

ON THE GENERIC CLASSIFICATION OF DERBIDAE (FULGOROIDEA),
WITH DESCRIPTIONS OF NEW NEOTROPICAL SPECIES.

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With 38 Text-figures.

INTRODUCTION AND ACKNOWLEDGMENTS.

THIS report deals with a collection of Derbidae made by the writer in the Lesser Antilles, and with a few species which have come to hand from Venezuela, Trinidad and British Guiana. Opportunity is taken to revise certain generic concepts, and to incorporate them, together with new genera, in revised keys.

The writer's thanks are tendered to the authorities of the British Museum for the opportunity of examining Derbidae in the National Collection, and in particular to Dr. W. E. China for his ready assistance on many points of detail, and for the preparation of drawings from type material. Thanks are due also to H. E. Box, Entomologist, Division of Sugar-cane Research, Ministerio de Agricultura y Cria, Venezuela, and Dr. J. Ráccenis of the Universidad Central de Venezuela for gifts of derbid material from Venezuela.

HISTORICAL RÉSUMÉ.

In 1841 Westwood erected the genus *Cenchrea* for the reception of a new species, *dorsalis*, and *Patara* for what he considered two new species, *albida* and *guttata*, based on material collected in St. Vincent by Guilding. Fifty-four years later Uhler (1895: 69) listed all three when reporting on the hemipterous collections of H. H. Smith from the same island, and noted two further species. One of these he described as a new *Cenchrea* (*C. exquisita*), while the other he referred to *Persis fabriciana* Metc. (= *lineata* (F.)). In the present paper four new genera and 27 new species are added to the Lesser Antillean fauna, while 17 new species are described from the mainland and Trinidad. Types of all species discussed have been placed in the British Museum (Natural History).

HIGHER TAXONOMY OF DERBIDAE.

In 1918 Muir divided the Derbidae into two sub-families, Zoraidinae and Derbinae, a disposition which he reaffirmed in 1923 and 1930. These sub-families were separated essentially by a single character, namely the normality or reduction of the cubital area in the wings. In any natural classification such a division, which sets the tribes Zoraidini and Sikaianini fundamentally apart from the remainder (Cenchreini, Rhotanini, Derbini and Otiocerini), necessarily implies that the points of resemblance between genera of each sub-family are due to parallel evolution after an early cleavage into two main stocks. Even if the gap between the "normal winged" and the "reduced

winged" condition were utterly bridgeless, there would still be insufficient reason for regarding this difference as so phylogenetically ancient as to antedate the appearance of the many points of resemblance between tribes. The simpler interpretation of the facts would be to regard the aggregate of characters in agreement as evidence of monophyletic affinity, and the single-character difference (resulting from degeneration of a structure in one group) as a later specialisation. As it is, however, the gap between the wing-condition of the two groups can be bridged: indeed, the available evidence favours the conclusion that both wing-shapes occur in the same tribe.

Apart from the shape of the wing, Muir erected one other criterion for his subfamily Zoraidinae, namely, "Tegmina long and narrow." The tegmina of Zoraidini and Sikaianini vary in shape and proportions, even within the limits of a single genus (*Zoraida*). They have certain characters, chiefly venational, by which they can readily be recognised, but these have no common feature which is lacking in other tribes. Excessive elongation and narrowness of the tegmina are not found in all genera of these two tribes: in a few (*Pamendanga* Dist.) the proportions are very similar to those of some Otiocerini and Derbini. When dealing with the genus *Zeugma*, in which the tegmina are typically zoraidine but the wings are similar to those in unspecialised "Derbinae," Muir was compelled to reject one of his subfamily characters. He placed the genus in the latter subfamily (tribe Derbini) and ignored the tegmina. By so doing he effectively narrowed his subfamily distinction to wing characters only.

The transition, by reduction of the cubital and anal areas, from the amplate wing of a relatively primitive cenchreine derbid, such as *Herpis* or *Cedusa* (or even the anomalous *Vinata*), to the small scale-like stridulatory appendage of the sikaianine *Muiria* is of considerable interest. The first step is the reduction in size (without deformation) of the wing in relation to the tegmina. This stage is represented by the condition in *Zeugma* and *Dysimia*. The second step is reduction of the postcubital area: this is exemplified in *Symidia* and *Pamendanga*. Then follows the excavation of the cubital and anal portion of the wing margin. This may involve no reduction in veins (*Proutista lumholzi* Kirk.), or simplification of Cu_1 and reduction of veins posterior to it (some *Helcita* and some *Diostrombus*). In all these modifications the corrugated and thickened area on the innermost hind margin of the wing does not undergo any reduction, and indeed may slightly enlarge. This modified area, in different degrees of prominence, is present and functional (as part of a stridulatory apparatus) in most genera of Derbidae, and has apparently developed only once in the family. At a more advanced stage the wings may be greatly reduced and the venation represented only by a simple R and M (some *Diostrombus* and most Sikaianini). The limit of reduction is reached where the wing is represented only by a minute lobe bearing the corrugated stridulatory area (*Muiria*).

Each step in this series is quite short (as also are the steps by which the initial reduction in size of the perfect wing takes place in Cenchreini and Derbini). The difference between the perfect, but small, wing (as in *Dysimia* or *Zeugma*) and the least modified "typically zoraidine" wing (as in *Pamendanga*) is far less than the difference in shape between the wing of *Pamendanga* and that of *Muiria*, or, to remain within Zoraidini, of *Diostrombus*. The writer

accordingly feels unable, on present evidence, to accept the limit arbitrarily fixed by Muir between two steps in the above process (that is, between *Pamendanga* and *Zeugma*) as indicative of a fundamental division of the entire family. In this report, therefore, the family is regarded as falling merely into the six tribes currently recognised.

In Derbidae, all members of which are relatively highly specialised, the Cenchreini, as a group, most nearly approach the primitive cixiid-like form, while some genera (*Vekunta*, *Cedusa*) also exhibit an unspecialised tegminal venation, and a comparatively unspecialised head.

The Cenchreini are not only the least specialised of Derbidae, but also the most plastic. The tegmina may elongate (*Persis*); its membrane (or distal area) may become relatively long in relation to the proximal "corium" (*Neocenchrea*), or conversely, relatively short (*Cenchrea exquisita* Uhl.); or the tegmina may become rather wide in proportion to their length (*Patarella**). The clavus is normally closed apically and the common stalk of the united claval veins enters its apex. In a few Cenchreini, however, the clavus is narrowly open (some *Phaciocephalus*, *Herpis*) and the common anal vein enters a transverse veinlet distad of the level of the claval apex. The vertex, normally quadrangular, narrowing anteriorly and about as long as broad across its base, may be twice as broad as long (*Phrygia*, *Goneokarella**), or highly compressed (*Contigucephalus*, *Cenanges**). In some genera (*Cedusa*, *Lamenia*, *Zeugma*) a subantennal process is developed; in others (*Cenchrea*, *Neocenchrea*) the lateral carina and the lower margin of the pronotum on each side may be foliately elevated and curved cephalad to form a semicircular chamber in which the antennae are accommodated.

