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archaeology /**

[London :Published for the editors by R. H. Porter],1879-1915
<https://www.biodiversitylibrary.org/bibliography/730>

**v. 2, pt. 1 Insecta. Rhynchota. Hemiptera-Homoptera.
Membracidæ, Cercopidæ, Tettigoniidæ, Gyponidæ:**

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B I O L O G I A
CENTRALI-AMERICANA.

I N S E C T A.

R H Y N C H O T A.

HEMIPTERA-HOMOPTERA.

V O L. II.

P A R T 1.

BY

THE REV. W. W. FOWLER, D.Sc., M.A., F.L.S.

P A R T 2.

BY

PROF. T. D. A. COCKERELL.

1894-1909.



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INTRODUCTION.

PART 1 of this Volume contains Canon Fowler's enumeration of four families of Homoptera—the Membracidæ, Cercopidæ, Tettigoniidæ, and Gyponidæ. The material of the Jassidæ was entrusted several years ago to a well-known Homopterist, who volunteered to prepare an account of them for this work. Unfortunately, nothing has been finished by him, nor have the specimens been returned to us, in spite of repeated applications to that effect. We are therefore compelled to close Volume II. as it stands, the concluding portion of Canon Fowler's contribution having been received in 1903. Twenty-five species of Membracidæ and four of Cercopidæ have since been added by other authors to the Central-American fauna, the Membracidæ mainly by the late G. B. Buckton, either in his 'Monograph' (1903) or in a paper published in the 'Transactions of the Linnean Society' [Zoology, (2) ix. pp. 329-338, pls. 21 & 22 (1905)], and a list of them is appended on pp. 318-322, with some notes by Canon Fowler. For the four families, exclusive of those mentioned in the Supplement, 659 species are enumerated, of which 385 are treated as new, with 42 new genera. Of the twenty-one coloured Plates issued in Volume II., which were all drawn and printed by Mr. E. Wilson, of Cambridge, ten are devoted to the extraordinary insects belonging to the family Membracidæ.

Part 2 of this Volume includes the enumeration of the families Aleurodidæ and Coccidæ by Professor T. D. A. Cockerell. This section of the subject is separately paged and indexed, and it is illustrated by figures in the text.

ED.

April 1909.

Fam. CERCOPIDÆ*.

Ranatræ, Germar, Mag. Ent. iv. p. 34 (1821) (pars).

Cercopides, Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 558 (1843).

Cercopida, Stål, Hem. Afr. iv. p. 54 (1865).

The generally recognized characters of this family are as follows:—Front convex, or produced and compressed on either side; ocelli two, situated on the vertex and near its base; pronotum large, hexagonal or trapezoidal, with a notch on its posterior margin; tegmina nearly always coriaceous; scutellum small or medium-sized, triangular; legs remote from the sides of the body, with the coxæ, especially the posterior pair, short, and the tibiæ cylindrical, the hind pair being furnished with two (rarely one) strong spines on the outer side and a ring of spinules round the apex; the two basal joints of the tarsi denticulate at the apex.

The family may be roughly subdivided as follows:—

- | | |
|---|------------|
| Anterior margin of the pronotum straight; eyes as long as broad | CERCOPINÆ. |
| Anterior margin of the pronotum rounded and produced between the eyes,
which are nearly always more or less transverse † | PTYELINÆ. |

Subfam. *CERCOPINÆ*.

Subf. *Cercopida*, Stål, Hem. Afr. iv. p. 55.

The limits of this subfamily are very doubtful. The genus *Cercopis*, as understood by Fabricius, has almost a world-wide range, as pointed out by Distant (Trans. Ent. Soc. Lond. 1878, p. 173). In 1843 *Cercopis* was subdivided into six genera by Amyot and Serville, who restricted the genus *Tomaspis* to species from South and Central America. In 1866 Stål sunk three of Amyot and Serville's genera, *Triecphora*, *Monecphora*, and *Sphenorhina*, and placed them all under *Tomaspis*, thus extending the range of the latter genus to the Old as well as the New World. Distant (*l. c.* p. 178) agrees with Stål in suppressing *Triecphora* and *Monecphora*, but prefers to retain *Sphenorhina*, on the ground that it seems so well-marked a genus, and one so easily recognized, that it is at least convenient to retain it. The sole distinction, however, of *Sphenorhina*, as given by Amyot and Serville, is that it has the front laterally compressed, "avec une forte carène en forme de coin plus ou moins aigu et dilaté" (Hémiptères, p. 562); whereas in *Monecphora* it is not compressed and has only a feeble carina, and in *Triecphora* it is furnished with three raised lines or carinæ, which, according to Amyot

* The Cercopidæ are placed after the Membracidæ for convenience' sake, and not from any desire to indicate that this is necessarily their proper position; the classification of the Homoptera is as yet quite unsettled.

† There are one or two (probably more) intermediate forms which appear to render any division of the family more or less unsatisfactory, but, as a rule, the facies of the two groups is unmistakable.

and Serville themselves, are by no means always visible. At best, the character given for *Sphenorhina* is a weak one, generically, and besides this, on examining a large number of species, I have found that it is often more or less feebly marked, and that intermediate examples occur, which make it practically impossible to draw a hard-and-fast line between Amyot and Serville's genera: the facies of the various species, as well as their size, differs very considerably, some being elongate and parallel, and others short and ovate; the shape, however, is by no means associated with the carination and compression of the front, for the species most similar in appearance differ in this point*. Under all the circumstances, then, it seems best to include all our species, at all events provisionally, under *Tomaspis*.

TOMASPIS.

Tomaspis, Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 560 (1843).

Triecphora, Amyot et Serville, loc. cit. p. 561.

Monecphora, Amyot et Serville, loc. cit. p. 562.

Sphenorhina, Amyot et Serville, loc. cit. p. 562.

This genus, as here constituted, includes a large number of species, both from the Old and the New World. Amyot and Serville restricted *Tomaspis* to insects from South and Central America; but, for the reasons already given, I prefer to follow Stål in again extending it. The genus differs from *Cercopis* in having the ocelli usually very close together, and always nearer to one another than to the eyes, whereas in *Cercopis* they are equidistant from one another and from the eyes, or are closer to the eyes than to each other.

The species described or enumerated below may be divided into four sections as follows; but they are merely provisional, and it must be allowed that certain of the species are intermediate:—

1. Larger species, 17–19 millim. in length, ovate or broad-oblong in shape; with the tegmina, as a rule, coloured in transverse bands, but sometimes spotted or unicolorous.
2. Intermediate-sized species, 14–16 millim. in length, subparallel in shape; with the tegmina coloured in transverse bands.
3. Smaller species, 5–12½ millim. in length, ovate or oblong-ovate, rarely oblong in shape; with the tegmina, as a rule, coloured in transverse bands, rarely spotted or unicolorous.
4. Moderate-sized species, 7–12 or 13 millim. in length, elongate-oblong or parallel in shape; with the tegmina coloured in more or less distinct longitudinal bands or markings, very rarely spotted †.

In the Cercopinæ the apical portion of the tegmina is nearly always more or less

* A glance at Tab. XI., where the metopidium of each species is separately figured, will at once make these points clear.

† The only exception I know is the variety of *T. imperans* described below, in which the red marginal longitudinal band is broken into spots.

distinctly rugosely reticulated: in Group 1 this character is very strongly marked; in Group 2 it is very slight; in Group 3 it varies, being sometimes strong and sometimes nearly absent; in Group 4 it is not strong, though usually distinctly traceable.

The length is given from the front of the head to the apex of the tegmina folded; the length of the body, as given by some authors, is very deceptive, as the segments of the abdomen shrivel and run up very considerably in dried specimens.

Group 1.

This group includes several fine and handsome species, the commonest apparently being the red-banded *Tomaspis inca*, which seems to be plentiful in Mexico, but to be found rarely in the adjacent countries.

1. *Tomaspis inca*. (Tab. XI. figg. 1, 1a; 2, 2a, var.)

Cercopis inca, Guér. Icon. Règne Anim., Ins. p. 368¹.

Monecphora inca, Walk. List of Homopt. Ins. iii. p. 675².

Tomaspis inca, Stål, Stett. ent. Zeit. xxv. p. 63 (1864)³.

Hab. MEXICO^{1 2 3} (*Bilimek and coll. Signoret, in Mus. Vind. Cæs.*), Palmarito (*Forrer*), Chilpancingo, Mescala, Rincon, Amula, and Soledad, all in Guerrero (*H. H. Smith*), Mexico city (*Höge*), Jalisco and Atoyac (*Schumann*), Rinconada (*Schaus*), San Lorenzo near Cordova (*M. Trujillo*); GUATEMALA, San Juan in Vera Paz (*Champion*), Escuintla (*Mus. Vind. Cæs.*).

In this species the sides of the pronotum are usually narrowly, but sometimes very broadly, red, and striking varieties occasionally occur. In the Vienna Museum there is a variety with the tegmina, except at the apex and base, unicolorous crimson-scarlet, and also three examples which are almost entirely black, with only faint indications of the usual red bands on the tegmina. A specimen from Mescala, Guerrero, and a variety from Mexico, in the Vienna Museum collection, are figured.

2. *Tomaspis semimaculata*, sp. n. (Tab. XI. figg. 3, 3a.)

Subovata, fronte (carinâ centrali metopidii sat fortiter producti lateribusque ante oculos subrufis vel rufis exceptis), pronoto scutelloque viridi-æneis, illo marginibus ab humeris rufis, distincte rugosius punctato, hoc fortiter transversim rugoso; tegminibus nigro-æneis, marginibus apicem versus læte rufis, tertia parte basali irregulariter flavo-testaceâ, pone hanc maculis sextis flavo-testaceis, duabus ad medium, et quatuor ante partem apicalem fortiter reticulato-rugosam lineatim dispositis; corpore subtus cum pedibus cæruleo-ænescenti, marginibus abdominis, coxis, genibus et parte apicali tibiæ rufescentibus.

A large, subovate species, with the front parts greenish-æneous, shining; metopidium compressed and produced, with a reddish carina; pronotum at its widest part rather broader than long, rugosely punctured, the anterior margin red; tegmina dull, very closely sculptured, with the apical third reticulate-rugose, the basal third somewhat irregularly flavo-testaceous; immediately behind this there are two yellow spots, one on each tegmina, almost confluent with the basal colour, and at some distance behind these there are four distinct spots, two on each tegmen, in a row, the two side ones touching the margins,

which from this point are clear red; underside and legs bluish-æneous, with the margins of the abdomen, coxæ, knees, apex of the tibiæ, and underside of the tarsi red or reddish.

Long. 19 millim.; lat. max. 9 millim.

Hab. COSTA RICA (*Van Patten*).

3. *Tomaspis insignita*, sp. n. (Tab. XI. figg. 4, 4 a.)

Præcedenti similis, sed paullo minor et magis ovata, colore notarum læte miniato, distinctiori; fronte, pronoto et corpore subtus ut in *T. semimaculatâ*, tegminibus nigro-cupreis, marginibus læte rufis, tribus maculis utrinque marginem attingentibus, disco a basi usque ad partem apicalem reticulato-rugosam maculis quibusdam longitudinaliter obliquis ornato.

A little smaller than the preceding, and somewhat more ovate, with the tegmina dark cupreous, very finely sculptured, with the margins, three spots on each side touching the margins, and irregular oblique markings towards the base and on the disc bright scarlet; metopidium compressed and produced; pronotum at its widest part about as long as broad; legs dark, with the coxæ, apex of the tibiæ, and claws scarlet.

Long. 17 millim.; lat. max. 8 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

There is a fair series of this handsome species in our collection, all from one locality.

4. *Tomaspis quatuordecim-notata*, sp. n. (Tab. XI. figg. 5, 5 a.)

Lata, subovata, fronte, pronoto et corpore subtus ut in præcedenti; tegminibus nigro-cupreis, marginibus ad apicem reticulato-rugosam rufis, et quatuordecim maculis distinctis rufo-flavis, quatuor ad basin, sex irregulariter dispositis ad medium, et quatuor ante partem apicalem lineatim dispositis, ornatis.

Rather broad, subovate; metopidium compressed and produced; pronotum at its widest rather broader than long; tegmina dark cupreous, very closely sculptured, dull, with fourteen very distinct orange spots—two on each tegmen at the base, three in a reversed triangle about the middle, and two in a line before the apex, the side-spots just touching the margins; legs dark, with the coxæ, knees, apex of the tibiæ, and more or less of the tarsi, rufescent.

Long. 18 millim.; lat. max. 9 millim.

Hab. NICARAGUA, Chontales (*Janson*).

5. *Tomaspis quadriguttata*.

Sphenorhina quadriguttata, Walk. List of Homopt. Ins. iii. p. 689¹.

Hab. HONDURAS (*Dyson*¹, in *Mus. Brit.*).—AMAZONS, Pará (*Mus. Brit.*).

This species is smaller than the preceding, but appears to be allied to it. It is not represented in our collection.

6. *Tomaspis stygia*, sp. n. (Tab. XI. figg. 6, 6 a.)

Lata, sat parallela, fronte (carinâ metopidii acute producti lateribusque ante oculos rufis exceptis), pronoto, scutello et abdomine nigro-cæruleis, tegminibus nigro-æneis immaculatis; abdomine pedibusque cæruleis, illo maculis quibusdam ad latera rufis, his ad partem rufescentibus.

BIOL. CENTR.-AMER., Rhynch. Homop., Vol. II., May 1897.

*23

A large, subparallel species; metopidium compressed and produced almost in a hook; pronotum at its broadest about as broad as long; tegmina unicolorous nigro-æneous, with the apical part strongly reticulate-rugose; legs and abdomen cæruleous, the former partly reddish, the latter with reddish spots at the sides. Long. 19 millim.; lat. max. 9 millim.

Hab. COSTA RICA (*Van Patten*).

Group 2.

This group might perhaps be included under the preceding; the species referred to it, however, are smaller, and *T. mylabroides* and *T. præminiata* are very distinct in general appearance.

7. *Tomaspis intermedia*, sp. n.

Sat lata, nigra, nitida, metopidio vix producto, basi pronoti, humeris fasciisque duabus angustis sat obscure luteis; pronoto lævigato, leviter remotius punctato; tegminibus sat parallelis, antice fortius, postice perdensius punctatis ad apicem leviter rugoso-reticulatis; corpore subtus pedibusque piceis.

Rather broad, black, with the metopidium (which is scarcely produced), the base of the pronotum, shoulders, and two straight and rather narrow bands (one at and one behind the middle) obscurely luteous; pronotum shining, broader than long, somewhat remotely and shallowly punctured; tegmina rather strongly punctured and shining in front, thickly punctured and duller behind, very slightly rugose at the apex; underside and legs pitchy.

Long. 14 millim.; lat. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

A somewhat unsatisfactory and intermediate species, with an affinity towards *T. inca*, and yet resembling certain members of Group 3. It would be classed as a *Monecphora*, but the metopidium is slightly produced, though not compressed.

