tegm. 6–7 millim.; lat. ad hum. 1½–2 millim.

Hab. MEXICO, Chilpancingo in Guerrero, Teapa in Tabasco (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*).

I cannot separate the specimens from Atoyac from the others, but in two males from the latter locality the process in the centre of the emargination of the last segment is shorter and thicker, and in one the styles are extraordinarily developed. We figure an example from Chilpancingo.

4. **Oliarus lacteipennis,** sp. n. (Tab. X. figg. 17, 17 *a*.)

Præcedenti affinis, sed paullo minor, vertice magis subquadrato, tegminibus alisque lacteis, facile distinguendus.

Very like the preceding, but with the vertex distinctly more quadrate, and less prominent before the eyes; the scutellum has the inner carinæ more strongly marked; tegmina milky-white, semitransparent, with the

veins fuscous towards the apex, fine but strongly marked, scarcely, if at all, granulose at the tip; legs testaceous.

Long. cum tegm. 5 millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

5. **Oliarus humeralis,** sp. n. (Tab. X. figg. 18, 18 *a.*)

Præcedenti affinis, sed capite minori, vertice latitudine longiori et fronte ad basim magis contractâ; pronoto brevissimo; scutello minus distincte quinque-carinato; tegminibus lacteis ad humeros fuscatis, venis albidis, ad apicem sparsim fusco adspersis; pedibus dilute testaceis.

Allied to the preceding, but with a smaller head and narrower vertex (in these points the species resembles *O. concinnulus*); the forehead evidently more contracted before it joins the vertex; scutellum rather indistinctly carinate; tegmina milky, semitransparent, with the basal fourth part fuscous; the suture in the middle is very narrowly infuscate, and there are a few small fuscous spots at the apex; the veins are white or whitish, darkened at the extreme apex; legs light testaceous.

Long. cum tegm. $4\frac{1}{2}$–5 millim.; lat. ad hum. $1\frac{1}{2}$ millim. (♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

6. **Oliarus breviceps,** sp. n. (Tab. X. figg. 19, 19 *a.*)

Major, capite brevi, vertice quadrato, oculis supra visis transversis; scutello haud fortiter carinato, carinis intermediis indistinctis; tegminibus sublacteis, venis distinctis fuscis, granulosis; abdomine nigrescenti, pedibus plerumque testaceis.

A somewhat large species, with a short and broad head, the vertex being quadrate, and the eyes, viewed from above, plainly broader than long; frontal ocellus very distinct; scutellum with three distinct carinæ, and two feeble carinæ on each side of the central one, which are abbreviated in front; tegmina subpellucid, slightly milky, with plainly-marked granulose veins, and with several small fuscous spots on the disc, some of the veins, too, towards the apex being bounded with fuscous; abdomen black; legs testaceous, femora infuscate.

Long. cum. tegm. 8 millim.; lat. ad hum. $2\frac{1}{2}$ millim. (♀.)

Hab. N. MEXICO, Juarez (*Cockerell*).

7. **Oliarus chiriquensis,** sp. n. (Tab. X. figg. 20, 20 *a.*)

Varians, capite parvo, vertice latitudine longiori, ante oculos vix producto; pronoto brevissimo, viridescente; scutello distincte quinque-carinato; tegminibus subparallelis, lateribus rotundatis, pellucidis, nitidis, interdum ad basim nigris, venis distinctis, fusco-notatis; pedibus testaceis.

Head small, much narrower than the pronotum, with the vertex longer than broad, and very slightly produced in front of the eyes; frons broadest just before the clypeus, brown, mottled with greenish; frontal ocellus not distinct, but present; pronotum very short, greenish; scutellum testaceous, with greenish margins, with a distinct dark central carina and two others on each side of this; tegmina shining, vitreous, with the base sometimes strongly but irregularly darkened between the shoulders and the scutellar regions, the veins strongly marked, partly light-coloured, but distinctly marked with fuscous, the forks of the radial and second ulnar veins being thus made especially conspicuous; the costal margin also variegated; legs testaceous.

Long. cum tegm. 6–7 millim.; lat. ad hum. $2\frac{1}{2}$–3 millim. (♀.)

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

A fair series, but all females. The greenish colour of the frons, pronotum, &c., is probably much more conspicuous in life; in some specimens it has entirely faded. The frontal ocellus, viewed under an ordinary lens, is very hard to trace, and in some

specimens appears to be absent; but under a compound microscope, with a good light, it is visible and distinct: this is the case with several allied species.

8. **Oliarus insignior,** sp. n. (Tab. X. figg. 21, 21 *a*, ♀; 22, ♂, terminal segments of abdomen from beneath.)

Major, fusco-pellucida, nitida, vertice latitudine paullo longiori, antice paullo angustiori, fusco-testaceo, ad medium nigro; fronte carinâ centrali et marginibus nigris; ocello frontali perconspicuo; scutello magno, distincte quinque-carinato; tegminibus fusco-pellucidis, vittis ad apicem duabus plus minusve regularibus, interdum pæne deficientibus, instructis, venis distinctis fuscis; abdomine supra nigrescenti; corpore subtus cum pedibus testaceis.

Mas segmento ultimo ventrali leviter arcuatim emarginato, processu angusto, stylis robustis, longis, apicibus fortiter dilatatis, truncatis.

A large species, with the head rather small; vertex a little longer than broad, slightly produced and narrowed in front, fusco-testaceous, with a dark median line; forehead with the central keel and the extreme margins black, the rest light testaceous; frontal ocellus very plain; scutellum with five very distinct carinæ, testaceous, with dark bands at the sides; tegmina shining, fusco-vitreous, with more or less irregular dark bands or markings before the apex and very distinct venation; abdomen mostly dark; legs light testaceous.

Male with the last ventral segment slightly, circularly emarginate, with a narrow and elongate process in the centre, and the styles very large and robust, the latter much widened and obliquely truncate at the apex.

Long. cum tegm. 9–10 millim.; lat. ad hum. 3–3½ millim.

Hab. GUATEMALA, Vera Paz, El Tumbador, Cerro Zunil (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

The specimen from El Tumbador is figured.

9. **Oliarus nigro-alutaceus,** sp. n. (Tab. X. figg. 23, 23 *a*, ♀; 24, ♂, terminal segments of abdomen from beneath.)

Niger, nitidus, alutaceus, ocellis et oculis albidis, ocello frontali perdistincto; vertice subexcavato, paullo ante oculos producto, apice truncato; scutello distincte quinque-carinato, leviter sculpturato, haud nitido; tegminibus pernitidis, asperate sculpturatis; alis fumatis; pedibus fusco-testaceis.

Mas segmento ultimo ventrali processu longo parallelo, stylis longis, apicibus subsecuriformibus.

Black, shining, alutaceous, with the eyes whitish, all the ocelli distinct; vertex subexcavate, a little longer than broad; pronotum with the central keel and extreme margin light; scutellum dull, with five distinct carinæ; tegmina very shining, quite opaque, unicolorous-black, strongly asperate; legs nigro- or fusco-testaceous.

Male with the last ventral segment furnished with a long, parallel, central process, and with long styles, which are dilated and rounded at the apex and touch one another in the centre.

Long. cum tegm. 4½–5 millim.; lat. ad hum. 1½ millim.

Hab. MEXICO, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

This insect is entirely different in appearance from any other member of the genus *Oliarus* known to me; but it agrees with the typical species in the shape of the vertex, which is angularly emarginate behind, the carination of the scutellum, and even in having the base of the central frontal carina forked—a character which is sometimes replaced in others of the genus by a slight thickening.

Besides the above species, there are three or four obscure insects in our collection which belong to this genus, but it is better not to describe them. There is also a single example of a species apparently allied to *O. insignior*, in which there is no frontal ocellus, and the division between the clypeus and frons is well-marked.

CIXIUS.

Cixius, Latreille, Gen. Crust. et Ins. iii. p. 166 (1807); Amyot et Serville, Hist. Nat. Ins. Hem. p. 507.
Cixia, Burmeister, Handb. Ent. ii. 1, p. 157 (1835).

The genus *Cixius* proper is distinguished by having the base of the vertex roundly emarginate, the pronotum tricarinate, and the granulations of the tegmina strong and distinct, and more or less setigerous. It is apparently very scantily represented in Central America, its place being taken by *Œcleus* and *Oliarus*. A distinct frontal ocellus is usually, but not always, present.

1. **Cixius montanus**, sp. n. (Tab. X. figg. 25, 25 *a*.)

Capite brevi, vertice transverso, excavato; fronte rufo-brunnea, ocello frontali interdum distincto, interdum pæne deficiente; pronoto perbrevi; scutello brunneo, ad latera dilutiori, sat lævi, distincte tricarinato; tegminibus pellucidis, vittâ communi latâ ad medium, maculisque quibusdam basim versus, fuscis, venis distincte fusco-granulatis; abdomine supra nigrescenti; pedibus testaceis.

Head short, vertex transverse, excavate; forehead rufo-testaceous, with the central keel and margins lighter; frontal ocellus sometimes distinct, sometimes very small or rudimentary; pronotum very short; scutellum dark, lighter at the sides, with three distinct carinæ; tegmina pellucid, with a broad transverse band and some variable spots towards the apex fuscous, the band occasionally broken, the veins with strong dark granulations, the transverse ones towards the apex strongly but very narrowly marked with fuscous; abdomen dark above, lighter beneath; legs testaceous.

Long. cum tegm. 7 millim.; lat. ad hum. $2\frac{1}{2}$ millim. (♀.)

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

Several specimens, all females. This insect superficially resembles the European *C. nervosus* and its allies.

2. **Cixius comptus**, sp. n. (Tab. X. figg. 26, 26 *a*.)

Sat parvus, vertice brevi, excavato, carinato, antice subrotundato, testaceo, fronte clypeoque testaceis; ocello frontali indistincto; pronoto brevi, testaceo; scutello castaneo, distincte tricarinato; tegminibus pone humeros dilatatis, deinde subparallelis, pellucidis, parte basali ad suturam opacâ, testaceâ, et vittis duabus irregularibus ad et pone medium brunneo castaneis, apicibus fusco-notatis; venis distinctis granulatis; abdomine plus minusve piceo; pedibus dilute testaceis.

Rather a small species, with the vertex, frons, and clypeus testaceous, the former excavate and carinate and bluntly rounded in front; frontal ocellus small, but distinctly visible under a high magnifying-power; scutellum castaneous or pitchy, with three distinct carinæ; tegmina dilated behind the shoulders, and from thence subparallel, transparent, with the parts near the suture in front opaque testaceous, bounded with darker colour, the shoulders with a dark patch, and at and behind the middle are two irregular

castaneous bands; the apex is also marked with darker colour, and the veins are distinct, with strong granulations throughout; abdomen more or less pitchy; legs light testaceous.

Long. cum tegm. 6 millim.; lat. ad hum. $1\frac{1}{2}$–2 millim. (♀.)

Hab. MEXICO, Sierra Madre Mountains (*coll. Ball*).

Two specimens. This species is closely allied to *C. montanus*, but it is smaller, and has the vertex of the head more produced and rounded in front, the frontal ocellus less distinct, and the tegmina shorter and more dilated behind the shoulders; the granulations, moreover, of the veins are stronger.

3. **Cixius flavo-brunneus,** sp. n. (Tab. X. figg. 27, 27 *a*, *b*, ♂.)

Capite brevi, vertice transverso, excavato, ante oculos paullo producto; ocello frontali distincto; fronte, pronoto et scutello flavo-brunneis, hoc perdistincte tricarinato; tegminibus subpellucidis, flavo-brunneis, haud maculatis; abdomine flavescenti; pedibus testaceis, femoribus ad partem infuscatis.

Mas segmento ultimo ventrali emarginato, processu angusto mediali, stylisque magnis latis securiformibus.

Of a yellowish-brown colour, with the vertex transverse, excavate, produced before the eyes; frontal ocellus very distinct; pronotum short; scutellum smooth, distinctly tricarinate; tegmina subpellucid, yellowish-brown, without spots on the disc, the veins testaceous, with strong fuscous granulations, the transverse ones also marked with fuscous; abdomen yellowish; legs testaceous.

Male with the last ventral segment emarginate, with a distinct median process, and with large broad securiform styles.

Long. cum tegm. 7 millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

4. **Cixius apicatus,** sp. n. (Tab. X. figg. 28, 28 *a*.)

Quoad colorem staturamque præcedenti affinis, sed vertice breviori, haud excavato, ante oculos haud producto, ocello frontali indistincto vel deficiente, et apicibus tegminum et alarum fuscis, facile distinguendus.

Of the same colour and almost the same size as the preceding, but with the vertex of the head shorter, not excavate and not produced before the eyes; frontal ocellus indistinct, but visible under a high power; tegmina shining, transparent, yellowish-brown, widened in the middle, with the apex and a patch or two before it fuscous, the granulations distinct, the transverse veins not especially marked; apex of wings infuscate; legs testaceous.

Long. cum tegm. $6\frac{1}{2}$ millim.; lat. ad hum. 2 millim. (♀.)

Hab. GUATEMALA, Senahu and San Juan in Vera Paz (*Champion*).

Two specimens.

HAPLAXIUS, gen. nov.

Capite modico, subrotundato, vertice latitudine evidenter longiori, ad basim haud emarginato, ante oculos haud vel vix producto, lævi; fronte fere æque longâ ac latâ, subrotundatâ, a clypeo sulco sat profundo separatâ, hoc ad latera carinato; ocello frontali interdum vix distincto; pronoto brevi; scutello tricarinato, carinis plerumque indistinctis; tegminibus pellucidis, haud vel vix evidenter vel delicatissime granulatis, venâ radiali et venâ ulnari interiori paullo pone medium æquidistanter furcatis, areis apicalibus novem vel decem; tibiis simplicibus.

Head subrotundate, with the vertex long and smooth, and not emarginate at the base, and not or scarcely produced before the eyes; forehead about as long as broad, roughly subrotundate, separated from the clypeus by a distinct furrow, clypeus carinate at the sides; pronotum short; scutellum with three

indistinct carinæ; tegmina with the radial and interior ulnar veins forked at about an equal distance, slightly behind the middle, the granulation not or scarcely evident; tibiæ simple.

This genus is allied to *Cixius*, from which it may be known by the absence of the coarse setigerous granulations of the tegmina, the almost or quite straight hind margin of the long and smooth vertex, and the shorter frons and clypeus, which are separated by a deeper furrow.

1. **Haplaxius lævis,** sp. n. (Tab. X. figg. 29, 29 *a*, *b*, ♀; 30, ♂, terminal segment of abdomen from beneath.)

Vertice testaceo; fronte dilute testaceâ, antice et postice nigro-notatâ; pronoto testaceo, ad partem infuscato; scutello rufo-brunneo, carinis testaceis, colore variante; tegminibus pellucidis, vena radiali partibusque quibusdam venarum aliarum infuscatis; abdomine testaceo, ad partem nigrescente; pedibus testaceis.

Mas segmento ultimo ventrali leviter emarginato, processu brevi mediali obtuso, stylis sat magnis, apicibus securiformibus rotundatis.

Vertex long, with a trace of a carina at the base; forehead light testaceous, with very distinct and regular black markings in front and behind; pronotum testaceous, with blackish markings; scutellum variable in colour, usually reddish-brown, with the indistinct carinæ lighter, sometimes with an infuscate stripe on each side of the outside pair; tegmina transparent, with the radial vein and parts of the other veins strongly infuscate; abdomen varying in colour; legs testaceous.

Male with the last ventral segment of the abdomen gently emarginate, with a short, blunt, central process and rather large styles, which are dilated and securiform at the apex.

Long. cum tegm. 5–5½ millim.; lat. ad hum. 1½–2 millim.

Hab. MEXICO, Mexico city (*H. H. Smith*).

Several specimens, including male and female.

2. **Haplaxius frontalis,** sp. n. (Tab. X. figg. 31, 31 *a*.)

Niger vel brunneus, colore variante; vertice albido vel dilute testaceo; fronte albescenti, nigro et rufo-flavo notato; pronoto nigro-fusco testaceo-marginato; scutello ad latera nigro, ad medium albescente, vel toto vel ad partem testaceo-brunneo; tegminibus pellucidis, maculâ costali excepta, immaculatis, haud evidenter granulatis.

Variable in colour, black or brown; vertex of a whitish-yellow, which is very conspicuous between the dark eyes; forehead whitish-yellow, with the base black and a triangular orange patch just before the clypeus, these markings, however, variable and sometimes yellowish-brown; frontal ocellus visible under a high magnifying-power; pronotum dark with light margins, or brownish; scutellum dark at the sides, yellowish-white in the centre, or uniformly brownish-testaceous, or lighter in the middle; tegmina transparent, with the veins well-marked, but without spots, except the usual costal patch before the apex; legs light testaceous.

Long. cum tegm. 4½-5 millim.; lat. ad hum. 1–1½ millim. (♀.)

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

There are two insects in our collection, from Teapa in Tabasco, which closely resemble this species, and differ chiefly in being entirely of a light testaceous colour and in having the veins of the tegmina very delicately but distinctly granulose; they may belong to another species, especially as the vertex is rather distinctly carinate at the base, but they can hardly be described until more are found.

MICROLEDRIDA, gen. nov.

Brevis, sat latus, capite magno, obtuse triangulariter ante oculos producto, vertice carinâ mediâ distinctâ instructo; fronte latâ, convexâ, ad medium et ad latera subtiliter carinatâ, clypeo fronte multo angustiore, lateribus carinatis; pronoto sat longo, carina mediâ distinctâ; scutello pronoto sesqui vel duplo longiore, plus minusve distincte tricarinato; tegminibus subcoriaceis, venis utrinque granulis setosis instructis, vena posteriori clavi apicem clavi haud attingente, venâ transversâ clavi venam posteriorem pone medium attingente; venâ radiali ad basim multo ante venam ulnarem interiorem furcatâ; costâ magnâ, granulosâ; areis apicalibus circiter undecim regularibus; tibiis posticis basim versus bispinosis.

Short and rather broad, with a large, produced, bluntly triangular head; vertex with a distinct carina; eyes longer than broad, not or scarcely emarginate; ocelli situated at the exterior angle in front; forehead broad, rounded, convex, and with very fine keels in the centre and at the sides, the former being sometimes scarcely visible; clypeus narrower than forehead, keeled at the sides; pronotum proportionately long, with distinct central keel; scutellum one and a half times, or twice, as long as the pronotum, feebly but plainly tricarinate; tegmina subcoriaceous, with the broad costal space and the veins on each side set with strong setose granulations, the transverse vein of the clavus joining the posterior vein behind the middle, the venation somewhat indistinct, but the radial vein appears to be forked not far from the base, considerably before the interior ulnar vein, the apical areas distinct and regular, eleven or twelve in number; wings with two transverse veins; posterior tibiæ with two teeth—one just at the base and the other a little before this, the former being more or less plainly bifid.

1. **Microledrida asperata,** sp. n. (Tab. XI. figg. 1, 1 *a*, *b*, ♀; 2, ♂, terminal segments of the abdomen from beneath.)

Vertice testaceo, rufo transversim notato, fronte dilute testaceâ, clypeo fuscato; pronoto scutelloque testaceis, hoc interdum fusco-notato; tegminibus subpellucidis, antice fusco plus minusve notatis, et vittâ fuscâ pone medium instructis; abdomine nigrescenti ad partem testaceo; pedibus testaceis.

Mas segmento ultimo ventrali late emarginato, ad medium in latum triangularem processu producto, stylis magnis ad basim late divergentibus, apicem versus approximatis, apicibus submalleiformibus.

Front parts testaceous, the vertex with more or less obscure reddish lines, the clypeus and part of the rostrum fuscous, the latter elongate; scutellum sometimes more or less fuscous; tegmina semitransparent, the apical half more or less fuscous, and also with a fuscous band behind the middle, the coarse granulations set with black setæ; abdomen more or less pitchy; metasternum testaceous, with granulations at the sides; legs testaceous.

Male with the last ventral segment produced in a blunt and broad triangle; styles long, much divergent behind, approximate in front, with large hammer-shaped tips.

Female with the last ventral segment simple, and the ovipositor strongly developed.

Long. cum tegm. $3\frac{1}{2}$ millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. Mexico, Chilpancingo in Guerrero (*H. H. Smith*).

PACHYNTHEISA, gen. nov.

Brevis, latus, vertice brevi, sat lato, carinato; oculis infra emarginatis; fronte latâ, ad medium vix, ad latera fortius carinatâ, clypeo ad basim lato carinâ mediâ distinctâ, lateribus carinatis; rostro longo, tenui; pronoto scutelloque distincte tricarinatis, hoc convexo illo duplo longiore; tegminibus amplis, brevibus, pone humeros latissimis, clavi venâ interiori clavi apicem haud attingente, venâ transversâ ad hanc in medio clavi adjunctâ, venâ radiali ante venam ulnarem interiorem furcatâ, venis magnis granulatis; tibiis posticis spinis duabus distinctis pone et ante medium et tertia minori ad basim indistinctis.

Short and broad, with a short and broad vertex, not or scarcely produced before the eyes, which are large and emarginate beneath; forehead broad, with a scarcely perceptible central keel, which becomes stronger at the apex; clypeus and frons both keeled at the sides, the former with a very strong central keel; rostrum long and slender; pronotum comparatively long, with three distinct keels, the side ones more or less

angled before the base; scutellum convex, tricarinate; tegmina broadest behind the shoulders, with strong granulose veins, the transverse claval vein reaching the posterior vein just at the middle, the radial vein forked before the interior ulnar vein; wings with two transverse veins; posterior tibiæ with two strong spines, one before and one behind the middle, and a smaller one just before the knees.

1. **Pachyntheisa concinna,** sp. n. (Tab. XI. figg. 3, 3 *a–c*, ♂.)

Fronte, vertice, pronoto et scutello plus minusve nigro-piceis, ad partem interdum dilutioribus; scutello subtilissime sculpturato, haud nitido; tegminibus nigro-piceis, vittis tribus albidis subpellucidis variantibus, mediâ interruptâ, venis granulationibus nigris instructis; abdomine piceo; pedibus testaceis, plus minusve piceis.

Mas segmento ultimo ventrali ad medium producto, stylis longis, divergentibus, deinde approximatis, et iterum divergentibus, apicibus latis securiformibus, pilosis.

Femina segmento ultimo ventrali ad medium truncato, ovipositore prælongo, fortiter curvato.

Front parts dark, or more or less testaceous; scutellum very finely sculptured, dull; tegmina dark, with three somewhat varying whitish semitransparent bands, the central one interrupted in the middle of each tegmen, and the hinder one interrupted at the suture, the apex internally pellucid; wings milky; legs testaceous or more or less pitchy.

Male with the last ventral segment of the abdomen with a process in the middle; styles very long, divergent, and enclosing a circular space, then approximate, and then again diverging, with pilose securiform tips.

Female with the last ventral segment truncate in the centre, and with the ovipositor very long and curved; waxy secretion strongly developed.

Long. cum tegm. 5 millim.; lat. ad hum. $2\frac{1}{2}$–3 millim.

Hab. Mexico, Chilpancingo and Xucumanatlan in Guerrero (*H. H. Smith*).

2. **Pachyntheisa excelsior,** sp. n. (Tab. XI. figg. 4, 4 *a*.)

Præcedenti valde affinis, sed vertice ante oculos paullo producto, pronoti basi magis emarginatâ; scutello longiori, deplanato, carinis magis distinctis; colore antice dilutiori; tegminibus subpellucidis fusco-notatis, granulationibus venarum perdistinctis; pedibus piceo-testaceis.

Very like the preceding, but with the vertex slightly produced before the eyes and subrectangular, the base of the pronotum more strongly and angularly emarginate; scutellum longer in proportion and flatter, and with more distinct keels; colour of the front parts lighter; tegmina transparent, with the granulations very strongly marked, but with no distinct banding, only traces of fuscous fasciæ and dark markings on the margins and at the sides; legs obscure testaceous, the femora more or less pitchy.

Long. cum tegm. 5 millim.; lat. ad hum. $2\frac{1}{2}$–3 millim. (♀.)

Hab. Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

One specimen. I was at first inclined to consider this insect as a variety of the preceding, but, apart from its coloration, it presents distinct differences in the structure of the vertex and, to a lesser extent, in that of the scutellum.

MICRIXIA, gen. nov.

Vertice brevi, angusto, ante oculos vix producto, oculis magnis infra distincte emarginatis; fronte antice sensim angustatâ, carinâ mediâ nullâ, lateribus distincte marginatis; clypeo ad medium et latera carinato; rostro longo; frontali carinâ nullâ; pronoto distincte medio-carinato; scutello pronoto fere duplo longiori, carinis tribus conspicuis; tegminibus pellucidis, ante medium latissimis, membranâ costæ permagnâ, venis radialibus et duabus ulnaribus fere equidistanter furcatis; venâ transversâ clavi breviter bifurcatâ; tibiis posticis haud spinosis.

Vertex small, short, and narrow, scarcely produced before the eyes, which are large and plainly emarginate

beneath; forehead gradually narrowed in front, without a central keel, but distinctly keeled at the sides; clypeus keeled in the centre and at the sides; rostrum long, comparatively stout; pronotum with a central keel and very faint traces of side-keels; tegmina transparent, with a very large and broad costal membrane, the three principal veins of the corium of about equal length, the apical and subapical areas more or less regular, the posterior claval vein situated at some distance from the suture and joining this towards the apex of the clavus, the transverse basal vein short, stout, and abruptly and shortly bifurcate at the middle of the clavus, one branch curved and touching the clavus, and the other straight and touching the posterior vein; posterior tibiæ without spines.

This genus includes an exceedingly pretty and distinct little species; in facies it resembles a minute *Cixius*.

1. **Micrixia costalis**, sp. n. (Tab. XI. figg. 5, 5 *a*, *b*.)

Antice testacea, carinis dilutioribus; pronoto quatuor parvis impressionibus instructâ, parte mediali interdum obscuriori; tegminibus pellucidis, venis testaceis; abdomine nigro; pedibus dilute testaceis.

Mas segmento ultimo ventrali ad medium obtuse producto, stylis magnis longis, sat tenuibus, curvatis, testaceis, apicibus interdum fuscatis, leviter dilatatis.

Front parts testaceous, with the keels lighter; pronotum sometimes a little darker in the middle, with two small distinct impressions on each side; tegmina transparent, with fine testaceous veins; abdomen black or pitchy; legs light testaceous.

Male with the last ventral segment obtusely produced in the centre; styles large, long, rather slender, recurved, testaceous, with the apices sometimes fuscous, the latter not strongly dilated and somewhat bifid.

Long. cum tegm. 3 millim.; lat. ad hum. $1\frac{1}{4}$ millim.

Hab. Mexico, Nepantla (*coll. Ball*).

Three specimens.

EPARMENE, gen. nov.

Brevis, lata, vertice brevi, ante oculos vix producto, carinato; fronte modicâ ad medium et ad latem carinatâ; ocello frontali nullo; clypeo ad latera leviter carinato, convexo; temporibus genisque conspicuis; rostro longo; pronoto sat longo, tricarinato; scutello pronoto sesqui vel duplo longiore, distincte tricarinato; tegminibus latis, subparallelis, subpellucidis, nitidis, clavâ venâ posteriori apicem haud attingente, venâ transversâ ad hanc in medio adjunctâ, venis corii radiali et ulnaribus ante areas apicales fere æquilongis; tibiis posticis haud spinosis.

Short and broad, with the vertex short, scarcely produced before the eyes, which are rather long and somewhat emarginate beneath; antennæ inserted just behind the eyes, with the first joint thick and rather long; forehead carinate at the sides and in the middle, of moderate breadth; clypeus convex, finely keeled at the sides; rostrum long; temples and genæ conspicuous on each side of the forehead and clypeus; pronotum comparatively long, tricarinate; scutellum convex, with three distinct keels; tegmina subparallel, transparent, with the posterior claval vein situated at some distance from the suture and joined by the transverse vein at about the middle, the radial and ulnar veins almost equal in length before the apical and subapical areas, united before the base; posterior tibiæ without spines.

1. **Eparmene pulchella**, sp. n. (Tab. XI. figg. 6, 6 *a*, *b*.)

Vertice, fronte pronotoque rufescentibus, clypeo dilute testaceo, antennis nigris; scutello abrupte nigro; tegminibus pellucidis, subtiliter testaceo- vel fusco-venatis, maculâ sat magnâ externâ ante apicem fuscatâ; abdomine nigrescente, supra rufo-notato; pedibus testaceis.

Mas segmento ultimo ventrali processu medio instructo, stylis fortiter incurvatis, apicibus angustatis.

Front parts rufescent, clypeus light testaceous; scutellum black, very finely sculptured, dull; tegmina trans-

parent, with fine testaceous or fuscous venation, and with a dark patch on the external margins before the apex; abdomen pitchy, more or less marked with red above; legs light testaceous.

Long. cum tegm. $3\frac{1}{2}$ millim.; lat. ad hum. $1\frac{1}{4}$–$1\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

A handsome little species, and probably very brightly coloured in life, the contrast between the red head and pronotum and the black scutellum being especially noticeable.

Two females in our collection, from Cerro Zunil, Guatemala, are perhaps a variety of *E. pulchella*; they have the front parts darker, the pronotum a little shorter, the scutellum more or less shining, and the sides of the clypeus less evidently keeled.

MNEMOSYNE.

Mnemosyne, Stål, Hemipt. Afr. iv. p. 150 (1866); Kongl. Svensk. Vet.-Ak. Handl. viii. no. 1, p. 91.

Stål places this genus among the Dictyopharida. The species I have identified as *M. planiceps* is superficially like a large *Cixius* or *Oliarus*. It may be characterized thus:—

Vertex very narrow; the three keels on the scutellum more or less obsolete, the side ones being sometimes very faint; the frons broad before the apex, and like the clypeus keeled in the middle and at the sides; no frontal ocellus is present, but the round scar is sometimes very distinct; tegmina more or less pellucid, the clavus with the posterior vein situated at some distance from the suture, and not continued to the apex, forming a fork with the transverse vein at about the middle, the radial vein of the corium forked much before the interior ulnar vein; posterior tibiæ bispinose.

The male-characters are somewhat complicated, and differ from those of *Cixius* and its immediate allies.

1. **Mnemosyne planiceps.** (Tab. XI. figg. 7, 7 *a*, *b*; 8, ♂, terminal segments of abdomen, from beneath.)