The transition from Cenchreini to Derbini is comparatively slight, and is well exhibited in *Dysimia*; that between Cenchreini and Otiocerini, at least as far as the condition of the claval apex and cubital venation is concerned, is indicated in *Herpis* in Cenchreini and *Cobacella**¹ in Otiocerini. Muir (1918: 234) drew attention to the similarities between *Symidia* (which he placed in Cenchreini) and zoraidine genera. The tegminal venation, though not so clearly derbine as in *Dysimia*, is nevertheless of derbine form, and in both genera there is a distinct approach to the zoraidine type of wing; indeed, the differences lie in marginal contour rather than in relative size or venation.

The transition from ancestors of cenchreine facies to forms resembling present Zoraidini may possibly not have occurred directly. But genera such as *Equirria*, *Phenice* and *Paraphenice* resemble the zoraidine *Diostrombus* very closely in tegminal venation, and *Pamendanga* in tegminal shape. A remarkable combination of cenchreine and zoraidine characters is found in *Zeugma*, discussed below. The highly specialised Sikaianini have unquestionably originated from less specialised ancestors similar to *Diostrombus*. Indeed, when the size of the gaps between certain groups of cenchreine genera (*Lamenia-Paraphenice*) is compared with that between Zoraidini and Sikaianini, the question arises whether Sikaianini would not better be considered as of subtribal status.

The affinities of the small and compact Rhotanini appear to lie with Otiocerini, though the tegminal venation is in some respects (e.g., apical-cell proportions, condition of claval apex) closer to that of Cenchreini.

In conformation of the genitalia the Derbidae show great uniformity.

¹ An asterisk indicates a new genus described in this paper.

There is certainly nothing in these structures to support the concept of two major divisions in this family, comparable to the subfamilies Asiracinae and Delphacinae in Delphacidae.

It is interesting to note that in species of at least two genera of Otiocerini, *Vivaha* and *Megatropis*, the teeth along the distal margin of the second post-tarsal segment are reduced and only the spine at each angle remains. The steps by which this condition has been reached are clearly visible in series of other otiocerine genera, and accordingly the possession of a structure so alien to the cixiid group of families does not cast doubt on the accepted taxonomic position of these species.

Another unusual character of interest in the family is the elongate apical rostral joint of *Vinata* and *Archara*. In both its appearance is abrupt: the writer is unaware of any graded series leading from this condition to the short ring-like apical segment which is otherwise general throughout the family.

While *Archara* is unmistakably otiocerine and not isolated in its group (it is very near *Heronax*), *Vinata* is unique. Its affinities lie with Cenchreini, but it is far removed from any other living genus. The long cylindrical antennae are approached by those in *Patara*. The head otherwise is more like that of an achilid than of any derbid. The long pronotum, with its strongly tricarinate elevated disc, is without parallel in the family. *Cenchrea* and its allies, *Goneokarella* and *Phrygia*, have a tricarinate pronotal disc, but in no way matching that of *Vinata*. The tegminal venation also is of a very uncommon pattern in possessing a row of subapical cells, each of which is about as long as its apical counterpart. A hint of how this may have developed is offered by the condition in *Goneokarella*, where a series of more or less uniform subapical cells is developed. Muir (1923: 228) pointed out that the genitalia of male *Vinata* are of unmistakable derbid pattern. Through the kind assistance of Dr. China the writer has been able to confirm this finding. The female genitalia agree generally with those of other derbid genera.

KEY TO TRIBES OF DERBIDAE.

- | | | |
|---------|---|------------|
| (1) (2) | Tegmina with clavus open, occasionally closed; at least second cubital vein not reaching hind margin directly but curving into subapical transverse line of cross veins; often, but not invariably, common claval vein extending through open claval apex to join subapical transverse lines. Frons usually strongly compressed laterally | (3) |
| (2) (1) | Tegmina with clavus closed, rarely open; second cubital vein reaching hind margin directly, or meeting transverse veinlets more or less rectangulately, transverse veinlets usually reaching to hind margin. Frons narrow, usually not strongly compressed | (9) |
| (3) (4) | Wings not more than half as long as tegmina, usually narrow or reduced with stridulatory organ on reduced anal lobe | (5) |
| (4) (3) | Wings more than half as long as tegmina, ampliate | (7) |
| (5) (6) | Eyes not reaching to base of clypeus; tegmina with subcostal cell long | Zoraidini |
| (6) (5) | Eyes reaching to base of clypeus; tegmina with subcostal cell short | Sikaianini |
| (7) (8) | Tegmina more than 2.5 times as long as broad, clavus open | Otiocerini |

- | | | |
|----------|---|------------|
| (8) (7) | Tegmina less than 2.5 times as long as broad, clavus closed, or nearly so | Rhotanini |
| (9) (10) | Tegmina with clavus not more than half as long as whole tegmen. M and Cu with not less than 8 branches at margin. Wings not more than half as long as tegmina | Derbini |
| (10) (9) | Clavus at least half as long as whole tegmen. M and Cu usually with less than 8 branches at margin. Wings more than half as long as tegmina | Cenchreini |

TRIBE ZORAIDINI.

Tegmina usually more than 3.5 times as long as broad; united claval veins prolonged into submarginal line of transverse veins in tegmina, or if not, then forming an even shallow curve with it. Wings at most scarcely exceeding half length of tegmina, often narrow; vein M simple or forked once, Cu₁ with not more than three branches at margin. Sub-antennal processes and pronotal carinae usually absent or very small.

The above revised definition permits the transfer of *Zeugma* from Derbini to Zoraidini. It has hitherto fallen into Derbini through the application of the single-character criterion, erected by Muir, of a "normally developed" or "reduced" anal area in the wing. The distinctive feature of *Zeugma* is merely the convexity of the apical margin of the wing; the venation is simple and not dissimilar from that of other zoraidine genera, such as *Helcita*. In Derbini the increase in branching of M and Cu₁ in the tegmen tends to be accompanied by an increase, though in less degree, of these veins in the wing. The complexity of the tegminal media is considerable in *Derbe*, *Zeugma* and zoraidine genera as currently recognised, but in the media of the wings the contrast between *Derbe* and all the others is very marked.