8. *Tomaspis mylabroides*, sp. n. (Tab. XI. figg. 7, 7 a.)

Elongata, parallela, capite antice flavo, postice cum lateribus ante oculos antennarumque basi nigris; pronoto nitido, longitudine latiori, leviter punctato, nigro, tertiâ parte anteriori flavâ; scutello flavo, postice nigro; tegminibus nigris, parte humerali late, et fasciâ sat latâ ad medium, flavis, dense et distincte punctatis; corpore subtus antice rufo-flavo, abdomine nigro; pedibus nigris vel piceis, femoribus totis vel ad partem rufo-flavis.

A moderately elongate, parallel species, with the head black at the sides and at the base, and yellow in front; metopidium slightly compressed and produced; pronotum smooth and shining, the apical third in front yellow, the rest black, the division being usually abruptly marked, the punctuation somewhat remote and shallow; scutellum yellow, except at the apex; tegmina black, with the front part and a broad fascia at the middle yellow, very closely punctured, especially behind, the apex very slightly reticulate; underside reddish-yellow in front; abdomen black; legs black or pitchy, the femora entirely or almost entirely reddish-yellow.

Long. 15½ millim.; lat. 8 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Caldera (*Champion*).

The specimen from Nicaragua has the anterior portion of the pronotum black in the middle. An example from Caldera is figured.

9. **Tomaspis præminiata**, sp. n. (Tab. XI. figg. 8, 8 a.)

Quoad formam sculpturamque præcedenti similis, sed capite pronotoque totis, scutello (apice excepto), parte humerali, fasciaque mediali tegminum, pectore femoribusque læte miniatis.

Very like the preceding, but with the whole head and pronotum, as well as the scutellum (except the extreme point), humeral portion, and central fascia of the tegmina, and the underside of the body, except the abdomen, bright scarlet; the femora, with the exception of the apex of the anterior and posterior pairs, are also scarlet.

Long. $15\frac{1}{2}$ millim.; lat. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

This may eventually turn out to be a form of *T. mylabroides*.

Group 3.

This group includes a large number of moderate or small-sized species, mostly of ovate shape; the colour varies somewhat, but is usually in transverse bands. So far as I have seen, the bulk of the American species of Cercopinæ belong to this group, some of them being very abundant.

10. **Tomaspis limbata**, sp. n. (Tab. XI. figg. 9, 9 a.)

Ovata, parum nitida, nigra, metopidio producto; pronoto latitudine sesquolongiori, sat fortiter rugoso-punctato, marginibus (antico excepto) miniatis; scutello nigro; tegminibus perdense sculpturatis, marginibus omnibus anguste miniatis; corpore subtus pedibusque piceis, metasterno interdum rufescenti.

A moderate and somewhat variably-sized insect, black, with the posterior and lateral margins of the pronotum and all the margins of the tegmina, except occasionally near the scutellum, narrowly scarlet; sculpture of the pronotum rather strong, very close, that of the tegmina very dense and fine, the apex of the latter very slightly reticulate; underside and legs pitchy, the metasternum reddish.

Long. $12\frac{1}{2}$ millim.; lat. 6 millim.

Hab. MEXICO (*Signoret, in Mus. Vind. Cæs.; Mus. Brit.*); GUATEMALA, Purula in Vera Paz (*Champion*).

One of Signoret's specimens is larger and has the posterior border of the pronotum more broadly scarlet, while a second has only the basal margin of the pronotum scarlet. The name "*limbata*" is a MS. name of Signoret's attached to the last-mentioned specimen. An example from Purula is figured.

11. **Tomaspis discontinua**, sp. n. (Tab. XI. figg. 10, 10 a.)

Oblongo-ovata, parum nitida, nigra, metopidio producto; pronoto basi lateribusque late flavescentibus, latitudine sesquolongiori, dense rugoso-punctato; scutello nigro flavo-marginato; tegminibus nigris, limbo sat lato ab humeris ad medium vel usque ad tertiam partem apicalem vix rugosam extenso; corpore subtus antice nigro, metasterno abdomineque flavescentibus; pedibus piceis.

Variat colore rufo vel rufo-flavescenti.

Oblong-ovate, dull, very closely sculptured, black, with the posterior and lateral margins of the pronotum, the margins of the scutellum, and a rather broad border at the margin of the tegmina yellow or red; the tegminal border ceases at the middle, or reaches further towards the apex, but always ceases at some

distance from the apex; the colour of the pronotum is somewhat variable, the coloured margins being broader or narrower; metasternum and abdomen yellow or red; legs pitchy.

Long. $9\frac{1}{2}$ millim.; lat. 5 millim.

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

A fair series.

12. *Tomaspis bifascia*.

Monecphora bifascia, Walk. List of Homopt. Ins. iii. p. 679 (1851)¹.

Monecphora angusta, Walk. loc. cit. p. 680².

Monecphora inferens, Walk. loc. cit., Suppl. p. 176 (1858)³.

Hab. NORTH AMERICA, Georgia².—MEXICO (*Sallé*³; *Bilimek and Sichel*, in *Mus. Vind. Cæs.*), Ciudad in Durango 8100 feet (*Forrer*), Amula in Guerrero, Teapa in Tabasco (*H. H. Smith*); BRITISH HONDURAS, R. Sarstoon (*Blancaneaux*); GUATEMALA, Cerro Zunil (*Champion*); COSTA RICA (*Van Patten*).—ANTILLES, Cuba and Jamaica (*Signoret*, in *Mus. Vind. Cæs.*).

I believe that the above synonymy is correct. In the typical *T. bifascia* the transverse bands on the pronotum and tegmina are broader than in *T. angusta*, and in *T. inferens* the bands on the tegmina tend to break up and disappear, and occasionally only a reddish band on the pronotum is left; in all the varieties, however, the longitudinal band across the middle of the pronotum is distinct. In one specimen from Ciudad in Durango the hinder tegminal band is distinct, and the front one is absent.

No locality is given by Walker¹ for his *M. bifascia*.

There are several examples in our collection which I have doubtfully referred to this species, which is evidently variable; they are more ovate than the usual form of *T. bifascia* (which is, as a rule, oblong, although short-ovate specimens occur), and have the bands on the tegmina whitish and more obscure; the characteristic line, however, across the middle of the pronotum is always present. It is possible that one specimen from El Reposo, Guatemala (*Champion*), may prove distinct; but it can hardly be described unless more are discovered, and, at best, it would be a doubtful species.

13. *Tomaspis vilior*, sp. n. (Tab. XI. figg. 11, 11 a.)

Ovalis, picea, unicolor, capite pronotoque leviter metallicis, illo metopidio haud producto, hoc sat nitido, longitudine sesquolongiori, rugose sculpturato; scutello fortiter transversim rugoso; tegminibus pronoto dilutioribus, perdense punctatis, parum nitidis, leviter albido-pubescentibus; corpore subtus nigro-piceo, pedibus piceis vel fusco-testaceis.

Oval or suboblong, of a unicolorous pitchy colour, with very faint traces of four lighter spots at the margins of the tegmina, which are scarcely apparent unless the insect is examined closely; head and pronotum shining, the former rather deeply excavate on the vertex, the latter closely and rugosely sculptured, with several strong impressions in front; scutellum broad in front, produced into a long point behind, trans-

versely and strongly rugose; tegmina very finely sculptured, very finely pubescent, the apex rugosely reticulate, but not strongly; legs fusco-testaceous, in part pitchy.

Long. 9 millim.; lat. max. 5 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 8000 feet (*Champion*).

This species is allied to *Sphenorhina simplex*, Walk. (*Insecta Saundersiana*, Homopt. p. 90), from Colombia, but, according to the old division, it belongs to a different genus.

The specimens from Bugaba are somewhat more oblong than those from the Volcan de Chiriqui, and among them are two with traces of distinct rows of spots on the tegmina; it is possible that they may belong to another species, but I cannot satisfactorily separate them. An example from the Volcan de Chiriqui is figured.

14. *Tomaspis ignobilis*, sp. n.

T. viliori affinis, sed multo minor, sculptura crassiori; parva, nigra, sat nitida, metopidio haud producto; pronoto fortiter rugoso, lineâ centrali distincte elevatâ; tegminibus dense sat fortiter subrugoso-punctatis, apicibus haud reticulatis, vittâ albidâ sat latâ ad marginem pone medium, maculâque parvâ obscure albidâ in eâdem lineâ prope suturam positâ utrinque instructis; corpore subtus fusco, pedibus piceo-testaceis.

A small and inconspicuous, but distinct species; black, rather shining; head moderately large, with the metopidium not produced; pronotum nearly twice as broad as long, coarsely and rugosely sculptured, with a strongly raised central line, on each side of which is a depression; scutellum much less coarsely punctured than the pronotum; tegmina strongly punctured, with hardly a trace of rugose reticulation at the apex, with a rather broad whitish horizontal band behind the middle reaching from the margin to near the middle, and a small obscure whitish spot (sometimes hardly traceable) between this and the suture; underside fuscous; legs pitchy-testaceous.

Long. 6½ millim.; lat. max. 3 millim.

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

15. *Tomaspis sepulchralis*.

Tomaspis sepulchralis, Stål, Stett. ent. Zeit. xxv. p. 65 (1864)¹.

Hab. MEXICO¹ (*Mus. Vind. Cæs.*; *Mus. Oxon.*).

Stål's description¹ is as follows:—"Pubescens, nigricans, nitida; margine angusto basali thoracis basique ipsâ tegminum sanguineis." In one of the specimens referred to from the Vienna Museum the lateral margins of the pronotum are red, as well as the basal margin, while in the Oxford Museum specimen the shoulders only are slightly red, and the pronotum is entirely black.

The species is not represented in our collection. I have seen three specimens of it, all males, including the one in the Oxford Museum.

16. *Tomaspis obscura*, sp. n.

Præcedenti similis, sed nigra, maculis quibusdam parvis rufis ad medium et pone medium tegminum lineatim dispositis; capite magno, metopidio producto, oculis haud prominentibus; pronoto dense rugoso, tegminibus subtiliter sculpturatis, apicibus haud reticulatis; corpore subtus pedibusque piceis.

An oval, robust species, black, with some very small red spots arranged in two transverse rows on the tegmina,

which are very finely sculptured; head large, with the metopidium produced; apex of the tegmina with scarcely a trace of rugose reticulation; legs pitchy.

Long. 9 millim.; lat. max. $5\frac{1}{2}$ millim.

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

A single specimen, standing under the MS. name of *Sphenorhina obscura*. The species is not represented in our collection.

17. *Tomaspis miles*, sp. n. (Tab. XI. figg. 12, 12 a.)

Oblongo-ovata, leviter pubescens; capite (vertice nigro excepto), oculis ocellisque sanguineis; metopidio producto; pronoto longitudine sesquialtiori, viridi-æneo, marginibus utrinque antice rufis, dense sat fortiter punctato; scutello nigro, leviter rugoso; tegminibus sanguineis, vittâ latâ ad medium et tertiâ parte apicali nigrâ, dense subtiliter punctatis, ad apicem leviter reticulatis; corpore subtus piceo, femoribus piceis, coxis, genibus, tibiis tarsisque ad partem rufo-testaceis.

Oblong-ovate, very finely pubescent; head red, the vertex in part black; metopidium produced; pronotum dark, with an æneous reflection, rugosely punctate, the sides rather broadly red; tegmina very closely and finely punctured, dull, scarlet, with a broad band at the middle and the apical third black; femora pitchy, the tibiæ and tarsi mostly rufo-testaceous.

Long. 11 millim.; lat. max. $5\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

This is a very handsome and distinct species. On remounting the single specimen received I found an Acarid (apparently a *Gamasus*) which had evidently been attached to it; I have not before noticed that any homopterous insects have been attacked by Acari.

18. *Tomaspis handlirschi*, sp. n. (Tab. XI. figg. 13, 13 a.)

Oblongo-ovata, brunneo-rufa; capite unicolori, metopidio peracute producto; pronoto margine anteriori quatuor maculis flavis instructo, marginibusque posterioribus rufo-flavis, longitudine fere duplo latiori, distincte sat fortiter punctato; tegminibus maculis octo (quatuor utrinque) ante medium, quatuorque pone medium (duabus utrinque) rufo-flavis lineatim dispositis, apicibus vix reticulatis; pectore abdomineque rufis, pedibus piceo-rufescentibus.

Of a brownish-red colour, with four spots on the margin of the pronotum (two at the angles and two in the middle) yellow, and the posterior margin orange, and with ten orange spots on the tegmina—six in front of and four behind the middle, arranged in two transverse lines; pronotum distinctly punctured, rather shiny; scutellum comparatively small; tegmina very finely sculptured, dull; abdomen and breast red; legs pitchy-red.

Long. 12 millim.; lat. max. 6 millim.

Hab. CENTRAL AMERICA (*Mus. Vind. Cæs.*).

One specimen, labelled "Friedth. 839." This is a very distinct and unmistakable species, although it is possible that, when more are discovered, the ground-colour will be found to be somewhat darker. I have named this insect after Herr Handlirsch, of the Vienna Museum, who has kindly assisted me in sending specimens for examination.

19. **Tomaspis contigua.**

Triecphora contigua, Walk. List of Homopt. Ins. iii. p. 670¹.

Hab. HONDURAS (*Dyson*¹, in *Mus. Brit.*).

This species is not represented in our collection.

20. **Tomaspis jugata**, sp. n. (Tab. XI. figg. 14, 14 a.)

Oblongo-ovata, nigra, cærulescens; capite, pronoto scutelloque obscure cæruleis vel viridi-æneis, unicoloribus; metopidio rotundato; pronoto longitudine tertiâ parte longiori, haud nitido, dense sat fortiter rugoso-punctato; tegminibus margine interiori basali duabusque fasciis transversis miniatis; pectore et abdomine rufis, pedibus piceis, femoribus et tibiis posterioribus rufescentibus.

Head, pronotum, and scutellum unicolorous, with metallic reflections; pronotum dull, closely and rather strongly rugose; tegmina very dark blue, almost black, with the interior basal margin and two bands scarlet; the scarlet basal margin forms a V-shaped mark bounding the posterior margins of the pronotum and the scutellum, the hinder part of which meets the first band at the suture; this band is slightly waved just before the margins, where it is thickened; the hinder band is curved very slightly towards the apex, which is plainly reticulate; abdomen and breast red; legs pitchy, the posterior femora and tibiæ rufescent.

Long. 10 millim.; lat. max. 5 millim.

Hab. GUATEMALA (*coll. Signoret, in Mus. Vind. Cæs.*).

There are two specimens in the Vienna Museum standing under the MS. name of *Sphenorhina lævicollis*, Signoret: one, labelled as from New Granada, is slightly immature, and has the pronotum bright, shining, and rather finely punctured; the other, from Guatemala, has the pronotum dull and rugose, and it is from this that I have described the species.

21. **Tomaspis rubra.** (Tab. XI. figg. 15, 15 a; 16, var.)