Flata planiceps, Fabr. Syst. Rhyng. p. 48 (1803) [1].

Mnemosyne planiceps, Stål, Kongl. Svensk. Vet.-Ak. Handl. viii. no. 1, p. 91 [2].

Mnemosyne cutana, Stål, Berl. ent. Zeitschr. 1866, p. 391 [3].

Hab. PANAMA, Volcan de Chiriqui and Bugaba (*Champion*). — SOUTH AMERICA [1 2]; BRITISH GUIANA, Bartica (*coll. Ball*); CUBA [3].

Mr. Ball has sent me two female specimens of this species from British Guiana, and they are structurally identical with our Panama insect, though differing slightly in colour and in having the minute granulations on the apical and subapical areas of the tegmina more numerous. I have not seen Stål's types, but his brief diagnoses of *M. planiceps* and *M. cutana* agree with our examples, of which a full description is appended:—

Sordide testacea, vertice perangusto, subexcavato, ante oculos magnos paullo producto, oculis infra levissime emarginatis; rostro tenui, prælongo; tegulis magnis, dilutioribus; scutello haud nitido, levissime sed distincte sculpturato; tegminibus longis, subpellucidis, fusco sparsim, præcipue ad medium et apicem, notatis, areis apicalibus et subapicalibus granulis minutis instructis, postice leviter dilatatis; abdomine nigrescenti; pedibus testaceis.

Mas segmento pygoferi ad medium in processum acutum producto, stylis dilatatis, spatium circulare includentibus, deinde convergentibus, processu utrinque longo auriculato; unco superiori lato supra, deinde in processum longum peracutum producto.

Of a sordid testaceous or somewhat castaneous colour, with the vertex very narrow, somewhat excavate, a little produced in front of the eyes, which are large and very slightly excavate beneath; pronotum short, strongly sinuate at the base; carinæ of the scutellum sometimes marked indistinctly with darker lines; tegmina long, transparent, slightly dilated towards the apex, with testaceous and fuscous veins, and with more or less scattered fuscous spots, which are usually thicker at the middle and apex, the apical and subapical areas with minute granulations; abdomen pitchy-black; legs testaceous.

Male with the segment of the pygofer long, with a sharp process in the middle of the margin and a stout process on each side; styles broad, dilated, divergent, enclosing a circular space, then converging; on each side of these is a long and rather narrow auriculate process; upper hook-like process continued beneath into a long and slender spine, which nearly touches the central process of the segment.

Long. cum tegm. 10 millim.; lat. ad hum. $4\frac{1}{2}$–5 millim.

Hab. PANAMA, Volcan de Chiriqui and Bugaba (*Champion*).

Fam. ACHILIDÆ *.

There seems to be no reason why the Tropiduchidæ should be separated from the Achilidæ, and we have therefore classed them together. They are closely allied to the Cixiidæ, and appear chiefly to differ in the fact that the external or posterior vein of the clavus does not reach the apex or is united to the sutural or commissural margin near the tip. The following table will serve to distinguish the genera represented in Central America:—

I. Sides of the clypeus carinate; tegmina more or less dilated behind the clavus. [ACHILINA.]	
i. Tegmina strongly overlapping for their posterior third, not tectiform.	
1. Head only slightly produced beyond the eyes	PLECTODERES, Spin.
2. Head more or less strongly produced before the eyes, either rectangularly or in an obtuse triangle	HELICOPTERA, A. & S.
3. Head produced before the eyes into a long snout, flattened at the sides	PSEUDHELICOPTERA, gen. nov.
ii. Tegmina not or scarcely overlapping, more or less tectiform .	CEDUSA, gen. nov.
II. Sides of the clypeus not carinate, except sometimes feebly at the base; tegmina not dilated behind the clavus. [TROPIDUCHINA.]	
i. Tegmina coriaceous	GRYNIA, Stål.
ii. Tegmina vitreous	RUDIA, Stål.

GRYNIA.

Grynia, Stål, Berl. ent. Zeitschr. vi. p. 308 (1862).

This genus may be known by the very long and prominent vertex, the strong keels on the vertex, pronotum, and scutellum, and the convex, cinereous, and thickly

* By W. W. FOWLER.

alutaceous tegmina, the corium of the latter being furnished with four very strong raised veins, which are almost obliterated behind the middle; the posterior tibiæ are trispinose.

1. **Grynia nigricoxis.** (Tab. XI. figg. 9, 9 *a*.)

Grynia nigricoxis, Stål, Berl. ent. Zeitschr. 1862, p. 308 [1].

Hab. MEXICO, Vera Cruz (*coll. Signoret* [1]).

Not represented in our collection, the figures being taken from a specimen belonging to the Vienna Museum.

RUDIA.

Rudia, Stål, Hemipt. Afr. iv. p. 187 (1866).

Stål describes this genus as follows:—"Capite brevi, ante oculos paullo prominulo; vertice arcuato, brevissimo; fronte carinis destitutâ, longitrorsum biimpressâ; clypei lateribus basi subcarinatis; venis clavi ante medium in unam conjunctis; tegminibus posterius seriebus duabus venularum transversarum instructis, costâ depressâ, latiusculâ; tibiis posticis trispinosis." He included in it *Achilus dilutus*, Stål, and *Achilus bicinctus*, Spinola; both these species appear to be represented in our collection. The length of the vertex varies considerably.

1. **Rudia diluta.** (Tab. XI. figg. 10, 10 *a*.)

Achilus dilutus, Stål, Eugen. Resa, Ins. p. 271 [1].

Rudia diluta, Stål, Berl. ent. Zeitschr. 1866, p. 392 [2].

Hab. PANAMA, Bugaba (*Champion*).—ECUADOR, Puna I. [1].

The largest specimen of this insect in our collection measures 10 mm. in length, including the closed tegmina, but one (a male) is only half this size. I have compared our insects with one of Stål's types.

2. **Rudia proxima,** sp. n. (Tab. XI. figg. 11, 11 *a*.)

Præcedenti valde affinis, sed vertice magis producto, carinis verticis et pronoti magis distinctis, et areis apicalibus venis minus subtilibus distinguendus.

Very closely allied to *R. diluta*, but with the vertex distinctly longer and narrower, and the pronotal keels more conspicuous; the veins of the tegmina are also more distinct.

Long. cum tegm. 9 millim.; lat. ad hum. $3\frac{1}{2}$–4 millim.

Hab. GUATEMALA, Cerro Zunil (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Var. *minor*, n.

Forma typica minor tegminibusque pone magis dilatatis.

Considerably smaller than the type-form and more dilated behind, thus resembling *R. bicincta*, from which it may be known by the shape of the head, and especially by the shorter pronotum and longer scutellum.

Long. cum tegm. $6\frac{1}{2}$ millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

3. **Rudia bicincta.** (Tab. XI. figg. 12, 12 *a*.)

Achilius bicinctus, Spinola, Ann. Soc. Ent. Fr. 1839, p. 321, t. 16. figg. 1, 1 A–C [1].
Rudia bicincta, Stål, Berl. ent. Zeitschr. 1866, p. 392 [2].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Paraiso, Cerro Zunil, San Isidro, Zapote, San Gerónimo (*Champion*).—SOUTH AMERICA [1].

Spinola's description of this insect is very meagre and based on a single female specimen, and we therefore append a full one. His figure corresponds closely with our specimens, with the exception of the vertex, which is less produced; the separate figure of the frons, moreover, is shorter and broader. We have not seen a type of *R. bicincta*, and it is possible that our insect may be distinct, but the species is variable, and it is possible that the shortness of the vertex in Spinola's figure may be due to an error on the part of the draughtsman.

Præcedentibus (quoad formam typicam) brevior et minus parallela, tegminibus pone magis dilatatis; vertice ante oculos distincte producto, antice et ad latera recta nigro carinato-marginato, carinâ mediâ distinctâ rufâ; fronte clypeoque vittâ magnâ centrali et lateribus rufis; pronoto rufo-tricarinato; scutello sat brevi, carinis tribus magnis rufis; tegminibus pellucidis, vittis singulis vel duabus transversis variantibus, interdum fere deficientibus, venis distinctis apicem versus setis rectis instructis; corpore variante; pedibus testaceis variantibus.

Shorter and less parallel than the typical form of the preceding species; colour in life apparently green, with the margins and the centre of the vertex, the carinæ of the front parts, and more or less of the body and legs red (dried specimens are mostly testaceous, with more or less distinct traces of the red and green colour); vertex plainly produced before the prominent eyes, carinate; pronotum in the centre almost as long as the scutellum, which it overlaps (and so causes it to appear to vary in length); tegmina transparent, with strong dark veins, which are set with upright dark setæ on their apical half, and with one or two transverse, more or less irregular, dark bands, one at or behind the shoulders, usually absent, and another at the middle, usually distinct; legs set with bristles at the sides, the posterior tibiæ with three very distinct spines.

Male with the last segment of the abdomen emarginate, and the segment of the pygofer considerably produced and narrow.

Long. cum tegm. 7 millim.; lat. ad hum. 3 millim.

4. **Rudia verticalis,** sp. n. (Tab. XI. figg. 13, 13 *a*.)

Præcedenti valde affinis, sed major, vertice multo longiori, margine apicali fere rotundato, nigro-marginato et carinato; scutello pronoto fere sesqui longiori, carinis lateralibus fuscis; tegminibus haud vittatis, sed venis transversis bene notatis; pedibus testaceis.

Allied to the preceding, but larger, and at once distinguished by the shape of the vertex, which is produced in the form of a duck's bill before the eyes, and has the apex and the sides in front more or less rounded; the keels of the front parts are for the most part dark; tegmina without bands, but with the transverse veins strongly marked with dark colour; legs testaceous, more or less pitchy.

Long. cum tegm. 8 millim.; lat. ad hum. 3 millim.

Hab. GUATEMALA, Panzos and Teleman in Vera Paz (*Champion*).

Three female specimens. There is a very small specimen from Bugaba in our collection apparently belonging to the same species; it measures 5 mm. in length, and is apparently immature.

HELICOPTERA.

Elidiptera, Spinola, Ann. Soc. Ent. Fr. viii. p. 304 (1839); Walker, List of Homopt. Ins. ii. p. 328.
Helicoptera, Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 526 (1843); Stål, Hemipt. Afr. iv. p. 184.

This seems to be a cosmopolitan genus, species having been described from Southern Europe, Africa, and India, as well as from North and South America. It is represented in our collection by rather small inconspicuous insects, usually brown in colour, but sometimes prettily variegated with white. The head projects more or less in front of the eyes, which are round or ovate, and at most slightly sinuate or flattened underneath; the vertex is not broader than the diameter of one of the eyes; the pronotum is very short; the scutellum is tricarinate; the tegmina overlap at the apex for one-third of their length; the posterior tibiæ are armed with a small spine towards the base. The male and female genital organs are compressed into a small compass, and it is difficult to make out their component parts without mutilating the specimens.

Spinola's name, *Elidiptera,* has the precedence, but as that of Amyot and Serville appears now to be generally adopted, I have retained it; *Helicoptera* was used by the latter authors as expressing in more correct Greek form the idea of the twisted and overlapping wings which Spinola wished to convey in his name.

1. **Helicoptera sobrina,** sp. n. (Tab. XI. figg. 14, 14 *a*.)

Subparallela, capite ante oculos paullo producto, subexcavato; fronte longâ, ad apicem brunneo-testaceâ, medio albido vel testaceo, ad basim nigro, clypeo brunneo-testaceo, sed colore variante; pronoto angusto, testaceo nigro-lineato; scutello colore variante; tegminibus brunneis plus minusve colore dilutiori variegatis, venis crassis plerumque plus minusve asperatis; alis fumosis; pedibus variegatis.

Mas segmento ultimo ventrali impresso, ad medium fortiter carinato producto, stylis brevibus apicibus magnis rotundatis.

A small, dark brown, more or less variegated species, with the head not strongly produced before the eyes, which are large and prominent; vertex slightly rounded in front, about as long as broad, subexcavate, more or less testaceous; forehead long, as a rule brownish-testaceous in front, whitish in the centre, and black at the base, the colours being sharply distinguished, but sometimes entirely testaceous; pronotum with lighter longitudinal lines; scutellum very variable in colour, with the disc usually darker, but almost every specimen seen is different; tegmina varying in colour almost as much as the scutellum, with strong veins, which are more or less raised and asperate; wings dark; legs testaceous, more or less plainly ringed with black.

Male with the last ventral segment of the abdomen impressed and strongly carinate, and produced in the middle, the styles very short, with large rounded tips, which are flattened on their outer edge.

Female with the last ventral segment of the abdomen feebly sinuate, and the pygofer very small, with the side-plates truncate.

Long. cum tegm. 5–7½ millim.; lat. ad hum. 1½–2 millim.

Hab. MEXICO, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Cubilguitz, Balheu, San Joaquin, and San Gerónimo in Vera Paz, Cerro Zunil, El Reposo, Pantaleon (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui, David, San Lorenzo (*Champion*).

Var. *albido-variegata*, n. (Tab. XI. fig. 15.)

Tegminibus conspicue albido variegatis.

Front of head, posterior margin and apex of scutellum, and the disc of the tegmina more or less white.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Panajachel (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

Our figures of this variable species are both taken from Chiriqui specimens.

2. **Helicoptera chiriquensis,** sp. n. (Tab. XI. figg. 16, 16 *a*.)

Quoad formam coloremque præcedenti valde affinis, sed major, et capite ante oculos distincte magis producto, oculisque supra visis longioribus, facile distinguendus.

Very like the preceding in general appearance and colour, but easily distinguished by the longer and more excavate vertex; the whole of the frons is whitish and the clypeus dark, the colours being sharply defined one from another; the eyes appear to be more elongate, if viewed from above, but if viewed from the sides are almost round; the colour of the tegmina varies as in the preceding species.

Long. cum tegm. $7\frac{1}{2}$–8 millim.; lat. ad hum. $2\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

3. **Helicoptera longiceps,** sp. n. (Tab. XI. figg. 17, 17 *a*, *b*.)

Sat brevis, robusta, brunnea, corpore supra, præcipue tegminibus, granulis minutis testaceis dense adsperso; vertice latitudine multo longiori, ante oculos triangulariter producto, apice rotundato; fronte longâ, testaceâ, antice fuscâ, clypeo plus minusve brunneo-testaceo; pronoto tricarinato, et lineis quibusdam elevatis utrinque instructo; scutello distincte tricarinato; tegminibus amplis, venis magnis, elevatis, utrinque plus minusve obscure rubro-notatis; alis fuscis; abdomine testaceo, fusco-notato; pedibus testaceis.

Rather short and robust, dark brown, with the upper surface of the body, especially the tegmina, thickly sprinkled with minute testaceous granules; vertex long, produced considerably before the eyes, rostrate if viewed from the sides, rounded in front; forehead and clypeus long, angled at about the middle, the former fuscous in front, testaceous behind, the clypeus brownish-testaceous; pronotum with three carinæ and several raised lines at the sides; scutellum distinctly tricarinate; tegmina ample, with raised veins, more or less distinctly marked with red at the sides; abdomen testaceous, more or less marked with pitchy; wings nearly black; legs testaceous, the posterior tibiæ with a minute tooth at the base.

Male with the last ventral segment produced in the centre in a small plate, which is emarginate at the apex, and rounded on each side of the emargination.

Long. cum tegm. 6 millim.; lat. ad hum. 2–$2\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba (*Champion*).

Several specimens.

PSEUDHELICOPTERA, gen. nov.

Genus *Helicopteræ* affine, sed vertice longo, angusto, reflexo, ad latera compresso, supra excavato, oculis elongatis, haud prominentibus, et areis apicalibus compluribus magisque regularibus, facile distinguendus.

Closely allied to *Helicoptera*, but with the vertex very long, narrow, and excavate, bifid just before the apex, compressed at the sides, and reflexed; forehead and clypeus long and narrow; eyes long, flattened on their underside, not prominent; pronotum very short at the sides, but in the centre produced into a point between the margins of the vertex; scutellum plainly tricarinate; tegmina overlapping, with the apical veins more numerous, regular, and parallel than in *Helicoptera*, the rest of the venation being much the same as in that genus; legs slender, the posterior tibiæ with a minute tooth towards the base.

1. **Pseudhelicoptera nasuta,** sp. n. (Tab. XI. figg. 18, 18 *a*, *b*.)

Subparallela, vertice fusco, fronte clypeoque testaceis, oculis brunneis testaceo circumcinctis; pronoto scutelloque ferrugineis, carinis dilutioribus; tegminibus brunneis, unicoloribus, venis elevatis apicem versus testaceis; pedibus dilute testaceis.

Subparallel, brown, with the front parts more or less ferruginous; forehead and clypeus testaceous, the former much narrowed towards the vertex; scutellum plainly tricarinate; tegmina with strong veins, which are brown in front and more or less testaceous towards the apex; legs light testaceous.

Long. cum vertice 7 millim. (sine vertice 5 millim.); lat. ad hum. 2 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

In the shape of the head this species differs entirely from *Helicoptera*, and this character and the numerous and regular apical areas of the tegmina seem to place it in a position somewhat remote from that genus; but the overlapping tegmina and the similarity of the general venation, as well as the tricarinate scutellum and general facies, appear to justify its being included near it.

PLECTODERES.

Plectoderes, Spinola, Ann. Soc. Ent. Fr. viii. p. 328 (1839).

Spinola placed this genus among his subfamily Cixioides and *Elidiptera* (*Helicoptera*) among the Dyctiopharoides, on the ground that the latter had a cephalic protuberance, while in the former it was wanting. As a matter of fact, the genera are very closely allied, and intermediate forms occur. In *Plectoderes*, however, the vertex is decidedly shorter and broader than in *Helicoptera*, and the veins of the tegmina, as a rule, but not always, are fine and not conspicuously raised, as is often the case in the latter genus. The tegmina overlap behind in both genera, and the posterior tibiæ are furnished with one small tooth towards the base, which is sometimes very minute and inconspicuous.

1. **Plectoderes championi,** sp. n. (Tab. XI. figg. 19, 19 *a*.)

Castaneo-brunneus, vertice brevi, ante oculos paullo producto, lato, rectangulo, carinato; fronte lateribus fere parallelis; pronoto scutelloque distincte tricarinatis; tegminibus amplis, brunneis, ad latera dilutioribus, maculis quibusdam parvis testaceis notatis; alis fumatis; pedibus piceo-testaceis.

A large, rather broad species, of a castaneous-brown colour, with the forehead, the sides of the tegmina, and the abdomen somewhat lighter; vertex short, straight in front, rectangular, slightly produced before the eyes, which are prominent and round and flattened underneath; head with the eyes about as broad as the pronotum; pronotum and scutellum distinctly tricarinate; tegmina ample, brown, with several small testaceous dots and dashes on the disc, the apical third unicolorous; legs pitchy testaceous.

Long. cum tegm. 9 millim.; lat. ad hum. 3 millim.

Hab. GUATEMALA, Senahu in Vera Paz, Cerro Zunil (*Champion*).

Two female specimens. We figure the one from Senahu, the other from Cerro Zunil being somewhat differently shaped.

2. **Plectoderes basalis,** sp. n. (Tab. XI. figg. 20, 20 *a*.)

Multo minor, subparallelus, angustior; vertice fronteque testaceis vel rufo-testaceis, illo perbrevi ante oculos haud producto, hâc lateribus subparallelis, oculis vix prominulis; pronoto scutelloque tricarinatis, hoc testaceo vel rufo-testaceo, apice dilutiori; tegminibus longis, subparallelis, griseo-brunneis, basi anguste dilute testaceâ; pedibus testaceis.

Mas segmento ultimo ventrali fortiter carinato, carinâ ad medium productâ, stylis magnis apicem versus tortis.

Much smaller than *P. championi*, subparallel, with the vertex and frons testaceous or rufo-testaceous; head narrower than the pronotum; vertex very short, not produced before the eyes, and not rectangular; forehead with the sides subparallel; eyes scarcely prominent, flattened underneath; pronotum and scutellum testaceous or rufo-testaceous, tricarinate, the latter lighter at the apex; tegmina long, greyish-brown, with fine veins, and with the base narrowly and sharply testaceous, this colour passing across the apex of the scutellum; legs testaceous.

Male with the last ventral segment of the abdomen longitudinally depressed, strongly carinate in the centre of the depression, and produced, with the styles short, large, and somewhat twisted towards the apex.

Female with the last ventral segment simple.

Long. cum tegm. 6–6½ millim.; lat. ad hum. 1½–2 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

3. **Plectoderes excelsus,** sp. n. (Tab. XI. figg. 21, 21 *a*.)

Quoad staturam formamque præcedenti affinis, elongatus, subparallelus; vertice brevi, rectangulari, carinâ mediâ late fuscâ, fronte nigro-maculatâ; pronoto brevi, ad medium fusco; scutello testaceo, vittis utrinque nigris; tegminibus griseo-brunneis, venis testaceis; alis fumatis; pedibus testaceis.

Very like the preceding, but with the head more produced before the eyes and rectangular; head and pronotum testaceous, with a central dark line, the forehead spotted with black; scutellum testaceous, with a conspicuous broad black band on each side of the central portion, the extreme sides light testaceous; tegmina griseous-brown, with fine testaceous veins; legs testaceous.

Long. cum tegm. 6½–7 millim.; lat. ad hum. 1½–2 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*); GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

Several female specimens. The one from Cerro Zunil has the front parts almost unicolorous, but it must apparently be referred to this species. An example from Omilteme is figured.

4. **Plectoderes flavovittatus,** sp. n. (Tab. XI. figg. 22, 22 *a*.)

Sat brevis, subparallelus, niger, opacus, rufo-flavo vittatus; vertice perbrevi, ante oculos prominulos vix producto, rectangulari, carinato; fronte latâ, leviter sed distincte sculpturatâ, haud carinatâ; scutello fortiter tricarinato; tegminibus parallelis, opacis, venis distinctis; alis nigris; pedibus nigrescentibus.

A very distinct, small species, subparallel; head with the eyes about as broad as the pronotum, the vertex very short, the forehead rather short and broad, finely but distinctly sculptured; scutellum plainly tricarinate; the upper surface black, with a broad orange band running across the disc behind the eyes, and a broader one occupying the greater part of the basal half of the tegmina, the veins of the latter fine but distinct; wings and legs pitchy-black.

Long. cum tegm. 5½–6 millim.; lat. ad hum. 2 millim.

Hab. PANAMA, Bugaba and David (*Champion*).

Several female specimens. This species, at first sight, looks as if it belonged to a

different genus, but in the shape of the head and in the venation it nearly agrees with *Plectoderes*, from which it differs in the broader and rather short forehead, without central carina.

5. **Plectoderes notatus,** sp. n. (Tab. XI. figg. 23, 23 *a*.)

Griseo-albescens; vertice brevi ante oculos paullo producto, fronte prælongâ, subparallelâ; oculis magnis, prominulis, nigris; pronoto scutelloque fortiter tricarinatis; tegminibus albidis, nigro et fusco-notatis, venis subtilibus sed distinctis; pedibus testaceis.

Of a greyish-white colour, with the vertex short, slightly produced before the eyes, and a little narrowed in front, rectangular; eyes large and prominent; forehead long, subparallel, dilated slightly towards the apex, distinctly carinate; pronotum about as long as the vertex, with very strong raised carinæ, which are continued on the scutellum; tegmina with black and brownish irregular markings, the most distinct being situated just before and behind the middle, touching the margins, the veins very fine but distinct; legs greyish-white.

Female with the apex of the last ventral segment sinuate at the sides and strongly emarginate in the middle, the sides of the emargination being produced at their apex into a strong denticulate angle.

Long. cum tegm. 7 millim.; lat. ad hum. 2 millim. (♀.)

Hab. Panama, Volcan de Chiriqui (*Champion*).

One female specimen.

6. **Plectoderes montanus,** sp. n. (Tab. XI. figg. 24, 24 *a*.)

Robustus, sat latus; vertice perbrevi, nigro, carinato; oculis subtus leviter emarginatis; fronte latâ, albidâ, clypeo nigro; pronoto nigro, testaceo-lineato; scutello nigro, tricarinato; tegminibus pellucidis, fusco-notatis, parte apicali (apice ipso excepto) fuscatâ; alis pellucidis, fusco-apicatis; abdomine supra rufo-flavo, subtus nigro-piceo; pedibus testaceis, plus minusve piceis.

Mas segmento ultimo ventrali ad medium profunde impresso, carinâ magnâ in processu triangulari continuatâ instructo, lateribus segmenti sinuatis; stylis brevibus, apicibus dilatatis.

Rather broad and robust, with the vertex very short, forming with the anterior border of the eyes an arc of a circle, the eyes slightly emarginate beneath; frons broad, white; clypeus deep black; pronotum black, with testaceous lines; scutellum black, tricarinate; tegmina transparent, with the outer and inner margins marked with fuscous spots, and with a testaceous patch on the outer margin before the apical third or fourth, which is piceous, with the exception of the apex itself, the latter being transparent, the veins fine, but distinct; wings transparent, fuscous at the apex; abdomen orange above and dark below, or more or less pitchy.

Male with the last ventral segment sinuate at the sides, deeply impressed in the middle and produced, with a strong keel running down the depression; styles short, much dilated at the apex.

Long. cum tegm. 7 millim.; lat. ad hum. 2 millim.

Hab. Mexico, Sierra de las Aguas Escondidas in Guerrero 9500 feet (*H. H. Smith*).

7. **Plectoderes asper,** sp. n. (Tab. XI. figg. 25, 25 *a*.)

Brevis, sat latus, robustus, venis tegminum crassis, elevatis; vertice perbrevi, testaceo, ante oculos haud producto, cum oculis latitudinem pronoti æquante; fronte sat latâ, leviter carinatâ, testaceâ, clypeo ad apicem fusco; pronoto scutelloque testaceis, hoc distincte tricarinato; tegminibus brunneis ad basim anguste testaceis, maculâ parvâ rufescenti ad marginem utrinque ante apicem instructis; abdomine pedibusque testaceis vel ad partem fusco-testaceis.

A small, short, broad species, with the outstanding veins and rough appearance of *Helicoptera sobrina*; vertex very short, not produced before the eyes, about as broad taken with the eyes (which are prominent) as

the pronotum, and about the same length; scutellum tricarinate; front parts testaceous; tegmina brown or fuscous, narrowly testaceous at the base, and with a small reddish spot on each side at the margins before the apex, the transverse claval vein very conspicuous; wings dark, opaque; legs testaceous or pitchy-testaceous.

Long. cum tegm. 5 millim.; lat. ad hum. 2 millim.

Hab. PANAMA, David (*Champion*).

8. **Plectoderes lineatocollis,** sp. n. (Tab. XI. figg. 26, 26, *a*, *b*, ♂.)

Parvus, parallelus, brunneus; vertice brevi, ante oculos vix producto, carinâ centrali et marginibus testaceis; fronte clypeoque ad medium et latera carinatis, fuscis vel nigrescentibus, vittis transversis latis testaceis; pronoto scutelloque carinis tribus perdistinctis testaceis; tegminibus venis planis, testaceis, pone clavum ampliatis; abdomine piceo; pedibus testaceis.

Mas segmento ultimo processu brevi obtuso; stylis brevibus, crassis.

A small dark brown species, with the vertex short, scarcely produced before the eyes, the strong central keel and the margins light testaceous; frons and clypeus with a strong central keel and also keeled at the sides, banded transversely with dark and light colour; pronotum very short, dark, with light hind margin, and, like the scutellum, with three very distinct light testaceous keels; tegmina fuscous-brown, with distinct lighter veins, dilated behind the clavus and strongly overlapping when at rest; wings smoky; abdomen pitchy-black; legs testaceous.

Male with the last segment of the abdomen furnished with a carinate blunt process, which is truncate at the apex; the styles short, thick, dilated at the tip.

Long. cum tegm. 6 millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. MEXICO, Amula in Guerrero (*H. H. Smith*); PANAMA, Volcan de Chiriqui (*Champion*).

Superficially, this species much resembles *Helicoptera sobrina*, with which it was mixed in our collection.

A specimen from Amula is figured.

9. **Plectoderes fuscolineatus,** sp. n. (Tab. XI. figg. 27, 27 *a*.)

Angustus, delicatus, sat nitidus; vertice lato, brevi, ante oculos paullo producto, leviter ad medium carinato, testaceo; fronte clypeoque ad medium et ad latera distincte carinatis, subparallelis, testaceis; pronoto brevissimo, testaceo; scutello magno, convexo, carinis tribus plus minusve fusco utrinque notatis; tegminibus basim versus angustis, pone clavum dilatatis, venis quibusdam fusco-notatis; abdomine piceo; pedibus testaceis.

Narrow, rather shining, with the vertex short and broad, slightly produced before the eyes, truncate in front; eyes large, not emarginate, but somewhat produced underneath; frons and clypeus distinctly keeled and margined, subparallel; pronotum very narrow, with a central keel (distinct under a high magnifying-power); front parts testaceous; scutellum testaceous, with three keels, somewhat widely separate, which are more or less marked with fuscous on each side; tegmina long, narrow, and parallel towards the base, dilated behind the clavus, semitransparent, with the veins more or less broadly darkened with fuscous colour until near the apex, and so appearing broadly lined longitudinally; wings smoky, with distinct veins; abdomen pitchy-testaceous; legs light testaceous.

Long. cum tegm. 6 millim.; lat. ad hum. $1\frac{1}{4}$–$1\frac{1}{2}$ millim.

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

One of our specimens appears to be a male, but the abdomen is too much shrivelled and contracted to determine the characters properly.

CEDUSA, gen. nov.

Brevis, vertice minimo, ante oculos vix producto, oculis infra emarginatis; fronte clypeoque perangustis ad medium modice ad latera fortiter carinatis; pronoto brevissimo; scutello convexo, subtiliter tricarinato; tegminibus coriaceis, vena posteriori clavi apicem clavi haud attingente, venâ transversâ clavi venam posteriorem ad medium marginis clavi attingente; venis omnibus corii ante basim in unam conjunctis, vena radiali multo ante venam ulnarem interiorem furcatâ; tibiis posticis simplicibus.

Vertex very small, scarcely produced before the eyes, which are large and depressed, and emarginate beneath; forehead and clypeus very narrow, about equal in length, with central and strong lateral keels; pronotum very short, with three more or less distinct keels; scutellum convex, feebly tricarinate; tegmina opaque and coriaceous, slightly dilated behind the clavus, with all the veins of the corium united into one vein before the base, and with the medial vein forked much before the inner ulnar vein, the posterior claval vein thick, not continued to the apex, the transverse claval vein joining this vein at about the middle of the clavus; wings with one transverse vein; posterior tibiæ not spined.