In Derbini the anterior veinlets of M at the margin of the tegmina conform to a definite pattern: the anterior two apical veinlets arise from a common stalk; the third is simple, while the fourth and fifth arise from a common stalk. In Zoraidini the fourth and fifth typically arise independently from the main stem of M. In this respect *Zeugma* agrees with the zoraidine condition.

The interesting New World *Symidia*, as Muir pointed out, resembles zoraidine genera in the proportionate length of wing to tegmina. To this might be added that the relation of the united claval veins to the submarginal line of cross veins is not unlike that in Zoraidini, while the wing venation and wing shape are close to that of *Zeugma*. The shape of the tegmina, however, and the branching of M are of derbine, not zoraidine, pattern.

Key to Genera of Zoraidini.

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|---------|--|------|
| (1) (2) | All median sectors single, generally six; antennae generally shorter than frons, ovate, clavate, or subclavate, arista apical; styles of ovipositor very short | (3) |
| (2) (1) | Media generally with five sectors, one furcate | (13) |
| (3) (4) | Basal median cell narrow, wings about half as long as tegmina, apex rounded | (5) |
| (4) (3) | Basal median cell wide and short; not more than three and a half times as long as broad, wings much less than half as long as tegmina, apex acute | (11) |
| (5) (6) | Head as wide as thorax or wider | (7) |

- (6) (5) Head not as wide as thorax (9)
 (7) (8) Apex of clavus not surpassing basal third of tegmina, anal veins present in wing **Zeugma** Westw.
 (8) (7) Apex of clavus surpassing basal third of tegmina, wings without anal veins **Lydda** Westw.
 (9) (10) Antennae much shorter than frons, subovoid **Proutista** Kirk.
 (10) (9) Antennae as long as frons **Shizuka** Mats.
 (11) (12) Tegmina about three times as long as broad; cell Sc more than a quarter width of cell R; mesonotum with three distinct carinae **Diostrombus** subg. **Camma** Dist.
 (12) (11) Tegmina about four times as long as broad; cell Sc obsolete or extremely narrow; mesonotum with carinae obsolete or absent **Diostrombus** subg. **Diostrombus** Uhl.
 (13) (14) Second or third median sector furcate (15)
 (14) (13) First medial sector with two to four branches (23)
 (15) (16) Second medial sector furcate **Neocamma** Mel.
 (16) (15) Third medial sector furcate (17)
 (17) (18) Head in profile produced conically (19)
 (18) (17) Head in profile not produced (21)
 (19) (20) Vertex with carinae contiguous; third antennal segment (arista) inserted definitely subterminally **Helcita** subg. **Jada** Dist.
 (20) (19) Vertex with carinae widely separated; third antennal segment inserted on obliquely truncate apical margin **Helcita** subgen. **Helcita** Stål
 (21) (22) Base of clypeus in profile straight, antennae of female not with a pointed flange **Pamendanga** Dist.
 (22) (21) Base of clypeus in profile curved, antennae of female with a pointed flange **Acanthocerana** Metc.
 (23) (24) Antennae shorter than frons, arista inserted apically; valvulae of ovipositor very short **Raizoda** Muir
 (24) (23) Antennae generally longer than frons with arista inserted subapically; valvulae of ovipositor not reduced, about twice as long as broad (25)
 (25) (26) Head in profile conically produced **Pseudohelcita** Muir
 (26) (25) Head in profile not conically produced (27)
 (27) (28) Vertex quadrate, very much wider than long, frons as wide as an eye **Peggia** Kirk.
 (28) (27) Vertex longer than wide or but little wider than long (29)
 (29) (30) Frons not linear, carinae not contiguous, a sulcus down middle widening in distal half (31)
 (30) (29) Frons more or less linear, carinae contiguous (35)
 (31) (32) Basal median cell short, about three times as long as broad; wings extremely short, broad, and strongly veined **Zoraidoides** Dist.
 (32) (31) Basal median cell long and comparatively narrow, wings half as long as tegmina (33)
 (33) (34) Cu_1 forked distad of claval apex, Cu_{1a} two-branched; cell Sc + R separated from apical margin by two rows of cells, subapical long, apical very short; clypeal disc at widest equal to width of frons. Antennal arista markedly subapical **Teutberga** Jac.
 (34) (33) Cu_1 forked almost level with union of claval veins, Cu_{1a} simple; cell Sc+R separated from apical margin by a single row of

- long cells; clypeal disc at broadest part twice as wide as frons; arista apparently apical **Shirakiana** Metc.
 (35) (36) Posterior margin of tegmina undulate; basal medial cell about three times as long as broad, comparatively broad distally **Losbañosia** Muir
 (36) (35) Posterior margin of tegmina not undulate (37)
 (37) (38) Apical segment of rostrum short and expanded at apex, disc-like **Monochorhynchus** Muir
 (38) (37) Apical segment of rostrum not as above (39)
 (39) (40) Hind margin of pronotum straight, or nearly so **Neodiostrombus** Muir
 (40) (39) Hind margin of pronotum excavate (41)
 (41) (42) Costal margin produced on basal quarter **Peggia** Kirk.
 (42) (41) Costal margin not produced (43)
 (43) (44) First medial sector with four branches **Zoraida** subgen. **Neozoraida** Muir
 (44) (43) First medial sector with two branches (45)
 (45) (46) Antennae cylindrical or only slightly flattened **Zoraida** subgen. **Zoraida** Kirk.
 (46) (45) Antennae broad and flattened **Zoraida** subgen. **Peggiopsis** Muir

Zoraida Kirkaldy.Subgenus *Peggiopsis* Muir.

Peggiopsis Muir, 1913: 72. Orthotype, *Peggiopsis rufa* Muir, loc. cit.

Zoraida (Peggiopsis) wallacei Muir.

Muir, 1918: 206.

The writer has seen Muir's manuscript description of the above species. It was originally headed "*Zoraida singaporensis* sp. n.," but the trivial epithet was subsequently deleted and "*wallacei*" written above it. The alteration was not made in the synoptical table (*ibid.*: 175), where "*singaporensis*" appears as a *nomen nudum*.

Peggia Kirkaldy

Kirkaldy, 1901: 6. Orthotype, [*Nebrissa nitida* Stål, 1870: 751.

Peggia kawandana sp. n. (fig. 1A-F).

Male: length, 4-8 mm.; tegmen, 14-3 mm.

Rostrum with apical joint suborbicular. Post-tibiae unispinose laterally and with five spines apically, one separated from the remainder; basal metatarsal joint with five spines, second metatarsal joint five-toothed.