Cicada rubra, Linn. Syst. Nat. i. 2, p. 711 (1767)¹.

La Cigale Rouge à bandes jaunes, Stoll, Cigales, p. 23, t. 2. fig. 10 (1780)².

Cercopis rubra, Germ. Mag. Ent. iv. p. 41 (1821)³.

Sphenorhina rubra, Am. et Serv. Hist. Nat. des Ins. Hémipt. p. 563⁴; Walk. List of Homopt. Ins. iii. p. 688⁵.

Cercopis cruentata, Fabr. Syst. Rhyng. p. 91⁶.

Cercopis sororia, Germ. Mag. Ent. iv. p. 41⁷.

Sphenorhina sororia, Walk. List of Homopt. Ins. iii. p. 693⁸.

Cercopis bicincta, Say, Journ. Acad. Phil. vi. p. 303⁹; Complete Writings, ii. p. 381¹⁰.

Sphenorhina latifascia, Walk. List of Homopt. Ins. iii. p. 688¹¹.

Hab. NORTH AMERICA, Indiana^{9 10}.—MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA (*coll. Signoret, in Mus. Vind. Cæs.*); PANAMA, Volcan de Chiriqui (*Champion*).—COLOMBIA¹¹; VENEZUELA; GUIANA, Surinam^{2 6}; BRAZIL^{4 5 8}, Rio Negro, Bahia³, S. Paulo⁷; PERU, Lima⁹.

All the specimens in our collection are from the Volcan de Chiriqui. They have the head and basal half of the pronotum and, at least, the front part of the scutellum

black, the front part of the pronotum being always red; the two broad light bands on the tegmina are either red or yellow. There is a single specimen from Guatemala in the Vienna Museum belonging to the same form, with the bands red, labelled *Sphenorhina trifasciata*, Signoret, in litt. I have only seen one example of the typical *T. sororia* from Central America, although it appears to be the most abundant of the Cercopidæ in the northern districts of South America; it has the head, pronotum, and scutellum entirely red, and the tegmina black, with two broad yellow bands. The form in our collection appears to replace it further north, and is no doubt identical with *Cercopis bicincta*, Say. Of this insect, Say says that it "resembles the *rubra*, Linn., and *sororia*, Germ., but is sufficiently distinct"; the difference, however, only appears to be one of colour, and the species is evidently variable in this respect.

In the Vienna Museum collection are four specimens named *Sphenorhina tricolor*, Signoret, in litt., which only differ in having the base of the tegmina yellow (unicolorous with the front band), and two named *S. flavicincta*, Signoret, in litt., which have the hinder band wanting; they are, however, only varieties of the typical *sororia* form, and serve to show how it varies in colour. Some of the same varieties may be seen in the British Museum collection. Two forms from the Volcan de Chiriqui are figured.

22. *Tomaspis laterinotata*, sp. n. (Tab. XI. figg. 22, 22 a.)

Oblongo-ovata, sat angusta, rufo-brunnea, capite sat magno, metopidio haud producto, rotundato; pronoto sat fortiter rugoso-punctato; tegminibus utroque maculâ albidâ elongatâ, pone humeros, marginem vix attingente, sat fortiter sculpturatis, apicibus haud reticulatis; corpore subtus dilutiori, pedibus brunneo-testaceis.

Rather long, oblong-ovate, of a dark castaneous or rufous-brown colour, with two abrupt whitish spots on the tegmina behind the shoulders, which are elongate and scarcely touch the margin, a very thin line of darker colour separating them from it, except just at the base; head rather large, with the metopidium rounded, not compressed or produced; pronotum rugosely and rather strongly, but not deeply, punctate; sculpture of the tegmina comparatively strong, the apices not reticulate; clavus separated from the corium by a deep furrow; underside light testaceous; legs testaceous.

Long. 10 millim.; lat. max. $4\frac{1}{2}$ millim.

Hab. MEXICO (*Mus. Oxon.*).

23. *Tomaspis postica*. (Tab. XI. figg. 18, 18 a.)

Monecphora postica, Walk. List of Homopt. Ins., Suppl. p. 177 (1858)¹.

Tomaspis pictipennis, Stål, Stett. ent. Zeit. xxv. p. 63 (1864)².

Hab. MEXICO (*Sallé*¹), Vera Cruz (*Mus. Holm. & coll. Signoret*²), Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Atoyac in Vera Cruz (*Schumann*), Teapa in Tabasco (*H. H. Smith*); NICARAGUA, Chontales (*Janson*); COSTA RICA (*Van Patten*).

There is a large series of this pretty and distinct species in our collection. A single example from Costa Rica belongs to a somewhat dark variety. We figure a specimen from Teapa.

24. **Tomaspis lepidior**, sp. n. (Tab. XI. figg. 19, 19 a.)

Oblongo-ovata, leviter pubescens, capite et pronoto viridi-vel cæruleo-æneo, illo modico, metopidio haud producto, hoc longitudine sesquialtiori perdense subtiliter subrugose punctato; scutello viridi-æneo, leviter rugoso; tegminibus nigris, margine interiori basali et maculis quatuor pone scutellum lineatim dispositis, duabusque pone medium ad suturam, rufescentibus, quatuorque præterea marginem attingentibus sat magnis dilute testaceis; corpore subtus, capite et pectore antice fusco excepto, rufescente; pedibus piceis, genibus et femoribus tibiisque posticis plus minusve rufescentibus.

Oblong-ovate, with fine yellowish pubescence; head, pronotum, and scutellum dark, with metallic reflections; pronotum very closely and subrugosely sculptured; tegmina black, with the inner basal margins broadly rufescent; just behind the scutellum there are four reddish spots in a line (two on each tegmen), the two inner ones being often almost confluent, and just behind the middle are two similar spots, answering to the two inner spots behind the scutellum; at the margins are four light testaceous spots (two on each tegmen, one before and one behind the middle); underside red, except the front part; legs pitchy, with the knees and the posterior femora and tibiæ, in part at least, rufescent.

Long. 7-8 millim.; lat. max. $3\frac{1}{2}$ -4 millim.

Hab. PANAMA, Bugaba (*Champion*).

A considerable series. This is one of the most distinct and pretty species among the smaller Cercopidæ.

25. **Tomaspis simulans**. (Tab. XI. figg. 20, 20 a.)

Sphenorhina simulans, Walk. List of Homopt. Ins., Suppl. p. 183 (1858)¹.

Tomaspis fasciaticollis, Stål, Stett. ent. Zeit. xxv. p. 63 (1864)².

Hab. MEXICO (*Sallé*¹; *Mus. Holm. and coll. Signoret*²), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Rincon, Chilpancingo, and Acaguizotla in Guerrero, Teapa in Tabasco (*H. H. Smith*), Cuernavaca (*Bilimek, in Mus. Vind. Cæs.*), Jalapa (*Höge*), Orizaba (*Bilimek, in Mus. Vind. Cæs.*; *H. H. Smith and F. D. Godman*).

This is a small species, with the ground-colour dark, with two distinct white or whitish-yellow bands across the tegmina, and one across the pronotum. It is variable, and presents four distinct forms:—

- a. Black or fuscous, with the light bands broad and distinct, and the head, the margins of the pronotum, the basal angle of the tegmina, and legs and underside more or less testaceous. This is the common form.
- b. Pronotal band very narrow; tegmina without light bands. This is the var. "teginibus impictis" of Stål; it is not represented in our collection, but there is a specimen in the Vienna Museum labelled as presented by Stål.
- c. Black, with the light bands much narrower, often reduced to mere lines or elongated spots of a clearer white colour; abdomen red; legs mostly red or black, with the posterior femora and tibiæ red. Size smaller.
- d. Pronotum without white band. Size smaller.

It is possible that one or two of these may belong to distinct species, but they can hardly be described without more material.

Stål compares *T. fasciaticollis* with *T. bicincta* (Say), and says it is closely akin to it; but Say says of his *T. bicincta* that it resembles *Cercopis rubra* and *C. sororia*, Germ., which are quite different insects.

This species is one of the instances in which Stål totally ignores Walker's description, although it is quite satisfactory; he has done the same with *Monecphora postica*, Walk.=*T. pictipennis*, Stål, and *Sphenorhina assimilis*, Walk.=*T. varians*, Stål. All three of these species are described by Walker as from Mexico (*Sallé*), and yet Stål, though he styles his papers "Hemiptera Mexicana," makes no allusion to any of them.

T. simulans, so far as the formation of the metopidium is concerned, is intermediate between *Monecphora* and *Sphenorhina*, and serves to show how unsatisfactory a generic character this is.

A specimen of the type form from Teapa is figured.

26. *Tomaspis prænitida*, sp. n. (Tab. XI. figg. 23, 23 a, b.)

Oblonga, nigro-picea, nitida; capite sat lato, metopidio haud producto; pronoto latitudine fere duplo longiori, pernitido, lævi, remotius punctato; scutello magno; tegminibus piceis, dense, antice fortius, punctatis, vittâ subalbidâ undatâ pone scutellum, alterâque pone medium instructis, apice haud reticulato; corpore subtus piceo, abdomine nigro; pedibus piceis.

Oblong, broader in front than behind, the front parts very shiny; pitchy-black, with a whitish wavy band behind the scutellum and another behind the middle, the suture between these bands being lighter than the ground-colour; head broad; pronotum very shining, about twice as broad as long, diffusely and shallowly punctured; scutellum large, brownish, produced into a sharp point behind; tegmina rather strongly punctured at the base, very finely so towards the apex, which is not reticulately rugose; underside and legs pitchy, the abdomen black.

Long. $8\frac{1}{2}$ millim.; lat. max. $3\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 8000 feet (*Champion*).

27. *Tomaspis apicifasciata*, sp. n. (Tab. XI. figg. 24, 24 a.)

Parva, brevis, oblonga, nitida, nigra vel nigro-picea; capite brevi, sat lato, oculis permagnis, prominentibus; metopidio haud producto, æquali; pronoto longitudine sesquialtiori, sat fortiter punctato; scutello leviter rugoso, peranguste albido marginato; tegminibus subtiliter punctatis, limbo albido sat lato, suturam attingenti, paullo ante apicem instructis; corpore subtus pedibusque piceis.

A small, short, oblong species, black, with a broad white band a little before the apex, reaching across the tegmina; head short, but broad, the eyes large and prominent, the metopidium not produced; pronotum shining, rather strongly and somewhat closely punctured; tegmina very finely punctured behind, more evidently so in front, scarcely reticulate at the apex; legs pitchy.

Long. $7\frac{1}{2}$ millim.; lat. max. 4 millim.

Hab. PANAMA, Bugaba (*Champion*).

28. *Tomaspis distincta*. (Tab. XI. figg. 17, 17 a.)

Sphenorhina distincta, Distant, Trans. Ent. Soc. Lond. 1878, p. 178¹.

"Black, shining, thickly and finely punctured. Head, thorax, and scutellum slightly pilose. Reticulated portions of tegmina somewhat ferruginous; corium black, shining. Abdomen and posterior legs (tarsi excepted, which are black) sanguineous. Wings obscure hyaline, somewhat fuscous at outer borders. Posterior tibiæ armed with a strong spine. Scutellum large, transversely striated. Long. ex. tegm. 6 millim.; exp. tegm. 18 millim."

Hab. COSTA RICA, Volcan de Irazu 6000 to 7000 feet (*Rogers*¹).

This is a small, obscure, dark species, with the tegmina dark brown or purplish-own, somewhat lighter towards the apex, and the abdomen red.

29. *Tomaspis plagiata*. (Tab. XI. figg. 21, 21 a.)

Sphenorhina plagiata, Distant, Trans. Ent. Soc. Lond. 1878, p. 178¹.

“Testaceous; thorax black, with the anterior and lateral edges and a transverse central band testaceous. Eyes luteous. Pectus and abdomen black, the last with the posterior segmental edges and the anal appendage obscure testaceous. Legs testaceous, with a pitchy streak on femora, commencing at base. Pronotum and tegmina thickly and finely punctured. Wings obscure hyaline. Posterior tibiæ armed with two spines, one near the base small, the second a little past middle long, robust. Long. ex. tegm. 8 millim.; exp. tegm. 18 millim.”

Hab. COSTA RICA (*Van Patten*¹).

Mr. Distant describes this insect as testaceous, but in the unique type the prevailing colour is bright red, the tegmina being unicolorous and almost scarlet.

30. *Tomaspis septemnotata*.

Sphenorhina septemnotata, Distant, Trans. Ent. Soc. Lond. 1878, p. 179¹.

“Fulvous, shining, tegmina with seven small orange spots, three in a transverse line near base, two near middle, and two near apex; there is also a small orange patch at base. Wings pale hyaline. Hind tibiæ armed with two spines, first small, near base, the second long, robust, a little past middle. Long. ex. tegm. 6 millim.; exp. tegm. 20 millim.”

Hab. COSTA RICA, Rio Sucio (*Rogers*¹); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

This is a small species, with the tegmina fulvous-hyaline, and with seven very indistinct small orange spots on each. I am inclined to believe that it is immature, and have doubtfully referred to it a few immature specimens of a species from the Volcan de Chiriqui.

31. *Tomaspis turpior*, sp. n.

Oblonga, fusco-picea, leviter pubescens, oculis sat prominentibus; metopidio compresso, leviter producto; pronoto nitidiori, longitudine fere duplo latiori, sat fortiter punctato, lineâ centrali distincte elevatâ; tegminibus haud nitidis, ad apicem subtilissime, ad basin fortius sculpturatis, apicibus reticulatis, fuscis, maculis quibusdam perobscure testaceis; corpore subtus pedibusque piceo-testaceis, ad partem fuscatis.

Oblong, pitchy, scantily pubescent; pronotum shining, rather strongly but not deeply punctured, with a very distinct central line; scutellum very finely transversely rugose; tegmina dull, of a fuscous-pitchy-colour, with obscure testaceous markings, some of which are often almost invisible or absent; in the type-specimen there is a lighter spot where the corium joins the pronotum, and two lighter bands across the tegmina before and behind the middle, more or less broken into spots, the outer ones being the lightest; the tegmina are plainly reticulate at the apex; legs and underside pitchy-testaceous, in part fuscous.

Long. 7-7½ millim.; lat. max. 3 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Some of the specimens are evidently immature, and it is possible that the general ground colour may be usually darker than in any of the examples in our collection.

Group 4.

The insects belonging to this group have a very distinct facies, as a rule, although *T. imperans* is, perhaps, a somewhat intermediate species. There is no tangible character on which to separate them generically. They appear to be very variable in colour.

32. **Tomaspis imperans**, sp. n. (Tab. XI. figg. 25, 25 a; 26, var. *sexnotata*.)

Oblonga, sat angusta, sat nitida, nigra, capite, pronoto (disco fusco excepto), scutello, basi limboque marginali tegminum ante apicem abrupte terminato, sanguineis; metopidio producto; pronoto longitudine duplo latiori, nitido, remote et haud profunde punctato; tegminibus dense subtiliter punctatis, apicibus sat fortiter rugoso-reticulatis; corpore subtus piceo, metasterno rufo, abdomine pedibusque nigris.