Although the tegmina in this genus are somewhat dilated behind the clavus, they do not overlap, but are tectiform, the hinder portion being somewhat elevated if viewed from the side.

1. **Cedusa funesta,** sp. n. (Tab. XI. figg. 28, 28 *a*, *b*.)

Parva, nigra, nitida, fronte clypeoque carinis testaceis; scutello lævi, carinis subtilibus instructo, unicolori, interdum lineâ longitudinali ad medium obscure testaceâ; tegminibus opacis, venis crassis; alis fumatis; pedibus dilute testaceis, tarsis fuscatis.

Black, shining, with the keels of the forehead and clypeus testaceous; scutellum very smooth and shining, with the keels obscure, unicolorous, occasionally with a testaceous longitudinal central line; tegmina opaque, with thick veins; wings smoke-coloured; legs light testaceous, with the tarsi pitchy.

Male with the last ventral segment straight, and the pygofer large and strongly developed, with the upper hook long and slender.

Female with the last ventral segment produced into a broad triangular plate in the centre, and somewhat toothed and angled at the sides.

Long. cum tegm. $4\frac{1}{2}$–5 millim.; lat. ad hum. 1–$1\frac{1}{2}$ millim.

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco, Xucumanatlan and Chilpancingo in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

We figure a specimen from Teapa.

2. **Cedusa venosa,** sp. n. (Tab. XI. figg. 29, 29 *a*.)

Albescens, fronte clypeoque plerumque dilute testaceis; scutello testaceo, carinis colore dilutiori signatis; tegminibus subpellucidis, testaceis, venis crassis albescentibus; alis lacteis; abdomine nigrescente; pedibus testaceis, tarsis obscurioribus.

Of a whitish-testaceous colour, with the forehead, clypeus, and pronotum mostly lighter testaceous; scutellum testaceous, with the keels marked by three light lines; tegmina semitransparent, testaceous, with thick light-coloured veins; wings milky-white; abdomen pitchy; legs testaceous, with the tarsi darker.

Female with the last ventral segment of the abdomen produced into a broad triangular plate, but not so much angled at the sides as in the preceding species.

Long. cum tegm. 5 millim.; lat. ad hum. $1\frac{1}{2}$ millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

One female specimen.

Fam. ISSIDÆ *.

This family is now rightly regarded as being merely a subfamily of the Fulgoridæ. Several authors consider that *Issus* and its allies bear a close affinity to the Derbidæ: Spinola places them before this family, Amyot and Serville include them between the "Derbides" and the "Acanonides," and by Stål they are placed between the "Derbida" and "Lophopida" on the one hand and the "Ricaniida" on the other. The species may for the most part be easily distinguished by their short and convex facies; but some of them are more or less elongate. The following are the chief characters:—

Head not or only a little narrower than the pronotum; clypeus with the lateral margin not keeled, usually convex, and sometimes much produced beyond the plane of the frons; pronotum with the base subtruncate, and the apex usually rounded and produced; scutellum, as a rule, much longer than the pronotum; tegmina coriaceous or somewhat corneous, very rarely vitreous or with vitreous patches (as in *Neœthus*), with the humeral angles well-marked, often callose, and the tegulæ very distinct; wings very variable; legs with or without spines on the posterior tibiæ.

The venation of the tegmina falls mostly into two natural divisions: in one the radial vein is forked close to the base or not far from it, the exterior ulnar vein is forked at or about the middle, and the interior ulnar vein is simple; in the other case the radial and the interior and exterior ulnar veins are all forked at varying distances from the base. In the first division the posterior tibiæ are bispinose, and in the second division they are quadrispinose, and this correlation between the venation of the tegmina and the number of spines of the posterior tibiæ seems very significant.

The wings are either absent, rudimentary, slight, and narrow, or very large and ample, and folded in three underneath the tegmina, being notched at the sides to render the folding possible.

The genital segments and organs sometimes afford good characters, but they require to be worked on the spot with living specimens, as the dead ones are apt to become dry and distorted. In many cases it is very hard to tell the sex. Spinola (Ann. Soc. Ent. Fr. viii. p. 343) says:—"On pourrait se méprendre sur le sexe, si la sixième plaque ventrale n'existait pas d'ailleurs, et si elle n'était pas, comme dans toutes les *Fulgorelles* mâles, entière et annulaire"; but this character does not appear to be constant, or else in dried specimens the segment shrinks behind the others. In some cases the difference of sex is quite plain, but in others it is by no means apparent in this subfamily, and it is almost impossible to determine it without destroying valuable examples.

The following table refers to the genera of Issidæ contained in our collection:—

I. Wings absent or quite rudimentary; tegmina broad and much adpressed to the sides . . . . . HYSTEROPTERUM, Am. et Serv.

II. Wings narrowed, not folded at rest and without notches at the sides.

i. Vertex not produced in a process in front of the eyes.

1. Posterior tibiæ with two or more spines or teeth.

A. Tegmina very strongly, coarsely, and confusedly veined, as a rule strongly convex, not falcate; posterior tibiæ with two or four spines . . . . . ULIXES, Stål.

B. Tegmina with the veins very clear and distinct, form subglobular, interior ulnar vein distinctly furcate; posterior tibiæ with four strong spines . . . . . CYCLUMNA, gen. nov.

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* By W. W. FOWLER.

C. Tegmina with the veins moderately distinct, but with the interior ulnar vein more or less confused, more or less strongly falcate; size small . . . . . HYPANCYLUS, gen. nov.

2. Posterior tibiæ with at most one small tooth or spine; tegmina broad and much rounded, and strongly adpressed to the sides . . . . . AMPHISCEPA, Germ.

ii. Vertex produced into a long and distinct process in front of the eyes.

1. Process broader, in the same plane as the vertex . . . PROTEINISSUS, gen. nov.

2. Process narrower, rising obliquely above the plane of the vertex . . . . . ORNITHISSUS, gen. nov.

III. Wings ample, folded when at rest, and with more or less strongly marked notches at the joints of the folds.

i. Tegmina broader, not sinuately constricted before the apex.

1. Interior ulnar vein simple; posterior tibiæ with two spines . . . . . THIONIA, Stål.

2. Interior ulnar vein forked; posterior tibiæ with four spines . . . . . PICUMNA, Stål.

ii. Tegmina narrow, sinuately constricted before the apex; posterior tibiæ with one spine . . . . . COLPOPTERA, Burm.

ULIXES.

Ulixes, Stål, Bidrag till Rio Janeiro-Traktens Hem.-Fauna, ii. p. 67 (1858); Hemipt. Afr. iv. p. 209.

In this genus the wings are small and narrow, and not notched at the apex; occasionally they appear to be rudimentary. The forehead is perpendicular and the clypeus more or less inflexed. The species may be known by their peculiar rough facies and strongly raised venation, and their general shape, which is, as a rule, very convex and almost subglobular. The number of spines on the posterior tibiæ appears to be variable.

1. **Ulixes clypeatus.** (Tab. XII. figg. 1, 1 *a*; 2, genitalia of the ♂.)

Issus clypeatus, Walk. List of Homopt. Ins., Suppl. p. 87 [1].
Issus cassidoides, Walk. loc. cit. p. 86 [2].
Issus cassidiformis, Walk. loc. cit. p. 87 [3].
Issus marmoreus, Stål, Stett. ent. Zeit. xxii. p. 150 [4].
Ulixes marmoreus, Stål, op. cit. xxv. p. 51 [5].
Issus convivus, Stål, op. cit. xxii. p. 150 [6].
Ulixes convivus, Stål, op. cit. xxv. pp. 51, 362 (varr. *a*, *b*, *c*) [7].

Hab. MEXICO [1–7] (*Sallé*), Atoyac in Vera Cruz (*Schumann*), Jalapa (*Trujillo*), Orizaba (*Bilimek*, *in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*); BRITISH

HONDURAS, Rio Hondo (*Blancaneaux*); GUATEMALA, Cahabon in Vera Paz, Volcan de Atitlan, Zapote (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

This appears to be a very variable species, both as regards size and colour, although it is probable that many of the specimens fade after death: some are greenish, others grey or greyish-brown, with or without darker spots, and others again dark, with lighter patches at the shoulders and behind.

In the Vienna Museum there is a very large, greenish example labelled *Eulixes sallei*, Sign., which appears to belong to this species; the name, however, does not seem to have been published.

The males (which are apparently scarce) have the side-plates of the genital segment large, rounded below, then emarginate, and then produced into a broad process, which extends into two points, the internal one being much longer than the external, which is short and rather blunt.

In the female the genital plates slightly diverge internally at the base, and behind this divergence are two processes, angular at the sides; these are usually concealed by the last abdominal segment, which often also covers the basal part of the plates; anal process truncate.

I believe that the above is the correct synonymy, but it is quite possible that the species will again have to be divided, if a sufficient number of males can be found.

A specimen from the Volcan de Chiriqui is figured.

2. **Ulixes intermedius,** sp. n. (Tab. XII. figg. 3, 3 *a*, ♀; 4, genitalia of the ♂.)

Præcedenti affinis, sed figurâ latiori minus convexo, et sat breviori, lateribus tegminum ante humeros fere rectis, haud angulatis, tibiis posticis quadrispinosis, et formâ laminarum genitalium maris, distinguendus.

Mas laminis genitalibus postice rotundatis, deinde emarginatis, et in processum latum utrinque minute hamatum productis.

A broad and short species, less convex than the preceding, of a greyish or greyish-brown colour; the vertex is a little longer, and the tegmina are gently sloped to the shoulders almost in a straight line, and not angled; the shoulders are more rounded and the apex of the tegmina is more obtuse; the venation also is less coarse; the posterior tibiæ are quadrispinose.

In the *male* the genital plates are rounded at the apex, then emarginate and produced into a broad process, which on each side is extended into a point bearing a minute hook.

Long. cum tegm. 6–7½ millim.; lat. ad hum. 5–6 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*), Sierra Madre Mts. (*coll. Ball*); GUATEMALA, Quiché Mts. 7000 to 9000 feet (*Champion*).

The description is taken from a male from Ciudad and two females from Quiché, the example from the Sierra Madre differing a little from the others. It is possible that this species may be generically different from *Ulixes*, but more material is required before it can be separated.

We figure a specimen from the Quiché Mountains.

3. **Ulixes scutatus.**

Issus scutatus, Walk. Insecta Saunders., Homopt. p. 44[1].

Hab. MEXICO[1]; GUATEMALA, San Gerónimo (*Champion*).

In this insect the tegmina are only slightly convex and have the sides completely rounded, with no angulation at the shoulders; the venation is finer and closer and more reticulate than in *U. clypeatus.*

There is a single female in our collection which I have with some doubt referred to *U. scutatus.*

CYCLUMNA, gen. nov.

Brevis, lata, vertice parvo, vix transverso; fronte longâ, apicem versus sensim latiori, subtiliter ad medium carinatâ; pronoto triangulari, vertice breviori; scutello pronoto sesqui-longiori; tegminibus latis, convexis, ad humeros fortiter dilatatis, venâ radiali ad basim, venis ulnaribus fere ad medium, furcatis, pone medium transversim venosis; alis angustis, apicem tegminum attingentibus; pedibus longis, tibiis posticis quadrispinosis.

Short, broad, and convex, subglobular, with the vertex small, scarcely transverse, about as broad as one of the eyes, which are large; forehead long, much longer than broad, gradually broader towards the apex, where it is slightly narrowed, central carina fine, but distinct, clypeus short; pronotum short, produced triangularly between the eyes; scutellum about one and a half times as long as the pronotum; tegmina broad and convex, strongly dilated at the shoulders, with the radial vein forked at the base and both the ulnar veins at about the middle, the surface behind the middle also venose transversely; legs long, posterior tibiæ quadrispinose.

This seems to be a very distinct genus, and is curious as corresponding to *Picumna* in the section with large and folded wings, the correlation of the quadrispinose hind tibiæ and the distinct furcation of the three principal veins of the tegmina being especially noticeable.

1. **Cyclumna subrotundata,** sp. n. (Tab. XII. figg. 5, 5 *a.*)

Nigra, antice testaceo-notata; fronte testaceo nigroque aspersâ; tegminibus nigris, maculâ basali, vittâ communi ad medium, et apice albido-testaceis; corpore supra nigro, apice testaceo, subtus nigro, marginibus segmentorum albidis; pedibus longis, dilute testaceis, fusco variegatis, spinis tibiarum posticarum nigris.

Femina segmento ultimo ventrali ad medium producto, processu anali longo, testaceo, apice obtuso fusco, stylo anali sat longo.

Black, with the front-parts marked with testaceous; tegmina black, with a spot at the shoulders, an irregular broad band at the middle, and the apex whitish, the median band towards the suture and part of the apex spotted with black; legs long, testaceous, variegated with fuscous, spines of the posterior tibiæ black.

Female with the last ventral segment of the abdomen produced in the centre in a small rectangular process, which is edged with long hairs; anal process long, hairy, with the anal style rather long, testaceous, fuscous at the apex.

Long. cum tegm. $5\frac{1}{2}$ millim.; lat. ad hum. $4\frac{1}{2}$–5 millim.

Hab. MEXICO, Soledad in Guerrero 5500 feet (*H. H. Smith*).

HYPHANCYLUS, gen. nov.

Vertice brevi, fortiter transverso, ante oculos vix producto, fronte subquadratâ, plus minusve obscure carinatâ, clypeo convexo; scutello pronoto plus minusve longiori; tegminibus plus minusve falcatis, callositate ad humeros distincte elevatâ, venis plus minusve confusis, costâ venis transversis instructâ; alis angustis, venis distinctis ab apice usque ad basim extensis, plerumque subparallelis; pedibus robustis, tibiis posticis bispinosis.

Vertex very short, strongly transverse; forehead subquadrate, more or less obscurely carinate; clypeus convex, separated from the forehead by a deep furrow; pronotum produced and rounded in front, and not angled; scutellum variable in form; tegmina more or less falcate, convex, with a large elevated callosity at the shoulders, which causes the insect to appear contracted towards the base, if viewed from above, the veins more or less confused, but the radial appears to be forked near the base and the exterior ulnar vein at the middle; wings narrow, with distinct and more or less parallel veins; legs stout, posterior tibiæ with two spines.

The two species referred to this genus are both of small size.

1. **Hyphancylus falcatus,** sp. n. (Tab. XII. figg. 6, 6 *a*, ♂.)

Brunneus, clypeo marginibusque frontis brunneo-testaceis; tegminibus fuscis, brunneo variegatis, fortiter falcatis, apicibus productis, a latere viso elevatis, reticulatis; clavo basim versus fortiter asperato, suturâ clavali profunde impressâ; corpore supra testaceo, subtus plus minusve obscuro; pedibus testaceis.

Mas laminis genitalibus prælongis, reflexis, ad medium dente parvo, ad apicem dente magno acuto instructis; processu anali prælongo deflexo, fortiter supra canaliculato.

Fuscous-brown, with the clypeus lighter; tegmina variegated with black and brown, strongly falcate, with the apex produced and reticulate, clavus strongly asperate towards the base, and the same asperation is sometimes present on or near the humeral callus, claval suture very strongly impressed; wings smoky, with distinct dark veins; legs testaceous, with the two spines rather blunt.

Male with the last abdominal segment minutely impressed at the apex, the genital plates very long, narrow, and reflexed, and terminating in a large, sharp, hook-shaped tooth, and there is also a minute tooth in the centre of their upper surface; anal process long, slender, deflexed, strongly channelled above.

Long. cum tegm. 5 millim.; lat. ad hum. 3 millim.

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith*).

2. **Hyphancylus excelsus,** sp. n. (Tab. XII. figg. 7, 7 *a*, ♂.)

Minor, brunneus vel fusco-brunneus, colore obscuriore vel dilutiore variegatus, vel unicolor; pronoto sat longo, inter oculos rotundato-producto; scutello leviter tricarinato, carinâ centrali indistinctâ; tegminibus margine exteriore valde rotundato, inferiore fere recto, minus quam in specie præcedente falcatis, venis plus minusve confusis; alis fumatis, venis nigris; corpore fusco, ad partem testaceo; pedibus testaceis, spinis duabus tibiarum posticarum sat longis et acutis.

Mas laminis genitalibus sat brevibus et latis et ad medium dente magno obtuso armatis; processu anali sat lato, apice acuto.

Femina segmento ultimo ventrali fortiter emarginato, emarginatione sinuatâ et ad medium denticulate productâ; processu anali lato ad apicem obtuso.

Smaller than the preceding species, with the tegmina less falcate, the outer margin being very strongly rounded, and the inner margin almost straight; pronotum produced and rounded in front, comparatively long; scutellum not much longer than pronotum; tegmina unicolorous castaneous-brown, or variegated, with the venation more or less confused; clavus not or scarcely asperate at the base; wings smoky, with strongly-marked dark veins; legs testaceous, with the two spines of the posterior tibiæ sharp.

Male with the genital plates comparatively short and broad, and armed at about the middle with a large blunt tooth, which rises to meet the rather broad anal process; the latter is acute at the apex.

Female with the last ventral segment of the abdomen deeply emarginate, the emargination being sinuate and produced into a tooth in the centre; anal process broad, obtuse at the apex.

Long. cum tegm. 4 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

There is a specimen in our collection from Xucumanatlan belonging to yet another species of this genus: it is larger than either of the two above described, with the tegmina strongly falcate as in *H. falcatus*, but it is in too imperfect a condition to be satisfactorily described.

AMPHISCEPA.

Amphiscepa, Germar, in Thon's Archiv, ii. Heft 2, p. 52 (1830), and in Silbermann's Revue Ent. i. p. 175 (1833); Stål, Bidrag till Rio Janeiro-Traktens Hem.-Fauna, p. 67; Hemipt. Afr. ii. p. 209.

This genus has the tegmina subtriangular, very broad, and rounded, and the wings narrow, varying in length, sometimes being very short and almost rudimentary. The posterior tibiæ are said by Stål to be unispinose, but in the two species which I have referred to *Amphiscepa* there is hardly a trace of a spine: one of these I found placed under the name of this genus in the Vienna Museum collection; it was unnamed, but had apparently been assigned to this position by Signoret. Two species were included in *Amphiscepa* by Germar, *A. nodipennis* and *A. malina*.

Acanolonia

1. **Amphiscepa calida**, sp. n. (Tab. XII. figg. 8, 8 *a*.)

Sat lata, brunnea, fusco testaceoque variegata; vertice transverso, lateribus elevatis, antice in medio producto, ante oculos distincte extenso; fronte latitudine haud longiori, lateribus rotundatis, carinatis, carinâ centrali distinctâ; clypeo haud carinato; pronoto modico, antice leviter rotundato, haud producto; scutello magno, hoc et pronoto testaceis ad latera fuscis; tegminibus amplis, rotundatis, variegatis, callositate ad medium elevatâ, testaceâ, venis irregularibus, plus minusve reticulatis; pedibus longis, brunneis.

Rather broad, brown, variegated with fuscous and testaceous; vertex transverse, with the sides raised and rather widened in front, projecting beyond and a little over the eyes, and with a distinct projection in the middle continued in the frontal carina, which is strong at the base; forehead not longer than broad, strongly rounded at the sides in front; clypeus very large, smooth, and produced into a small depressed pointed process behind, without central keel; pronotum and scutellum testaceous, with the sides dark, the former less than half as long as the latter, gently rounded but not produced on its anterior margin; tegmina large and ample, rounded, variegated, with a strong raised callosity in the centre, which makes them appear dilated at the middle, if viewed from above, veins irregular, more or less reticulate; legs long, brown.

In the *male* the last ventral segment appears to be slightly emarginate and the anal tube to be channelled above.

Long. cum tegm. 6 millim.; lat. 3 millim.; lat. tegm. 5 millim.

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*).

2. **Amphiscepa subpellucida,** sp. n. (Tab. XII. figg. 9, 9 *a*.)

Subpellucida, griseo-testacea, antice fusco-brunnea; vertice brevi, lato, fronte longitudine latiori, indistincte tricarinatâ; clypeo magno, convexo, haud carinato; pronoto sat longo, antice rotundato; scutello magno, obscure albido lineato; tegminibus subvitreis, reticulatis, venis radiali et ulnaribus crassis, furcatis, testaceis nigro persparsim aspersis; pedibus testaceis.

Femina segmento ultimo ventrali leviter emarginato, processu ad medium instructo.

Of a griseo-testaceous colour, with the front-parts brownish; vertex very short and broad; forehead broad, indistinctly tricarinate; clypeus large, convex, without a carina; pronotum rather long, comparatively, rounded in front; scutellum large, with obscure whitish lines; tegmina subvitreous, reticulate, with the principal veins strong, and much forked, testaceous, sparingly marked with black, claval suture very strongly marked; legs testaceous.

Female with the last ventral segment of the abdomen gently emarginate, with a process in the centre.

Long. cum tegm. $5\frac{1}{2}$ millim.; lat. $2\frac{1}{2}$ millim.; lat. tegm. 4 millim.

Hab. GUATEMALA, near the city (*Champion*).

There is also a single specimen of a very small and obscure species of this genus in our collection, from Tierra Colorada in Guerrero, Mexico, which I prefer not to describe without further material; it appears, however, to be quite distinct.

HYSTEROPTERUM.

Hysteropterum, Amyot et Serville, Hist. Nat. Ins. Hémipt. p. 519 (1843); Stål, Hemipt. Afr. ii. p. 204.

The members of this genus are distinguished by having the wings quite rudimentary and the posterior tibiæ bispinose. According to Stål the radial and exterior ulnar veins are forked near the base, and he forms another genus, *Falcidius*, on certain species which have the costa not dilated and the exterior ulnar vein forked further from the base. I have not seen a typical specimen of the latter genus, and it is very doubtful if it is distinct from *Hysteropterum*. Of the three species described below, one has the costal margin simply rounded, and the other two have it angularly dilated towards the base; in each of them the radial vein is forked not far from the base and the exterior ulnar vein at or about the middle, while the interior ulnar vein is simple until a little before the apex, where it is lost in the confused reticulation. The vertex is very short, except in *H. montanum*, which may belong to another genus; it would be possible, however, to multiply the genera of the Issidæ almost indefinitely on such characters.

1. **Hysteropterum sierræ,** sp. n. (Tab. XII. figg. 10, 10 *a*.)

Parvum, brunneum, tegminibus griseo-testaceis, subpellucidis, fusco irregulariter notatis; vertice brevissimo, oculis distincte latiori, fronte sat latâ, latitudine longiori, lateribus subparallelis, medio carinato; clypeo convexo, producto; pronoto brevi; scutello sat magno; tegminibus amplis, subovalibus, margine costali rotundato, reticulatis, confusius venatis; pedibus brunneis, spinis duabus tibiarum posticarum validis.

Femina processu anali magno, lato, apice truncato.

A small species, with the body brown, and the tegmina of a greyish-testaceous colour with irregular dark markings; vertex very short and broad; forehead rather broad, with the sides subparallel, carinate; clypeus large, projecting, and flattened at the sides; pronotum short; scutellum rather large, three times longer than the pronotum; tegmina subovate, somewhat pointed at the apex, with the margins evenly rounded, and the venation and reticulation somewhat confused, the radial vein forked near its base, and the anterior ulnar vein before the middle, the interior ulnar vein simple until near the apex; legs brown, posterior tibiæ with two strong spines.

In the *female* the anal process is large and broad, and truncate at the apex, and the anal style is short and thick.

Long. 4 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Sierra de las Aguas Escondidas in Guerrero 9500 feet (*H. H. Smith*).

2. **Hysteropterum angulare,** sp. n. (Tab. XII. figg. 11, 11 *a.*)

Præcedenti quoad staturam, formam coloremque valde affine, sed margine costali tegminum fortiter angulariter dilatato, venisque distinctioribus tegminum, et clypeo multo minus producto, facile distinguendum.

Femina processu anali angustiori.

Similar to the preceding in size and colour, and also in general structure, but easily distinguished by the shape of the costal margin of the pronotum, which is obscurely and angularly dilated just before the middle; the clypeus is less produced, if viewed from the sides, and the veins of the tegmina are more distinct and regular; the exterior ulnar vein is forked just about the middle; the surface of the tegmina is roughly sprinkled with minute dark dots; and the female has the anal process narrower.

Long. $3\frac{1}{2}$–4 millim.; lat. ad hum. 2 millim.

Hab. MEXICO, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

3. **Hysteropterum montanum,** sp. n. (Tab. XII. figg. 12, 12 *a.*)

Majus, fuscum, tegminibus subolivaceis, antice testaceis, vittâ irregulari brunneâ ad humeros, pone medium obscurioribus, notis minutis fuscis adspersis; vertice ante oculos distincte producto, transverso, margine antico supra viso late angulariter emarginato; fronte latitudine longiori, carinâ distinctâ mediâ in clypeum planum continuatâ instructâ; pronoto capiti fere æquilongo; scutello distincte tricarinato; tegminibus amplis ad humeros scutello multo latioribus, subtiliter alutaceis, venis distinctis, venâ ulnari exteriori ad medium furcatâ; pedibus longis, testaceis, spinis duabus tibiarum posticarum validis.

Mas laminis genitalibus brevibus, tubâ genitali longâ, nitidâ, antice reflexâ, subtus utrinque processu pertenui acuto instructâ; processu anali modico, supra variegato.

A comparatively large species; front-parts fuscous, tegmina subolivaceous, greenish-testaceous in front, with a large irregular brown band at the shoulders, rather darker behind, the whole surface being speckled with minute dark dots; vertex distinctly produced before the eyes, transverse, with the anterior margin emarginate in a broad angle; forehead longer than broad, with a distinct central keel, which is continued on the clypeus, the latter being flat and not projecting; pronotum about as long as the head; scutellum distinctly tricarinate; tegmina ample, about two and a half times as broad as the scutellum at the shoulders, where the margin is much dilated and angled, veins distinct, reticulate at the apex; legs long, testaceous, posterior tibiæ with two strong spines.

Male with the genital plates short, and the genital tube long, shining, reflexed, and bluntly pointed in front, with two long and very slender almost hair-like processes depending backward from the opening beneath; anal process moderate, variegated above, anal style very short.

Long. cum tegm. 6 millim.; lat. ad hum. 4 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

PROTEINISSUS, gen. nov.

Ovalis, capite pronoto multo angustiori, vertice ante oculos longe producto, antice rotundato, lateribus elevatis, subparallelis, carinâ centrali perdistinctâ; fronte longâ, angustâ, verticem versus persensim angustatâ, tricarinatâ; clypeo sat brevi, medio carinato; pronoto sat longo, antice fortiter rotundato-producto, basi leviter sinuatâ; scutello pronoto vix longiori, utrinque carinato; tegminibus supra visis ovalibus, lateribus rotundatis, fortiter et irregulariter venatis, suturâ clavi vix distinctâ, venâ radiali ad basim, venâ exteriore ulnari ante medium, furcatâ, venâ interiore ulnari simplici cum venâ clavali ad apicem conjunctâ; alis angustis, haud plicatis, apicem abdominis attingentibus; pedibus longis, tibiis posticis quadrispinosis.

Oval, with the head much narrower than the pronotum, the vertex extended beyond the eyes, rounded in front, with the sides raised, subparallel, and with a strong central furrow continued from front to base; forehead long, narrow, very gradually and slightly narrowed towards the apex, tricarinate; pronotum rather long, triangularly extended in front, with the apex broadly rounded; scutellum about as long as the pronotum, with a carina on each side; tegmina together forming an oval, with the sides evenly rounded, strongly and somewhat irregularly veined, with the claval suture very finely marked and indistinct; the radial vein forked near the base, the exterior ulnar vein forked just before the middle, the interior ulnar vein simple and joining the claval vein at the apex or confused at the apex with the general venation; legs long and slender, tibiæ quadrispinose.

This genus appears to be very distinct, and it does not seem to be closely related to the other Issidæ with prolonged vertex, such as *Ommatidiotus* and *Mycterodus*.

1. **Proteinissus bilimeki,** sp. n. (Tab. XII. figg. 13, 13 *a*, *b*.)

Griseo-testaceus, fere unicolor, punctis quibusdam minutis fuscis indistincte adspersus; pronoto ad medium fortiter impresso; tegminibus subnitidis, subpellucidis, crasse venatis; pedibus testaceis.

Feminæ segmento ultimo ventrali simplici, processu anali brevi, lato, truncato, supra ad apicem fere bifido.

Of a greyish-testaceous colour, almost unicolorous, with indistinct scattered minute dark spots, which are plainer on the frons and sides of the tegmina; pronotum rather strongly margined, with a depression in the centre; tegmina somewhat pellucid and slightly shining, with strong venation; legs testaceous.

Long. cum tegm. 6 millim.; lat. ad hum. 3 millim.

Hab. Mexico, Guadalajara and Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*).

Two female specimens.

ORNITHISSUS, gen. nov.

Ovalis, capite subglobulari, oculis haud valde prominentibus, vertice convexo, antice in processum prælongum, perangustum, supra verticem reflexum, profunde canaliculatum, extensum; fronte perangustâ, apicem versus sensim dilatatâ, tricarinatâ; pronoto inter oculos semicirculariter producto; tegulis magnis; scutello pronoto ad medium duplo longiori, vix distincte tricarinato; tegminibus ovalibus, apicem abdominis vix superantibus, crasse venatis, venâ radiali simplici, venâ ulnari exteriore pone medium, venâ ulnari interiori ad medium furcatâ; alis sat brevibus, apicibus truncatis; tibiis posticis longis, validis, fortiter quadrispinosis.

Oval, with the head together with the eyes, which are not very strongly prominent, subglobular; vertex convex, produced in front into a very long and narrow process, which is channelled deeply above and is strongly deflexed above the vertex, if viewed from the side; forehead very long and narrow, gradually widened before the apex, tricarinate; pronotum produced semicircularly between the eyes; tegulæ large; scutellum twice as long as the pronotum at its widest, indistinctly tricarinate; tegmina together forming an oval, just covering the apex of the abdomen, strongly veined, the radial vein simple, the exterior ulnar vein forked behind the middle, and the interior ulnar vein at the middle; wings short, truncate at the apex; posterior tibiæ long and stout, with four strong spines.

This is a very remarkable genus, differing from *Proteinissus* in several particulars, but especially in the shape of the frontal process, which gives the insect a very bird-like appearance, if viewed from the side.