Fuscous; all carinae, legs, and lower surface of thorax ivory to stramineous. Antennae pale with a linear suffusion along middle of each face. Tegmina hyaline, veins basally ivory-yellow, distally brown.

Anal segment elongate, porrect caudad, flat, acute at apex, anal foramen at basal quarter. Pygofer bilaterally symmetrical, laterodorsal angles produced in a slightly curved subspinose process, medioventral process triangular. Aedeagus tubular, shallowly spirally grooved in basal portion, flagellum minutely denticulate on right side, the denticulate portion ending in a short blunt point ventrolaterad of remainder of flagellum; two lobes at apex, of subequal length, that on right side broad, compressed, with margin evenly rounded, that on left narrower and subtectiform. Genital styles long and narrow,

curving laterad then mesodorsad, practically meeting in middle line at apex, a cornice-like ledge, convex above and concave below, on inner face near base.

Holotype, ♂, UGANDA: Kawanda, 21. x. 1939 (*H. Hargreaves*).

This is the second species to be described in this genus. It differs from the Philippine *P. nitida* in having a linear frons, a rostrum which does not surpass the post-trochanters, and in minor details of the tegminal venation. In *Peggia nitida* the frons is broad and the rostrum surpasses the post-trochanters. The writer believes that these differences are of subgeneric degree, and accordingly proposes a new subgenus, *Stenoppeggia*, for the reception of *P. kawandana* Fennah, its typical subspecies.

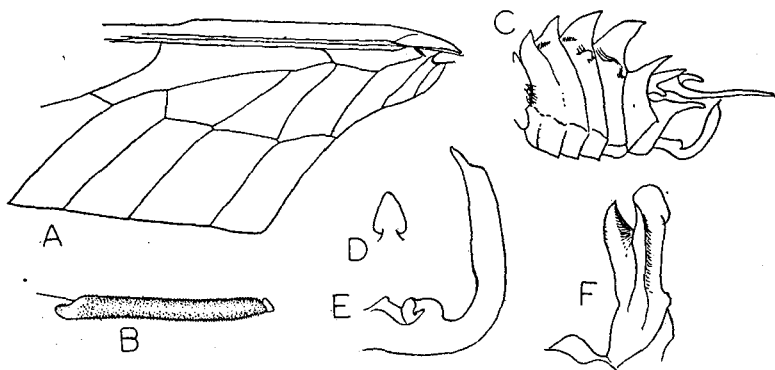


FIG. 1.—*Peggia kawandana* sp. n. A, basal part of tegmen; B, second antennal segment; C, abdomen, side view; D, medioventral process of pygofer; E, genital style, side view; F, aedeagus, dorsal view of apical portion.

Key to Genera of Sikaianini.

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|---------|--|---------------------------|
| (1) (2) | Cubital vein united in a common stem with media for some distance from base | Distantinia Muir |
| (2) (1) | Cubitus arising independently from base of tegmen, basal median cell present | (3) |
| (3) (4) | Basal median cell very narrow, reaching approximately to middle of tegmen | Leomelicharia Muir |
| (4) (3) | Basal median cell broad and short, not nearly reaching to middle of tegmen | (5) |
| (5) (6) | Antennae as long as head and thorax combined, or nearly so | Muiria Kirk. |
| (6) (5) | Antennae not as above | (7) |
| (7) (8) | Antennae about as long as frons; wings one-third of length of tegmina | Sikaiana Dist. |
| (8) (7) | Antennae longer than frons; wings less than one-eighth of length of tegmina | Mula Ball |

TRIBE SIKAIANINI.

Mula Ball.

Ball, 1928: 198. Orthotype, *Mula resonans* Ball, *ibid.*

Mula thrinaxis sp. n. (fig. 2A-E).

Male: length, 2.0 mm.; tegmen, 5.8 mm. *Female*: length, 1.8 mm.; tegmen, 5.2 mm.

Lateral carinae of vertex and frons contiguous, diverging only at extreme base of vertex to form with basal line a small equilateral triangle; eyes reaching clypeal suture; antennae cylindrical, simple, evenly studded with rather widely spaced sensory pits, narrowed before apex and with arista situated dorsally. Clypeus broader than long in middle line; rostrum extremely short, almost sessile. Post-tibiae with ten small uneven spines at apical margin; basal metatarsal joint six-spined at apical margin, second metatarsal joint with four spines (2 + 2). Tegmina with costal margin beset with 33 secretory pustules in an even row in basal half; costal cell narrow, of subequal width throughout, traversed by six short oblique veinlets, more or less evenly spaced and beginning two-fifths from base; Sc with 6 branches at apex, R with four. Wings greatly reduced, bilobate, the smaller lobe bearing a striate sub-marginal area.

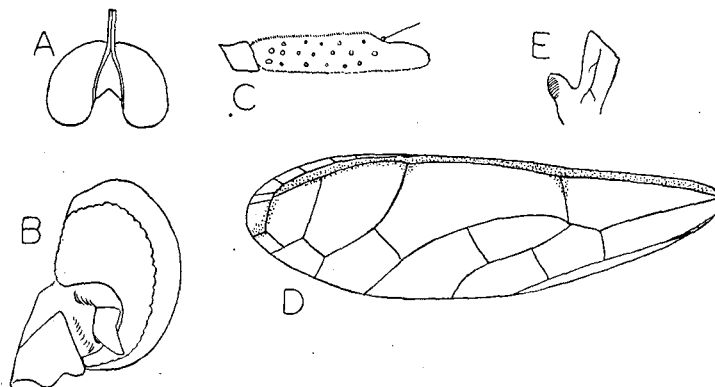


FIG. 2.—*Mula thrinaxis* sp. n. A, head, dorsal view; B, head in profile, antenna omitted; C, antenna; D, tegmen; E, wing.

Ivory, powdered white; profemora at apex, protibiae in basal half and at apex lightly suffused orange; sclerite at apex of rostrum and post-tibial spines black; eyes dark mauve-brown. Tegmina hyaline, veinlets entering costal margin, a small area at base of costal cell, Sc + R and main stem of M, orange-red; the narrow cell Sc + R and the basal M-Cu crossveins at sides, infuscate.

Anal segment of male moderately short, somewhat decurved distally, anal style strongly decurved. Pygofer with laterodorsal angles strongly produced in a stout process, acute at apex. Aedeagus tubular, a slight eminence in middle of dorsal margin, flagellum laterally compressed, of approximately equal width throughout, abruptly tapering to subacute apex, a stout chelate process on right side. Genital styles as figured, with a simple obliquely-tapering vertical process in the middle of dorsal margin.