Oblong, parallel, black, with the head and metopidium (which is produced) scarlet; pronotum twice as broad as long, shining, somewhat diffusely and distinctly punctured, scarlet, with the disk dark to the sides; scutellum large, finely rugose, unicolorous scarlet; tegmina black, with the base and a broad marginal band ceasing abruptly a little before the apex scarlet, the colour being very distinctly marked, the punctuation very close and fine, the apex plainly rugose-reticulate; underside dark, the metasternum red; legs black.

Long. 10 millim.; lat. max. $4\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Var. **sexnotata**.

Colore nigro, differt basi pronoti sat late, lateribus anguste, apice tantum scutelli, et tribus maculis tegminum utrinque sanguineis.

Black, with the base of the pronotum broadly and the sides narrowly scarlet; the apex only of the scutellum is of the same colour, and the scarlet marginal band of the tegmina is replaced by three spots on each side—one at the base, one before the middle, and the third behind the middle.

Long. 10 millim.; lat. max. $4\frac{1}{2}$ millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

33. **Tomaspis assimilis**. (Tab. XI. figg. 27, 27 a; 28, var.)

Sphenorhina assimilis, Walk. List of Homopt. Ins., Suppl. p. 182 (1858)¹.

Tomaspis varians, Stål, Stett. ent. Zeit. xxv. p. 65 (1864)².

Hab. MEXICO (*Sallé*¹), Omilteme, Xucumanatlan, and Sierra de las Aguas Escondidas, all in Guerrero, 7000 to 8000 feet (*H. H. Smith*), Orizaba (*Bilimek*, in *Mus. Vind. Cæs.*), Oaxaca (*Mus. Holm.*²; *Mus. Brit.*); GUATEMALA, San Gerónimo (*Champion*).

Stål enumerates four varieties of this species. In the type form the head and the front of the pronotum are red, and the hinder part of the latter, except the posterior margin (which is dark), is light testaceous; the tegmina are dark, with a light testaceous longitudinal subcostal stripe, which is curved and enlarged in front and behind and almost encloses a dark oval space divided by the suture; this band, however, varies and is often quite straight and not thickened behind; the colour of the head and pronotum is also variable. A single specimen from San Gerónimo in

our collection is almost entirely of a fuscous colour, and has the pronotum rather more distinctly punctured; it possibly belongs to a distinct species.

I have been enabled to identify Stål's insect through the kindness of Dr. Aurivillius, who lent me a typical specimen.

We figure two examples from Omilteme, one of which (fig. 28) is a variety.

34. **Tomaspis lineata.** (Tab. XI. figg. 29, 29 a; 30, 30 a, var. *similis*.)

Sphenorhina lineata, Walk. List of Homopt. Ins. iii. p. 691 (1851) ¹.

Sphenorhina parallela, Walk. loc. cit. p. 694 ².

Sphenorhina bivitta, Walk. loc. cit., Suppl. p. 181 (1858) ³.

Sphenorhina cruciata, Walk. loc. cit., Suppl. p. 183 ⁴.

Sphenorhina similis, Walk. loc. cit., Suppl. p. 182 ⁵.

Tomaspis vittatipennis, Stål, Stett. ent. Zeit. xxv. p. 64 (1864) ⁶.

Tomaspis ornatipennis, Stål, loc. cit. p. 64 ⁷.

Hab. MEXICO (*Sallé* ^{3 4 5}; *Mus. Holm.* ^{6 7} and coll. *Signoret* ⁶), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Amula and Chilpancingo in Guerrero, Teapa in Tabasco (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*), Valladolid in Yucatan (*Gaumer*); HONDURAS (*Dyson* ¹, in *Mus. Brit.*); NICARAGUA, Chontales (*Janson*).—SOUTH AMERICA ².

This is a very variable insect, the ground-colour varying from bright scarlet to a dirty testaceous, and the smallest specimens being about half the size of the largest. It is not, therefore, to be wondered at that a considerable number of species have been described which must be sunk as synonyms; a glance over our series and the specimens in the British Museum will show how they lead one into the other.

There can be little doubt that all the above-mentioned so-called species might be referred to *Sphenorhina lineolata*, Amyot and Serville [Hist. Nat. des Ins., Hémipt. p. 563, t. 10. f. 7 (1843)]; but, as their description is very meagre and the locality is given as "Amérique méridionale?" I prefer to adopt the above synonymy.

We figure two specimens—one, of the ordinary form, from Chilpancingo, and a variety (= *S. similis*, Walk.) from Teapa.

35. **Tomaspis nuptialis.** (Tab. XI. figg. 31, 31 a.)

Tomaspis nuptialis, Stål, Stett. ent. Zeit. xxv. p. 64 (1864) ¹.

Hab. MEXICO (coll. *Signoret* ¹, in *Mus. Vind. Cæs.*).

I am inclined to regard this as an extreme variety of the preceding species; but it has the metopidium a little less produced, and is very strikingly coloured. It is not represented in our collection.

A specimen of Stål's in the Vienna Museum collection is figured.

Subfam. *PTYELINÆ*.

In this subfamily the anterior margin of the pronotum is more or less rounded and produced between the eyes, which are nearly always distinctly transverse. There are, however, as before stated, one or two transitional forms in which the eyes are round; but in these the anterior margin of the pronotum is decidedly though not strongly rounded, and a line drawn through its front part will pass at least through the middle of the eyes, whereas in the Cercopinæ the anterior margin of the pronotum is cut off in a straight line immediately behind the eyes.

The subfamily Ptyelinæ corresponds to Stål's Aphrophorida (Hemipt. Afr. iv. p. 66); in his table he makes considerable use of the characters drawn from the venation of the wings, and in some cases they appear valuable, but it is a question whether they are always quite constant.

The Ptyelinæ are not, apparently, very strongly represented in Central America, except so far as the insignificant and variable genus *Clastoptera* is concerned.

The following table will help to distinguish the Central-American genera:—

- | | |
|---|----------------------------------|
| I. Eyes round or nearly round, the head slightly produced between them | <i>Neænus</i> , gen. nov. |
| II. Eyes distinctly transverse. | |
| i. Clavus acuminate at the apex; submarginal vein of the wings without a small area interrupting its upper border. | |
| 1. Vertex of the head considerably produced in front of the eyes. | |
| A. Submarginal vein of the wings with a break at the apex | <i>Lepyronia</i> , Am. et Serv. |
| B. Submarginal vein of the wings not interrupted at the apex. | |
| <i>a</i> . Vertex about twice as long as the largest diameter of the eyes. | |
| <i>a</i> *. Posterior tibiæ shorter and stouter, with two strong and large teeth. | |
| <i>a</i> †. Size larger—length 10–18 millim.; head distinctly narrower than the pronotum at the shoulders | <i>Cephisus</i> , Stål. |
| <i>b</i> †. Size smaller—length 5–7 millim.; head at the base as broad as the pronotum at the shoulders. | |
| <i>a</i> †. Pronotum distinctly carinate | <i>Aphrophora</i> , Germ. |
| <i>b</i> †. Pronotum not carinate | <i>Philænus</i> , Stål. |
| <i>b</i> *. Posterior tibiæ elongate and slender, with two feeble teeth: length 8–11 millim. | |
| <i>a</i> †. Pronotum carinate | <i>Paraphrophora</i> , gen. nov. |
| <i>b</i> †. Pronotum not carinate, with a smooth central line | <i>Xenaphrophora</i> , gen. nov. |
| <i>b</i> . Vertex two and a half or three times as long as the largest diameter of the eyes. | |
| <i>a</i> *. Head as broad as the pronotum | <i>Microsargane</i> , gen. nov. |
| <i>b</i> *. Head distinctly narrower than the pronotum | <i>Epicranion</i> , gen. nov. |

2. Vertex of the head short or very short, scarcely produced in front of the eyes *Eicissus*, gen. nov.
- ii. Clavus very blunt and rounded at the apex; submarginal vein of the wings interrupted by a small area on its upper border; vertex short, only slightly produced in front of the eyes . . . *Clastoptera*, Germ.

NEÆNUS, gen. nov.

Oblongo-ovatus; capite sat magno; metopidio magno, convexo, lævi, vertice supra metopidium marginato, carinato; oculis a latere visis fere rotundatis, prominulis; ocellis inter se quam ab oculis minus distantibus; rostro ad coxas intermedias extenso; pronoto antice leviter rotundato, inter oculos nonnihil extenso, haud carinato, basi leviter sinuato; scutello sat magno æquilaterali; tegminibus clavo a corio suturâ profundâ separato; alis venâ tertiâ ante apicem furcatâ aream apicalem triangularem formante; pedibus robustis, tibiis posticis spinis duabus validis instructis, apice spinoso.

Oblong-ovate; head rather large; metopidium very convex and rounded, vertex carinate; eyes nearly round; ocelli distinct, more distant from the eyes than from one another; pronotum nearly twice as broad as long, gently rounded in front and slightly produced between the eyes, the base slightly sinuate; scutellum nearly equilateral, pointed behind; tegmina, taken separately, broadly rounded at the apex, the corium separated from the clavus by a deep suture; wings with the third vein from the outer marginal vein forked and enclosing a somewhat large triangular apical area; legs robust; posterior tibiæ with two strong sharp spines, the lower one being the longest, and with a strong circle of smaller spines at the apex.

This genus appears to form a transition between the Cercopinæ and the Ptyelinæ. The species described is in general appearance much like a very small *Cercopis*.

1. *Neænus varius*, sp. n. (Tab. XII. figg. 1; 2, var.)

Niger, supra haud nitidus, vertice subtiliter rugoso; metopidio nitido; pronoto sat fortiter rugoso; tegminibus dense et distincte subrugoso-punctatis, maculis duabus ad basin, duabusque pone medium, testaceis vel flavo-rufescentibus, variantibus, interdum deficientibus; pectore piceo-testaceo; pedibus piceis.

Black, rather dull above, shining on the underside; vertex finely rugose, subexcavate; pronotum rather strongly, scutellum finely, transversely rugose; tegmina distinctly and very closely rugose-punctate, each with an oblong straw-coloured patch at the base, occupying half of the clavus, but not extending to the corium, and a round and rather irregular spot behind the middle quite separate from the margins: these spots are very variable in size, and are sometimes in part or wholly absent; abdomen black, chest pitchy-testaceous; legs pitchy.

The chief varieties appear to be as follows:—

- a. Front spots large, straw-coloured; hind spots moderate, orange.
- b. Front spots much reduced, straw-coloured or orange.
- c. Hind spots much reduced or absent.
- d. Tegmina entirely unicolorous black, without spots.

Long. 6 millim.; lat. max. $2\frac{1}{2}$ millim.

Hab. MEXICO, Jalisco (*Schumann*), Chilpancingo 4600 feet, Amula 6000 feet, Soledad 5500 feet, and Xucumanatlan 7000 feet, all in Guerrero (*H. H. Smith*).

Aphrophora inclyta and *A. maura*, Walk., from Sarawak (*List of Homopt. Ins.*, Suppl. p. 187), appear to be allied to this species.

We figure two specimens—one from Soledad and one from Amula.

CEPHISUS.

Cephisus, Stål, Hemipt. Afr. iv. p. 67 (1866) ; Berl. ent. Zeitschr. x. p. 384; Hemipt. Fabr. ii. p. 18.
Aphrophora, Walker, List of Homopt. Ins. iii. p. 697 (ex parte).

So far as regards the structure of the wings this genus is closely allied to *Aphrophora*, from which it differs in the shorter rostrum and the absence of a carina on the vertex of the head, as well as in the larger size of the species.

1. **Cephisus siccifolius.** (Tab. XII. fig. 3.)

Aphrophora siccifolia, Walk. List of Homopt. Ins. iii. p. 698¹.

Ptyelus siccifolius, Stål, Stett. ent. Zeit. 1864, p. 65².

Cephisus siccifolius, Stål, Kongl. Sv. Vet.-Ak. Handl. viii. 1 (Hem. Fabr.), p. 18³; Berg, Hemipt. Argent. p. 238⁴.

Aphrophora occidentis, Walk. List of Homopt. Ins. iii. p. 699⁵.

Aphrophora diminuta, Walk. loc. cit. p. 699⁶.

Ptyelus variolosus, Walk. loc. cit., Suppl. p. 188⁷.

Hab. MEXICO (*Sallé*⁷; *Höge*; *Mus. Holm.*²), Jalisco, Atoyac (*Schumann*), Chilpancingo, Omilteme, and Xucumanatlan in Guerrero, Teapa in Tabasco (*H. H. Smith*), Orizaba (*Bilimek*, in *Mus. Vind. Cæs.*); GUATEMALA, El Tumbador, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui, Bugaba, David (*Champion*).—WEST COAST OF AMERICA (*Wood*^{5 6}); SOUTH AMERICA^{3 4}, Brazil², Argentina⁴.—? WEST AFRICA¹.

This large species, which is widely distributed in Central and South America, appears to have been always identified with *Aphrophora siccifolia*, Walk., recorded by him as from West Africa; possibly there is a mistake as to Walker's locality.

A specimen from Chilpancingo is figured.

LEPYRONIA.

Lepyronia, Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 567 (1843) ; Stål, Stett. ent. Zeit. 1864, p. 67.

Amyot and Serville distinguish this genus as having the body "court et ramassé," and the "élytres bombées, en ovale court et en forme de coquille"; a better distinction, however, is to be found, according to Stål, in the fact that the submarginal vein of the wings is more or less widely interrupted at the apex, and the wings at rest form a fold at this point: this is very plain in the larger species, such as *L. subfasciata*, from Brazil, of which a tegmen and wing are figured (Tab. XII. figg. 4, 4 a).

1. **Lepyronia sordida.**

Lepyronia sordida, Stål, Stett. ent. Zeit. 1864, p. 67¹.

Hab. MEXICO (*Mus. Holm. & coll. Signoret*¹).

Superficially, this species, which is not represented in our collection, bears a strong resemblance to *Philænus fusco-varius*, Stål. I am not quite sure whether it would not be better to separate it from *Lepyronia*; but, as I have only seen one specimen (presented by Stål to Signoret and now in the Vienna Museum), I do not feel competent to do more than pronounce an opinion. The wings appear to answer to Stål's description of the genus, but the form is quite different from that of the ordinary species of *Lepyronia*.

PHILÆNUS.

Philænus, Stål, Stett. ent. Zeit. 1864, p. 66; Hemipt. Afr. iv. p. 68 (1866).

This genus differs from *Aphrophora* in having the vertex of the head and the pronotum without carinæ, and in having the third vein from the outer marginal vein forked at some distance from the apex and forming an apical area, which is distinctly rounded at the fork.

1. *Philænus fusco-varius*. (Tab. XII. figg. 5; 6, var.)