1. **Ornithissus cockerelli,** sp. n. (Tab. XII. figg. 14, 14 *a*, ♀.)

Griseo-testaceus, colore dilutiori obscure variegatus; vertice convexo, nitido; pronoto ad medium carinato utrinque impresso; scutello haud nitido; tegminibus ad partem brunneis, albido-testaceo sparsim notatis; alis lacteis; pedibus plerumque testaceis.

Femina segmento ultimo ventrali late emarginato, processu anali lato ad apicem bifisso, marginibus late deflexis.

Of a greyish-testaceous colour, more or less obscurely variegated; vertex convex, shining; forehead brown, with the carinæ well-marked and lighter; pronotum with a small dark impression on each side of the central keel; scutellum with four small impressions, two on each side; tegmina in part brownish, with irregular whitish-testaceous markings; wings milky-white; legs in great part testaceous.

Female with the last ventral segment of the abdomen broadly emarginate, and the anal process broad, with the margins much turned down and their apex bifid.

Long. cum tegm. et processu antico $6\frac{1}{2}$ millim.; sine processu antico 5 millim.; lat. ad hum. 3 millim.

Hab. N. Mexico, Juarez (*Cockerell*).

A single female specimen, found on the northern frontier of Mexico.

THIONIA.

Thionia, Stål, Berl. ent. Zeitschr. 1859, p. 321.

This genus is characterized by having the radial vein forked just after the base, the exterior ulnar vein forked before the middle, and the interior ulnar vein not forked, and also by the posterior tibiæ being armed with two spines. The simple interior ulnar vein and the bispinose tibiæ appear to be correlated in a large number of species belonging to the family Issidæ. The external area of the wings, which are large and notched, has a large antler-shaped vein with several branches.

1. **Thionia variegata.** (Tab. XII. figg. 15, 15 *a*; 16, var.)

Thionia variegata, Stål, Stett. ent. Zeit. xxv. p. 51 [1].

Hab. Mexico (*coll. Signoret* [1]), Atoyac in Vera Cruz (*Schumann*); Guatemala, Panima in Vera Paz, Cerro Zunil (*Champion*); Panama, David, Bugaba, and Volcan de Chiriqui (*Champion*).

The name given by Stål to this insect is rather misleading, as it is apparently rarely variegated. The specimens in our collection are for the most part almost unicolorous, of a brownish-testaceous colour, as also is the single example in the Signoret collection at the Vienna Museum. We figure two specimens from Chiriqui.

2. **Thionia brevior,** sp. n. (Tab. XII. figg. 17, 17 *a*.)

Brevis, testacea, fusco obscure irrorata; vertice brevi, fronte fere subquadratâ, nigrescente; oculis permagnis; pronoto antice leviter rotundato, postice fere recto; tegminibus sat nitidis, venis crassis, postice plus minusve reticulatis, basim versus leviter contractis, pone medium latioribus; tibiis posticis robustis, spinis duabus magnis.

A short and broad species, testaceous, with obscure, closely-set, fuscous markings; head (viewed from above) very short, together with the large eyes as broad as the base of the tegmina; frons almost subquadrate, dark, with minute lighter markings at the sides; pronotum bow-shaped; tegmina (viewed from above) broadest at the middle and then distinctly, though gently, contracted and narrowed to the base, the margins strongly rounded posteriorly; legs testaceous, with fuscous markings, posterior tibiæ with two stout spines before the apex.

Long. cum tegm. 5–6 millim.; lat. ad hum. $3\frac{1}{2}$–4 millim.

Hab. Mexico, Atoyac in Vera Cruz (*Schumann*); Panama, Bugaba, Volcan de Chiriqui (*Champion*).

This species may be easily distinguished from the preceding by the shorter and comparatively wider vertex, the shorter form, and the contraction of the tegmina just before the middle. A specimen from Bugaba is figured.

3. **Thionia maculipes.**

Thionia maculipes, Stål, Stett. ent. Zeit. xxv. p. 51 [1].

Hab. Mexico (*Mus. Vind. Cæs.*[1]).

A small, obscure insect, of a pale testaceous colour, the tegmina semitransparent, and the femora with a black spot at the apex.

4. **Thionia scutellata,** sp. n. (Tab. XII. figg. 18, 18 *a*.)

Issus scutellatus, Sign. in litt.

Brevis, testaceus, capite sat magno, vertice subquadrato, fronte haud latâ, lateribus apicem versus sensim angustatis; pronoto antice late angulato, ad medium biimpresso; tegminibus brunneo-testaceis, vittâ irregulari fuscâ pone humeros, ante medium rotundato-angulatis, apicibus oblique rotundato-truncatis; corpore subtus pedibusque plus minusve testaceis.

Mas segmento ultimo ventrali ad medium producto, penultimo et præcedente ad medium callosis, illo semicirculariter producto, processu anali longo et robusto apicem versus angustiori.

Short, testaceous, with the head somewhat large, the vertex subquadrate; the forehead rather long and narrow, gently rounded, very gradually narrowed towards the vertex, which extends slightly before the eyes; pronotum angled in front, with the hind margin before the scutellum almost straight, the disc with two distinct impressions; scutellum with dark markings; tegmina testaceous, with one or two irregular fuscous bands, rather broad, distinctly, though roundly, angled behind the shoulders, the humeral callosity evident, the apex obliquely rotundate-truncate; underside and legs testaceous, with fuscous markings.

In the *male* the last ventral segment is distinctly produced in the middle, and the penultimate segment is produced semicircularly, both furnished with greyish callosities edged behind with dark colour.

Long. cum tegm. 6 millim.; lat. ad hum. $2\frac{1}{2}$–3 millim.

Hab. Mexico (*Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*H. H. Smith*).

Several specimens. There is also in our collection an example from the Volcan de Atitlan, Guatemala, which appears to belong to the same species.

5. **Thionia sordida,** sp. n. (Tab. XII. figg. 19, 19 *a.*)

Præcedenti affinis, sordide testacea, vertice brevi, subquadrato, excavato, fronte quam in *T. scutellata* latiori, carinis magis distinctis; scutello præcipue ad basim nigro-notato, postice maculis duabus parvis nigris; tegminibus pone humeros late angulatis, sordide testaceis, maculis fuscis irregularibus, reticulatis; corpore pedibusque testaceis, nigro plus minusve notatis.

Very closely allied to the preceding, but distinguished by the shorter and broader forehead, which has the side-keels stronger and forming a shorter oval, and the more reticulate tegmina; the general appearance is duller, the tegmina being of a sordid testaceous colour, with irregular dark markings; the male-characters appear to be much the same, except that the callosities of the abdominal segments are not so strongly marked.

Long. cum tegm. $6\frac{1}{2}$–7 millim.; lat. ad hum. 3 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

I had at first included this species under the preceding, but it appears to be distinct.

6. **Thionia humilis,** sp. n. (Tab. XII. figg. 20, 20 *a.*)

Parva, brevis, sat lata, testacea, fusco irregulariter sat dense notata; capite brevi, vertice leviter transverso, fronte lateribus ad apicem rotundatis, verticem versus sensim angustatis; pronoto sat magno, maculis minutis nigris, ad medium biimpresso, carinato; scutello pronoto vix longiori, nigro notato, carinato; tegminibus sat latis, marginibus ante medium perobtuse angulatis, apicibus oblique subrotundatis; pedibus testaceis, ad partem fuscatis.

Femina segmento ultimo ventrali simplici.

A small, short, rather broad species, of a dirty-testaceous colour, with irregular darker markings; head short, vertex a little broader than long, forehead with the sides rounded towards the apex, gradually narrowed to the base; pronotum with minute black spots, and with a central keel and a depression on each side, as long as the scutellum; scutellum with central keel; tegmina with rather strong, light testaceous reticulation towards the apex, and the sides very obtusely angled before the middle; legs testaceous, in part more or less fuscous.

In the *female* the last ventral segment of the abdomen is simple.

Long. cum tegm. $5\frac{1}{2}$ millim.; lat. ad hum. 3 millim.

Hab. MEXICO, Amula in Guerrero (*H. H. Smith*).

This species is allied to *T. sordida*, but is shorter and broader, with the forehead wider and the tegmina shorter, more ovate, if viewed from above, and more distinctly and strongly reticulate.

7. **Thionia naso,** sp. n. (Tab. XII. figg. 21, 21 *a.*)

Castanea, testaceo perobscure variegata, nitida; vertice longo, latitudine distincte longiori, ante oculos fortiter producto, acuto, fronte longâ, subparallelâ, medio carinatâ, clypeo ad medium paullo elevato; pronoto sat longo, antice angulato; scutello pronoto sesqui longiore; tegminibus venis crassis, regularibus, venis transversis minoribus; pedibus testaceis, spinis duabus tibiarum posticarum sat parvis.

Castaneous, indistinctly variegated with testaceous, shining; vertex long, distinctly longer than broad, strongly produced before the eyes and acuminate, margined at the sides, and with a distinct longitudinal impression at the base; forehead long, subparallel, with a central carina; pronotum comparatively long; scutellum about one and a half times as long as the pronotum; tegmina with the veins regular and strongly marked, and with somewhat less distinct transverse veins; legs testaceous.

In the *male* the last abdominal segment appears to be produced and furnished with a tooth beneath, and the anal process is blunt at the apex.

Long. cum tegm. 8 millim.; lat. ad hum. 3–3½ millim.

Hab. MEXICO, Jalapa (*coll. Ball*).

I have seen only one specimen of this insect, which ought perhaps to be referred to another genus, but it possesses the venation and the bispinose tibiæ of *Thionia*.

8. **Thionia pictifrons,** sp. n. (Tab. XII. figg. 22, 22 *a*, *b*.)

Sat elongata; capite pronoto angustiori, vertice subquadrato, fronte latitudine longiori, nitidâ, nigrâ, testaceo eleganter ornatâ; pronoto brevi, antice ad medium angulato, ad latera anguste extenso, testaceeo; scutello testaceo, unicolori, vel ad partem fuscato; tegminibus elongatis, haud latis, reticulatis, viridescenti-testaceis; alis amplis, pellucidis, fumosis, areis venis magnis reticulatis, venâ areæ interioris quatuor- vel quinque-furcatâ; pedibus viridescenti-testaceis, tarsis plus minusve nigrescentibus.

Mas segmento ultimo ventrali profunde emarginato, processu anali longo, angusto, apice truncato.

A somewhat elongate species, with the tegmina and legs of a greenish-testaceous colour; vertex subquadrate, raised at the sides; forehead a little longer than broad, slightly narrowed towards the vertex, dark, with circular testaceous markings enclosing a cruciform marking; pronotum short, angular in front, extended towards the sides; scutellum rather large; tegmina subparallel, rather narrow, reticulate; wings very large and ample, smoky, with strong reticulate veins, those of the interior area throwing off four or five branches.

In the *male* the last ventral segment is strongly and squarely emarginate, and the anal process is long, narrow, and hairy, and subtruncate at the apex.

Long. cum tegm. 9 millim.; lat. ad hum. 5 millim.

Hab. MEXICO, Omilteme and Xucumanatlan in Guerrero 7000 to 8500 feet (*H. H. Smith*).

The Omilteme specimen is figured.

9. **Thionia conspersa,** sp. n. (Tab. XII. figg. 23, 23 *a*.)

Grisea, antice punctis minutis fuscis dense aspersa; capite pronoto angustiori, vertice subquadrato, fronte haud latâ, subparallelâ, carinâ mediâ distinctâ; scutello sat magno; tegminibus opacis, sed subpellucidis, lateribus leviter rotundatis, reticulatis; pedibus griseo-testaceis, tarsorum unguibus fuscis.

Femina segmento ultimo ventrali simplici; processu anali longo sat tenui.

Of a griseo-testaceous colour, with the whole body more or less thickly sprinkled with very minute dark spots, which are plainer in front than behind; head narrower than the pronotum, the vertex subquadrate, with raised sides; forehead not broad, strongly keeled; scutellum rather large, plainly longer than the pronotum, with two oblong impressions, set somewhat widely apart; tegmina opaque, but pellucid, with the sides gently rounded and not angled (if viewed laterally), the humeral callosities distinct, the venation coarse, with finer reticulation; legs griseo-testaceous, the tarsal claws dark.

Female with the last ventral segment simple, and the anal process long and rather slender.

Long. cum tegm. 6 millim.; lat. ad hum. 2½–3 millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

10. **Thionia caviceps,** sp. n. (Tab. XII. figg. 24, 24 *a*.)

Sat nitida, subovalis; capite parvo, pronoto multo angustiori, vertice ante oculos distincte producto, excavato, marginibus valde elevatis, fronte latitudine longiori antice latissimâ, postice sensim angustatâ; clypeo

magno, convexo; pronoto antice angulato; scutello sat magno; tegminibus nitidis, subpellucidis, ad latera subvitreis, disco fuscato; corpore subtus pedibusque testaceis, plus minusve piceo variegatis.

Femina segmento ultimo ventrali ad medium diviso, processibus duobus instructo, processu anali magno ad basim latiori, apicem versus sensim angustato.

A rather large, subovate species; head small, the vertex distinctly produced before the eyes, longer than broad, strongly excavate, and with the sides much raised, so that viewed from the front they appear to be cornute, the raised parts at the base having a black spot which makes them more conspicuous; forehead dark, with minute light markings, lagenoid, broader before the apex and gradually narrowed to the vertex; pronotum angular in front, straight behind; scutellum rather large; tegmina broadest before the middle, subpellucid and almost vitreous at the sides, dark on the disc; underside and legs testaceous, variegated with pitchy colour, the legs elongate.

In the *female* the last ventral segment is depressed and divided in the middle, and to each side of the division is attached a small process, which looks at first sight like a thickening of the edge; anal process large and long, broader towards the base than towards the apex, which is truncate.

Long. cum tegm. 11 millim.; lat. ad hum. 5 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

This is a very distinct species, and it ought perhaps to be separated from the genus *Thionia*, but on account of the simple interior ulnar vein and the bispinose tibiæ it may be provisionally placed here. There are also in our collection two obscurely coloured specimens, from Senahu and San Juan in Vera Paz, of a closely allied form with the vertex very narrow and its sides auriculate, but I prefer not to describe them.

11. **Thionia soluta,** sp. n. (Tab. XII. figg. 25, 25 *a*.)

Sat lata, convexa, viridescenti-testacea; capite brevi, pronoto angustiori; vertice angusto, latitudine fere longiori, lateribus elevatis subauriculatis, fronte longâ, angustâ, verticem versus sensim angustatâ, carinâ centrali in clypeo continuatâ, fortiter elevatâ; pronoto modico; scutello ad medium leviter canaliculato; tegminibus amplis, convexis, lateribus ad medium sensim rotundato-angulatis, confusius venatis, plus minusve reticulatis; alis amplis, flavescentibus; corpore subtus pedibusque testaceis.

Femina processu anali longo, antice sensim angustato, apice truncato, segmento ultimo ventrali simplici.

A rather broad and convex species, of a greenish-testaceous colour, which is probably much more distinct in life; head short, narrower than the pronotum; vertex narrow, longer than broad, the sides elevated and auriculate; forehead long, narrow, very gradually narrowed towards the vertex, with a strong central keel, which is continued on the clypeus; pronotum with two distinct impressions in the middle; scutellum with a fine central channel; tegmina rather broad, with the sides very obtusely and roundly angled at the middle, somewhat confusedly veined, and more or less reticulate; wings large, of a bright yellowish colour; legs testaceous, with the tarsal claws fuscous.

Female with the last ventral segment simple, and the anal process long, gradually narrowed to the apex, and truncate.

Long. cum tegm. 8 millim.; lat. ad hum. 4 millim.

Hab. PANAMA, Bugaba (*Champion*).

One of our two specimens has the interior ulnar vein of the tegmina simple and the tibiæ regularly bispinose, but the other has this vein roughly furcate; this latter example, however, is evidently abnormal, as one of the posterior tibiæ has the spine before the apex wanting. It is the only individual I have seen amongst the species with notched and folded wings in which the tibiæ are bispinose and the interior ulnar vein forked; the furcation may be an effect of the irregular venation.

T. soluta will probably have to be referred to a new genus, when more material is forthcoming.

12. **Thionia stipes,** sp. n. (Tab. XII. figg. 26, 26 *a*; 26 *b*, genitalia, ♂; 27, ♀, genitalia.)

Elongata, robusta, parallela, brunnea, plus minusve variegata; capite brevi, lato, oculis magnis, vertice transverso, fronte subquadratâ, hâc et clypeo carinatis; vertice, pronoto et scutello fere æquilongis; pronoto rotundato producto; scutello tricarinato; tegminibus parallelis, ad medium plus minusve callose dilatatis, fere unicoloribus, vel brunneo-fusco et testaceo variegatis; venis distinctis, ad apicem reticulatis; pedibus testaceis, vel ad partem fuscatis.

Mas laminis genitalibus antice rotundatis, deinde contractis, et auriculato-dentate productis; processu anali perbrevi, lato, ad apicem vix bifido.

Femina segmento ultimo ventrali ad medium impresso et aperto, processu anali longiori, lato, distincte ad apicem bifido.

A long, robust, parallel-sided species, castaneous-brown, almost unicolorous or variegated with darker and lighter colour; head short, very broad, nearly as broad as the tegmina at the widest; vertex transverse, frons subquadrate, keeled, the vertex, pronotum, and scutellum of about equal length; pronotum produced at the sides to about the middle of the eyes, which are very large and prominent; scutellum tricarinate; tegmina parallel, with a more or less evident callose prominence just before the middle, sometimes unicolorous, but more often variegated, the veins distinct, but not so regular as in some of the other species of the genus, the apex reticulate; wings rather smoky; legs testaceous, partly fuscous.

Male with the genital plates rounded in front, then contracted and impressed, and produced into an auriculate tooth, as seen from above; anal process short and broad.

Female with the last ventral segment impressed and open in the centre, and with the anal process longer and plainly bifid at the apex.

Long. cum tegm. 8–9 millim.; lat. ad hum. 3 millim.

Hab. PANAMA, Volcan de Chiriqui, Bugaba (*Champion*).

We have a fair series of this insect in our collection. The single specimen from Bugaba is of a unicolorous brownish-testaceous colour, with the venation a little more regular, but I cannot detect any structural difference. In its very broad head and long subparallel tegmina, *T. stipes* differs very much from the other species of *Thionia*; the venation, however, and the bispinose tibiæ seem to show that for the present it had better be retained under the present genus.

There are also in our collection single specimens of six or seven other species of *Thionia* or closely allied genera, but they cannot well be described without further material.

PICUMNA.

Picumna, Stål, Stett. ent. Zeit. xxv. p. 52 (1864); Hemipt. Afr. iv. p. 207.

The species of this genus are distinguished by having the radial, interior, and exterior ulnar veins forked, the interior area of the wings with one strong vein, and the posterior tibiæ armed with four spines, the two near the apex being strong and the one towards the base small or more or less obsolete. They appear to be very variable insects.

1. **Picumna varians.** (Tab. XII. figg. 28, 28 *a*.)

Picumna varians, Stål, Stett. ent. Zeit. xxv. p. 52 [1].

Hab. MEXICO [1] (*Mus. Holm. & Mus. Vind. Cæs.*), Teapa in Tabasco and Atoyac in Vera Cruz (*H. H. Smith*), San Lorenzo near Cordova (*Trujillo*); GUATEMALA, San Juan in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

Some specimens of this species are almost unicolorous, brownish or castaneous, while others have the tegmina more or less regularly variegated with black or fuscous. The examples from the Volcan de Chiriqui have the tegmina almost entirely dark, with the exception of a light transverse band across the centre, more or less interrupted at the suture, and on this band there are one or two distinct small black spots; one from Bugaba is intermediate in colour between these and the Mexican specimens. We also have a small *Picumna* from Lanquin, Vera Paz, which may be a variety of this species; it is, however, discoloured and not quite perfect. A specimen from Teapa is figured.

2. **Picumna ovatipennis.** (Tab. XII. figg. 29, 29 *a*; 30, var.)

Issus ovatipennis, Walk. List of Homopt. Ins., Suppl. p. 88 [1].

Hab. MEXICO (*Sallé* [1]), Atoyac in Vera Cruz (*Schumann*), Omilteme in Guerrero 8000 feet (*H. H. Smith*); GUATEMALA, Panima, Teleman, Chacoj, Sabo, Senahu, San Juan, San Gerónimo, and Tamahu, all in Vera Paz (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

This is also a very variable species, both in size and colour: the largest specimens are 7 mm. in length and the smallest under 5 mm.; the colour of the tegmina varies from black, with small testaceous spots at the sides, to testaceous or greenish-testaceous, with a few irregular small dark spots, or darker testaceous, with lighter markings at the sides. We figure a specimen from the Volcan de Chiriqui and a variety from San Gerónimo.

3. **Picumna mexicana.**

Picumna mexicana, Stål, Stett. ent. Zeit. xxv. p. 53 [1].

Hab. MEXICO (*Mus. Holm. et coll. Signoret* [1]).

I have not seen a specimen of this species, which is distinguished from the preceding by having the vertex transverse, the tegmina shorter and less parallel, and the wings smaller; in *P. varians* the vertex is small and distinctly subquadrate.

4. **Picumna venosa,** sp. n. (Tab. XII. figg. 31, 31 *a*.)

Sat brevis, testacea vel fusca, venis tegminum crassis, nigrescentibus; capite lato, vertice vix transverso, fronte latitudine longiori, lateribus leviter rotundatis; pronoto producto; scutello distincte tricarinato; tegminibus abdominis apicem paullo superantibus; pedibus testaceis, ad partem fuscis.

Femina segmento ultimo ventrali late emarginato et ad medium leviter producto; processu anali sat lato, ad apicem sensim angustato, obtuso.

Rather short, testaceous or fuscous, with the veins of the tegmina coarse and black; head broad, vertex scarcely transverse, forehead longer than broad, gently rounded at the sides; pronotum produced beyond the base of the eyes; scutellum distinctly tricarinate; tegmina comparatively short; legs testaceous, partly fuscous, posterior tibiæ with four strong spines.

Female with the last ventral segment broadly emarginate and slightly produced in the middle; anal process rather long and broad, gently narrowed to the apex, obtuse.

Long. cum tegm. 6 millim.; lat. ad hum. $3\frac{1}{2}$ millim.

Hab. MEXICO, Sierra Madre Mountains (*coll. Ball*).

COLPOPTERA.

Colpoptera, Burmeister, Handb. der Ent. ii. 1, p. 155 (1835).

The members of this genus are distinguished by the strong constriction and narrowing of the tegmina before the apex. They are rather long and slender insects, with the tegmina declivous and much adpressed to the sides when at rest; the posterior tibiæ are unispinose. *Colpoptera* has been regarded as intermediate between the Issidæ and the Ricaniidæ, which are, in some points, closely allied families: the enlarged scutellum and the transverse veins on the costal margin of the tegmina would seem to refer them to the latter. These veins are more or less obscure in the two species described by Burmeister, which seem to be identical; but there is in our collection a single imperfect specimen from Atoyac which has them very strongly marked, though I have not ventured to describe it. This character, however, is very apparent in *Hyphancylus falcatus*, which undoubtedly belongs to the Issidæ, and the affinities of *Colpoptera* seem to be rather towards the latter family. At first sight, the genus appears to be related to *Cyarda*, Walker, but the resemblance is probably superficial; his types are in very bad condition.

1. **Colpoptera sinuata.** (Tab. XII. figg. 32, 32 *a.*)

Colpoptera sinuata, Burm. Handb. der Ent. ii. 1, p. 155 [1].
Colpoptera marginalis, Burm. loc. cit. p. 156 [2].

Hab. MEXICO [1 2] (*Mus. Vind. Cæs.*), Amula and Acapulco in Guerrero, Vera Cruz, Atoyac, Teapa (*H. H. Smith*); GUATEMALA, Cahabon, Senahu, San Joaquin, and San Gerónimo in Vera Paz, Guatemala city (*Champion*); PANAMA, Bugaba and Volcan de Chiriqui (*Champion*).

There is a very large series of this insect in our collection, consisting of upwards of one hundred specimens. If the material in the Vienna Museum has been correctly determined by Signoret, *C. sinuata* is only a lighter and smaller form of *C. marginalis.* I have retained the name *C. sinuata,* as it is placed first in Burmeister's work and also is much more expressive of the peculiarly sinuate appearance of the tegmina. A specimen from Teapa is figured.

Fam. DELPHACIDÆ *.

The members of this family are characterized by the large movable spur of the hind tibiæ, and the more or less strongly developed first and second joints of the antennæ.

The genera referred to below may be distinguished as follows:—

I. Antennæ with the first and second joints much longer in proportion: species larger.
   1. First and second joints of the antennæ very large, flat . . . . . COPICERUS, Swartz.
   2. First and second joints of antennæ much more slender, cylindrical . EPIBIDIS, gen. nov.

II. Antennæ with the first and second joints much shorter in proportion: species small.
   1. Side-keels of the pronotum very strongly angled, reaching the basal margin on each side of the middle . . . . . GONIOLCIUM, gen. nov.
   2. Side-keels of the pronotum not angled if reaching margin . . . . LIBURNIA, Stål.

COPICERUS.

Copicerus, Swartz, Kongl. Vet. Nya Handl. xxiii. p. 180 (1802).
Holotus, Guérin, in Sagra's Hist. fis. polit. y nat. de Cuba, Zool. vii. p. 180 (1857).
Jerala, Walker, List of Homopt. Ins., Suppl. p. 85 (1858).

This genus is distinguished by the extraordinary form of the antennæ, of which the first two joints are very large and flat, the second being narrowed towards the apex; the third is setiform and comparatively short.

1. Copicerus irroratus. (Tab. XIII. figg. 1, 1 *a*, ♀; 2, 2 *a*, ♂.)

Copicerus irrocatus (sic), Swartz, Kongl. Vet. Nya Handl. xxiii. p. 181, t. 6. no. 2, figg. *a–f* [1].
Holotus thoracicus, Guérin, in Sagra's Hist. fis. polit. y nat. de Cuba, Zool. vii. p. 180, t. 13. figg. 17, 17 *a*, *b* [2].
Jerala singula, Walk. List of Homopt. Ins., Suppl. p. 85 [3].

Male with the pygofer comparatively small; the anal tube with the margin excavated beneath, behind, and the anal style fairly large; the styles are rather short, somewhat thick towards the base, and tapering at the apex, where they meet, enclosing a subtriangular space.

Female with the last ventral segments of the abdomen deeply and angularly emarginate; ovipositor long and large.

Hab. MEXICO, Orizaba (*F. D. Godman and H. H. Smith*), Xucumanatlan, Chilpancingo, Tierra Colorada, and Acaguizotla in Guerrero, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, San Isidro, Zapote, San Gerónimo (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—ANTILLES [1], Cuba [2], San Domingo [3], Haiti.

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* By W. W. FOWLER.

EPIBIDIS, gen. nov.

Subparallela, vertice angusto, ante oculos magnos distincte producto; antennis elongatis, articulo primo longo, lævi, secundo primo vix longiori, asperato et setoso, tertio setiformi præcedentibus longiori; fronte clypeoque longis, perangustis, latitudine ad medium maxima, carinatis et distincte marginatis; pronoto inter oculos obtuse triangulariter producto, carinato; scutello amplo, pronoto triplo longiori, quinque-carinato; tegminibus longis, venis granulatis, vena clavali apicem ipsam clavi haud attingente; pedibus longis, tibiis posticis quatuor vel quinque spinis instructis.

Somewhat elongate, subparallel, with the vertex narrow, distinctly longer than broad, and produced in front of the eyes (the anterior margin, if viewed from above, appears to be finely notched); forehead and clypeus long and narrow, broadest about the middle, carinate and plainly margined; antennæ elongate, with the first joint long and smooth, the second joint scarcely longer than the first, asperate, with warty whitish excrescences, and very short and strong thick setæ, the last joint (often broken off) setiform, longer than the two preceding together; pronotum obtusely produced between the eyos, carinate; scutellum large, three times as long as the pronotum at its broadest part, with five carinæ; tegmina long, with the veins rather fine, but more or less strongly granulate throughout, the claval vein not reaching the apex of the clavus, but joining the suture before it; legs long, posterior tibiæ with four or five spines, one being very near the base.

This genus comes near *Bidis*, Walker (=*Hygyops*, A. & S.=*Ugyops*, Guér.); but in the latter the basal joint of the antennæ is considerably shorter than the second, and the head is somewhat differently shaped.

1. **Epibidis godmani**, sp. n. (Tab. XIII. figg. 3, 3 *a*, *b*, ♀; 4, ♂; 5, var.)

Brunnea vel griseo-brunnea; vertice fronteque brunneo-testaceis vel fuscis; antennis articulo primo viridescenti-testaceo, secundo variegato; scutello ad medium testaceo, ad latera fusco sed variabili; tegminibus nitidis plus minusve pellucidis, colore variante, lineâ irregulari testaceâ pone medium, venis fusco-granulatis; pedibus testaceis, fusco-annulatis vel notatis; tibiis posticis quadrispinosis.

Mas segmentis ventralibus abdominis plus minusve emarginatis, segmento ultimo ad medium subquadratim producto, laminis utrinque latis, apicibus truncato-sinuatis; stylis brevibus validis, ad basim et ad apicem approximatis, apicibus leviter subsecuriformibus.

Femina segmentis ultimis ventralibus fortiter angulariter emarginatis, ovipositore prælongo, stylo anali longo, sat robusto.

Brown or greyish-brown, with the front-parts dark and the tegmina rather shiny; vertex and forehead brownish-testaceous or fuscous; antennæ with the first joint greenish-testaceous, and the second variegated, the terminal seta very long; scutellum testaceous with the sides dark, or entirely testaceous, or dark; tegmina more or less transparent, with the base dark, or with a fuscous spot or band, or with greenish markings, or entirely brownish, with more or less distinct granulations over all the veins; between the middle and the apex there is an irregular, very narrow, testaceous line, which at once distinguishes the species; the apical portion beyond this is more transparent than the rest; legs testaceous, ringed with piceous, or with fuscous spots at the base of the spines; posterior tibiæ quadrispinose.

Male with the ventral segments of the abdomen more or less emarginate; last segment rectangularly produced, with broad plates on either side, the apices truncate and sinuate; styles short and stout, approximate at the base and apex and enclosing a semicircular space, their apex slightly securiform or thickened.