Holotype, ♂, B.W.I.: St. Lucia; Canelles, 27. xi. 1935, "on leaves of *Thrinax* palm" (*H. E. Boz*). Paratypes, 2 ♂, 1 ♀, same particulars as holotype.

This species differs from *M. resonans* Ball in tegminal coloration. *Mula* differs from *Muiria* and *Sikaiana* in tegminal venation, and from the latter in possessing very much smaller wings (which in *S. hyalinata*, the type species, are about half as long as the tegmina) and three extra spines at the apex of the post-tibiae.

Euklastus Metcalf, the only other New-world representative of this tribe, cannot, on present evidence, be separated from *Sikaiana*, as both the original diagnosis and figures of *E. harti* Metcalf, and the supplementary data (1938: 305), agree well with the holotype of *Sikaiana hyalinata*. The distribution of this tribe as so far known embraces the East Indies (7 species), Northern Australia (2 species), West Africa (2 species), Seychelles (1 species), Philippines (8 species), Fiji (2 species), eastern U.S.A. (2 species) and Lesser Antilles (1 species).

TRIBE DERBINI.

Frons narrow, usually not strongly compressed. Tegmina relatively elongate, subtriangular, broadest slightly distad of middle, apical margin long and oblique; clavus closed, rarely open, not extending for more than half of total length of tegmen; M and Cu together with not less than eight veins at margin; second cubital vein reaching hind margin directly, or meeting transverse veinlets more or less rectangularly, transverse veinlets usually reaching to sutural margin.

Wings not more than half as long as tegmina.

When at rest, members of this tribe carry the tegmina and wings spread out laterally at right angles to the axial line of the body; and tilted slightly obliquely upward.

Muir separated his concept Derbini from Cencreini and Rhotanini by the number of apical branches of the first cubital vein in the tegmina, the first, in contrast to the others, having not less than four. By this definition he was compelled to place *Symidia* and *Dysimia* in the Cencreini.

The writer, however, considers that their affinities lie with *Mysidia* and *Pseudomysidia*; it is evident, moreover, that they are not at all closely related to any known cencreine genera.

The revised definition of Derbini given above permits the transfer of *Symidia* and *Dysimia* to this tribe. They may be separated from other genera by characters given in the extended form of Muir's key which follows.

Mysidia elatior Fowler is otiocerine, and *Mysidia*? *spretta* Fowler cencreine: both are discussed under their respective tribes.

Key to Genera of Derbini.

- | | | |
|---------|--|-----------------------|
| (1) (2) | Cu ₁ in tegmina with four or more veins reaching hind margin | (3) |
| (2) (1) | Cu ₁ with two or three veins reaching hind margin (excluding cross vein from Cu _{1b} to apex of clavus) | (5) |
| (3) (4) | Cu ₁ with four veins reaching hind margin, the second vein forked once; valvulae of ovipositor short and small | <i>Mysidia</i> Westw. |
| (4) (3) | Cu ₁ with six or more veins reaching hind margin, the second vein not forked, valvulae of ovipositor long and large | <i>Derbe</i> F. |
| (5) (6) | Cu ₁ with three branches reaching margin, pronotal lateral carinae only feebly indicated, lateral margin not upturned | (7) |
| (6) (5) | Cu ₁ two-branched; pronotal lateral carinae foliate, ventral lateral margin upcurved to form antennal fovea | <i>Symidia</i> Muir |

- | | | |
|---------|---|----------------------------|
| (7) (8) | Media with seven branches at margin; common stalk of united claval veins much longer than separate portion of anterior claval vein; oblique portion of apical margin distinctly shorter than commissural margin | <i>Dysimia</i> Muir |
| (8) (7) | Media with not less than ten branches at margin; common stalk of united claval veins distinctly shorter than separate portion of anterior claval vein; oblique portion of apical margin as long as commissural margin | <i>Pseudomysidia</i> Metc. |

Derbe Fabricius

Fabricius 1803: 80. Logotype, *Derbe haemorrhoidalis* Westwood 1840: 82.

Derbe bergrothi Muir (fig. 3A).

Muir, 1923: 67.

The genitalia of the holotype are figured.

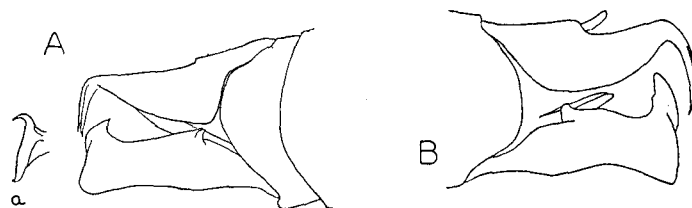


FIG. 3.—A, *Derbe bergrothi* Muir. Male genitalia in profile; (a) apex of genital style, posterior view. B, *Derbe longitudinalis* Dist. Male genitalia in profile.

Derbe championi Muir (fig. 4A, B).

Muir, 1918: 230.

The figures are of the holotype.

Derbe longitudinalis Distant (fig. 3B).

Distant, 1907: 395.

The figure is based on a male in the type series.

Derbe substrigilis Westwood (fig. 4C, D).

Westwood, 1851: 209.

The figures are based on a female specimen determined by Westwood.

Derbe strigipennis Westwood.

Westwood, 1840: 83.

Anal segment of holotype female short with latero-apical angles produced in a pair of finger-like lobes, each shorter than remainder of anal segment. Posterior margin of pregenital sternite produced medially in an almost square lobe, with parallel sides and truncate apex.

Derbe semistriata Westwood.

Westwood, 1840 : 83.

Head as in *D. strigipennis*. Tegmina clear, with dark veins; apical cells of M slightly suffused with brown; cells of corium each with middle portion darker brown than near margins. The veins in the type are darker than in *D. strigipennis*.

The type material in the Hope Collection consists of a single specimen devoid of the abdomen.

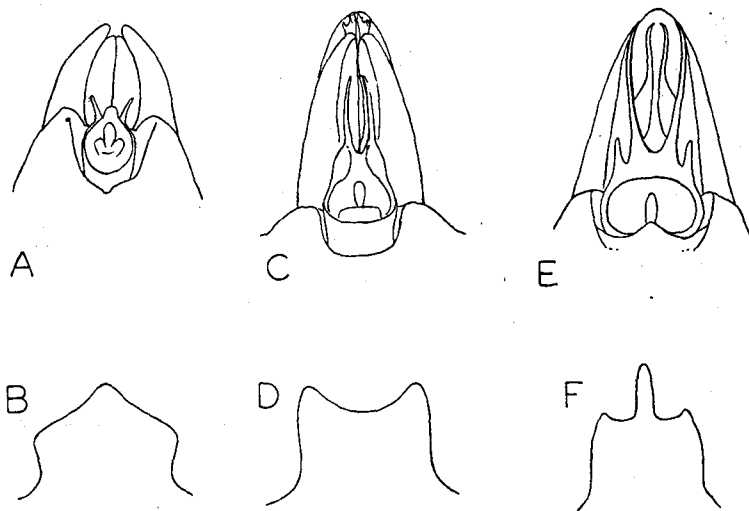


FIG. 4.—A, *Derbe championi* Muir. Anal segment and female genitalia, dorsal view; B, posterior margin of seventh abdominal sternite.
C, *Derbe substrigilis* Westw. Anal segment and female genitalia, dorsal view; D, posterior margin of seventh abdominal sternite.
E, *Derbe westwoodi* Fowl. Anal segment and female genitalia, dorsal view; F, posterior margin of seventh abdominal sternite.