Philænus fusco-varius, Stål, Stett. ent. Zeit. 1864, p. 66¹.

Hab. MEXICO (*Mus. Holm. & coll. Signoret*¹), Pinos Altos in Chihuahua (*Buchan-Hepburn*), Omilteme 8000 feet, Chilpancingo 4600 feet, and Xucumanatlan 7000 feet, all in Guerrero (*H. H. Smith*), Orizaba, Cuernavaca, Jalapa (*Bilimek, in Mus. Vind. Cæs.*); GUATEMALA, Chiacam in Vera Paz, Quiché Mountains 7000 to 9000 feet, Panajachel 5000 feet, Capetillo (*Champion*).

The specimens in our collection are variable in size and coloration: one, from the Quiché Mountains, is only 5 millim. in length; and one, from Omilteme, has a large whitish dorsal patch covering the greater part of the basal half of the tegmina.

We figure a specimen from Pinos Altos, and a variety from the Quiché Mountains.

APHROPHORA.

Aphrophora, Germar, Mag. Ent. iv. p. 48 (1821); Burmeister, Handb. Ent. ii. p. 121; Amyot et Serville, Hist. Nat. des Ins. Hémipt. p. 563.

The insects belonging to this genus have the vertex and pronotum plainly carinate, and the third vein from the outer marginal vein, as a rule, forked, the fork enclosing an apical area, which is more or less rounded at the apex. This last-mentioned character, however, is variable: in one species, which appears undoubtedly to be an *Aphrophora*, the fork is absent or slightly represented on one side only. The posterior tibiæ are robust, with two very strong spines, and with the crown of spines at the apex strongly marked.

1. *Aphrophora lævior*, sp. n. (Tab. XII. fig. 7.)

Brunnea, testaceo-variegata, lævior, sat nitida, capite pronotoque testaceis, hoc ad basin brunneo, antice densius postice diffuse et haud profunde punctato; scutello testaceo; tegminibus nitidis, ad apicem fere lævibus, clavo sat fortiter punctato; pedibus testaceis.

Dark brown, with the head, pronotum (except a patch at the base on each side of the central carina), scutellum, two patches at the margins of each tegmen, and other smaller markings, testaceous; head rather dull, distinctly punctured; pronotum with a rather broad central carina, rather dull and closely punctured in front, behind shining, comparatively diffusely and not deeply punctured; tegmina shining, with the clavus and the adjacent portion duller and strongly punctured, and with the apex almost smooth; underside and legs testaceous or more or less pitchy-testaceous.

Long. 6 millim.; lat. $3-3\frac{1}{4}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

A rather long and very uniform series. This species is rather closely allied to *A. quadrinotata*, Say, but is differently sculptured.

2. *Aphrophora perdubia*, sp. n.

Præcedenti affinis, sed major, minus nitida, densiusque fortiusque punctata, notisque tegminum obscurioribus distincta.

Allied to the preceding, but on the average larger, evidently duller, with the punctuation more close and uniform and covering nearly the whole of the tegmina, and with the markings much less distinct; from *A. grisea* it differs in the more pointed head and general coloration.

Long. 7-8 millim.; lat. max. $3\frac{1}{2}$ -4 millim.

Hab. MEXICO (*Bilimek*, in *Mus. Vind. Cæs.*); GUATEMALA, Chiacam, Sabo, and Purula in Vera Paz, Cerro Zunil, Capetillo (*Champion*).

The two specimens from Sabo, Vera Paz, are a somewhat intermediate form between this and the preceding species.

There is a small series in the Vienna Museum collection which must apparently be referred to *A. perdubia*; the specimens are labelled "4-vittata, Signoret," in litt.

3. *Aphrophora grisea*, sp. n. (Tab. XII. fig. 8.)

Grisea vel griseo-testacea, fusco-variegata; metopidio testaceo, nigro-notato, basi antennarum nigra, vertice sat magno antice rotundato, sat dense punctato; oculis magnis, prominulis; pronoto longitudine duplo latiori, distincte regulariter punctato; tegminibus ad medium plus minusve ampliatis, sat fortiter ad apicem punctatis; vittâ obliquâ irregulari aliisque notis fusco-brunneis, apicibus fusco-reticulatis; abdomine nigro, pectore pedibusque testaceis, fusco-maculatis.

Of a somewhat short-ovate form, widened in the middle of the tegmina, griseous or griseo-testaceous, with a rather distinct oblique brown band at about the middle of the tegmina and other dark markings, the cells at the apex being surrounded with dark colour and presenting a reticulate appearance; occasionally the head has a greenish reflection; head rather large, rounded, eyes large and rather prominent; punctuation distinct, regular, and fairly uniform over the whole surface, reaching plainly to the apex of the tegmina; abdomen black, underside of the metopidium, chest, and legs testaceous, variegated with fuscous; spines of the posterior tibiæ black at the apex.

Long. 6-7 millim.; lat. max. $3\frac{1}{2}$ -4 millim.

Hab. MEXICO, Omilteme 8000 feet, Xucumanatlan 7000 feet, and Amula 6000 feet, all in Guerrero, Teapa in Tabasco (*H. H. Smith*).

In this species the third vein from the outer marginal vein is sometimes simple and sometimes forked, enclosing a larger or smaller apical area; occasionally such an area is present on one wing and not on the other.

An example from Omilteme is figured.

Besides the specimens above described there is in our collection a single example from Balheu, Vera Paz (*Champion*), which is rather like *A. grisea*, but appears to be distinct from that species. I should not, however, care to describe it as new without further material. The single specimen of *A. grisea* from Teapa is somewhat different from the others.

PARAPHROPHORA, gen. nov.

Elongata; capite sat magno, ante oculos producto, obtuse rotundato, ocellis valde approximatis; metopidio fortiter obliquo, vertice carinato; pronoto carinato, postice fortiter sinuato, scutello fere æquilaterali; tegminibus longis; alis amplis, venâ tertiâ interiori simplici haud furcatâ, venis transversis haud obliquis; pedibus teretibus, tibiis posticis longis gracilibus, spinis duabus alterâ sub apicem parvâ, alterâ basin versus minimâ armatis.

Closely allied to *Aphrophora*, but differs in its more elongate form and, especially, in the slender legs and elongate and slender posterior tibiæ, which are armed with two spines, one near the base very small, and one before apex somewhat larger; the crown of spines at the apex of the posterior tibiæ is distinct, but not strongly marked; the third interior vein from the outer submarginal vein shows no trace of furcation.

1. *Paraphrophora simplex*, sp. n. (Tab. XII. fig. 9.)

Testacea, unicolor, sat nitida; pronoto longitudine sesquialtiori, sat fortiter punctato, carinato; scutello leviter transversim rugoso; tegminibus fortius punctatis; pedibus testaceis, tarsi ad apicem fuscatis.

Of a uniform testaceous colour, rather shining; head somewhat rugose, pronotum strongly punctured; tegmina with one or two very obscure lighter patches at the margins; legs testaceous, with the apex of the tarsi black.

Long. 8 millim.; lat. max. 3 millim.

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

XENAPHROPHORA, gen. nov.

Præcedenti valde affinis, sed major, robustior, pronoto haud carinato, lineâ lævi mediâ nitidâ; alis amplis, venâ tertiâ interiore ante apicem furcatâ; pedibus teretibus, tibiis posticis longis gracilibus, spinis duabus parvis armatis.

Very closely allied to the preceding genus, but larger and stouter, with the pronotum not carinate, the keel being replaced by a broad smooth shining line, on the surface of which there is sometimes a feeble trace of carination towards the apex; the vertex shows traces of a carina; wings with the third vein from the outer submarginal vein furcate at some distance before the apex and enclosing a long narrow apical area; legs slender, posterior tibiæ long, with two small teeth.

I at first included this genus under *Paraphrophora*, but it bears just the same relation

to the latter genus that *Philænus* does to *Aphrophora*; and if the former two are classed together, the latter should also be united. I believe that, in the face of the occasional inconstancy of the alar venation (as in *Aphrophora grisea*), this would be the best course; but the genus *Philænus* has been so generally adopted that I do not care to discard it in the present state of our knowledge.

1. ***Xenaphrophora montana***, sp. n. (Tab. XII. fig. 10.)

Fusco-brunnea, perobscure variegata, nitida; vertice densius et rugosius punctato; pronoto longitudine sesquialtiori, distincte sed remotius punctato præcipue ad medium, lineâ centrali lævi fuscâ; scutello sparse punctato; tegminibus ad apicem angustatis, dense fortiusque punctatis, venis sat crassis nigro-fusco testaceoque variegatis.

Fuscous-brown, shining, obscurely variegated with darker and lighter colour; metopidium fuscous in front, testaceous with dark lines on each side of the centre; vertex closely and somewhat rugosely punctured; pronotum about half as broad again as long, not very closely punctured, with a broad smooth fuscous central line; tegmina fuscous, with some very obscure lighter markings, and with rather strong veins which are distinctly variegated with dark fuscous and testaceous; the punctuation is strong and distinct, and continued to the apex of the tegmina; legs fusco-piceous; underside testaceous.

Long. 10–11 millim.; lat. 4 millim.

Hab. GUATEMALA, Quiché Mountains, 7000–9000 feet (*Champion*).

Two females.

MICROSARGANE, gen. nov.

Elongata, angusta, parallela; capite magno, ante oculos producto, vertice rotundato, oculis magnis transversis, ocellis inter se et ab oculis fere æque distantibus; pronoto longitudine duplo latiori, basi emarginatâ; scutello sat magno, apice acute producto; tegminibus longis, parallelis; alis venâ tertiâ interiori ante apicem furcatâ aream apicalem sat magnam formante; pedibus teretibus, tibiis posticis spinis duabus sat robustis instructis; sculpturâ subtilissimâ.

Elongate, narrow, and parallel, very finely sculptured; head large; vertex considerably produced before the eyes, rounded at the apex; metopidium convex, nearly smooth; eyes large; ocelli almost as far distant from one another as from the eyes; rostrum moderately long, reaching the intermediate coxæ; pronotum about twice as broad as long, strongly emarginate in the centre of the base; scutellum rather large, acutely produced at the apex; tegmina long, parallel; wings with the third vein from the exterior marginal vein forked at some distance from the apex and forming a large apical area; legs slender; posterior tibiæ with two rather strong spines and a distinct crown of spines at the apex.

This is a very distinct genus, and the species described below is much more diversely coloured than is usual in the subfamily*. Walker apparently includes it under *Ptyelus*, from which it certainly must be separated.

1. ***Microsargane vittata***, sp. n. (Tab. XII. fig. 11.)

Brunnea vel griseo-brunnea, leviter pubescens; lateribus verticis pronotique late testaceis, colore testaceo ad medium tegminum continuato, apicibus rufo, testaceo, nigroque variegatis, impressis; metopidio, corpore subtus, pedibusque testaceis, tarsis ad apicem fuscis.

* In the Oxford Museum there is an insect labelled as having been found at Otaheite by the late Charles Darwin which must apparently be referred to this genus.

Of a brown or greyish-brown colour, finely pubescent; sides of the head and pronotum broadly testaceous, this colour being continued to about the middle of the tegmina, and so forming a broad band on each side of the upper surface; tegmina with a bright red (occasionally brown-red) patch a little before the apex, with testaceous markings divided by a brown stripe at its side, and behind it black or dark brown markings, and then a light brown or testaceous band, the extreme tips being margined with dark brown; the apex has three or four deep impressions on each side; underside and legs testaceous, claws pitchy.

Long. 8-9 millim.; lat. 3 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba (*Champion*).

This insect is closely allied to *Ptyelus mutans*, Walk., described as from the west coast of America; but that species has no light bands at the sides of the pronotum and is otherwise different.

A specimen from Chontales is figured.

EPICRANION, gen. nov.

Oblongo-ovatum, levissime pubescens, subtiliter sculpturatum; capite magno, vertice longe ante oculos extenso, antice obtuse angulariter rotundato; oculis haud magnis nec prominulis, ocellis indistinctis inter se et ab oculis fere æque distantibus; metopidio longo, plano, lævi, rostro modico; pronoto longitudine fere duplo latiori, ante scutellum semicirculariter emarginato; scutello longe postice acuminato; tegminibus parallelis, apice rotundato; alis venâ tertiâ furcatâ aream apicalem sat magnam formante; pedibus brevibus, anticis intermediisque gracilibus, posticis bispinosis, spinisque robustis ad apicem armatis.

Oblong-ovate, subparallel, with fine pubescence and very close sculpturation; head large, much produced before the eyes, and with the vertex rounded in a very blunt obtuse angle; eyes comparatively small and not prominent; ocelli indistinct, about as far from each other as from the eyes; metopidium long and flat, so that the head viewed from the side is very narrow; pronotum rather broader than the tegmina behind the shoulders, strongly emarginate in a semicircle before the scutellum, which is rather large and is produced behind into a long acuminate point; tegmina very finely sculptured, slightly rugose at the apex; legs short, the intermediate and front pairs slender, the posterior pair robust; posterior tibiæ short, armed with two spines, one towards the base shorter, and the other towards the apex elongate and strong, the apex with strong spines.

This is a very distinct genus, not far removed from *Perinoia*, with which, however, it cannot be confounded. It appears also to be allied to *Clavia*, Stål.

1. *Epicranion championi*, sp. n. (Tab. XII. fig. 12.)

Brunneum, unicolor, supra haud nitidum, vertice elongato haud carinato; metopidio nitido, late excavato; pronoto subtilissime rugoso haud carinato ad medium antice perobscure impresso; tegminibus subtilissime punctatis; pectore piceo, abdomine pedibusque testaceis.

Of a unicolorous brown colour, dull above, more shining below; metopidium broadly and very shallowly excavate in the middle, with the projection of the vertex forming hollows on each side of the central portion; pronotum about twice as broad as long, very finely rugose; tegmina at the shoulders about as broad as the pronotum, slightly narrower behind, but subparallel and very little narrowed before the apex, extremely finely and closely punctured; base of the rostrum pitchy, very shining; chest pitchy; abdomen and legs testaceous.

Long. 7 millim.; lat. max. 3 millim.

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

EICISSUS, gen. nov.

Oblongus; capite vertice brevissimo, metopidio compresso carinato; oculis magnis transversis, ocellis valde approximatis; pronoto longitudine fere duplo latiori, rugoso; scutello æquilaterali, depresso; tegminibus corio subhyalino, venis plus minusve crassis; alis venâ tertiâ haud furcatâ, venis transversis valde obliquis; pedibus teretibus, tibiis posticis spinâ ante apicem armatis.

Rather short, oblong, with the vertex extremely short, scarcely projecting at all beyond the eyes, which are large and transverse; ocelli very closely approximate; rostrum long; pronotum about twice as broad as long, rugose; tegmina partly subhyaline, with the veins strongly marked; wings with the third vein from the outer marginal vein not forked, and the transverse veins very oblique; legs slender; posterior tibiæ with one spine a little before the apex, and the apex with a crown of short and rather stout spines.