Female with the last ventral segments strongly, angularly emarginate, the ovipositor very long, the anal style long and somewhat robust.

Long. cum tegm. $7\frac{1}{2}$–$8\frac{1}{2}$ millim.; lat. ad hum. $2\frac{1}{2}$–3 millim. (♂ ♀.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

A large series.

2. **Epibidis brunnea,** sp. n. (Tab. XIII. figg. 6, 6 *a*.)

Fusco-brunnea, partibus anticis plus minusve castaneis, venis tegminum obscurioribus; præcedenti affinis, sed major, colore magis uniformi, secundo articulo antennarum tenuiori et minus asperato, venis tegminum minus evidenter granulatis, et lineâ subtili testaceâ pone medium deficiente, facile distinguenda.

Mas segmento ultimo ventrali fortiter emarginato, processu ad medium brevi trifido, laminâ utrinque sat latâ ad apicem subtruncatâ; stylis brevibus, acutis, ad basim separatis ad apicem approximatis.

Femina segmentis ventralibus apicem versus profunde emarginatis, ovipositore prælongo.

Of a fusco-castaneous colour, larger than the preceding, with the anterior parts a little lighter in places, and the veins of the tegmina dark and less evidently granulose, this, however, is mainly due to the colour, as the granulations themselves are quite as strong; the second joint of the antennæ is a little more slender and less asperate; the tegmina have no irregular thin testaceous line behind the middle; the legs are unicolorous, pitchy-castaneous; occasionally five spines are visible on the posterior tibiæ.

Male with the last ventral segment broadly emarginate, with a small trifid process on its hind margin, and with two plates, one on each side, which are truncate at the apex; the styles are stout at the base and sharp at the apex, where they are approximate.

Female with the ventral segments deeply emarginate and the ovipositor very long.

Long. cum tegm. 9 millim.; lat. ad hum. 3 millim. (♂ ♀.)

Hab. PANAMA, Bugaba (*Champion*).

GONIOLCIUM, gen. nov.

Capite brevi, lato, oculis permagnis; vertice transverso; fronte modicâ, carinâ ad verticem bifurcatâ; antennis articulo primo lato, subtriangulari, secundo hoc plus minusve distincte longiori; pronoto vertice vix longiori, carinis validis, lateralibus ad medium fortiter angulatis et basim attengentibus; scutello tricarinato; tegminibus venis distincte asperatis; tibiis posticis bispinosis.

Head short, broad, with very large eyes; vertex small, transverse; forehead moderately large, frontal keel slightly forked at the forehead, the fork sometimes being little more than a thickening, sometimes distinct; antennæ with the first joint large and broad, subtriangular, the second more or less distinctly longer than the first, stout and thick, the last setiform joint long; pronotum about as long as the vertex, with three distinct carinæ, the side ones being strongly angled and reaching the base; scutellum large, tricarinate; tegmina with the veins distinctly asperate; posterior tibiæ bispinose.

The peculiar angled side-keels of the pronotum, which reach the basal margin, together with the asperate veins of the tegmina, the short broad head, and general facies, serve to distinguish this genus. I have included under it two species: the first of these, however, has the characteristics more marked than the second, and differs from it somewhat in the formation of the antennæ.

1. **Goniolcium granulosum,** sp. n. (Tab. XIII. figg. 7, 7 *a*, ♀; 8, ♂.)

Partibus anticis nigricantibus (interdum fusco-testaceis vel plus minusve testaceis), albido-testaceo variegatis; fronte basi nigrâ vel fuscâ, parte apicali albidâ, clypeo fusco; antennarum articulo secundo annulato; carinis pronoti scutellique albidis; tegminibus pellucidis, vittis duabus irregularibus et tertiâ parte apicali interne nigrescentibus, venis nigro-granulosis; pedibus albidis, nigro concinne variegatis.

Mas tubâ anali modicâ in hamum magnum acutum productâ, stylis longis robustis fere rectis, apicem versus sensim dilatatis, truncatis.

Femina tubâ anali sat longâ, stylo anali distincto, ovipositore prælongo fortiter curvato.

A small species, subparallel, gradually narrowed to the apex; anterior parts dark, variegated with whitish-testaceous, but somewhat variable in colour; forehead with the basal half dark and the apical half whitish, the clypeus fuscous; frontal keel very slightly bifurcate at the vertex, the bifurcation sometimes

appearing as a mere thickening (as is sometimes the case in species of *Oliarus*); second joint of the antennæ ringed; keels of the pronotum and scutellum very distinct, whitish; tegmina transparent, with two irregular bands across them (when closed), and sometimes other markings, and with the apical portion more or less distinctly dark internally, the veins with large dark granulations throughout; legs whitish, very neatly and regularly ringed with black.

Male with the anal tube moderately large, produced behind into a strong, sharp, curved hook; styles long, robust, almost straight, gradually dilated towards the apex, with the apices truncate.

Female with the anal tube rather long and the anal style distinct, and with a very long and strongly curved ovipositor.

Long. cum tegm. 4–4½ millim.; lat. ad hum. 1–1½ millim. (♂ ♀.)

Hab. MEXICO, Orizaba (*F. D. Godman and H. H. Smith*), Omilteme, Amula, and Chilpancingo in Guerrero, Fortin in Vera Cruz (*H. H. Smith*); GUATEMALA, San Gerónimo, San Joaquin, and Chiacam in Vera Paz, San Isidro (*Champion*).

We have also a female specimen from Juarez, N. Mexico (*Cockerell*), which closely resembles this species, but the keels of the pronotum are not so strongly angled; it is, however, in poor condition. The example figured with the wings extended is from Amula.

2. **Goniolcium testaceum,** sp. n. (Tab. XIII. figg. 9, 9 *a*.)

Præcedente major, carinæ frontalis bifurcatione magis distinctâ, et colore uniformi testaceo, carinisque lateralibus scutelli rectioribus distinguendus.

Mas minor, tubâ anali magnâ, processu longo acuto; stylis robustis, carinatis, antice subtruncatis utrinque plus minusve distincte productis.

Of a uniform testaceous colour, with the frontal keels lighter; the forehead is rather longer than in the preceding species, and the bifurcation of the central keel more distinct; the keels are not so strong, and those on the scutellum are straighter; the granulations of the tegmina are strong, but are less evident than in the preceding species, because of their light colour.

Male smaller, with the anal tube large, and with a sharp process behind; styles robust, keeled on the outer edge, and with the apex truncate, the truncate part being produced on each side, and on the inner side terminating in a small hook.

Long. cum tegm. 5–6 millim.; lat. ad hum. 1½–2 millim. (♂.)

Hab. GUATEMALA, Senahu in Vera Paz, Cerro Zunil (*Champion*).

One male and three females. The last segment of the single male obtained is not perfect, and one style is wanting, but the shape of the other is quite plain under a compound microscope, although the parts are somewhat confused.

LIBURNIA *.

Liburnia, Stål, Hemipt. Afr. iv. p. 179 (1866).

Liburnia is here regarded as including several of Fieber's genera—*Megamelus*, *Kelisia*, *Stenocranus*, &c., which appear to depend upon the relative length and breadth of

* I am much obliged to Mr. J. Edwards, of Colesborne, Cheltenham, for looking over our material of this and the preceding genus. Mr. Edwards has paid great attention to the British species of *Liburnia*, of which there are a very considerable number.

the forehead, or of the first and second joints of the antennæ. It is characterized by having the single central keel of the forehead forked just before the vertex, the furcation being sometimes very distinct, and at others very small or reduced almost to a mere minute triangular thickening. The chief characters of the majority of the species lie in the formation of the male organs and especially of the styles. They are very minute and fragile insects, and we have a considerable number of species in our collection which I have not described, owing to the fact that no males are known. The genus may be divided into groups by the form of the side-keels of the pronotum, which either reach or do not reach the basal margin: considerable care, however, and the use of a high magnifying-power are necessary in determining this charater in some cases, although it is very evident in others.

I. *Lateral carinæ of the pronotum not reaching the basal margin.*

1. **Liburnia atrior,** sp. n. (Tab. XIII. figg. 10, 10 *a*, ♀; 11, ♂.)

Niger, pernitida, vertice parvo, oculis magnis albidis, fronte latitudine sesqui longiori, distincte carinatâ, clypeo antennisque læte flavis; pronoto brevi, carinis lateralibus marginem basalem haud attingentibus; scutello modico, tricarinato; tegminibus brevibus, venis crassis, leviter asperatis; abdomine fere lævi; corpore subtus antice et pedibus læte testaceis.

Mas minor, tubâ anali magnâ lateribus antice productis; stylis rectis, apicibus dilatatis, subfurcatis.

Femina major, stylo anali magno; ovipositore prælongo, robusto.

Very black and shining; vertex small; eyes large, whitish; forehead about one and a half times as long as broad, distinctly carinate, with the fork before the vertex strongly marked; clypeus and antennæ clear yellow; scutellum not very large, tricarinate; tegmina short and broad, with strong veins, which are slightly asperate; abdomen very shiny, almost smooth; underside in front and the legs clear yellow.

Male smaller, with the anal tube large, with the sides rounded and produced in front, and the anal style large, rounded, and projecting; styles straight or nearly so, stalked, with subtriangular dilated apices, which are broadly bifurcate.

Female larger, with the anal tube and style large; ovipositor long and robust.

Long. $2\frac{1}{2}$–3 millim.; lat. 1–$1\frac{1}{4}$ millim. (♂ ♀: brachypterous form only.)

Hab. Mexico, Teapa in Tabasco (*H. H. Smith*).

Several specimens.

2. **Liburnia basifuscata,** sp. n. (Tab. XIII. figg. 12, 12 *a*, *b*, ♂.)

Niger, capite modico, fronte latitudine fere triplo longiori, carinis testaceis; pronoto prebrevi, carinis lateralibus basim haud attingentibus; scutello magno, tricarinato, pronoto triplo longiori; tegminibus vitreis ad basim fusco-brunneis, venis subtilibus, fuscis; abdomine piceo; pedibus piceo-testaceis.

Mas pygofero magno postice infra producto, tubâ anali magnâ, processu infra longo acuto; stylis longis, tenuibus, apicibus paullo dilatatis.

Femina tubâ anali styloque sat magnis, segmento ultimo ventrali quadratim emarginato, laminis utrinque (nebenplatten) curvatis, testaceis.

Fuscous-black, with the head moderately large; forehead long, with testaceous keels; pronotum very short, with the side-keels turning off before the base and not reaching it; scutellum large, dull, tricarinate, three times as long as the pronotum; tegmina vitreous, with fine fuscous veins, and with the base fuscous-brown; abdomen piceous; legs pitchy-testaceous.

Male with the pygofer large, and somewhat produced behind, if viewed from the side, denticulate on its lower portion; anal tube and style large, with a long sharp process behind; styles long and rather slender, slightly dilated at the apex, enclosing an oval space.

Female with the anal tube and style conspicuous, and with the last ventral segment subquadrately emarginate, and the side-plates curved and testaceous.

Long. cum tegm. $3\frac{1}{2}$ millim.; lat. ad hum. $1\frac{1}{4}$ millim. (♂ ♀.)

Hab. MEXICO, Chilpancingo and Omilteme in Guerrero (*H. H. Smith*).

3. **Liburnia teapæ,** sp. n. (Tab. XIII. figg. 13, 13 *a*, *b*, ♂.)

Parva, partibus anticis nigris; tegminibus nigris, nitidis, margine exteriore apicem versus vitreo-albido; capite brevi, fronte latitudine fere duplo longiori, carinâ centrali validâ, antennis sat longis, læte flavis; pronoto brevi, carinis lateralibus haud basim attingentibus; scutello pronoto triplo longiori, distincte tricarinato; tegminibus venis granulatis; pedibus flavescentibus.

Mas pygofero testaceo, tubâ anali magnâ, stylo anali fusco; stylis latis robustis, apicibus late dilatatis, furcatis.

A very small species, with the front-parts black, more or less shining, the tegmina black, with the veins granulose, and the exterior margin towards the apex vitreous; forehead about twice as long as broad, with a strong central carina; antennæ rather long, yellow; pronotum short, with the side-keels not reaching the base; scutellum about three times as long as the pronotum; abdomen piceous; legs yellow.

Male with the pygofer broader below than above, with the anal tube large and the anal style large and fuscous; styles broad, approximate, stalked, with a dilated head which is broadly furcate.

Long. cum tegm. $2\frac{1}{2}$ millim.; lat. ad hum. 1 millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco and Vera Cruz (*H. H. Smith*).

Several males and one imperfect female.

4. **Liburnia albolineosa,** sp. n. (Tab. XIII. figg. 14, 14 *a*, *b*, ♂.)

Præcedenti quod formam pygoferi stylorumque maris maxime affinis, sed fronte angustiori latitudine triplo longiori, perdistincte tricarinatâ, carinis albidis, et vittâ latâ albidâ longitudinali a vertice usque ad media tegmina extensâ, facile distinguenda.

A very pretty species, black, with a clear white band running from the front to the middle of the tegmina, including the vertex and the central part of the pronotum and scutellum, and half the suture of the tegmina; the male characters are just as in the preceding species, except that the stalks of the styles are a little longer; this, however, is due probably to their being rather more adpressed in some specimens than in others; in the female the ovipositor is very large and strongly curved, and the side-plates are curved at the apex; the forehead is very long and narrow, with three distinct white keels.

Long. $2\frac{1}{2}$–3 millim.; lat. 1 millim. (♂ ♀.)

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith*).

Several males and one female.

5. **Liburnia marginicornis,** sp. n. (Tab. XIII. figg. 15, 15 *a*, ♀.)

Testacea, pronoto apiceque abdominis supra et infra obscuriori; capite perbrevi, vertice ante oculos vix distincte producto, perbrevi, transverso; fronte angustâ, latitudine fere triplo longiori; antennis sat longis testaceis, nigro, anguste sed distincte marginatis; pronoto brevi, carinis lateralibus haud basim attingentibus; scutello magno, nitido, convexo, tricarinato, castaneo, maculâ fuscâ utrinque pone medium; tegminibus longis, flavo-pellucidis, ad medium indistincte notatis; pedibus flavescentibus.

Femina segmentis abdominis fortiter emarginatis; ovipositore permagno, acuto.

Of a light testaceous colour, with the pronotum and the upper and under surface of the apex of the abdomen darker; head and vertex very short, the latter transverse, truncate in front; forehead narrow; antennæ rather long, with the second joint three times as long as the first, flat, testaceous, clearly margined with black; pronotum short, with the lateral keel not reaching the base; scutellum large, shining, convex, tricarinate, castaneous, with a spot behind the middle and the apex fuscous; tegmina long, transparent yellowish, with obscure darker markings about the middle—these are very faint, the apparently stronger markings being covered by the dark apex of the abdomen underlying the transparent tegmina; legs yellowish.

Female with the segments of the abdomen strongly emarginate, and the ovipositor long and sharp.

Long. cum tegm. $4\frac{1}{2}$–5 millim.; lat. ad hum. $1\frac{1}{4}$–$1\frac{1}{2}$ millim. (♀.)

Hab. MEXICO, Amula in Guerrero 6000 feet (*H. H. Smith*).

II. *Lateral carinæ of the pronotum reaching the basal margin.*

6. **Liburnia apicimacula,** sp. n. (Tab. XIII. figg. 16, 16 *a*, ♀.)

Concinna, rufo- vel flavo-testacea; capite modico, cum oculis subtriangulari, vertice ante oculos vix producto; fronte convexâ, nitidâ, antice nigrâ, deinde albidâ, clypeo rufescente, carinis haud distinctis; pronoto sat longo, carinis basim attingentibus; scutello pronoto vix longiori, fere brevi, carinis indistinctis; tegminibus subpellucidis, testaceis, vittis duabus vitreo-albidis; abdomine supra rufo-testaceo, apice dilutiori, maculâ utrinque rotundatâ nigrâ ad extremum; pedibus testaceis.

Femina pygofero magno testaceo; ovipositore valido, nigro.

Reddish- or yellowish-testaceous, with the head moderately large, and the eyes large and rounded, forming with the vertex a subtriangular outline; forehead convex, with the keels not distinct, with a large, stout, shining spot taking up the basal part, the apical part whitish-testaceous; clypeus rufescent; pronotum rather long, with all the keels reaching the base; scutellum scarcely longer than the pronotum, freely tricarinate; tegmina semitransparent, testaceous, with two whitish vitreous bands; abdomen rufo-testaceous above, with the apex lighter, and at its extreme end two large round black spots; legs testaceous.

Female with the pygofer large, testaceous, and the ovipositor strong, black.

Long. 3 millim.; lat. ad hum. 1 millim. (♀.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

This is a very conspicuous little species, allied to the British *L. scotti*; there is no male specimen in our collections, but the insect is very distinct.

7. **Liburnia sagata,** sp. n. (Tab. XIII. figg. 17, 17 *a*, *b*, ♂.)

Nigra, sat nitida, albido variegata; vertice ante oculos distincte producto; fronte latitudine duplo longiori, carinis albidis conspicuis, furcâ ad verticem distinctâ; pronoto sat longo, albido, lateribus nigrescentibus, carinis tribus basim attingentibus; scutello pronoto haud longiori, maculâ utrinque nigro pronoto fere occulto; tegminibus brevibus, nigris, margine postico albido; abdomine apicem versus angustato, nigro, apice et antice albido-testaceo; pedibus albidis, ad partem fuscatis.

Mas pygofero et tubâ anali sat parvis; stylis longis, tubam analem amplectentibus, robustis, pæne a basi clavatis, ad apicem extremum angustatis; callo albido utrinque pone basim stylorum.

Black and somewhat shiny, variegated with whitish; vertex produced before the eyes; forehead about twice as long as broad, with conspicuous white keels and the fork near the vertex distinct; pronotum comparatively long, white in the centre and dark at the sides, with the side-keels reaching the base; scutellum about as long as the pronotum, tricarinate, white, with a dark spot on each side at the base; tegmina black, with the hind margins edged with white, with strong veins; abdomen black, with the apex and part of the base whitish-testaceous; legs whitish, in part infuscate.

Male with the pygofer and the anal tube rather small, and the styles long and stout, almost encircling the anal tube, clavate and dilated a little from their base, and narrow at the extreme apex; behind their base on each side is a white callose spot.

Long. $2\frac{1}{2}$ millim.; lat. 1 millim. (♂: brachypterous form only.)

Hab. MEXICO, Vera Cruz (*H. H. Smith*).

8. **Liburnia paludata,** sp. n. (Tab. XIII. figg. 18, 18 *a*, *b*, ♂.)

Nigra, antice plus minusve testacea, vertice angusto latitudine vix longiori; fronte latitudine fere triplo longiori, carinis albido-testaceis; pronoto longo, carinis tribus validis basim distincte attingentibus; scutello pronoto vix longiori, tricarinato; tegminibus brevibus, nigris, apicibus albidis; venis elevatis; abdomine lævi, nitido; pedibus testaceis; femoribus piceis.

Mas pygofero subtriangulari, tubâ anali permagnâ, stylo anali parvo; stylis sat latis fere in eodem plano jacentibus, ad apicem obtuse curvatis, nitidis.

Femina ovipositore modico.

Black, more or less testaceous in front, with the vertex narrow; forehead about three times as long as broad, with the central and side-keels whitish-testaceous; pronotum long, with three strong keels, all reaching the basal margin; scutellum scarcely longer than the pronotum, tricarinate; tegmina short, black, with the apex narrowly white, and with strong elevated veins; abdomen smooth and shining; legs testaceous, femora piceous.

Male with the pygofer subtriangular, if viewed from behind, with the anal tube very large and the anal style small; styles rather broad, lying almost in the same plane and forming nearly a straight line, obtusely curved minutely at the apex.

Female with a comparatively short ovipositor.

Long. 3 millim.; lat. ad hum. $1\frac{1}{2}$ millim. (♂ ♀: brachypterous form only.)

Hab. MEXICO, Chilpancingo (*H. H. Smith*); GUATEMALA, San Isidro (*Champion*).

In general appearance this insect closely resembles *L. sagata*, but differs in the shape of the head, and especially in the male characters.

The following two genera are of uncertain position: Walker places *Rhotala*, apparently, with the Delphacidæ, near *Bidis* and *Copicerus* (= *Jerala*), but although there are two or three large spurs at the apex of the posterior tibiæ, the characteristic large serrulate movable spur of the Delphacidæ is wanting, and the antennæ are not strongly developed as in that family: in some respects this genus is closely allied to *Helicoptera*, but it differs in the very much longer and larger pronotum and in the formation of the male and female organs. Most probably, however, *Rhotala* must be classed with the Cixiidæ.

The second genus, *Syntames*, seems to be allied to the Ricaniinæ, but it is without the characteristic transverse crenation of the costa, and must perhaps be referred to the Cixiidæ: the male organs, however, are not like those of the latter family.

RHOTALA.

Rhotala, Walker, Journ. Linn. Soc., Zool. i. p. 152 (1857).

In this genus the first joint of the antennæ is very short, about as broad as long, and the second is almost as stout and twice the length of the first, the terminal seta being much longer than the two preceding joints; the head is small, very much narrower than the pronotum, which is very large and almost as long as the scutellum; the pronotum is strongly tricarinate; the tegmina overlap, as in *Helicoptera*,

and are furnished with closely-set parallel veins on the overlapping and overlapped portions at the apex; legs long, the tibiæ with five spines, the last of which is situated just before the base, those at the apex of the posterior pair strong.

The type of the genus, *R. delineata*, Walk., is from Sarawak, but it closely resembles the species described below; the peculiar female organs are much the same, but those of the male are considerably different.

1. **Rhotala ambigua,** sp. n. (Tab. XIII. figg. 19, 19 *a*, *b*, ♂; 20, 20 *a*, ♀.)

Oblonga, subparallela, brunnea vel fusco-brunnea, partibus anticis plus minusve testaceis; capite angusto, vertice ante oculos producto, rotundato; capite pronoto tegulisque magnis testaceis; pronoto perdistincte tricarinato; scutello fusco-nigro, utrinque carinato, carinâ centrali pæne deficiente, disco subrugoso; tegminibus brunneis unicoloribus vel perobscure colore obscuriori variegatis; alis fuscis; pedibus plerumque testaceis.

Mas minor, segmento ultimo ventrali leviter emarginato; stylis robustis, ad medium contractis, apicibus subtruncatis.

Femina major, segmento ultimo ventrali fere recto, deinde lamina magnâ subtriangulari partibus genitalibus subjacente.

Oblong, subparallel, brown or fuscous-brown, with the anterior parts more or less testaceous; head narrow, the vertex produced before the eyes, with the anterior margin and the eyes rounded; pronotum and tegulæ testaceous, the pronotum with three strong carinæ, the side ones meeting semicircularly in front; scutellum scarcely longer than the pronotum, with a carina on each side and the central keel absent or only just traceable; tegmina testaceous-brown, unicolorous, or very obscurely mottled with darker (and occasionally lighter) colour, the venation very distinct; wings infuscate; legs mostly testaceous.

Male smaller, with the last ventral segment gently emarginate in a segment of a circle, and with two robust straight styles, separate and broader towards the base, and narrower and approximate towards the apex, contracted in the middle and with the ends subtruncate.

Female larger, with the genital organs covered below by a large plate, which is somewhat triangular in shape, and is broadly emarginate on each side; the organs themselves are very complicated, consisting of two narrow plates enclosing two slender plates or processes, and on each side of these below are two other narrow plates terminating in short, sharp, seta-like processes; anal process or tube broad, anal style very short and hidden in the orifice by short whitish setæ.

Long. cum tegm. 10–12 millim.; lat. ad hum. 4–4½ millim. (♂ ♀.)

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

One male and seven females. The characters of the female, if I am correct, are very extraordinary, and require further examination in the case of fresh specimens; but for the fact that there is a single example of the other sex, I should unhesitatingly have considered them to be all males, as the characters, which are unlike any I have observed among the Homoptera, are much more like those of the male than of the female. The specimens all belong to one species, and appear to have been taken at the same time.

SYNTAMES, gen. nov.

Elongata, parallela, vertice rectangulari vel subrectangulari, latitudine paullo longiori, ante oculos distincte producto; oculis fortiter emarginatis; fronte angustâ, latitudine fere triplo longiori, marginibus et carinâ mediâ hujus et clypei distinctis, clypeo et rostro longis; pronoto brevi, ad latera ampliori; scutello magno, convexo, fere brevi, postice depresso; tegminibus longis, ad latera adpressis, venis radiali et ulnaribus in unum ante basim conjunctis, venâ radiali et ulnari interiori fere ad medium, venâ ulnari exteriori pone medium furcatis; tibiis posticis simplicibus.

Elongate-parallel, with the vertex rectangular or very slightly narrowed in front, a little longer than broad, distinctly produced before the eyes, the front margin straight; forehead and clypeus together very long and narrow, distinctly margined, with a clear central keel, which is interrupted at the junction, and is continued more strongly on the clypeus; rostrum long; pronotum very short, longer at the sides; scutellum large, convex, depressed behind, almost smooth, or with more or less faint carinæ; tegmina long, declivous, almost perpendicular at rest, with the principal veins joined before the base, the radial and interior ulnar forked at about the middle, the exterior ulnar vein forked behind the middle; claval suture indistinct; claval vein bifurcate at about the middle, with a fine vein crossing the suture and joining the stalk just behind the bifurcation; posterior tibiæ without spines.

1. **Syntames delicatus,** sp. n. (Tab. XIII. figg. 21, 21 *a*, *b*, ♂.)

Dilute testaceus, tegminibus venis plus minusve colore fusco notatis, vel vittâ obliquâ transcurrente, vel fere unicolori; scutello unicolori, vel ad latera obscuriori; tegminibus longis, parallelis; alis lacteis; pedibus longis, albido-testaceis.

Mas segmento ultimo ventrali truncato, postice laminâ magnâ fere circulari vel subquadratim rotundatâ, laminis lateralibus fortiter utrinque dentatis; stylis magnis, subtriangularibus *.

Femina segmento ultimo ventrali processu parvo ad medium instructo.

Of a light testaceous colour, with the veins of the tegmina and the sides of the pronotum sometimes infuscate, or with the tegmina almost unicolorous or marked with a distinct oblique dark band; tegmina subparallel; antennæ not conspicuous, with the second joint much longer than the first; eyes dark, strongly emarginate; ocelli small; legs long and slender.

Male with the last ventral segment of the abdomen truncate, with a large, almost semicircular or subquadrate plate behind, with lateral plates on each side, furnished with a long straight tooth; styles large, subtriangular.

Female with the last abdominal segment furnished with a short process in the middle, and with the sides of the pygofer next the dark-coloured ovipositor irregular.

Long. cum tegm. 8 millim.; lat. ad hum. 2 millim. (♂ ♀.)

Hab. GUATEMALA, Senahu in Vera Paz (*Champion*); PANAMA, David, Volcan de Chiriqui (*Champion*).

Var. *chiriquensis*, n. (Tab. XIII. fig. 22.)

Minor, vertice antice paullo angustiori; scutello carinis plus minusve distinctis, et colore tegminum testaceo, disco albido, vittis duabus latis rectis a basi usque ad apicem extensis, maculâ pone medium ad suturam rufescenti, et dentibus laminarum lateralium maris minus validis.

Smaller, with the vertex slightly narrower towards the front; scutellum with the keels, especially the central one, more or less distinct; tegmina with the disc and two longitudinal bands, one on each side, broadly white; behind the middle, at the suture, is a small reddish patch; the teeth of the side-plates of the male are less strong.

Long. cum tegm. 7 millim.; lat. ad hum. $1\frac{3}{4}$–2 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

There is also in our collection a single specimen of a species belonging to this or an allied genus from Cerro Zunil, Guatemala.

* These styles appear to be more or less contiguous and sometimes present the appearance of a single plate, but after examining two or three male specimens under a high power they are evidently separate, and must, I think, be regarded as the styles, although it is quite possible that I may be mistaken; the species are so delicate that these parts are usually more or less shrivelled—at any rate, as far as their surroundings are concerned.

APPENDIX*.

THIS Appendix relates to the Homopterous Families Cicadidæ and Fulgoridæ, being the enumeration or description of specimens seen or received since the publication of the Supplement (*anteà*, pp. 42–44) in 1900.

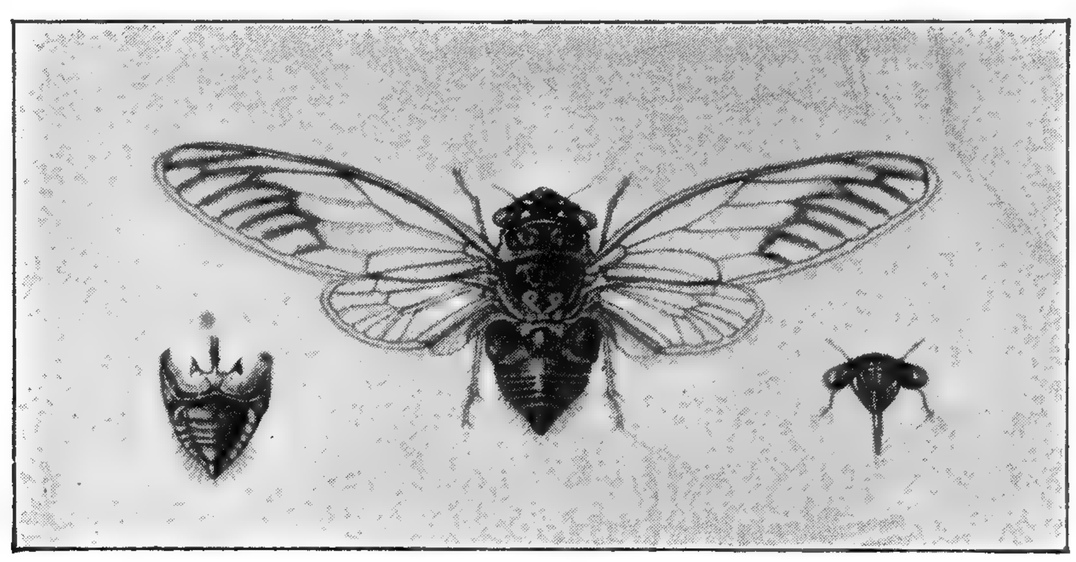
Fam. CICADIDÆ (p. 1).

Since I wrote on this family in 1881, I have commenced a revision of the classification of these interesting insects, but can only refer to that work here, as our space will not allow a new enumeration of the species.