Derbe westwoodi Fowler (fig. 4E, F).

Fowler, 1900 : 71, pl. 8, fig. 16, 16a.

Derbe currami Metcalf, 1938 : 309, pl. 19.*Derbe uliginosa* Fennah, 1945 : 436.

VENEZUELA: E. Carabobo, Las Trincheras, 1. vii. 1950 (*F. Fernandez Yepes*) One male. The genitalia of a female in the restricted type series (*vide* Muir, 1918 : 230) are figured. The venation near the base of the first medial sector is rather variable, even between the tegmina of a single specimen, and cannot be relied upon as a criterion of specific difference. The Trinidad material of *D. uliginosa* differs from the Venezuelan in that the veins are brown rather than fuscous-piceous, while the clear parts of the cells instead of being colourless are faintly suffused with brown. Moreover the stigmal area is mainly trans-

lucent-yellow, whereas in the Venezuelan material the distal veinlets of Sc are yellow but the intervening cells are fuscous. On the basis of these differences the Trinidad population is here recognised as a geographical subspecies, *D. westwoodi uliginosa* Fennah.

B.W.I. : Trinidad, Carapo, 5. ix. 1949 (*R. G. Fennah*). 1 ♀.*Derbe rubigosa* sp. n. (fig. 5A-D).

Male : length, 7.1 mm.; tegmen, 14.0 mm.

Vertex viewed from above, slightly longer than broad; frons narrow, with disc concave, in profile almost symmetrically convex, with genae broadest at middle; antennae large, first joint attached to side of second joint, so that it is overlapped by base of second joint; second joint inflated, expanding distad, not reaching beyond middle of eyes; maximum width distinctly exceeding half length of eye.

Fuscous; lower half of genae, and of second antennal joint, lateral fields of pronotum and coxae light brown. Posterior margin of mesonotum and posterolateral areas of third to sixth abdominal tergites sordid yellow. Tegmina hyaline with faint brown suffusion; costal cell, subcostal vein including veinlets at apex, M_{1+2} just basad of their fork, M_1

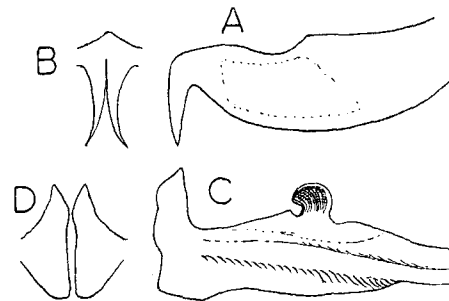


FIG. 5.—*Derbe rubigosa* sp. n. A, anal segment of male, side view; B, do., posterior view; C, genital style, side view; D, posterior view of apical portion of genital styles.

(except for two interruptions) including apical veinlets dull yellowish-brown, veins otherwise fuscous; two longitudinal bars in cell Sc + R, and one medial bar in each other principal cell of corium, and a spot overlying apex of clavus and extending across posterior vein of Cu_1 fuscous; fork of M_{1+2} and all veins bounding subapical cells of M and Cu slightly overlain with brown; apical cells of M and Cu faintly infuscate in two large rounded patches, both adjoining margin. Wings hyaline, suffused with fuscous at apex, veins fusco-piceous.

Anal segment of male in profile with ventral margin only shallowly convex, produced distally in a pair of rather long processes, relatively slender and tapering distally, deflexed almost through 90°. Pygofer with lateral margins convex. Genital styles in profile moderately broad, mediodorsal process thin, broad, falcate and hollowed, with a notch in the margin at its base. Apical processes in posterior view triangular with inner margin almost straight, and ventral and distal margins almost parallel.

Holotype, ♂, VENEZUELA: Aragua, Rancho Grande, ix. 1949 (*Rácenis*).

This species is distinguished by the shape of the genitalia, in which it is nearest to *D. longitudinalis* Dist. The frons is markedly narrower than in

D. westwoodi, in which, though the lateral margins are raised, the disc is flattened rather than concave; moreover the profile of the frons is more deeply rounded in its middle portion. The tumescence of the second antennal joint of the male appears to be without parallel in the genus: a similar development—so far known only in one species—occurs in the otiocerine *Flaccia* (*F. oedicerus* Fenn.)

Mysidia Westwood.

Mysidia, Westwood, 1840: 84. Logotype, *Derbe pallida* Westwood 1841: 477.

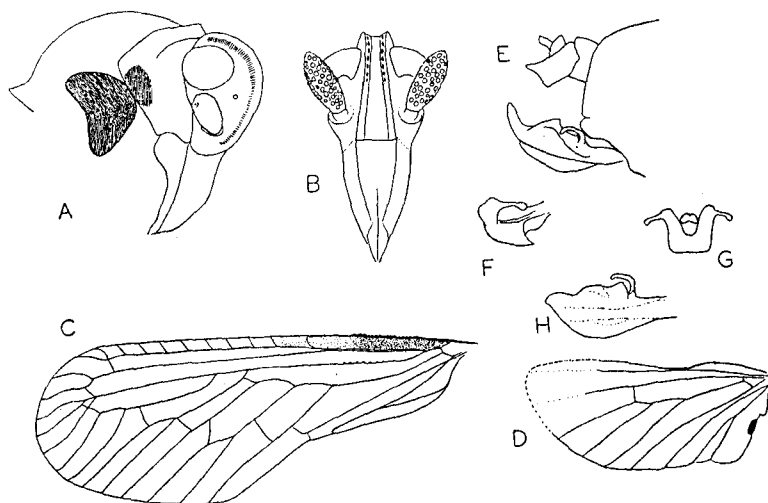


FIG. 6.—*Mysidia costata* (F.). A, Head, pronotum, mesonotum and tegula, side view; B, head, anterior view; C, tegmen; D, wing; E, anal segment, pygofer and right genital style, side view; F, apical portion of aedeagus, side view; G, apical portion of aedeagus, posterior view; H, right genital style, side view.