This appears to be a very distinct genus. It is, perhaps, somewhat allied to *Carystus*, Stål, which is peculiar to Australia and Tasmania. The female, at first sight, closely resembles certain species of *Issidæ*.

1. *Eicissus decipiens*, sp. n. (Tab. XII. figg. 13, 13 a, b.)

Fusco-brunneus vel fusco-testaceus, interdum antice colore dilutoriori, rugose sculpturatus; rostro elongato; sculptura pronoti tegminumque quoad sexum variante; pedibus gracilibus, testaceis vel piceis.

Mas angustior, postice acuminatus, pronoto dense subtiliusque rugoso, tegminibusque antice densius fortiusque punctatis, postice leviter vel vix reticulatis.

Femina latior et amplior, pronoto fortiter rugoso, tegminibusque corio (parte basali cum clavo fortiter punctatâ exceptâ) crasse reticulato, venis exstantibus.

Of a dark fuscous colour, with the front half sometimes testaceous; metopidium sometimes light, abdomen black or pitchy, but variable; shape and sculpture varying in the sexes; legs slender, testaceous or pitchy.

♂. Narrower, with the tegmina less ample and when closed meeting behind in a point; pronotum and tegmina more finely sculptured, and the veins of the latter, as a rule, much less strongly marked; the sculpture, however, is somewhat variable.

♀. Broader, with the pronotum very strongly rugose, and the sculpture of the tegmina much coarser, the greater part of the corium being strongly reticulate with large outstanding veins.

Long. 6-7 millim.; lat. max. $2\frac{1}{2}$ -3 millim.

Hab. GUATEMALA, Chiacam, Senahu, and Sinanja in Vera Paz (*Champion*); PANAMA, Bugaba, Volcan de Chiriqui 2500-8000 feet (*Champion*).

In the small series from the Volcan de Chiriqui the sculpture of the males is variable, but they all apparently belong to one species. I believe I am right as to the sexes, but as the specimens are mounted on card I have not examined all of them.

A specimen from the Volcan de Chiriqui is figured.

CLASTOPTERA.

Clastoptera, Germar, Zeitschr. für Ent. i. p. 187 (1839); Walker, List of Homopt. Ins. iii. p. 842.

This genus contains a considerable number of very small and inconspicuous species, which are, apparently, widely distributed in North, Central, and South America. They are very variable in coloration, and it is almost impossible to distinguish them by

descriptions*. The various species may at once be known by their small size and globular or semiglobular appearance. The clavus is very bluntly rounded at the apex, and in the specimens which I have examined closely the outer marginal vein of the wings is interrupted by an elongate irregular-oval area at some little distance before the tip; the third vein from the marginal vein is not furcate.

In the Vienna Museum collection, besides a large number of unnamed specimens, there are no less than nine species named by Signoret, of which I can find no trace in any publication; I conclude, therefore, that they are all manuscript names; three of these species are from California and six from Mexico.

1. **Clastoptera funesta.** (Tab. XII. figg. 14; 15, var.)

Clastoptera funesta, Stål, Öfv. Kongl. Vet.-Ak. Förh. 1854, p. 253¹.

Hab. MEXICO, Chilpancingo in Guerrero, Atoyac in Vera Cruz, Teapa in Tabasco (*H. H. Smith*), Cuernavaca and San Marcos (*Bilimek, in Mus. Vind. Cæs.*), Orizaba (*Sallé, Bilimek, H. H. Smith, F. D. Godman*); GUATEMALA, Tamahu in Vera Paz, Guatemala city (*Champion*); HONDURAS (*Mus. Holm.*¹); NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).

The specimens in our collection which I have referred to this species (about 150 in number), and those in the Vienna Museum (about twenty-five in number), are very small globose insects, and have the upper surface in most cases of a uniform shining black colour, or black with the base of the scutellum broadly light yellow. The head, legs, and underside are all more or less yellow, and the metopidium is usually furnished with a transverse black line. The apical portion of the tegmina is, as is usual in the genus, more or less broadly hyaline, and is furnished on each side at the inner angle with a dark callosity. In some specimens there are lighter markings or obscurely lighter bands on the tegmina, and others are more or less castaneous, but these appear to be immature.

I was at first inclined to refer the insects which I have placed under this species to *C. proteus*, Fitch, but, after examining the specimens of *C. proteus* in the British Museum I have altered my opinion. I have not seen a named specimen of *C. funesta*, Stål, but from the description I have little doubt that his insect belongs to the entirely black form of the present species. It is possible that three or four of the species alluded to or described by Stål in the 'Bidrag till Rio Janeiro-Traktens Hemipter-Fauna,' ii. pp. 16, 17 (as *C. scutellata*, Germ., *C. pallidiceps*, Stål, and *C. tibialis*, Stål), may be synonymous with this variable and evidently abundant species, but I have not seen any typical specimens of these insects. In the Vienna Museum collection three

* Stål, 'Bidrag till Rio Janeiro-Traktens Hemipter-Fauna,' ii. p. 16, says: "Species hujus generis non nisi coloribus inter se differunt, plurimæ difficillime distinguuntur et describuntur: aliæ igitur certe aliarum tantum varietates." The punctuation and general size and shape, however, afford fair characters in some cases.

single specimens, named by Signoret, in litt., as *C. globulus*, *C. annulipes*, and *C. nigrifrons*, appear to belong to *C. funesta*; they are all labelled as from Mexico.

We figure a specimen of the type form and a variety, both from Teapa in Tabasco.

2. *Clastoptera globosa*, sp. n. (Tab. XII. fig. 16.)

Rotundata, globosa, nitidiuscula, nigra, capite antice obscure rufo-brunneo, metopidio flavo; pronoto fere lævi; scutello (apice excepto) flavo, vel toto nigro; tegminibus postice dilatatis, clavo distincte punctato, corio postico fere lævi; corpore subtus nigro, coxis pedibusque flavo-testaceis.

A comparatively large, globose species, black and rather shining, with the head reddish-yellow in front and the metopidium light yellow; pronotum with slight traces of transverse rugosities and sometimes with a trace of a central line; scutellum almost entirely yellow or quite black; tegmina dilated behind and very convex; corium distinctly punctured; rostrum moderately long, yellow, with the apex black; underside black; coxæ and legs yellow or testaceous-yellow.

Long. 4-4½ millim.; lat. max. 3-3½ millim.

Hab. MEXICO, Tepetlapa 3000 feet and Chilpancingo 4600 feet, both in Guerrero (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

In structure and coloration this insect closely resembles certain varieties of *C. funesta*, but it is so very much larger, being about four times the bulk of ordinary specimens of that species, that it can hardly be included in it.

An example from San Gerónimo is figured.

There are two specimens in our collection which I have doubtfully referred to this species—one from Xucumanatlan in Guerrero and one from Teapa in Tabasco (*H. H. Smith*); they are somewhat more oblong than the specimens above referred to, black, with very indistinct lighter markings on the scutellum and tegmina.

3. *Clastoptera compta*, sp. n. (Tab. XII. fig. 17.)

Oblonga, parva, nitidiuscula, nigra, metopidio testaceo; pronoto fere glabro, vel leviter impresso-lineato, vittâ latâ stramineâ; scutello nigro immaculato; tegminibus plus minusve distincte punctatis, parte dimidiâ apicali plus minusve hyalinâ, maculâ magnâ ad medium, aliâque parvâ ad marginem, stramineis; callis sat magnis colore flavo circumdati; corpore subtus nigro, pedibus flavis.

A small, oblong, slightly shining species; black, with the metopidium testaceous, faintly lined with fuscous; pronotum almost glabrous or with fine impressed lines, with a broad straw-coloured band across the middle; tegmina slightly dilated behind, more or less distinctly punctured, with a large straw-coloured spot at the middle extending across the clavus and on to the corium, and apparently interrupted by the claval vertex; there is also a small light spot at the margin; these markings are slightly variable in some cases, but as a rule they are very constant; apical half of the tegmina more or less broadly hyaline; the apical callosities distinct and surrounded with yellow; underside black; legs yellow.

Long. 3 millim.; lat. 2 millim.

Hab. MEXICO (*coll. Signoret, in Mus. Vind. Cæs.*), Chilpancingo in Guerrero, Teapa in Tabasco (*H. H. Smith*), Atoyac in Vera Cruz (*Schumann*).

The specimens in the Vienna Museum are labelled *C. thoracica*, Sign., in litt.; as, however, there is nothing remarkable about the shape of the thorax, I have not adopted the name.

A fair series has been received from Teapa, one of which is figured.

4. **Clastoptera minima**, sp. n. (Tab. XII. fig. 18.)

Oblonga, minima, nigra, metopidio testaceo transversim nigro-lineato; pronoto leviter transversim rugoso-lineato, scutello distincte sculpturato; clavo fortiter, corio lævius punctato, apice tegminum sat late hyalino, callis parvis sed distinctis; corpore subtus pedibusque piceis.

A very small black species, with the metopidium more or less obscurely testaceous and furnished with fine black transverse lines; the pronotum is finely but distinctly sculptured in transverse lines; the clavus is strongly punctured, and the corium is less finely but distinctly punctured almost to the apex and more or less light at the sides; legs pitchy.

Long. $2\frac{3}{4}$ -3 millim.; lat. 2 millim.

Hab. MEXICO, Orizaba (*H. H. Smith & F. D. Godman*), Vera Cruz (*H. H. Smith*).

The very small size, oblong shape, and strong punctuation will easily separate this species.

We figure a specimen from Vera Cruz.

5. **Clastoptera antica**, sp. n. (Tab. XII. fig. 19.)

Oblonga, haud nitida, nigra, albido-variegata; metopidio ad medium longitudinaliter nigro, utrinque concinne nigro albidoque lineato; pronoto distincte impresso lineato, albido, basi, lineâ tenui centrali, lineâque latiori utrinque arcuatâ nigris; scutello albido-variegato; tegminibus subtiliter sculpturatis ad medium albido-variegatis, apicibus haud hyalinis, callis indistinctis vel deficientibus; pedibus nigris. Variat testaceâ variegatione, pedibusque variegatis.

Oblong, dull, black, very constantly variegated with whitish; metopidium black in the centre, with lines of white and black on each side; pronotum distinctly impressed with fine lines, whitish, with the base, a thin central line, and an arcuate line on each side before the apex, black; a band of whitish variegation passes across the tegmina and scutellum, curving somewhat at the margin, and reaching more or less down the sides; apex of the tegmina not hyaline, without or with indistinct callosities; legs black, occasionally more or less variegated with whitish or testaceous.

Long. $3\frac{1}{2}$ millim.; lat. $2\frac{1}{4}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2500-4000 feet (*Champion*).

This is one of the most distinct species of the genus which I have as yet come across. A short series has been received.

6. **Clastoptera semivitrea**, sp. n. (Tab. XII. fig. 20.)

Subglobosa, nitida, metopidio verticeque testaceis; hoc lineâ inter oculos, lineâque basali fuscis, illo lineâ latâ nigrâ antice notato; pronoto testaceo, disco nigro fere glabro; scutello testaceo, ad basim nigro; tegminibus testaceis, irregulariter fusco-maculatis, parte dimidia apicali hyalina, callis parvis vel minimis; pedibus testaceis.

A subglobose, moderately large, shining species, with the metopidium and vertex testaceous, with dark lines; pronotum testaceous, with the disc dark; scutellum testaceous, with a dark triangular spot at the base; the markings, however, are evidently variable, and some are probably often wanting; tegmina with the apical half hyaline, with exceedingly small, though distinct, callosities, and the basal half testaceous, glabrous, with irregular fuscous markings; underside and legs testaceous.

Long. $4\frac{1}{2}$ -5 millim.; lat. 3 millim.

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

The description is taken from the specimens from Teapa. The single example

from Xucumanatlan has the markings different, the callosities larger, and the apical half of the tegmina less transparent; it may belong to another species.

A specimen from Teapa is figured.

7. *Clastoptera flavivitta*, sp. n. (Tab. XII. fig. 21.)

Oblonga, parallela, nitida, capite antice metopidioque rufo-flavis, hoc vittâ transversali nigrâ; pronoto fere lævi; scutello, apice excepto, flavo; tegminibus piceis vel piceo-brunneis, distincte punctatis, basi anguste flavâ, coloreque ad marginem ante medium et ad apicem dilutiori; abdomine nigro; pedibus flavis, ad partem piceis.

A small, oblong, parallel, shining species, with the fore part of the head reddish-yellow; pronotum nearly smooth, with very slight traces of rugose lines; scutellum, except the apex, light yellow; tegmina pitchy-brown or black-brown, with a light patch at the margin behind the shoulders, and with the base light yellow in a line with the breadth of the yellow colour of the scutellum, the whole forming a transverse yellow band across the body immediately behind the pronotum; underside black; legs, coxæ, and part of the chest yellow, posterior legs more or less pitchy.

Long. 3-3½ millim.; lat. 2 millim.

Hab. GUATEMALA, San Gerónimo and Purula in Vera Paz (*Champion*).

We figure a specimen from Purula.

8. *Clastoptera dimidiata*, sp. n. (Tab. XII. fig. 22.)

Oblonga, nigra, nitidiuscula, capite, pronoto, scutello, apice excepto, maculâque utrinque magnâ ad basim clavi læte flavis; pronoto fere lævi, lineis transversis indistinctis; clavo leviter, corio vix punctato, fere glabro, maculâ hyalinâ ad marginem sub medium; corpore subtus nigro, coxis piceis; pedibus nigris, tarsis posticis partim testaceis.

An oblong and rather shining species, with the head, pronotum (except a very small patch at the extreme angle behind the eyes), scutellum (except the extreme apex), and a large patch near the base of the clavus, bright yellow; the actual base of the clavus and the rest of the tegmina, except a hyaline patch at the margins and one or two marks over the apex, are black; clavus lightly punctured; corium almost glabrous; the usually black callosity at the apex of each tegmen is present, but is merged into part of the coriaceous portion; legs black, the anterior and intermediate tibiæ with two yellow spots and the posterior tarsi partly testaceous.

Long. 4½ millim.; lat. max. vix 3 millim.

Hab. PANAMA, Volcan de Chiriqui 2500-4000 feet (*Champion*).

9. *Clastoptera obtusa*. (Tab. XII. figg. 23; 24, var.)

Cercopis obtusa, Say, Journ. Acad. Phil. iv. p. 339 (1824)¹; Complete Writings, ii. p. 256².

Clastoptera achatina, Germ. Zeitschr. für Ent. i. p. 187³.

Hab. NORTH AMERICA, Canada, United States^{1 2 3}.—MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*); GUATEMALA, San Gerónimo and Tactic in Vera Paz, Panajachel (*Champion*); PANAMA, Volcan de Chiriqui (*Champion*).

This is a rather large oblong species, and varies considerably in colour, some specimens being light and others dark brown mottled with testaceous, while others again have the ground-colour quite black. It is allied to *C. lænata*, but is twice the size.