Subfam. *CICADINÆ.*

RIHANA (to follow the genus *Cicada*, p. 10).

Rihana, Distant, Ann. & Mag. Nat. Hist. (7) xiv. p. 426 (1904).



Rihana virgulata, ♂.

1. **Rihana virgulata.**

Rihana virgulata, Dist. Ann. & Mag. Nat. Hist. (7) xiv. p. 426 [1].

Hab. MEXICO (*Mus. Brit.* [1]).

Subfam. *GÆANINÆ.*

PROARNA (p. 11).

8. **Proarna germari**, n. n.

Cicada grisea, Germ. in Thon's Arch. ii. 2, p. 38 (1830); Silb. Rev. Ent. ii. p. 70 (1834) (nom. præocc.).

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* By W. L. DISTANT.

Cicada invaria, Walk. List Hom. i. p. 151 (1850).
Cicada dexithea, Walk. loc. cit. p. 158.
Tympanoterpes dexithea, Stål, Öfv. Vet.-Ak. Förh. 1862, p. 485.
Cicada fulvoviridis, Walk. List Hom., Suppl. p. 23 (1858) [1]; Stål, Hem. Fabr. ii. p. 7 (1869).
Tympanoterpes grisea, Stål, Ann. Soc. Ent. Fr. 1861, p. 615.
Cicada ovatipennis, Walk. Ins. Saund., Hom. p. 13 (1858) [2].

Hab. COSTA RICA, Port Limon, Atlantic slope (*H. Pittier, in coll. Dist.*).—COLOMBIA [2]; AMAZONS (*Mus. Brit.*), Villa Nova [1]; ANTILLES, Guadeloupe I. (*Mus. Brit.*).

9. **Proarna insignis.**

Proarna albida, var. *insignis,* Dist. anteà, p. 12 (1881).

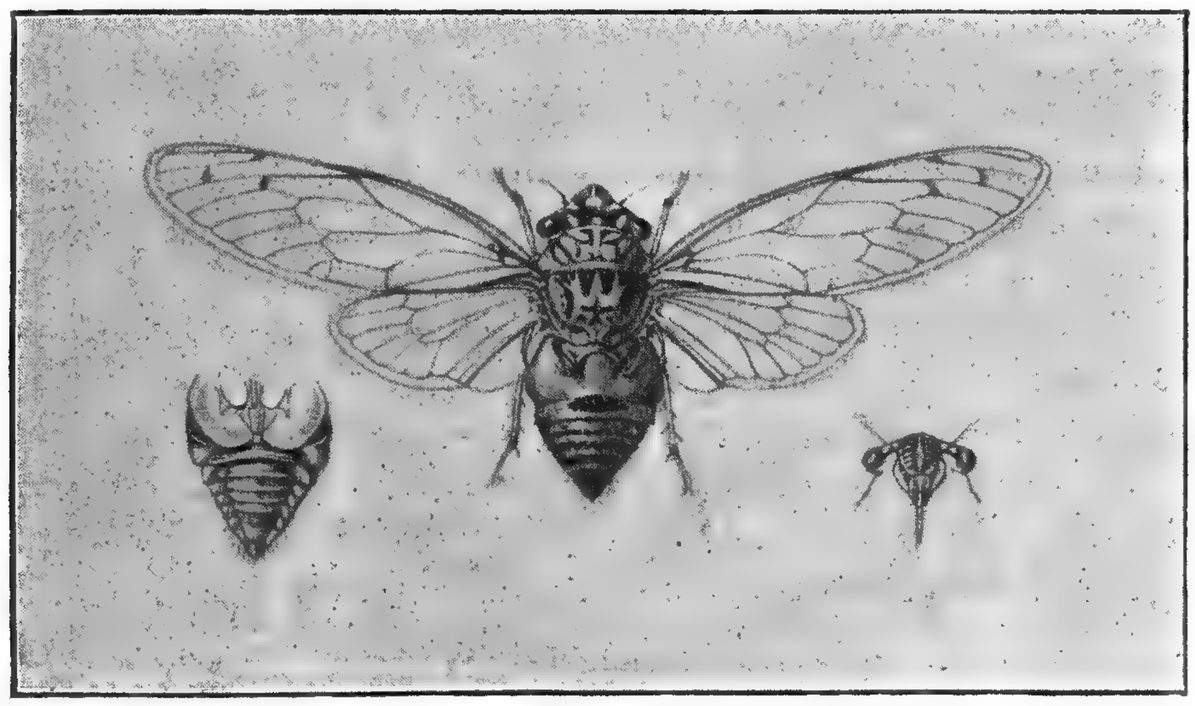
To the localities given, add:—VENEZUELA (*Mus. Brit.*); ECUADOR, Coca (*Haensch*); AMAZONS, Pará.

I had previously described this species as a variety of *P. albida*, Oliv., till then having only seen female specimens. I have since examined a male in the British Museum, from Brazil, and this decides their non-specific identity. Besides the differences already pointed out in the structure of the body and the markings of the tegmina, the opercula in *P. insignis* are laterally and posteriorly convex, in *P. albida* their posterior margins are obliquely straight and at right angles to the lateral margins.

OLLANTA (to follow the genus *Proarna*).

Ollanta, Distant, Ann. & Mag. Nat. Hist. (7) xv. p. 313 (1905).

The species described as *Selymbria modesta*, Dist. (*anteà*, p. 14), must also be included in this genus.



Ollanta mexicana, ♂.

1. **Ollanta mexicana,** sp. n.

Body above greenish-ochraceous; head with anterior margin of front, two large spots at area of ocelli, and inner margin of eyes black; pronotum with two central longitudinal lines, widened anteriorly and united

posteriorly, the incisures, and a central black line on inner edge of posterior margin black; mesonotum with two black obconical spots on anterior area, on each of which is a longer but more obliterated spot, a posterior discal transverse angulated spot and a small spot in front of the anterior angle of the cruciform elevation black; two central spots on basal segment of abdomen, and basal margin of remaining segments, black; head beneath, sternum, and legs greenish-ochraceous, abdomen beneath more ochraceous; tegmina and wings hyaline, the venation fuscous, the first with the transverse veins at the bases of the second and third apical areas infuscate, wings with the inner margin of the abdominal area infuscate; anterior femora with two strong spines beneath. ♀ with a small black spot at apex of tegmina.

Long. excl. tegm. ♂ 21 millim.; exp. tegm. 68 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

PACARINA (to follow the genus *Ollanta*).

Pacarina, Distant, Ann. & Mag. Nat. Hist. (7) xv. p. 314 (1905).

The species enumerated as *Proarna signifera*, Walk. (*anteà*, p. 13), must also be included in this genus.

1. **Pacarina schumanni**, sp. n.

♂. Allied to *P. signifera*, Walk., from which it differs principally by the tegmina, in which the breadth of the lower apical area is about equal to the length of the seventh or preceding apical area; the apices of the longitudinal veins to the upper three apical areas are also longly lineately infuscate; head more produced and less truncately deflected anteriorly.

Long. excl. tegm. ♂ 13 millim.; exp. tegm. 42 millim.

Hab. MEXICO, Atoyac in Vera Cruz (*Schumann, in Mus. Brit.*).

In *P. signifera*, Walk., the breadth of the lower apical area to the tegmina is considerably more than the length of the seventh or preceding apical area, and the apical longitudinal veins are not infuscate.

Subfam. *TIBICENINÆ.*

COLLINA, gen. nov. (to precede the genus *Tibicen*, p. 18).

Head (including eyes) about two-thirds of the width of base of mesonotum, front moderately prominent, its lateral margins a little discontinuous with those of vertex, eyes not projecting beyond the anterior angles of the pronotum, ocelli a little wider apart from eyes than from each other; pronotum shorter than mesonotum, its lateral margins ampliated, a little medially angulate; mesonotum to base of cruciform elevation almost as long as head and pronotum together; abdomen considerably longer than space between apex of head and base of cruciform elevation, above with its lateral areas oblique, beneath with the disk globose, the marginal areas depressed, tympanal orifices completely exposed, tympanal coverings entirely absent; opercula in male short, transverse, not extending beyond base of abdomen; tegmina and wings hyaline, first more or less maculate with the basal cell longer than broad.

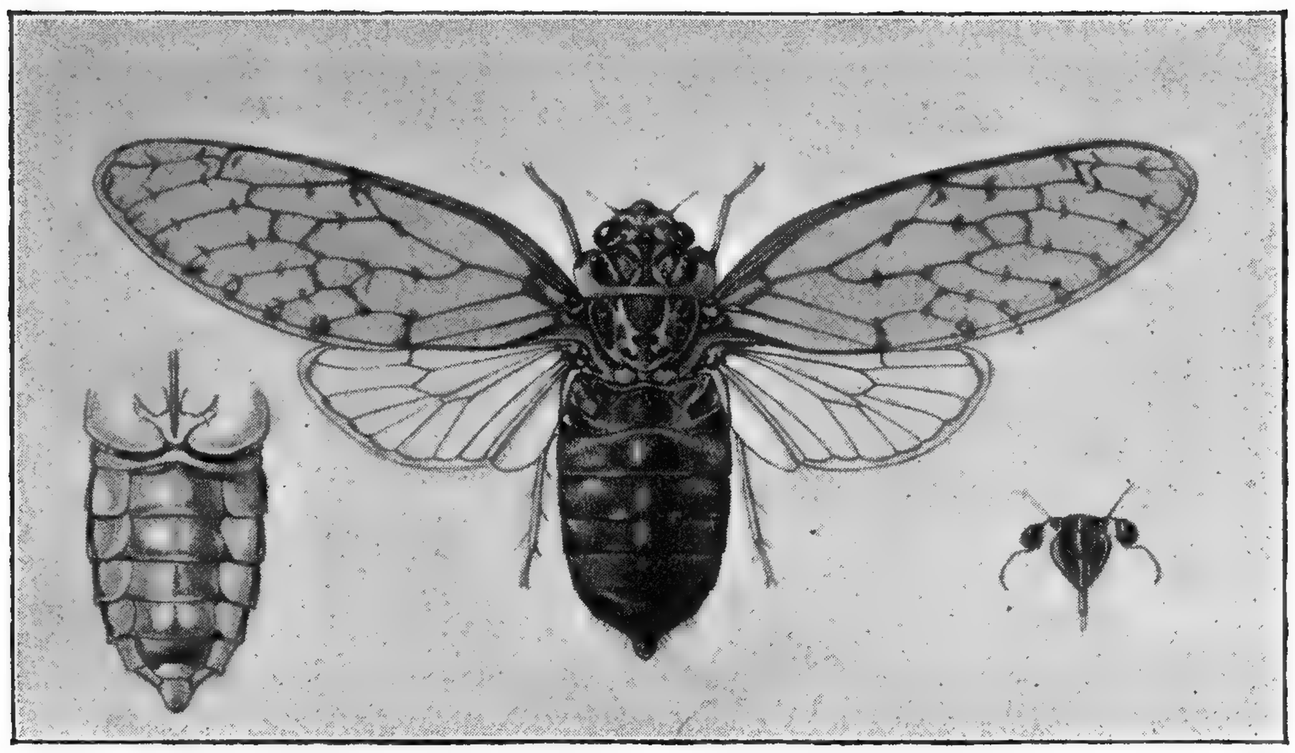
Type, *C. biolleyi*, Dist.

Odopœa medea, Stål, (*anteà*, p. 5), must also be included in this genus.

1. **Collina biolleyi.**

Odopœa biolleyi, Dist. Trans. Ent. Soc. Lond. 1903, p. 526 [1].

Hab. COSTA RICA, Cerro Carisia (*Biolley, in coll. Distant* [1]).

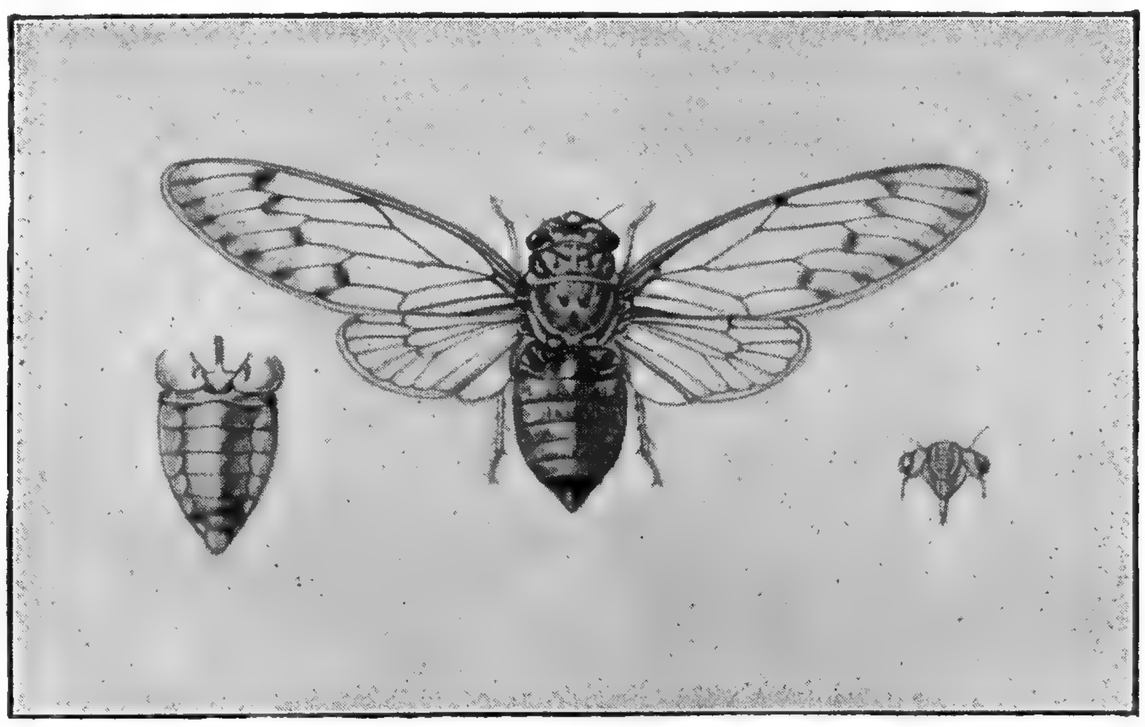


Collina biolleyi, ♂.

MURA, gen. nov. (to follow the genus *Collina*).

Head (including eyes) about equal in width to base of mesonotum, much shorter than pronotum, front short, scarcely half the length of vertex, eyes prominent, oblique, just projecting beyond the anterior angles of the pronotum; ocelli placed on disk of vertex, much farther removed from eyes than from each other; pronotum almost as long as mesonotum, its lateral margins nearly straight, except at posterior angles, which are subglobosely ampliated; mesonotum (including cruciform elevation) about as long as head and pronotum together; abdomen longer than space between apex of head and base of cruciform elevation, its lateral areas oblique above, its disk semiglobose beneath, tympanal orifices completely exposed, tympanal coverings entirely absent; opercula in male short, transverse, not passing base of abdomen; anterior femora with two strong spines beneath; tegmina and wings hyaline, the first more or less maculate, basal cell longer than broad, apical areas eight.

Type, *M. elegantula*, Dist.



Mura elegantula, ♂.

1. **Mura elegantula,** sp. n.

Head, pronotum, and mesonotum green; head with the area of the ocelli transversely extending on each side towards eyes black; pronotum with the incisures and a central spot on anterior and posterior margins black; mesonotum with two obscure, anterior, central, obconical spots, the apices of which are black, on each side of which are two short linear spots, an elongate fascia on each lateral area, a central discal

lanceolate spot, and a small spot in front of each anterior angle of the cruciform elevation, black; abdomen greenish-ochraceous, basal area of apical segment black; head beneath, sternum, and legs green; abdomen beneath as above; tegmina and wings pale hyaline, the venation fuscous; tegmina with the costal membrane and area greenish-ochraceous, the transverse veins at the bases of apical areas 1, 2, 3, 5, and 7 maculately infuscated, and a fuscous spot at the apices of their longitudinal veins. Rostrum reaching the posterior coxæ, its apex piceous; opercula transverse, their margins rounded, well separated internally; face somewhat obliquely compressed, centrally longitudinally ridged, strongly transversely carinate, its lateral margins flattened; anterior femora with two distinct spines on under surface.

Long. excl. tegm. ♂ 22 millim.; exp. tegm. 62 millim.

Hab. PANAMA, Chiriqui (*Heyne, in Mus. Brit.*).

CARINETA (p. 19).

9. **Carineta postica.**

Carineta postica, Walk. Ins. Saund., Hom. p. 23 (1858) [1]; Dist. Trans. Ent. Soc. Lond. 1903, p. 527 [2].

Hab. COSTA RICA, Cariblanco, Sarapiqui (*Lankester, in coll. Distant* [2]).—COLOMBIA [1].

Fam. FULGORIDÆ (p. 21).

ACRÆPHIA (p. 30).

3. **Acræphia crepusculascens,** sp. n. (Tab. XIII. fig. 25.)

Body above black; pronotum with two large brownish-ochraceous spots situate one on each lateral area; head beneath, sternum, anterior and intermediate legs, and rostrum black; abdomen beneath and posterior legs sanguineous, apical segment and anal appendage black; disk of metasternum ochraceous. Tegmina black, with a dull red crescentic transverse fascia beyond middle, after which the colour is piceous and the apical margin broadly ochraceous; costal area with a series of small olivaceous spots. Wings piceous, with a small discal whitish spot near apical area. The face is broad and transverse, its anterior margin convex, and its posterior margin somewhat strongly concave, transversely ridged near base, with two central carinæ which obliquely branch off about middle towards anterior angles, and with a short central carina on anterior area; rostrum almost reaching middle of abdomen.

Long. excl. tegm. 17 millim.; exp. tegm. 50–51 millim.

Hab. MEXICO, Amula in Guerrero (*H. H. Smith*).

4. **Acræphia montezuma,** sp. n.

Head and pronotum piceous-brown; mesonotum black, with its posterior angle sanguineous; abdomen ochraceous, the three basal segments, two small central discal spots on each of the last three segments, and the anal appendage black; head beneath, sternum, rostrum, and anterior and intermediate legs black; abdomen beneath and the posterior legs sanguineous, the last with the tarsi and the apices of the tibiæ black. Tegmina piceous, the veins brownish-ochraceous, about apical third finely speckled with ochraceous, and the apical margin brownish-ochraceous, the surface has also a number of ochraceous spots, the largest of which are placed three in costal area, and others form a macular transverse fascia near base. Wings black, almost completely crossed by a white subapical fascia, which is narrowed anteriorly and posteriorly. Face very similar in structure to that of the preceding species; rostrum about reaching middle of abdomen.

Long. excl. tegm. 16 millim.; exp. tegm. 49 millim.

Hab. MEXICO (*Mus. Brit.*).

5. **Acræphia simillima,** sp. n.

Allied to *A. montezuma*, but differing from that species in the following characters:—The posterior angle to the mesonotum is black, not sanguineous; the tegmina are more suffused with ochraceous spots, but the macular basal fascia is absent, the apical margin is also concolorous, not brownish ochraceous; the wings have the subapical white fascia in *A. montezuma* replaced by a subapical white elongate spot, which is situate at some distance from both the anterior and posterior margins. A common similarity in structural characters pervades nearly all the species of this genus.

Long. excl. tegm. 16 millim.; exp. tegm. 48 millim.

Hab. Costa Rica, San José (*Biolley, in coll. Dist.*); Panama, Chiriqui (*Mus. Brit.*).

6. **Acræphia astralis,** sp. n. (Tab. XIII. fig. 27.)

Head, pronotum, and mesonotum ferruginous-brown; abdomen purplish-red, first and second segments, and two central spots on third and fourth segments, black, basal angular areas thickly cretaceously tomentose; head beneath, sternum, legs, and rostrum brownish-ochraceous; abdomen beneath purplish-red. Tegmina brownish-ochraceous, basal third minutely ochraceously maculate, disk ochraceously reticulate, apical area concolorous, three spots in transverse oblique series near base, three similarly placed spots near middle, followed by a series of four smaller spots, of which three are situate near costal area and one near inner margin. Wings piceous, almost concolorous. Rostrum extending beyond middle of abdomen.

Long. excl. tegm. 15 millim.; exp. tegm. 49 millim.

Hab. Mexico, Cuesta de Misantla (*M. Trujillo*).

POBLICIA (p. 31).

4. **Poblicia pallidoconspersa,** sp. n. (Tab. XIII. fig. 26.)

Body above black, lateral apical abdominal margins sanguineous, anal appendage clothed with a moderately long white waxy secretion; body beneath, rostrum, and legs black, abdomen greyishly tomentose, its lateral margins sanguineous, disk of metasternum and the posterior coxæ pale ochraceous. Tegmina black, minutely spotted with greyish, apical area immaculate. Wings piceous, irrorated with greyish on apical area, anal area greyish. Rostrum just passing posterior coxæ.

Var. *a.* Wings concolorous, not irrorated with greyish.

Var. *b.* Tegmina with apices brownish-ochraceous.

Long. excl. tegm. 12 millim.; exp. tegm. 38 millim.

Hab. Mexico, Amula in Guerrero (*H. H. Smith*).

ACMONIA (p. 34).

3. **Acmonia (?) sanguinalis,** sp. n. (Tab. XIII. fig. 24.)

Head and pronotum black; abdomen ochraceous, two basal joints, four spots on third and fourth joints, and two spots on fifth joint black; head beneath, sternum, and legs black; apices of coxæ, and the trochanters to anterior and intermediate legs, coxæ, trochanters, and femora of posterior legs, meso- and metasterna sanguineous; abdomen beneath pale ochraceous. Tegmina black. Wings sanguineous, apex and posterior margin piceous. Rostrum reaching the posterior coxæ; femora distinctly sulcate beneath; face with three carinæ, the two lateral ones arched towards eyes.

Long. excl. tegm. 11 millim.; exp. tegm. 34 millim.

Hab. Mexico, Amula in Guerrero (*H. H. Smith*).

ITZALANA, gen. nov. (to follow the genus *Acmonia*, p. 35).

Head very broad, narrow, the front truncately deflected and profoundly transversely sulcate, not visible from above; vertex with two transverse ridges, between which the surface is moderately sulcate, its anterior margin convex, posterior margin concave; eyes projecting a little beyond the anterior angles of the pronotum; face broad and somewhat short, the lateral and posterior margins concavely sinuate, the lateral margins laminately raised and reflected; clypeus with a central carination; second joint of antennæ subglobose; pronotum transverse, wider than vertex of head, anterior margin convex, base truncate, lateral margins oblique; mesonotum subtriangular; tegmina short, very little longer than the body, anteriorly centrally, moderately, convexly arched, apex obtusely acute, the venation totally reticulate; wings broad at base, apically obtusely acute; legs of moderate length, femora a little thickened and sulcate beneath, posterior tibiæ with four spines; rostrum reaching posterior coxæ.

Type, *I. formosa*, Dist.

1. **Itzalana formosa,** sp. n. (Tab. XIII. fig. 23.)

Body and legs pale ochraceous; abdomen above suffused with sanguineous; basal and anterior margins of front, central anterior margin of pronotum, and lateral anterior margins of mesonotum black; tegmina pale ochraceous; wings pale sanguineous, apices pale ochraceous, apical anal area fuscous; pronotum transversely striate; face finely granulate.

Long. excl. tegm. 8 millim.; exp. tegm. 24 millim.

Hab. Mexico, Temax in Yucatan (*Gaumer*).

Fam. FLATIDÆ *.

ACANALONIA (p. 46).

12. **Acanalonia inclinata.**

Acanalonia inclinata, Melichar, Ann. Hofmus. Wien, xvi. p. 190 (1901)[1].

Hab. Honduras [1].

PARACROMNA (to follow the genus *Flata*, p. 54).

Paracromna, Melichar, Ann. Hofmus. Wien, xvii. p. 57 (1902).

1. **Paracromna punctata.**

Flata punctata, Fowl. anteà, p. 52.

2. **Paracromna rotundior.**

Flata rotundior, Fowl. anteà, p. 52, t. 7. figg. 11, 11 *a*.

ORMENIS (p. 55).

14. **Ormenis fusca.**

Ormenis fusca, Melichar, Ann. Hofmus. Wien, xvii. p. 75 (1902)[1].

Hab. Mexico (*Mus. Holm.*[1]).

† By W. W. Fowler.

15. **Ormenis panamensis.**

Ormenis panamensis, Schmidt, Stett. ent. Zeit. 1904, p. 364 [1].

Hab. PANAMA (*Haensch* [1]).

Near *O. dolabrata*, Fowl.

ADEXIA (to follow the genus *Ormenis*, p. 58).

Adexia, Melichar, Ann. Hofmus. Wien, p. 229 (1901).

1. **Adexia erminia.**

Ormenis erminia, Fowl. anteà, p. 56, t. 7. figg. 20, 20 *a*.

ATRACIS (to follow the genus *Adexia*).

Atracis, Stål, Hemipt. Afr. iv. p. 250 (1866).

1. **Atracis leucophæa.**

Atracis leucophæa, Melichar, Ann. Hofmus. Wien, xvii. p. 193 (1902) [1].

Hab. PANAMA, Chiriqui (*Mus. Paris* [1]).

END OF VOL. I.

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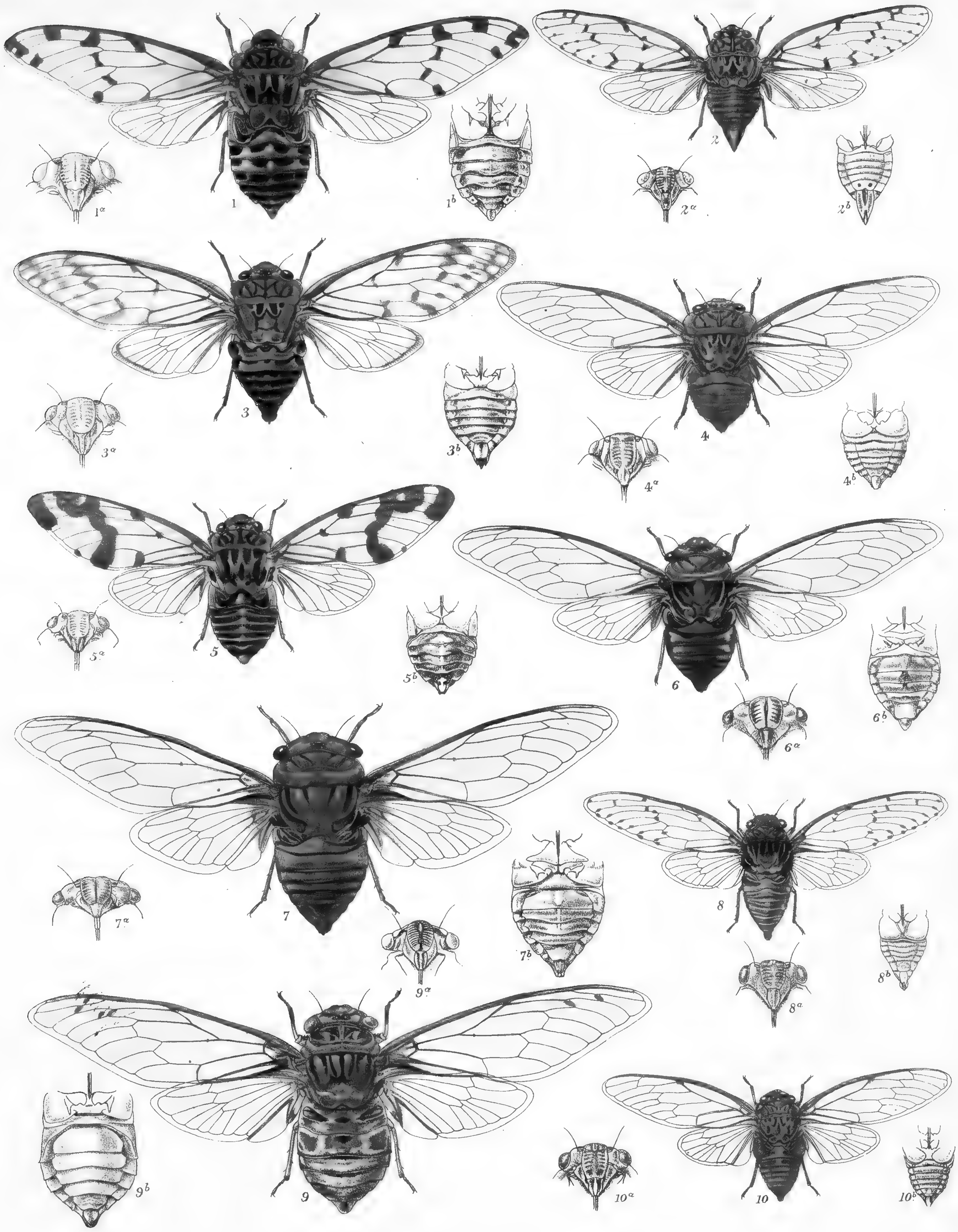
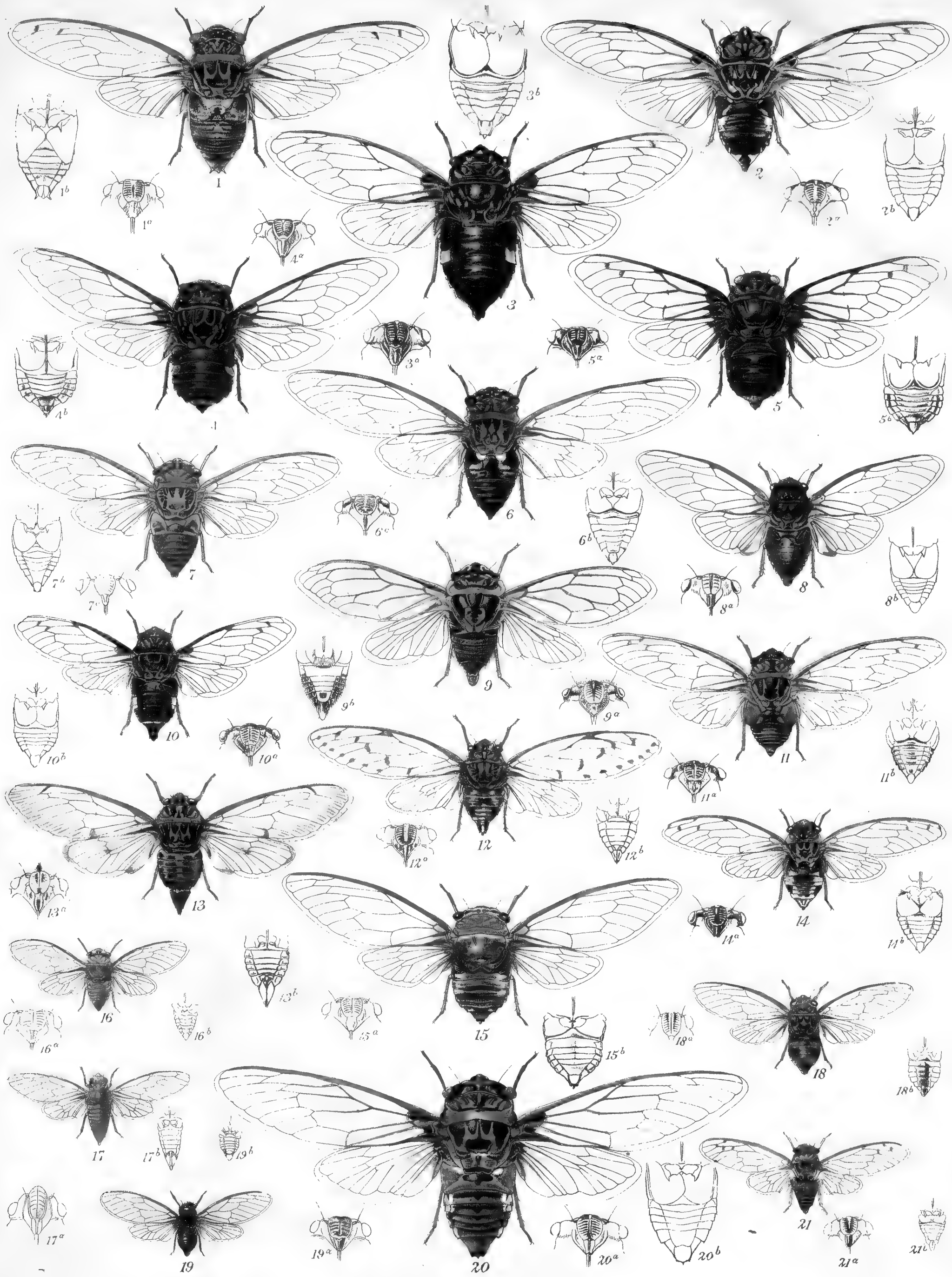


1. ZAMMARA SMARAGDINA, ♂.
2. ODOPŒA MEDEA, ♀.
3. „ IMBELLIS, ♂.
4. ODOPŒA AZTECA, ♂.
5. ZAMMARA CALOCHROMA, ♂.
6. FIDICINA PRONOE, ♂.
7. „ PICEA, ♂.
8. PROARNA SALLÆI, ♂.
9. TYMPANOTERPES GIGAS, ♂.
10. ODOPŒA SIGNORETI, ♂.