Mysidia costata (Fabricius) (fig. 6A-H).

Derbe costata Fabricius, 1803: 81.

Male: length 4.5 mm.; tegmen, 10.5 mm.

Second segment of antennae about 2.7 times as long as wide in middle, length slightly exceeding diameter of eye.

Pallid greyish-white; a round spot on lateral fields of pronotum, and tegulae, piceous. Tegmina transparent; powdered white. Costal cell and distal transverse veins narrowly pale fuscous.

Anal segment short, subquadrate in profile and deflexed through 40°. Pygofer with lateral margin convex, with an incision at middle. Genital styles with ventral margin convex, dorsal margin sinuate; a finger-like process curved through 120° one-third from base, followed distally by a small broad triangular eminence, distad of which margin is

angulately convex; apex of style directed upward and mesad. Aedeagus bilaterally symmetrical, short, tubular, in profile almost fan-shaped with dorsal margin shallowly concave; ventral margin deeply concave basally, convex distally, apex obliquely truncate; a short knobbed process arising dorsally at apex, directed anteriorly and outward. Apical dorsal margin of phallobase slightly excavate in middle line.

Redescribed from B.W.I.: Trinidad; Verdant Vale, 1920, 1 ♂ (*F. W. Urich*). The genitalia are figured for comparison with material from other localities.

Mysidia lactiflora Westwood (fig. 7B).

Westwood, 1840: 83.

Frons at apex not wide, clypeus with median carina distinct, lateral carinae feeble; antennae about as long as frons.

Posterior margin of subgenital plate convex, incised medially.

In the female type from Brazil the anal segment has been destroyed.

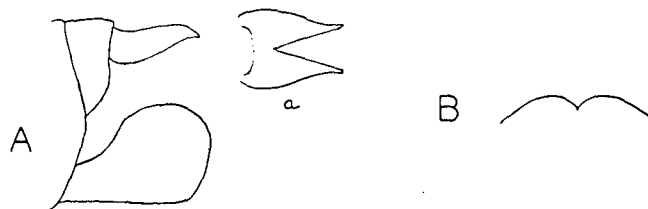


FIG. 7.—A, *Mysidia albipennis* Westw. Anal segment, pygofer and left genital style, side view; (a) lateroapical angles of anal segment, dorsal view. B, *Mysidia lactiflora* Westw. Posterior margin of pregenital sternite.

Mysidia albipennis Westwood (fig. 7A).

Westwood, 1840: 83.

Clypeus relatively wide with rounded sides, with median carina distinct and lateral carinae obsolete or only represented basally. Pronotum with a black spot on each side.

The type is a male from Vera Cruz.

Pseudomysidia Metcalf.

Metcalf, 1938: 317. Orthotype, *Pseudomysidia fuscovaria* Metcalf.

Pseudomysidia fuscovaria Metcalf.

Metcalf, 1938, *loc. cit.*

Pseudomysidia fuscovaria araguana subsp. n. (fig. 8A).

Female: length, 3.0 mm.; tegmen, 6.1 mm.

Stramineous, powdered white. Tegmina translucent, powdered white, marked with fuscous as figured. Wings transparent, powdered white.

Pregenital sternite produced caudad in a broad deeply rounded lobe.

Holotype, ♀, VENEZUELA: Aragua, Rancho Grande (no date) (*Ricenis*).

This specimen differs from the type in having one fewer sector in M in both tegmina, and in the infuscation of the clavus. It may prove to be specifically distinct when males can be compared.

Dysimia Muir.

Muir, 1924: 462. Orthotype, *Dysimia maculata* Muir, *ibid*: 463.

Dysimia fuscoclypeata sp. n. (figs. 8B-D, 9A-C).

Female: length, 2.1 mm.; tegmen, 5.0 mm.

Generally similar to *D. maculata* Muir.

Stramineous; powdered white. Two spots on genae before eyes, clypeus except in middle distally, a spot on pronotum behind eyes, meso-pleurites in part, fuscous. Tegmina and wings marked generally as in *D. maculata*, but apical cells of former not at all infuscate. Transverse veins in wings fuscous.

Pregenital sternite produced caudad in a broad lobe with its sides only slightly convergent distally and the apex shallowly rounded-truncate.

Holotype, ♀, VENEZUELA: Aragua, Rancho Grande, 1100m., 1.x.1950 (*F. Fernandez Yepea*).

Paratype, 1 ♀, Aragua, Camino Choroni, 24.iii.1949 (*H. E. Box*).

This species differs from the Puerto Rican *D. maculata* in the infuscate clypeus and mesopleurites, and in the total absence of infuscation on tegulae, mesonotum and abdomen. In the tegmina the apical cells are not at all infuscate, and of the veins only the transverse series is suffused.

The pregenital sternite of the female differs widely in shape from that of *D. maculata*.

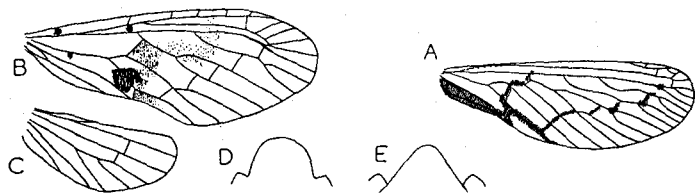


FIG. 8.—A, *Pseudomyzidia fuscovaria araguana* subsp. n. Tegmen.

B-D, *Dysimia fuscoclypeata* sp. n. B, tegmen; C, wing; D, posterior margin of pregenital sternite.

E, *Dysimia putilla* sp. n. Posterior margin of pregenital sternite.

Dysimia putilla sp. n. (fig. 8E).

Female: length, 2.2 mm.; tegmen, 4.3 mm.

Closely similar to *D. maculata* in form and coloration. Basal portion of frons, excluding the secretory pits, a single narrow stripe on side of head before eyes, a minute spot on genae above base of antennae, dark fuscous. A broad area on lateral lobes of pronotum, posterior margin of tegulae, and a slight suffusion on mesonotum light sepia-brown to fuscous; abdomen with third segment sublaterally, fourth prominently laterally and with four short antero-posterior stripes between them, fifth with four paler spots, and sixth with two pale submedian spots and two spots laterally, fuscous.

Tegmina with a small spot on Sc + R + M fork, a broad and faint suffusion in costal cell at base of Sc + R fork, a round and distinct spot overlying M just basad of first sector, and a crescentic spot overlying base of first three apical veinlets of M. Veins interruptedly and diffusely overlain with fuscous.