I have with some reserve assigned the numerous specimens from the above-mentioned Central-American localities to this apparently rather common North-American species, as I cannot satisfactorily distinguish them from typical examples of *C. obtusa*, Say, in the Oxford Museum, presented by Mr. Asa Fitch; very few, however, of the North-American species reach so far south as Mexico.

Among the specimens in our collection there is one from the Volcan de Chiriqui which is of a light testaceous-yellow colour, with the apex of the tegmina, a spot before the middle of the clavus, and the pronotal and frontal stripes fuscous; this insect very much resembles *C. lineatocollis*, Stål (from California), except that the lines on the pronotum are not nearly so marked and the punctuation is less strong. It is possible that *C. lineatocollis* is only an extreme variety of this species. In the Vienna Museum collection there is a very pretty variety from California (labelled *lineata*, Sign., in litt.) with the head and most of the pronotum nearly white and the tegmina dark brown, with the irregular whitish bands strongly marked. The larger specimens in the Vienna Museum are labelled *C. orbiculata*, Signoret, in litt.

We figure a specimen from Omilteme, and a variety from Tactic, Vera Paz.

10. *Clastoptera lænata*, sp. n. (Tab. XII. fig. 25.)

Oblonga, parva, haud nitida, brunnea vel fusco-brunnea, obscurior vel dilutior, variabilis, capite pronotoque albidis lineatim vel maculatim variegatis; scutello albido-marginato; tegminibus, corpore subtus, pedibusque brunneo-, fulvo-, castaneo-, albidoque-variegatis; pronoto transversim impresse lineato; tegminibus subtilissime punctatis, apice plus minusve hyalino vel toto colorato, callis nigris distinctis vel in colorem apicis mergentibus.

A small, oblong, dull species, of a brown or fuscous-brown colour, variegated with whitish or testaceous-white, varying very considerably in depth of shade and in markings; the markings, however, of the head and metopidium are usually in distinct transverse fine light and dark lines, while the pronotum is more or less light, with two spots in the middle and two dashes in a line with these at the sides, or it is marked more or less in bands of light and dark; occasionally the whole disc of the pronotum is dark, or the markings are entirely absent and the whole is light; the scutellum, tegmina, underside, and legs are variegated with the same colour, and are very variable in this respect, but the normal marking appears to be an irregular band of whitish colour across the middle of the tegmina, which is more or less inclined to break up and spread; the subapical callosities are distinct in the specimens which have the tegmina hyaline at the apex, but in some cases, where the apex is only partially or scarcely hyaline, they are indistinct and merge in the ground-colour; the sculpture of the tegmina is very close, rendering them in typical specimens quite dull, except at the extreme apex.

Long. 3-4 millim.; lat. 2-2½ millim.

Hab. MEXICO, Ciudad in Durango 8000 feet (*Forrer*), Puebla, San Marcos, and Orizaba (*Bilimek, in Mus. Vind. Cæs.*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Balheu and San Gerónimo in Vera Paz, Cerro Zunil, El Reposo (*Champion*); PANAMA, Bugaba, David, and Volcan de Chiriqui (*Champion*).

There is a large series of this species unnamed in the Vienna Museum collection. I have not seen the types of the various *Clastoptera* from Rio Janeiro described by Stål (*Bidrag till Rio Janeiro-Traktens Hemipter-Fauna*, ii. pp. 17, 18), and it is not

unlikely that the present insect may be referable to one or more of his species 5-10. It is, however, impossible to identify these from the descriptions, and several of his so-called species are evidently nothing more than varietal forms, from what Stål says himself; he makes no allusion either to shape or punctuation. *C. triangulum*, Walk., from Bahia, very closely resembles *C. lænata*, but the type in the British Museum is broken in two, and half is lost.

A specimen from El Reposo is figured.

11. *Clastoptera stáli*, sp. n. (Tab. XII. fig. 26.)

Oblonga, sat lata, nigra, nitidiuscula, metopidio flavo-vittato; pronoto nigro flavo-marginato, subtiliter lineatim impresso; scutello late flavo-maculato; tegminibus utrinque et apice scutelli flavo notatis, clavo distincte punctato, apice fusco vix hyalino, callis permagnis nigris; pedibus piceis, posticis obscure variegatis.

Variat colore dilutiore maculisque diversis.

Oblong, rather broad, deep black, slightly shining; vertex with one, metopidium with two broad yellow bars; pronotum smooth, with traces of fine impressed lines, margined regularly all round with yellow; scutellum with a broad yellow patch before the base, and a small one before the apex; tegmina with the clavus distinctly punctured, especially towards the base, with yellow markings, which with the hinder mark on the scutellum form an irregular arc at about the middle, the apex fuscous, scarcely hyaline, the callosities very large and distinct, black; underside black, in part testaceous; legs pitchy-testaceous, with the tarsi darker and the hinder pair obscurely variegated with fuscous and testaceous. The species appears to vary considerably in colour and markings.

Long. $3\frac{1}{2}$ millim.; lat. $2\frac{1}{3}$ millim.

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA, Las Mercedes 3000 feet (*Champion*); PANAMA, Bugaba and Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The type-form from Las Mercedes, which is figured, seems very distinct; the others might be described as separate species on the colour-markings. *C. stáli* appears to be allied to certain forms of *C. funesta*.

12. *Clastoptera chiriquensis*, sp. n. (Tab. XII. fig. 27.)

Parva, oblonga, vix nitida, testaceo-brunnea, testaceo-variegata; capite pronotoque brunneis vel fuscis testaceo-vittatis, hoc distincte transversim lineatim impresso; scutello fere toto testaceo; tegminibus, præsertim clavo, plus minusve distincte punctatis, testaceo-brunneis testaceo-variegatis, maculâ parvâ ad marginem apicem versus calloque distincte fuscis; pedibus testaceis.

A small, oblong, slightly shining species, variegated with light brown and testaceous; head and pronotum dark, with testaceous bands, the pronotum distinctly impressed with transverse lines; scutellum entirely or almost entirely testaceous; clavus distinctly punctured; tegmina variegated with light brown and testaceous, sometimes obscurely darker in parts, with a fuscous spot at the margin towards the apex, and with well-marked callosities (the testaceous markings are arranged irregularly across the middle and spread up the sides); legs testaceous, tarsi darker, posterior pair in parts obscurely pitchy.

Long. $3-3\frac{1}{4}$ millim.; lat. 2 millim.

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

A small and fairly constant series. At first sight this species looks like *C. lænata*, but it is more shining and the general coloration is different.

13. **Clastoptera flavifrons.** (Tab. XII. fig. 28.)

Clastoptera flavifrons, Germ. Zeitschr. für Ent. i. p. 189¹.

Hab. MEXICO (*coll. Signoret, in Mus. Vind. Cæs.*).—Brazil¹.

This is a small, oblong, brownish species, with the head, pronotum, and scutellum of a yellowish colour; structurally it closely resembles one or two allied forms, and may be only a variety of one of them. The species from Mexico in the Vienna Museum is figured.

14. **Clastoptera rufescens**, sp. n.

Parva, nitida, capite, pronoto, scutelloque rufescentibus, metopidio ad medium testaceo utrinque transversim rufo-fusco testaceoque lineato; pronoto sat fortiter transversis lineis impresso, antice testaceo-marginato; tegminibus nitidis, hyalinis, sat fortiter punctatis, venis rufescentibus, callis nigris, distinctis; corpore subtus nigro; pedibus rufo-testaceis.

A small shining species, with the head, pronotum, and scutellum rufescent; pronotum rather strongly impressed with rugose lines, the anterior margin testaceous; tegmina shining and transparent, rather strongly punctured, with the veins rufescent and without markings, the subapical callosities very distinct, black; abdomen black; legs rufo-testaceous.

Long. 3 millim.; lat. 2 millim.

Hab. MEXICO, Chilpancingo in Guerrero 4600 feet (*H. H. Smith*).

This species appears to be allied to the North-American *C. xanthocephala*, Germ., which is, however, a darker and less shining and transparent insect.

We have also received a specimen from Teapa in Tabasco, which I at first referred to this species, but it is rather larger, with a fuscous patch at the margin of the tegmina and very small testaceous apical callosities.

15. **Clastoptera unicolor**, sp. n. (Tab. XII. fig. 29.)

Oblonga, parva, postice nonnihil dilatata, sordide testacea, nonnihil nitida, pronoto vix transversim lineis impresso; tegminibus plus minusve distincte, interdum sat fortiter, punctatis, callis modicis, nigris, distinctis; pedibus testaceis.

A small, oblong species, more or less dilated behind, of a uniform dirty testaceous colour (occasionally reddish), with the pronotum faintly impressed with transverse lines, and the tegmina (especially the clavus) more or less distinctly punctured; legs testaceous; underside somewhat pitchy.

Long. 3 millim.; lat. 2 millim.

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.*), Vera Cruz (*H. H. Smith*); GUATEMALA, San Gerónimo (*Champion*).

This insect appears to be inseparable from *C. arkansasensis*, Fitch, in litt., and is also allied to *C. rufescens* and *C. xanthocephala*, Germar, as well as to *C. testacea*, Fitch; the last-mentioned species is longer, and differs in several particulars.

A specimen from Vera Cruz is figured.

16. **Clastoptera irrorata**, sp. n. (Tab. XII. fig. 30.)

Præcedenti affinis, sed haud nitida, paullo latior, punctisque parvis fuscis vel nigris dense supra irroratâ.

Very like the preceding, but rather broader, with the upper surface quite dull, and closely sprinkled with more or less distinctly fuscous punctures, which are stronger on the pronotum and scutellum than on the tegmina, and are absent on the apical portion of the corium, which is broadly hyaline.

Long. $3\frac{1}{4}$ millim.; lat. $2\frac{1}{4}$ millim.

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

ADDENDA.

Two species have been omitted from our list of the Cercopidæ, from the genus *Tomaspis*, and are here added.

TOMASPIS (*anteà*, p. 175).

4 (A). **Tomaspis costaricensis**.

Sphenorhina costaricensis, Distant, Ent. Monthly Mag. xvi. p. 61 (1879)¹.

Hab. COSTA RICA, Caché (*Rogers*¹).

The insect described and figured by me (*anteà*, p. 177, Tab. XI. fig. 5) under the name *T. 14-notata*, from Chontales, Nicaragua, is perhaps nothing more than a variety of *T. costaricensis*, which has the spots on the tegmina red and the margins of the pronotum concolorous with the disc.

36. **Tomaspis conspicua**. (Tab. XIV. fig. 23.)

Sphenorhina conspicua, Distant, Ent. Monthly Mag. xvi. p. 62¹.

Hab. COSTA RICA, Caché (*Rogers*¹).

This species is quite distinct from any of the others enumerated by me.

S U P P L E M E N T.

THE following species have been described or recorded from Central America since the publication of the preceding pages.

MEMBRACIDÆ.

1. *Membracis nebulosa*.

Membracis nebulosa, Buckton, Mon. Membr. p. 36, t. 2. fig. 8 (1901) ¹.

Hab. COSTA RICA ¹.

This species seems somewhat doubtful, and Mr. Buckton, in his Monograph, marks it with a note of interrogation. The specimen on which it is described is evidently imperfect, and it is probably one of the many varieties of *M. mexicana*, Guér.

2. *Membracis (Phyllotropis) dorsata*.

Membracis dorsata, Fabr. Syst. Rhyng. p. 11 (1803) ¹.

Phyllotropis dorsata, Buckton, Mon. Membr. p. 40 (1901) ².

Hab. CENTRAL AMERICA ².—SOUTH AMERICA ¹.

According to Buckton, there are several specimens of this insect from Central America in the National Collection; but I think there must be some mistake about this locality, as I have carefully examined all the examples in the Museum collection. *Phyllotropis* is, at most, a subgenus of *Membracis*. The same author (*l. c.* pp. 35, 41) places *M. mexicana* under both *Membracis* and *Phyllotropis*; on page 40 he gives my *Membracis humilis* as a synonym of *Phyllotropis trifasciata*, Stål, but on page 43 he describes the species as *Phyllotropis humilis*, and copies the figure from the 'Biologia' (t. 1. fig. 6) on plate iv. fig. 3.

3. *Euchenopa tesselata*.

Euchenopa tesselata (*tessilata* in error), Buckton, Mon. Membr. p. 49, t. 6. fig. 1 (1901) ¹.

Hab. MEXICO ¹.—SOUTH AMERICA, Rio Janeiro ¹.

Described from broken specimens.

4. *Sphongophorus inelegans*.

Sphongophorus inelegans, Buckton, Mon. Membr. p. 82, t. 15. fig. 6 (1901) ¹.

Hab. MEXICO ¹ (*Hope coll., Oxford*).

5. **Umbonia articularia.**

Umbonia articularia, Buckton, Mon. Membr. p. 89, t. 17. figg. 7, 8 (1901) ¹.

Hab. BRITISH HONDURAS, Belize ¹.

6. **Umbonia ermanni.**

Umbonia ermanni, Griffini, Boll. Mus. Torino, x. no. 201, p. 6 (1895) ¹.

Hab. MEXICO ¹.

7. **Tropidarnis robustus.**

Tropidarnis robustus, Buckton, Mon. Membr. p. 114, t. 24. figg. 5, 5 a (1902) ¹.

Hab. MEXICO ¹ (*Hope coll., Oxford*).

I very much doubt if this is distinct from *T. tectigera*, Fowler.

8. **Aconophora obfuscata.**

Aconophora obfuscata, Buckton, Trans. Linn. Soc., Zool. (2) ix. p. 331, t. 21. figg. 5, 5 a (1905) ¹.

Hab. MEXICO ¹.

9. **Hyphinoë proclivis.**

Hyphinoë proclivis, Distant, Trans. Ent. Soc. 1900, p. 695 ¹.

Hab. COSTA RICA, Talamanca (*Pittier* ¹).

10. **Hyphinoë thoracata.**

Hyphinoë thoracata, Distant, Trans. Ent. Soc. 1900, p. 695 ¹.

Hab. COSTA RICA, Guaitil de Pirris (*Biolley* ¹).

Both these species of *Hyphinoë* are allied to *H. cornuta*, Dist.

11. **Hyphinoë subfusca.**

Hyphinoë subfusca, Buckton, Mon. Membr. p. 122, t. 25. figg. 6, 6 a (1902) ¹.

Hab. PANAMA, Volcan de Chiriqui ¹.

Allied to *Hyphinoë tau*, var. *atitlana*, Fowler.

12. **Entaphius funebris.**

Entaphius funebris, Buckton, Mon. Membr. p. 134, t. 28. figg. 6, 6 a, b (1902) ¹.

Hab. GUATEMALA, San Gerónimo ¹.

Mr. Buckton says that the type of his new genus *Entaphius*, *E. funebris*, is in my collection. He apparently described it from an insect which, as far as I remember, I passed over, without close examination, as an imperfect specimen and not suitable

for description; as, however, the type is not among the insects returned to me after Mr. Buckton's death, I cannot say anything further about it. I have some recollection of noticing the peculiar venation of the tegmina.