W. Purkiss lith. Hanhart imp.

KODAK Color Control Patches © The Tiffen Company, 2000
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Kodak LICENSED PRODUCT
Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

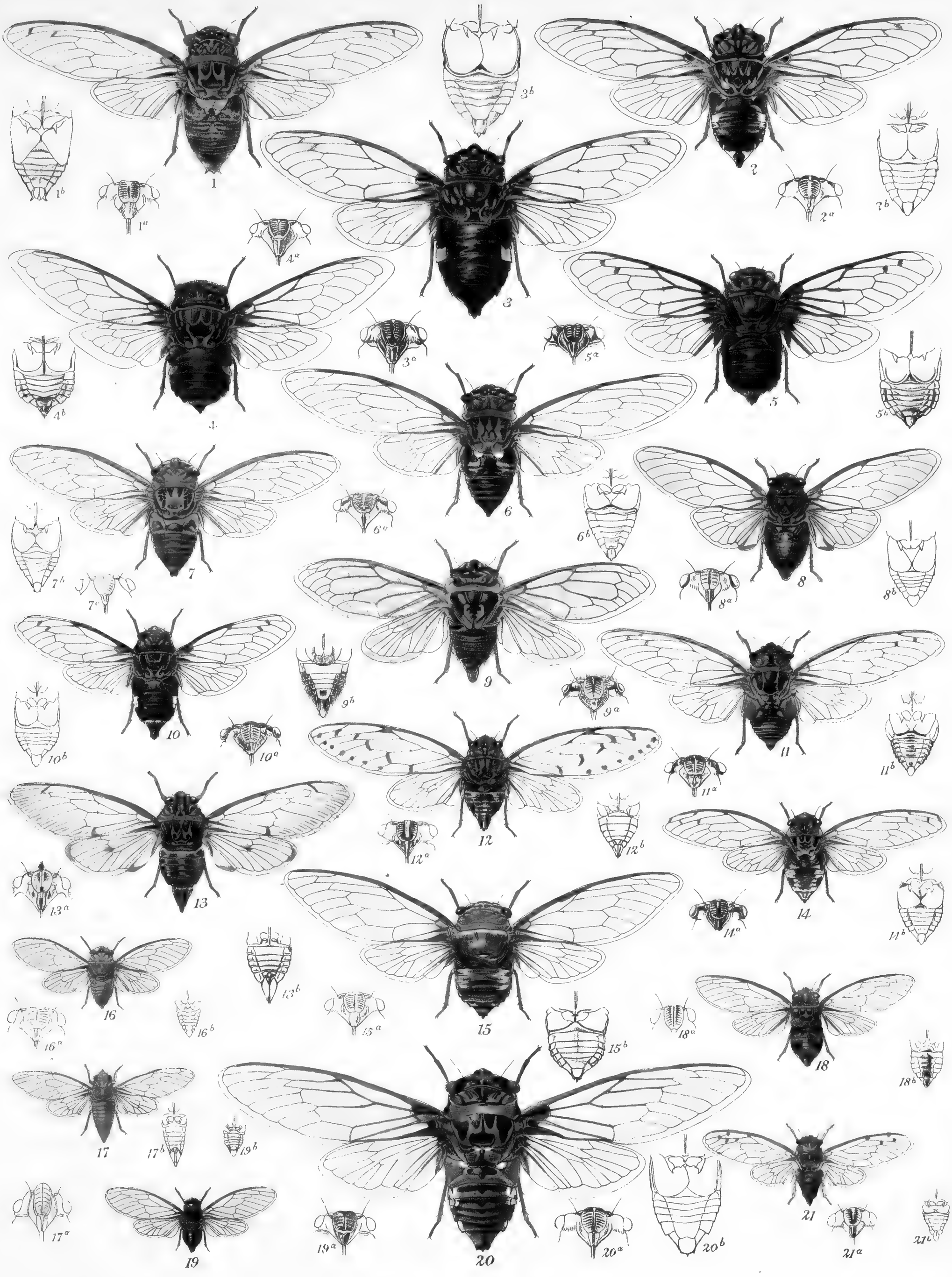


1 CICADA TRANSVERSA. ♂,
2 „ RUDIS. ♂, *var.*
3 „ ALACRIS ♂, *var.*
4 PROARNA LONGIROSTRIS. ♂
5 „ MAURA. ♂,
6 CICADA NIGRIVENTRIS. ♂,
7 „ PALLIDA. ♂,
8 TIBICEN GUATEMALENUS. ♂,
9 TETTIGADES MEXICANA. ♀,
10 CICADA ALACRIS. ♂,
11 „ PSOPHIS. ♂.
12 TETTIGIA PENNATA. ♀,
13 CARINETA TRIVITTATA. ♀,
14 PROARNA CHAMPIONI. ♂,
15 FIDICINA SPINICOSTA. ♂,
16 CARINETA MARGINELLA. ♂,
17 CALYRIA OCCIDENTIS. ♀,
18 CARINETA INDECORA. ♂,
19 „ LUGUBRINA. ♂,
20 CICADA RUDIS ♂, *var.*
21 PROARNA SIGNIFERA. ♂,

W. Purkiss lith.

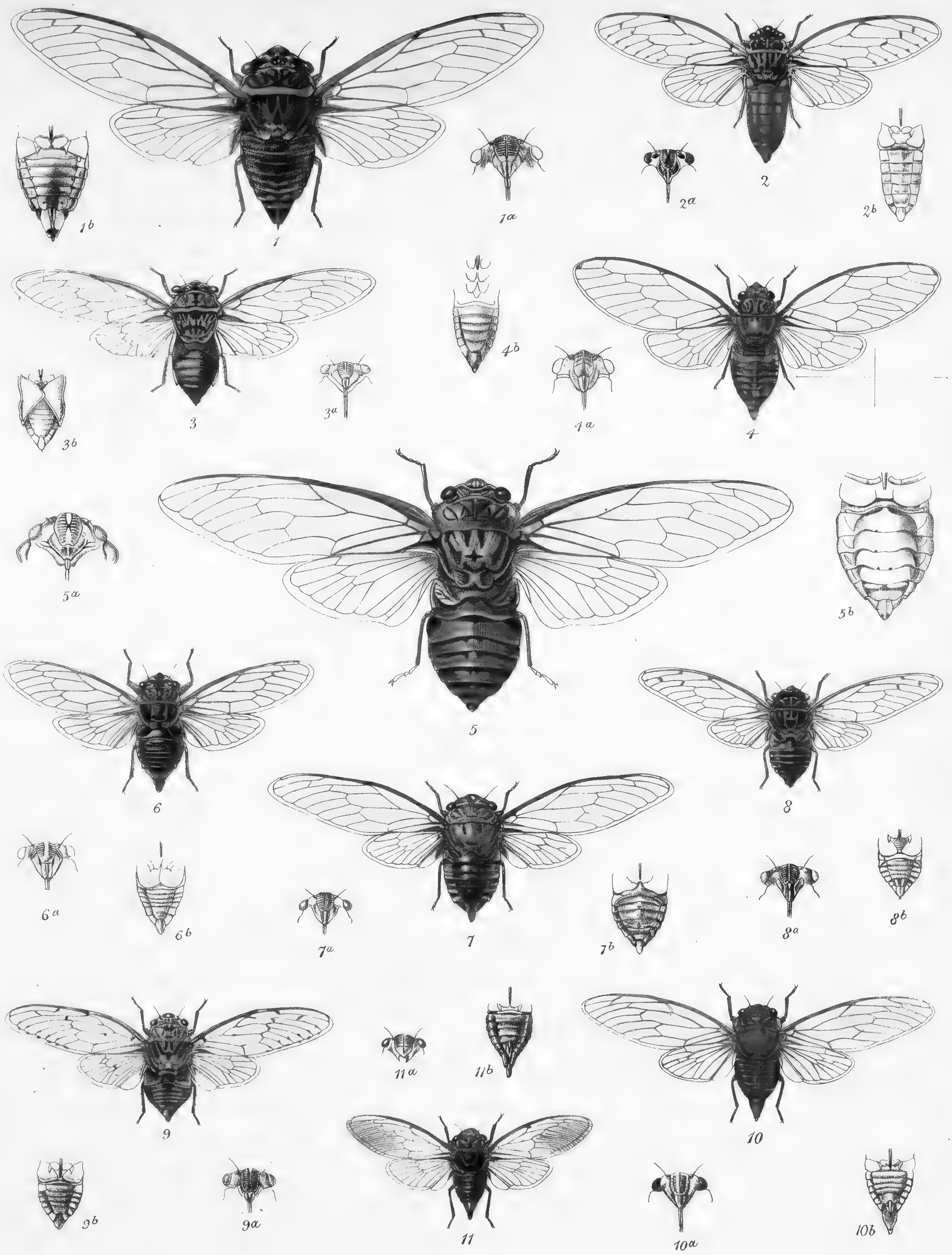
Hanhart imp.

287.



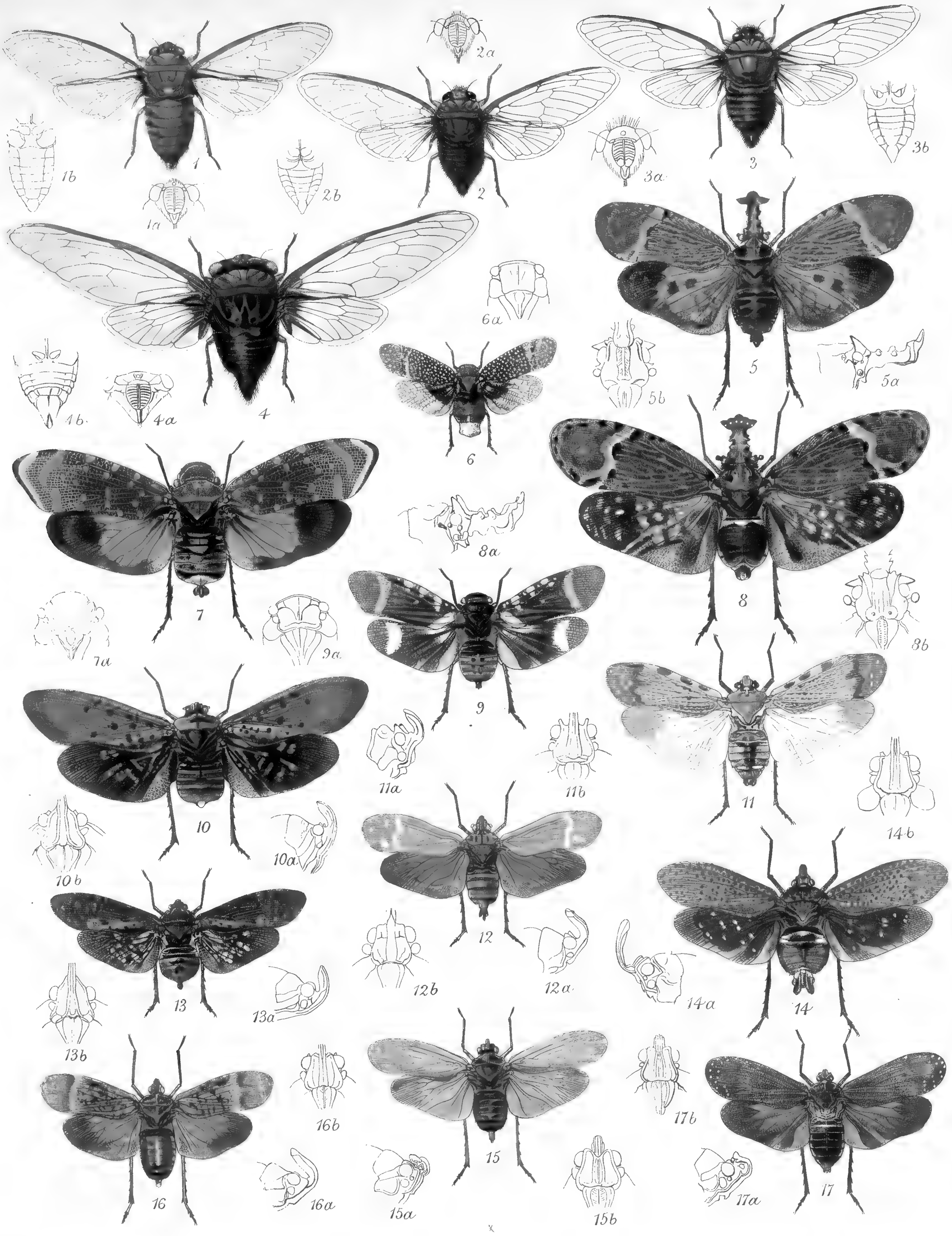
1 CICADA TRANSVERSA. ♂,
2 „ RUDIS. ♂, *var.*
3 „ ALACRIS ♂, *var.*
4 PROARNA LONGIROSTRIS. ♂
5 „ MAURA. ♂,
6 CICADA NIGRIVENTRIS. ♂,
7 „ PALLIDA. ♂,
8 TIBICEN GUATEMALENUS. ♂,
9 TETTIGADES MEXICANA. ♀,
10 CICADA ALACRIS. ♂,
11 „ PSOPHIS. ♂.
12 TETTIGIA PENNATA ♀.
13 CARINETA TRIVITTATA. ♀,
14 PROARNA CHAMPIONI. ♂,
15 FIDICINA SPINICOSTA. ♂,
16 CARINETA MARGINELLA. ♂,
17 CALYRIA OCCIDENTIS. ♀,
18 CARINETA INDECORA. ♂,
19 „ LUGUBRINA. ♂,
20 CICADA RUDIS ♂, *var.*
21 PROARNA SIGNIFERA. ♂,

W. Purkiss lith. Hanhart imp.



1. CICADA BICOSTA. ♀
2. TETTIGIA HIEROGLYPHICA. ♂.
3. CICADA ORNEA, ♂.
4. CALYRIA CUNA
5. ODOPŒA MONTEZUMA, ♂.
6. CICADA CRUCIFERA, ♂.
7. FIDICINA SEMILATA, ♂.
8. SELYMBRIA MODESTA.
9. PROARNA ALBIDA. ♂
10. ODOPŒA DIRIANGANI, ♀
11. CARINETA CINARA, ♀.

W Purkiss lith. Hanhart imp 289.



1 CARINETA VIRIDICATA.
2 " VERNA.
3 " ÆSTIVA.
4 FIDICINA FUMEA.
5 PHRICTUS DIADEMA, *var.*
6 POBLICIA CONSTELLATA.
7 AMANTIA IMPERATORIA.
8 PHRICTUS QUINQUEPARTITUS.
9 ACRÆPHIA FASTUOSA.
10 COANACO GUTTATA.
11 ENCHOPHORA ROSACEA.
12 ENCHOPHORA FLORENS.
13 COANACO ORNANDA.
14 ENCHOPHORA STILLIFER.
15 " SUBVIRIDIS, *var.*
16 " SANGUINEA.
17 " SUBVIRIDIS.

W. Purkiss lith.

Hanhart imp.

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KODAK Color Control Patches © The Tiffen Company, 2000
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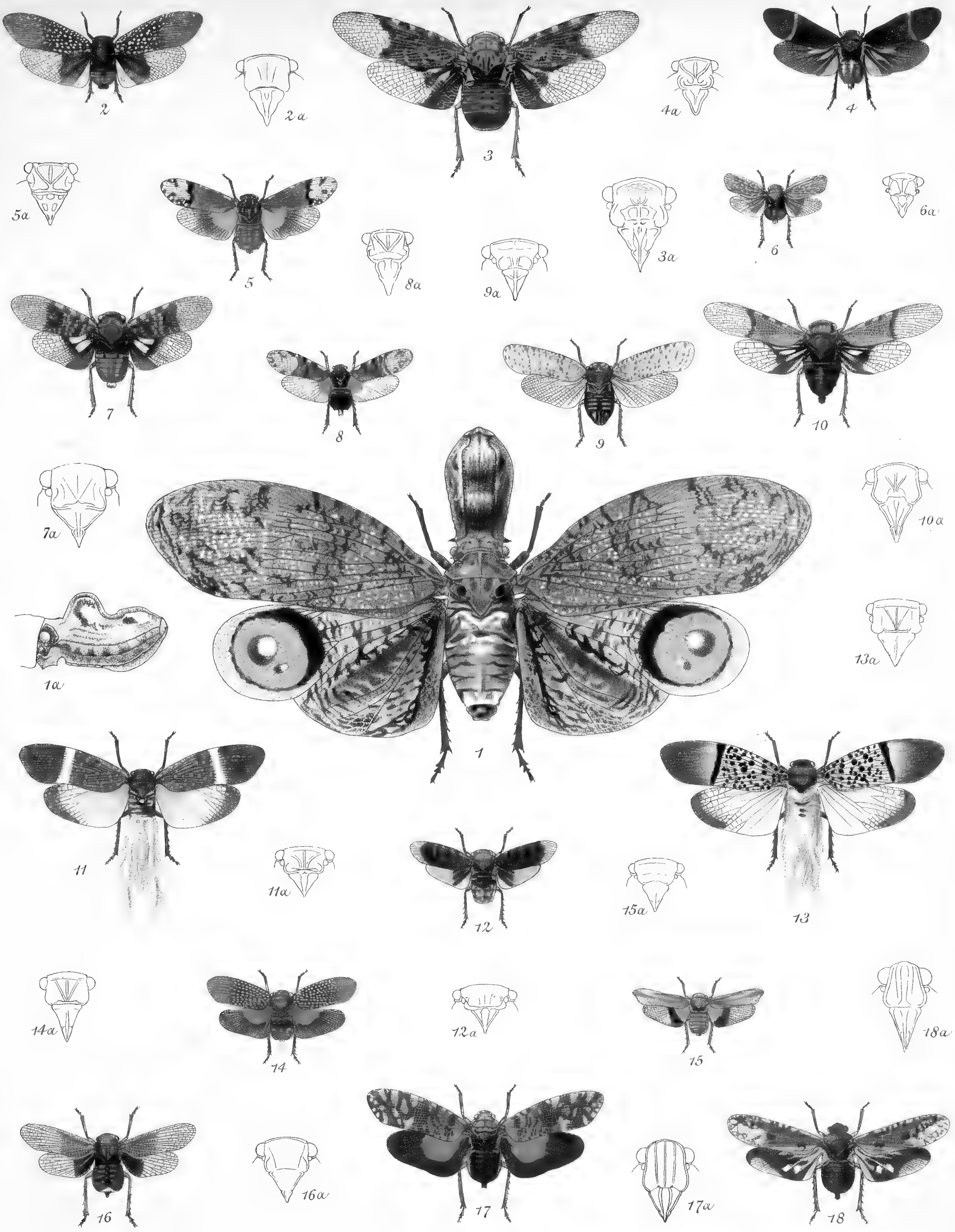
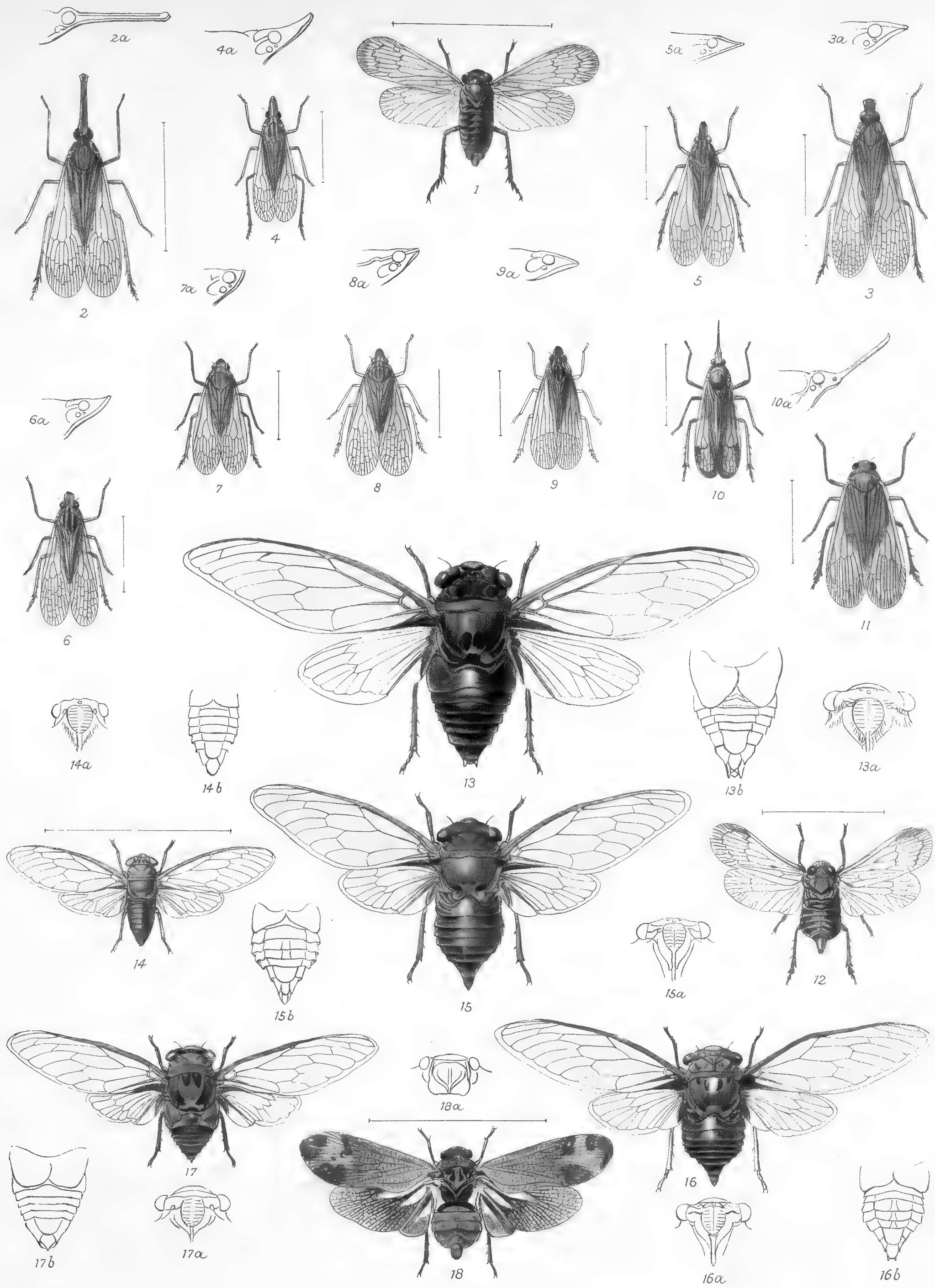
Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



1 LATERNARIA SERVILLEI.
2 POBLICIA ATOMARIA.
3 DOMITIA NEOTROPICALIS.
4 HYPÆPA RUBRICATA.
5 „ ILLUMINATA.
6 POBLICIA MISELLA.
7 DOMITIA (?) MISCELLA.
8 HYPÆPA ZAPOTENSIS.
9 CALYPTOPROCTUS GUTTIPES.
10 DOMITIA OBSCURA.
11 ATALANTA ÆRATA.
12 ACMONIA (?) PROCRIS.
13 ATALANTA VIOLACEA.
14 ACMONIA (?) TRIVIA.
15 CYRPOPTUS SUAVIS.
16 SCARALIS SPECTABILIS.
17 OBIA TENEBROSA
18 AMALIVACA FUCATA.

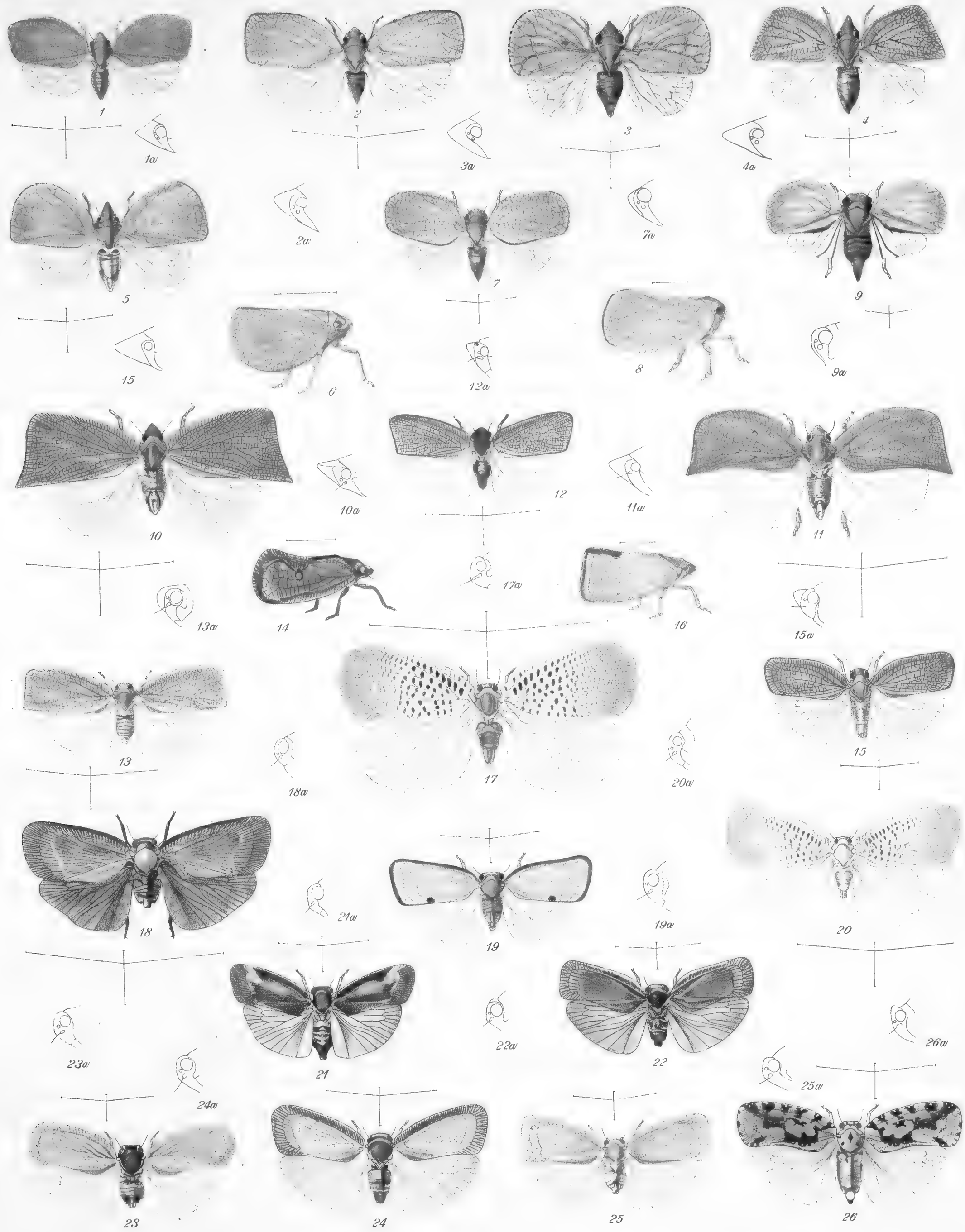
W. Purkiss lith. Hanhart imp.

Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black



1 CLADYPHA INTERLITA.
2 DICTYOPHARA FEROCULA.
3 " NODIVENA.
4 " CURVICEPS.
5 " BRACHYRHINA.
6 " OBTUSIFRONS.
7 DICTYOPHARA HERBIDA.
8 " FLORENS.
9 " ORBICULATA.
10 DICTYOPHAROIDES TENUIROSTRIS.
11 CLADYPHA RUFIVENA.
12 " BUGABENSIS.
13 TYMPANOTERPES RUATANA.
14 DORACHOSA EXPLICATA.
15 FIDICINA AMŒNA.
16 " CACHLA.
17 CICADA OLEACEA.
18 HYPÆPA DIVERSA.

W. Purkiss lith. Hanhart imp.



1,1a ACANALONIA DUBIA.
2,2a „ PANIMÆ.
3,3a „ CÆLATA.
4,4a „ PINNIFORMIS.
5,5a „ AFFINIS.
6 „ GAUMERI.
7,7a „ VIRESCENS.
8 „ DELICATULA.
9,9a „ CONCINNULA.

10,10a FLATA CHAMPIONI.
11,11a „ ROTUNDIOR.
12,12a „ RUFOCINCTATA.
13,13a „ MONTICOLA.
14 „ CORRUPTA.
15,15a „ REGULARIS.
16 „ PERPUSILLA.
17,17a „ CONSPERSA.

18,18a ORMENIS PULVERULENTA
19,19a „ NIGROLIMBATA.
20,20a „ ERMINIA.
21,21a „ DOLABRATA.
22,22a „ SQUAMULOSA.
23,23a „ ALBESCENS.
24,24a „ GRISEOALBA.
25,25a „ INFERIOR.
26,26a DASCALIA NIETOI.

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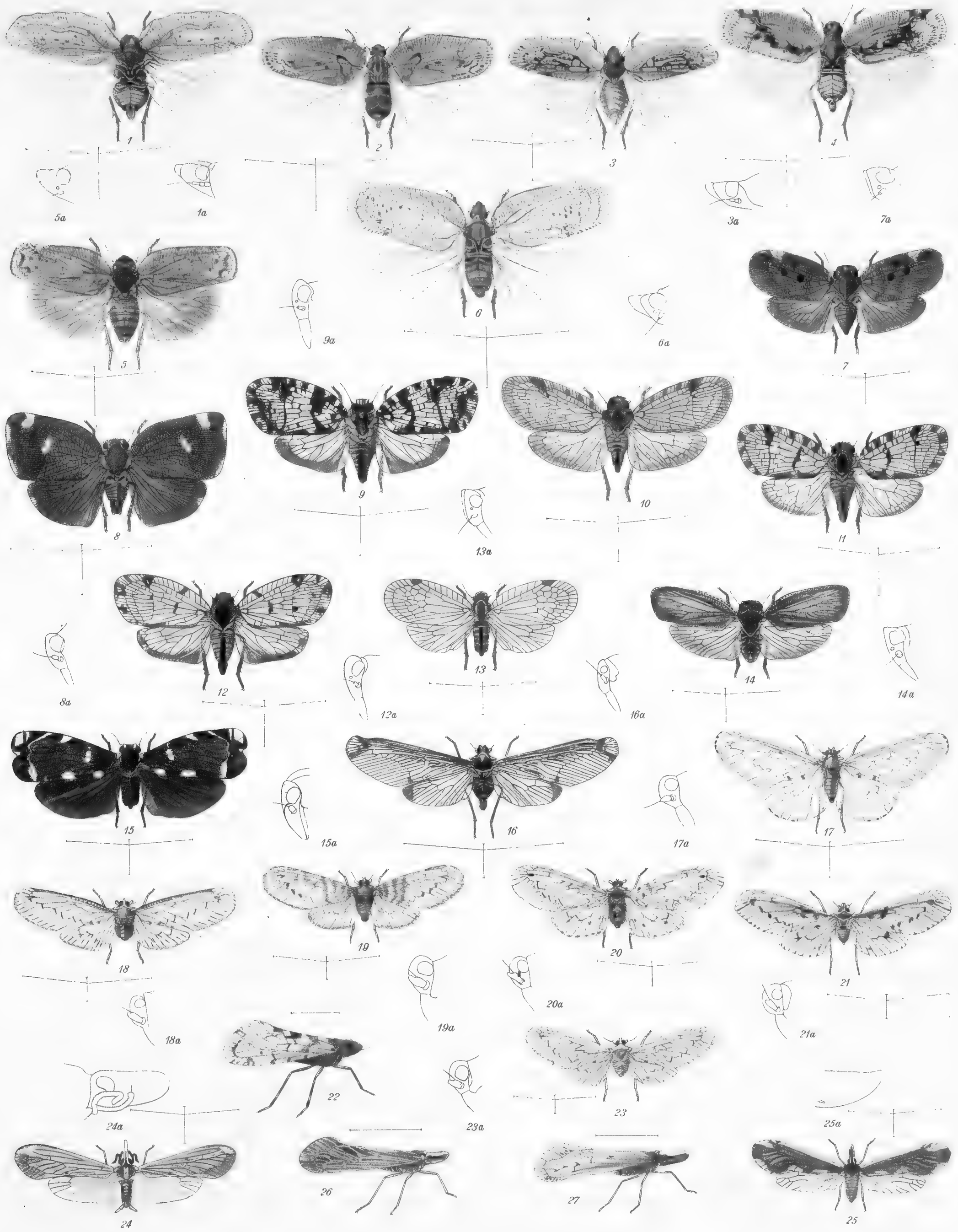

1,1a FLATOIDES HUMERALIS.
2 " QUADRIPUNCTULUS.
3,3a " SCABER.
4 " POLLUTUS.
5,5a " ISABELLINUS.
6,6a " OBLIQUUS.
7,7a RICANIA BUGABENSIS.
8,8a " FERALIS.
9,9a SASSULA PICTIFRONS.
10 SASSULA PICTIFRONS, *var.*
11 " " , *var.*
12,12a " COSTALIS.
13,13a GÆTULIA PLENIPENNIS.
14,14a BLADINA MAGNIFRONS.
15,15a APATESON ALBOMACULATUM.
16,16a DERBE WESTWOODI.
17,17a MYSIDIA ACIDALIOIDES.
18,18a " COSTATA.
19,19a MYSIDIA NEBULOSA.
20,20a " PARVICEPS.
21,21a " MACULICOSTA.
22 " ELATIOR.
23,23a " DELICATISSIMA.
24,24a OTIOCERUS MONTANUS.
25,25a " VENUSTUS.
26 " GRISEUS.
27 " GRACILIOR.

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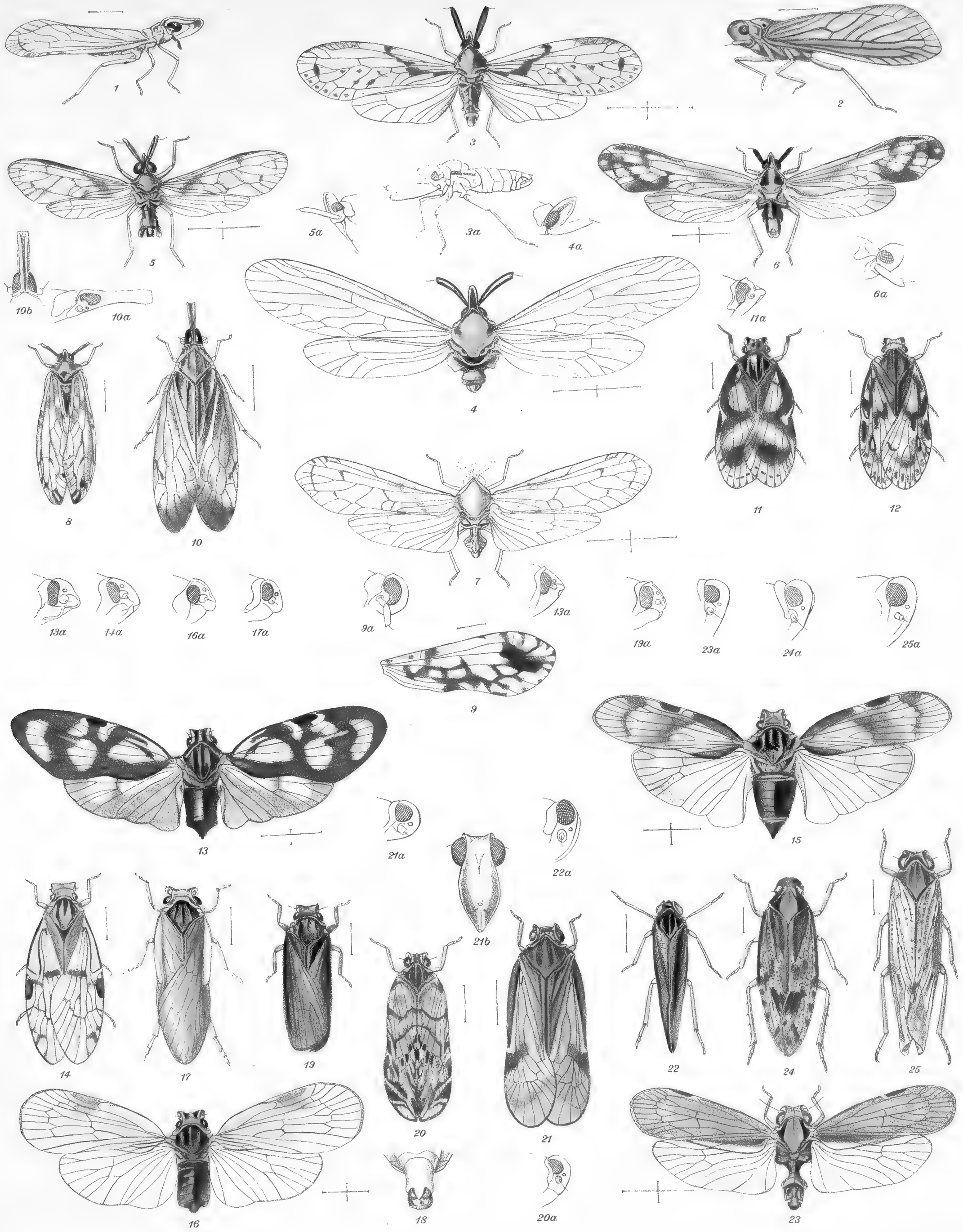

1 OTIOCERUS BREVICEPS.
2 " RUBESCENS.
3,3a ANOTIA SMITHI.
4,4a " MARGINICORNIS.
5,5a " RUFICOLLIS.
6,6a " VENUSTULA.
7 " TENELLA.
8 " INVALIDA.

9, 9a PATARA MARMORATA.
10,10a,b RHAMPHIXIUS CHAMPIONI.
11,11a BOTHRIOCERA TINEALIS.
12, " " ,v. WESTWOODI.
13,13a " SIGNORETI.
14,14a " VENOSA.
15,15a " EXCELSA.
16,16a " PELLUCIDA.

17,17a ♀,18 ♂ BOTHRIOCERA ALBIDIPENNIS.
19,19a " NIGRA.
20,20a BOTHRIOCERODES VARIEGATUS.
21,21a,b " CASTANEUS.
22,22a " METALLICUS.
23,23a METABRIXIA DELICATA.
24,24a " ASPERSA.
25,25a " GERMANA.

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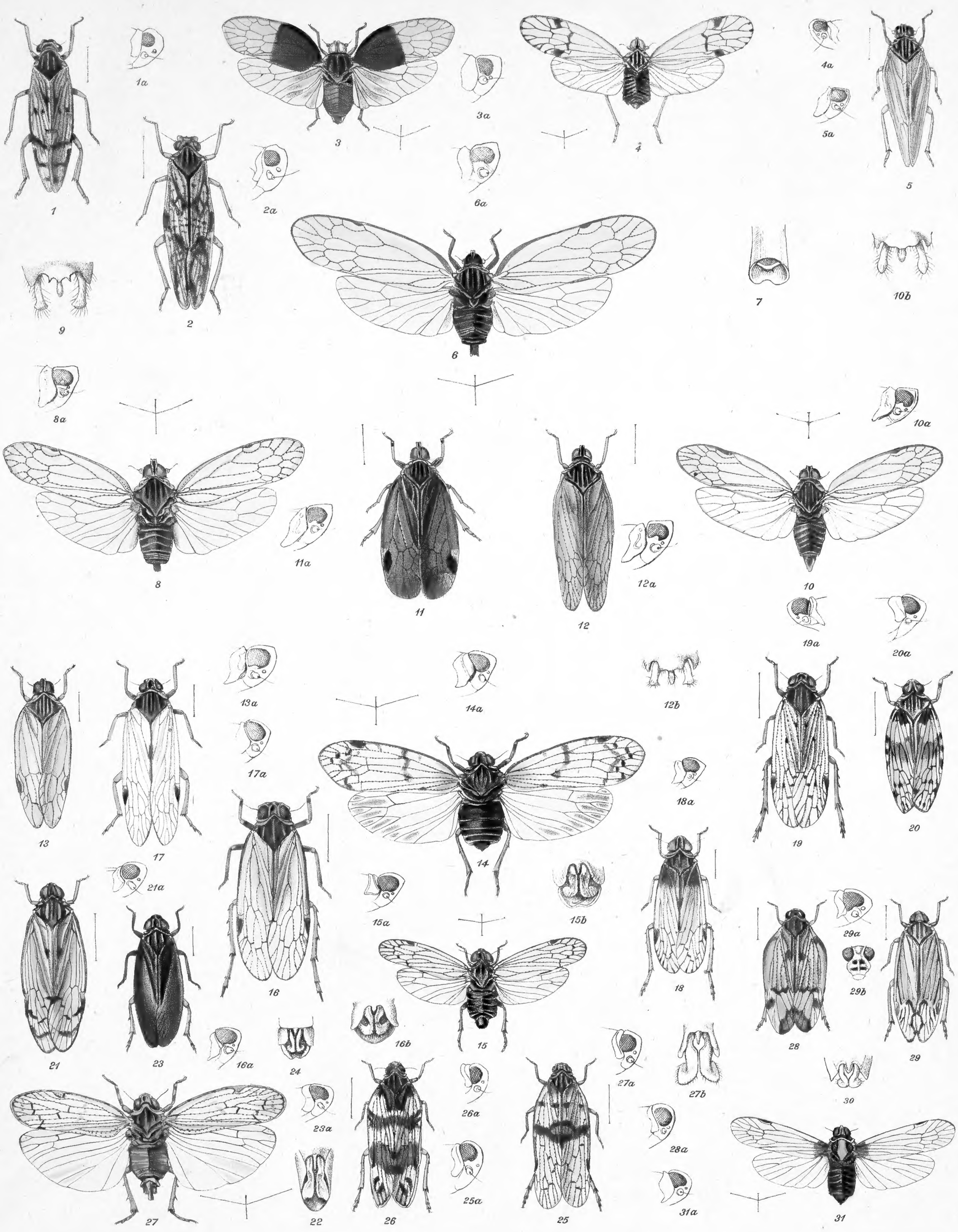

1,1a METABRIXIA TACTA.
2,2a " MACULATA.
3,3a ŒCLEUS SEMINIGER.
4,4a " TENELLUS.
5,5a " TEAPÆ.
6,6a " DECENS.
7 ♀ " ".
8,8a,9♂ " PELLUCENS.
10,10a,b♂ " MINIMUS.

11,11a ŒCLEUS BRUNNEUS.
12,12a,b♂ " CONCINNUS.
13,13a " ADDENDUS.
14,14a OLIARUS EXCELSUS.
15,15a,b " CONCINNULUS.
16,16a,b " PROPIOR.
17,17a " LACTEIPENNIS.
18,18a " HUMERALIS.
19,19a " BREVICEPS.

20,20a OLIARUS CHIRIQUENSIS.
21,21a,22♂ " INSIGNIOR.
23,23a,24♂ " NIGRO-ALUTACEUS.
25,25a CIXIUS MONTANUS.
26,26a " COMPTUS.
27,27a,b " FLAVOBRUNNEUS.
28,28a " APICATUS.
29,29a,b,30♂ HAPLAXIUS LÆVIS.
31,31a " FRONTALIS.

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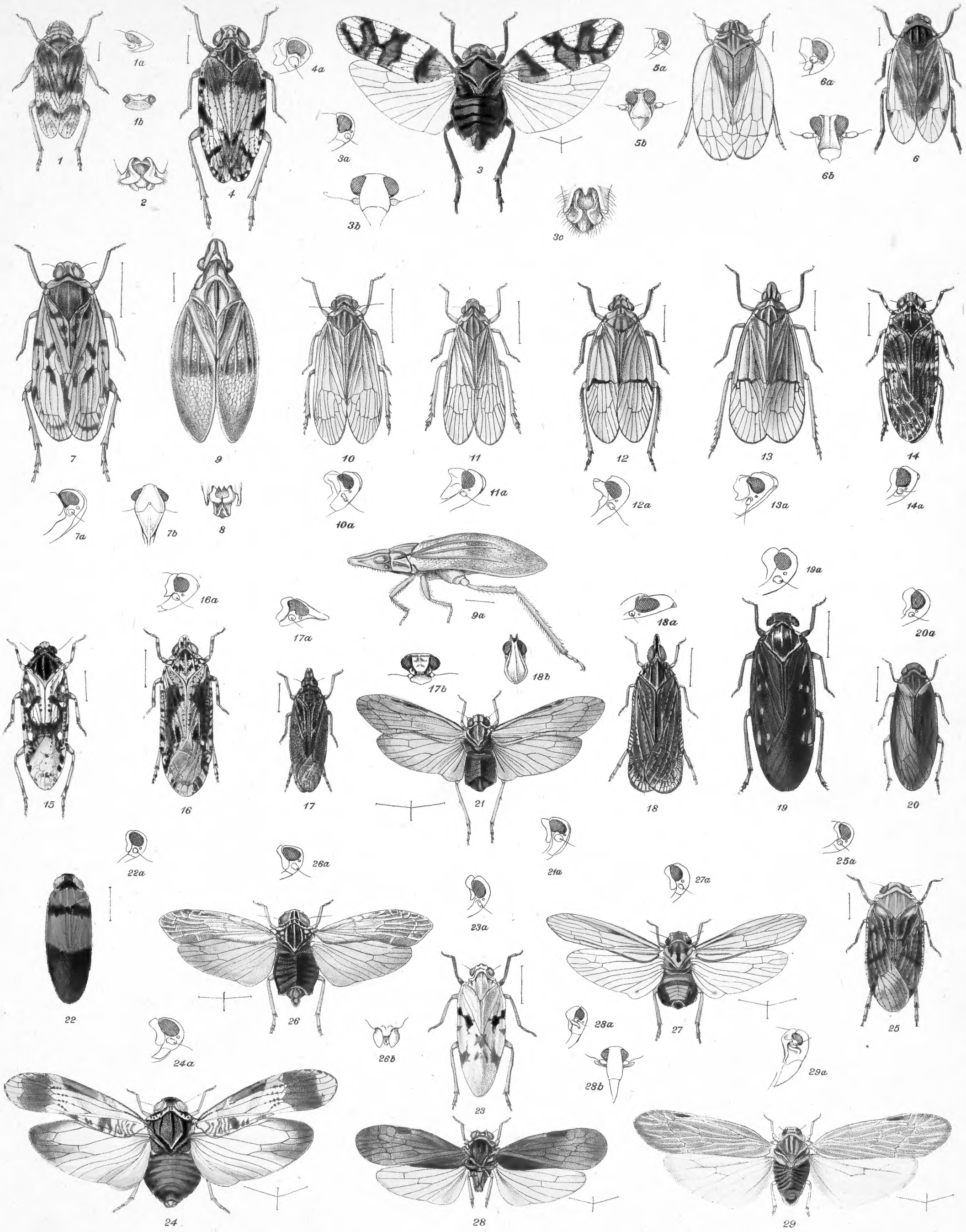
aridus



1,1a,b,2♂ MICROLEDRIDA ASPERATA.
3,3a-c♂ PACHYNTHEISA CONCINNA.
4,4a " EXCELSIOR.
5,5a,b MICRIXIA COSTALIS.
6,6a,b EPARMENE PULCHELLA.
7,7a,b,8♂ MNEMOSYNE PLANICEPS.
9,9a GRYNIA NIGRICOXIS.
10,10a RUDIA DILUTA.
11,11a " PROXIMA.
12,12a RUDIA BICINCTA.
13,13a " VERTICALIS.
14,14a HELICOPTERA SOBRINA.
15 " ",V. ALBIDO-VARIEGATA.
16,16a " CHIRIQUENSIS.
17,17a,b " LONGICEPS.
18,18a,b PSEUDHELICOPTERA NASUTA.
19,19a PLECTODERES CHAMPIONI.
20,20a " BASALIS.
21,21a PLECTODERES EXCELSUS.
22,22a " FLAVOVITTATUS.
23,23a " NOTATUS.
24,24a " MONTANUS.
25,25a " ASPER.
26,26a,b♂ " LINEATOCOLLIS.
27,27a " FUSCOLINEATUS.
28,28a,b CEDUSA FUNESTA.
29,29a " VENOSA.

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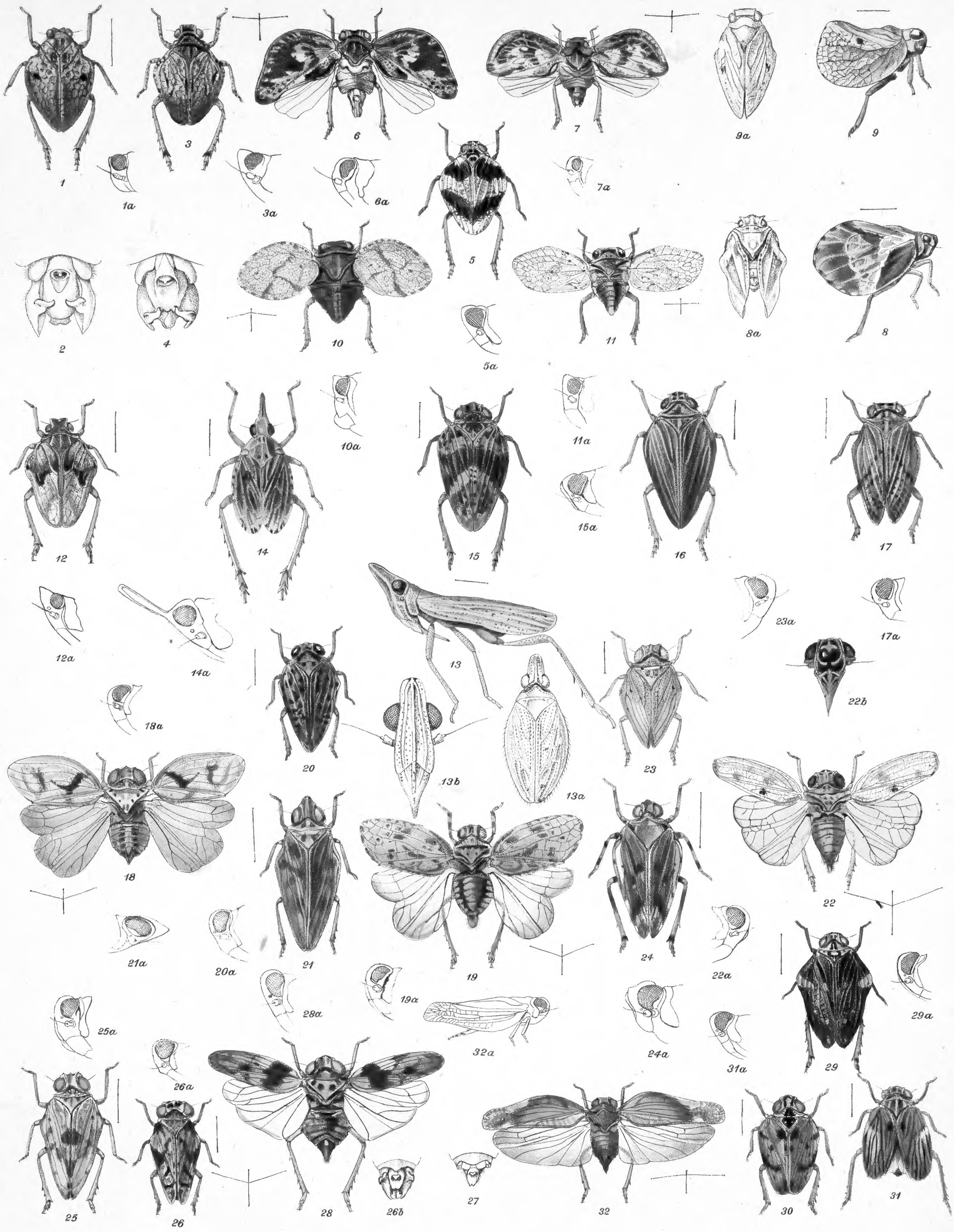

1, 1a, 2♂ ULIXES CLYPEATUS.
3, 3a, 4♂ " INTERMEDIUS.
5, 5a CYCLUMNA SUBROTUNDATA.
6, 6a HYPHANCYLUS FALCATUS.
7, 7a " EXCELSUS.
8, 8a AMPHISCEPA CALIDA.
9, 9a " SUBPELLUCIDA.
10, 10a HYSTEROPTERUM SIERRÆ.
11, 11a " ANGULARE.
12, 12a " MONTANUM.
13, 13a, b PROTEINISSUS BILIMEKI.
14, 14a ORNITHISSUS COCKERELLI. x)
15, 15a THIONIA VARIEGATA.
16 " ". ,var.
17, 17a " BREVIOR.
18, 18a " SCUTELLATA.
19, 19a " SORDIDA.
20, 20a " HUMILIS.
21, 21a " NASO.
22, 22a, b " PICTIFRONS.
23, 23a THIONIA CONSPERSA.
24, 24a " CAVICEPS.
25, 25a " SOLUTA.
26, 26a, b ♂ " STIPES.
27 ♀ " "
28, 28a PICUMNA VARIANS.
29, 29a " OVATIPENNIS.
30 " " ,var.
31, 31a " VENOSA.
32, 32a COLPOPTERA SINUATA.

x) = Scolops

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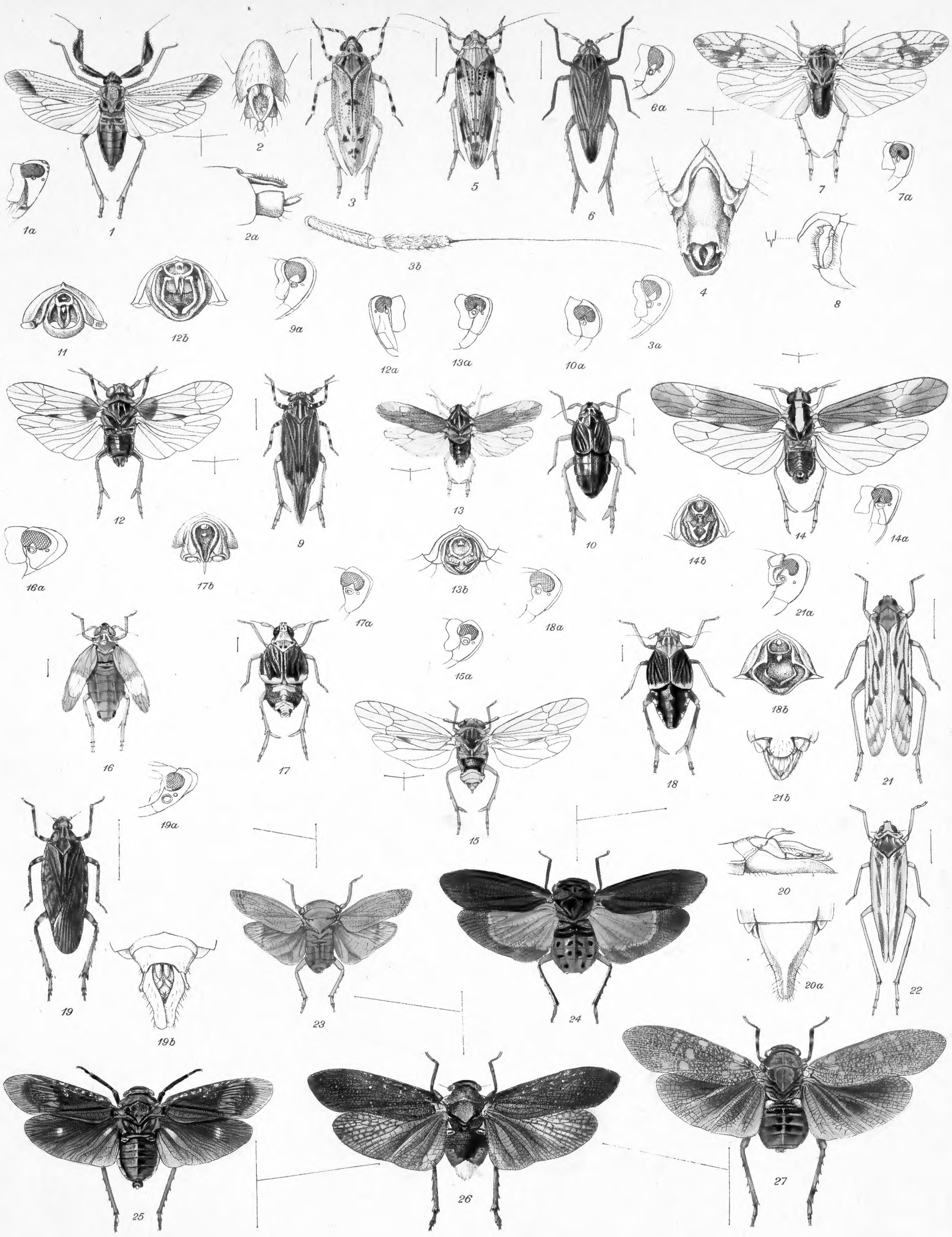

1,1a ♀ COPICERUS IRRORATUS.
2,2a ♂ " "
3,3a,b ♀ EPIBIDIS GODMANI.
4 ♂ " " .
5 " " , *var.*
6,6a " BRUNNEA.
7,7a ♀ GONIOLCIUM GRANULOSUM.
8 ♂ " "
9,9a " TESTACEUM.

10,10a ♀ LIBURNIA ATRIOR.
11 ♂ " "
12,12a,b ♂ " BASIFUSCATA.
13,13a,b ♂ " TEAPÆ.
14,14a,b ♂ " ALBOLINEOSA.
15,15a ♀ " MARGINICORNIS.
16,16a ♀ " APICIMACULA.
17,17a,b ♂ " SAGATA.
18,18a,b ♂ " PALUDATA.

19,19a,b ♂ RHOTALA AMBIGUA.
20,20a ♀ " "
21,21a,b ♂ SYNTAMES DELICATUS.
22 " " , *var.* chiriquensis Fowl.
23 ITZALANA FORMOSA.
24 ACMONIA (?) SANGUINALIS.
25 ACRÆPHIA CREPUSCULASCENS.
26 POBLICIA PALLIDOCONSPERSA.
27 ACRÆPHIA ASTRALIS.

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Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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