13. **Darnoides flavescens.**

Darnoides flavescens, Baker, *Canad. Ent.* xxxix. p. 117 (1907)¹.

Hab. BRITISH HONDURAS, Belize¹.

14. **Heteronotus vulnerans.**

Combophora vulnerans, Germ. *Rev. Silb.* i. p. 228 (1833)¹.

Heteronotus vulnerans, Buckton, *Mon. Membr.* p. 141, t. 30. fig. 1 (1902)².

Hab. MEXICO, Vera Cruz²; GUATEMALA²; PANAMA².—BRAZIL^{1 2}.

15. **Poppea succinea.**

Poppea succinea, Buckton, *Trans. Linn. Soc., Zool.* (2) ix. p. 331, t. 21. figg. 7, 7 a (1905)¹.

Hab. MEXICO¹ (*Mus. Madrid*).

16. **Ceresa nitens.**

Ceresa nitens, Buckton, *loc. cit.* p. 332, t. 21. figg. 9, 9 a .

Hab. PANAMA, Chiriqui¹ (*Mus. Madrid*).

17. **Gerridius abbreviatus.**

Gerridius abbreviatus, Baker, *Canad. Ent.* xxxix. p. 114 (1907)¹.

Hab. NICARAGUA, San Marcos¹.

Mr. Baker also records *Ischnocentrus niger* (antea, p. 155) from the same locality.

18. **Trapezoida hirsuta.**

Trapezoida hirsuta, Buckton, *Trans. Linn. Soc., Zool.* (2) ix. p. 335, t. 22. figg. 11, 11 a, b (1905)¹.

Hab. CENTRAL AMERICA¹ (*Mus. Madrid*).

This new genus is said to be nearly related to *Centrotus*.

19. **Combophora besckii.**

Combophora besckii, Germ. *Rev. Silb.* iii. p. 253 (1835)¹; Buckton, *Mon. Membr.* p. 145, t. 31. figg. 1, 1 a-c, 2, 2 a (1902)¹.

Hab. CENTRAL AMERICA².—BRAZIL¹, Amazons².

I feel very doubtful as to the Central-American habitat of this insect; if correct, it is the first record of the occurrence of a species of *Combophora* from our region.

20. *Acutalis flavo-nervosa*.

Acutalis flavo-nervosa, Buckton, Mon. Membr. p. 176, t. 37. fig. 5 (1902)¹.

Hab. MEXICO, Chilpancingo in Guerrero¹.

Mr. Buckton says (*v. supra*, p. 177) it is a difficult thing to say if this insect is or is not *A. fusco-nervosa*, Fairm.; it is certainly nothing more than a colour-variety of that species.

21. *Polyglypta godmani*.

Polyglypta godmani, Distant, Ent. Monthly Mag. xvi. p. 11 (1879)¹.

Polyglypta costata, Fowler (part.), Biol. Centr.-Am., Rhynch. Homopt. ii. p. 122 (1896)².

Polyglypta godmani, Distant, Trans. Ent. Soc. 1900, p. 694³.

Hab. COSTA RICA, Irazu (*Rogers*¹), San José (*Biolley*²).

Mr. Distant has again revived this species, which I have treated as synonymous with *P. costata*, Fairm.; the question is discussed on page 123 of the present volume.

22. *Entyilia mæsta*.

Entyilia mæsta, Buckton, Trans. Linn. Soc., Zool. (2) ix. p. 332, t. 21. figg. 11, 11 *a* (1905)¹.

Hab. MEXICO¹ (*Mus. Madrid*).

23. *Entyilia œdipus*.

Entyilia œdipus (*œdipus*), Buckton, Mon. Membr. p. 183, t. 39. figg. 3, 3 *a*, *b* (1903)¹.

Hab. MEXICO, Chilpancingo in Guerrero¹.

This name cannot stand, as the insect is identical with *E. mira*, Butl. (Cist. Ent. ii. p. 211, t. 3. fig. 7); *E. mira* itself is a variety of *E. sinuata*, F., and as such I have figured it on Plate VIII. fig. 12, of the present volume.

24. *Adippe hæretica*.

Adippe hæretica, Distant, Trans. Ent. Soc. 1900, p. 694¹.

Mr. Distant is of opinion that his *Adippe maculata* [Ent. Monthly Mag. xvi. p. 11 (1879)] is distinct from the insect to which I have given that name (*antèa*, p. 134, t. 8. figg. 15, 15 *a*), and assigns the name *A. hæretica* to the species figured in this work.

25. *Leptocentrus canescens*.

Leptocentrus canescens, Buckton, Mon. Membr. p. 234, t. 53. fig. 1 (1903)¹.

Hab. BRITISH HONDURAS, Belize¹.

CERCOPIDÆ.

26. **Sphenorhina biolleyi.**

Sphenorhina biolleyi, Distant, Trans. Ent. Soc. 1900, p. 693¹.

Hab. COSTA RICA, La Laguna (*Biolley*¹).

27. **Sphenorhina quota.**

Sphenorhina quota, Distant, Trans. Ent. Soc. 1900, p. 693¹.

Hab. COSTA RICA, La Laguna (*Biolley*¹).

28. **Sphenorhina perfecta.**

Sphenorhina perfecta, Walk. Ins. Saund. p. 90 (1858)¹; Distant, Trans. Ent. Soc. 1900, p. 693².

Hab. COSTA RICA, Las Delicias (*Biolley*²).—SOUTH AMERICA¹.

29. **Clastoptera bimaculata.**

Clastoptera bimaculata, Baker, Ent. News, xi. p. 464 (1900)¹.

Hab. MEXICO, Vera Cruz (*Heyde*¹).

The following corrections must be made:—

Gargaropsis, Fowler (*anteà*, p. 167), is, apparently, not a Membracid; according to Ball [*Psyche*, ix. pp. 128–130 (1900)] it is synonymous with *Macropsis*, Lewis, but this seems doubtful. It is very different from *Stragania*, which Stål considers synonymous with the same genus.

Salvina *Tettigonia dorsisignata* and *Chinaia* *T. rubescens* (*anteà*, p. 282) must be referred to the Jassidæ, but their generic location is at present doubtful; in some of these insects there are bright spots between the eyes, which look like ocelli, unless closely examined, and are very misleading.

INDEX.

[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]

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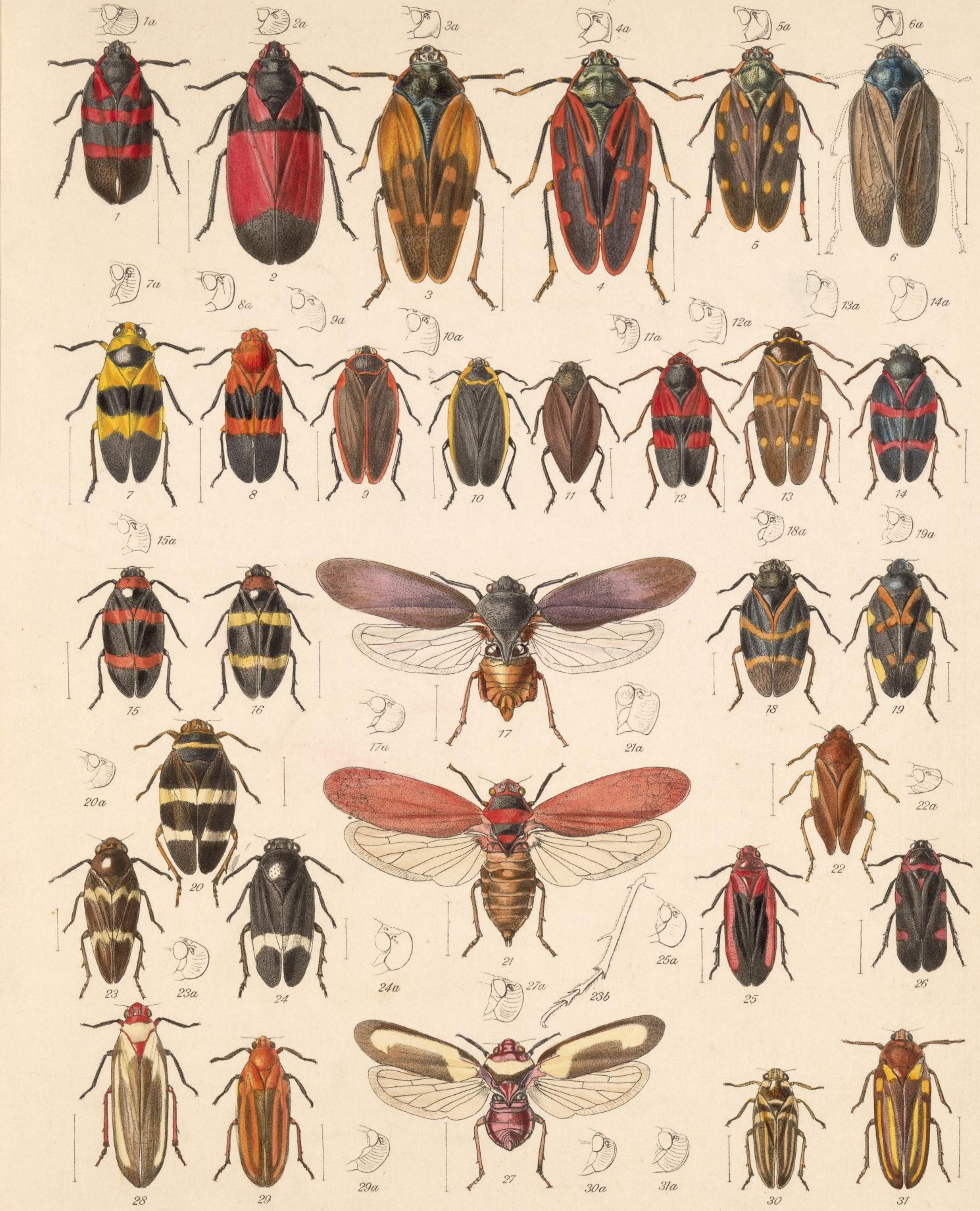
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| 2, 2a | " var. | 12, 12a | " MILES. | 23, 23a, b | " PRÆNITATA. |
| 3, 3a | SEMIMACULATA. | 13, 13a | " HANDLIRSCHI. | 24, 24a | " APICIFASCIATA. |
| 4, 4a | INSIGNITA. | 14, 14a | " JUGATA. | 25, 25a | " IMPERANS. |
| 5, 5a | " 14-NOTATA. | 15, 15a | " RUBRA. | 26 | " " var. 6-NOTATA. |
| 6, 6a | " STYGIA. | 16 | " " var. | 27, 27a | " ASSIMILIS. |
| 7, 7a | " MYLABROIDES. | 17, 17a | " DISTINCTA. | 28 | " " var. |
| 8, 8a | " PRÆMINIATA. | 18, 18a | " POSTICA. | 29, 29a | " LINEATA. |
| 9, 9a | " LIMBATA. | 19, 19a | " LEPIDIOR. | 30, 30a | " " var. SIMILIS. |
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| | | 21, 21a | " PLAGIATA. | | |

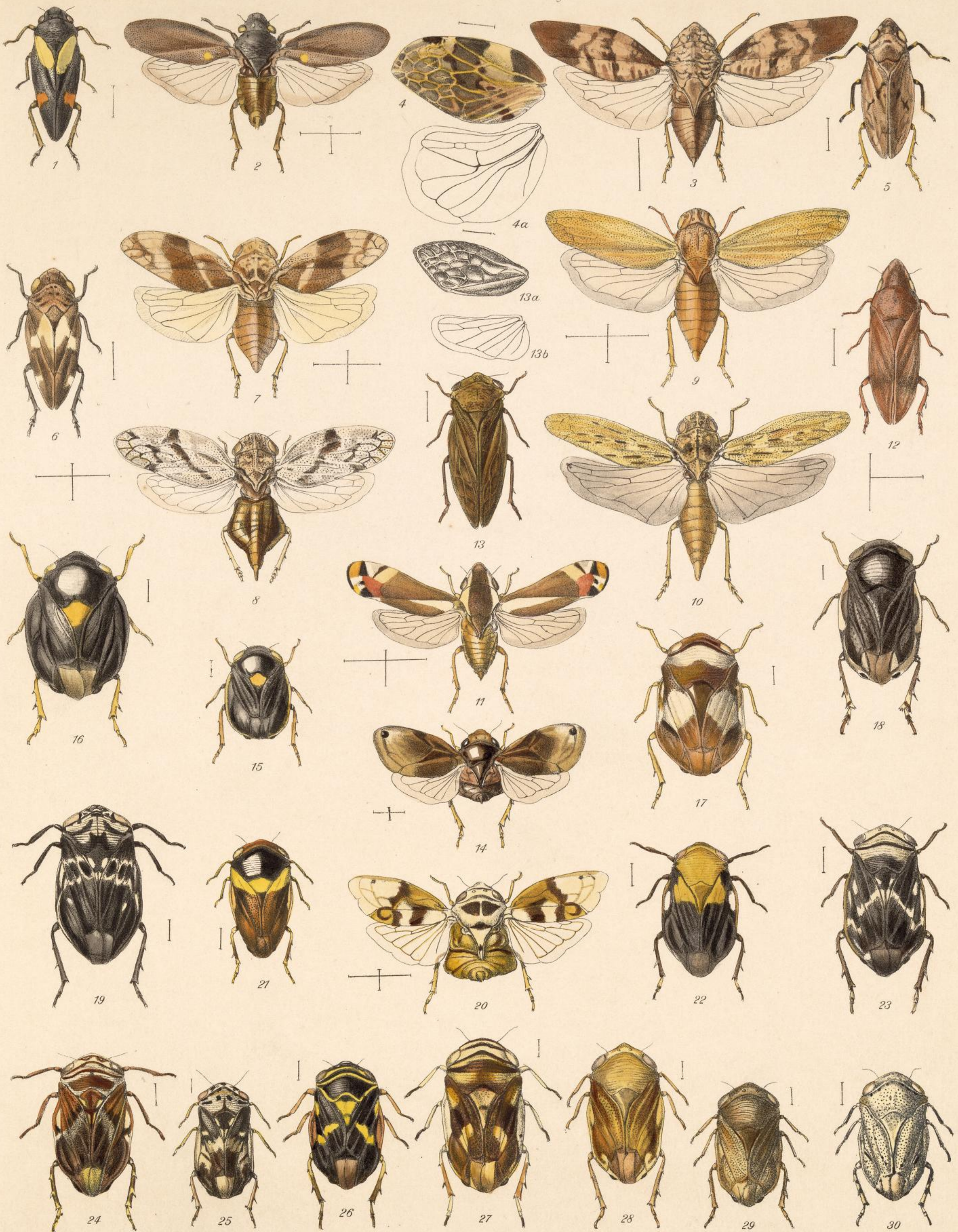
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