Pregenital sternite produced caudad in a subequilaterally triangular lobe with the apex shortly truncate.

Holotype, ♀, B.W.I.: St. Lucia, Quillesse, 22.ii.1941, "1000 ft., in mountain, forest" (*R. G. Fennah*).

This species is close to *D. maculata*, but differs appreciably in markings and in the shape of the pregenital sternite of the female. On the basis of the specimens before the writer it is evident that a lateral marginal carina is de-

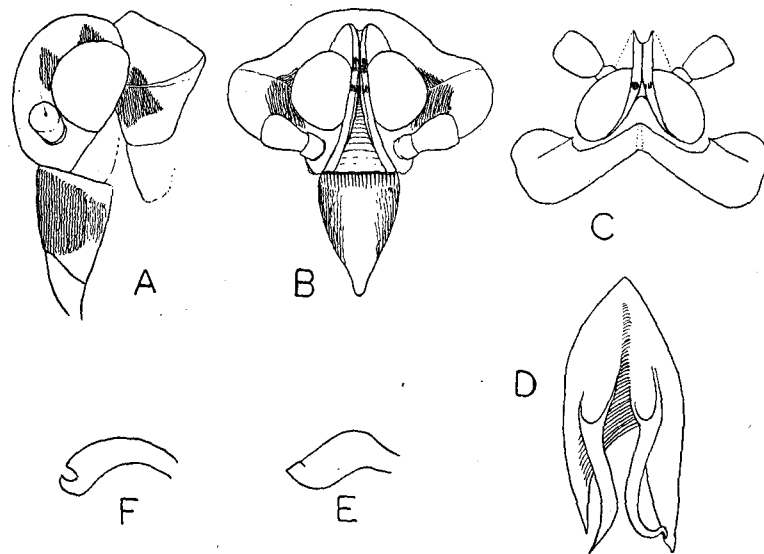


FIG. 9.—*Dysimia fuscoclypeata* sp. n. A, Head in profile; B, head and pronotum, anterior view; C, head and pronotum, dorsal view.

Symidia flava Muir. D, dorsal view of aedeagal flagellum, upper end of figure distad, lower basad; E, lower lobe of flagellum, left side, side view; F, upper lobe of flagellum, left side, side view.

veloped on each side of the pronotum. This is fine for the posterior two-thirds of its length, but, after an interruption, thickened and more elevated anteriorly. Muir's figure (1924: 470) omits a transverse vein in the tegmen between Cu_1 fork and Cu_{1b} , and another between Cu_{1b} and the margin just distad of the claval apex.

D. putilla differs from *D. fuscoclypeata* in having the clypeus entirely pallid, and the tegmina and abdomen maculate. In the tegmina there is no marking in *fuscoclypeata* corresponding to the crescentic spot in *putilla*, and the veins in *fuscoclypeata* are not overlain with an interrupted fuscous suffusion.

For the sake of distributional record the writer notes here an observation of "swarming" *Dysimia* sp. on the underside of cacao leaves, Mt. Horne Estate, Grenada, B.W.I. (Sept. 1947). The tegmina and wings, as in *Derbe* and *Mysidia*, are held outspread and sloping upward when the insect is at rest.

Symidia.

Muir, 1918: 234. Orthotype, *Symidia flava* Muir.

Symidia flava Muir (fig. 9D-F).

Muir, 1918, loc. cit.

Flagellum with four lobes, the lower pair in profile about twice as broad as upper pair, and bluntly pointed at apex; upper lobes decurved distally and falcate at apex, the right lobe a little broader at apex than left lobe.

Two males and a female, B.W.I.: Trinidad, Mt. Harris (*C. L. Withycombe*). This is probably the geographical representative of *flava*, the type of which is from British Guiana.

TRIBE CENCHREINI.

Frons moderately narrow, rarely broad, occasionally strongly laterally compressed. Tegmina of variable proportions, at least 2.5 times as long as broad but never exceptionally long; apical margin rounded, moderately short, rarely extended and oblique; M and Cu with less than eight branches at margin; clavus closed, rarely narrowly open, extending for at least half of total length of tegmen; second cubital vein reaching hind margin directly or meeting transverse veinlets more or less reotangulately, transverse veinlets reaching to hind margin. Wings more than half as long as tegmina.

Several well-marked generic groups can be recognised (e.g., *Lamenia* group, *Phenice* group, *Cenchrea* group, *Phaciocephalus* group) and, with sufficient material, it may prove possible to develop a natural sub-tribal classification.

According to the definition given above *Symidia* and *Dysimia* are excluded from this tribe.

The Old World genera are not treated critically here; opportunity is taken to revise the species-groups of America which in the past have been referred to *Phaciocephalus* (*sensu lato*). Caldwell (1944: 100) has already recognised three groups, defined principally by male genitalic characters: one of these groups is *Omolicna*, and two others are named below.

Key to Genera of Cenchreini.

- | | | |
|----------|--|------------------------|
| (1) (2) | Subantennal process well developed | (3) |
| (2) (1) | Subantennal process absent or very small | (25) |
| (3) (4) | Lateral pronotal carinae and ventral lateral margins of pronotum not subfoliately raised to form a cup-like antennal fovea | (5) |
| (4) (3) | Lateral pronotal carinae and lateral margins foliate, forming a deeply concave fovea | (21) |
| (5) (6) | Tegmina with subcostal cell long | (7) |
| (6) (5) | Tegmina with subcostal cell short | (17) |
| (7) (8) | Frons with a median carina | Eocenchrea Muir |
| (8) (7) | Frons without a median carina | (9) |
| (9) (10) | Vertex transverse, much broader than long | (11) |

- | | | |
|-----------|---|--|
| (10) (9) | Vertex not or very little broader than long | (13) |
| (11) (12) | Sc + R fork about level with, and Cu ₁ fork much distad of, union of claval veins | Malenia Haupt |
| (12) (11) | Sc + R fork basad of, and Cu ₁ fork level with, union of claval veins | Cedusa Fowler |
| (13) (14) | Frontal carinae not contiguous; tegmina with Sc + R fork almost level with union of claval veins; Cu _{1b} ending at transverse vein | (15) |
| (14) (13) | Frontal carinae contiguous; tegmina with Sc + R fork and Cu ₁ fork far distad of level of union of claval veins; Cu _{1b} reaching margin | Dawnarioides Dozier |
| (15) (16) | Vertex narrow, acutely excavate posteriorly; pronotum much shorter in middle than at sides | Paraphenice Muir |
| (16) (15) | Vertex trapezoidal, shallowly excavate posteriorly; pronotum almost as long in middle as at sides | Fescennia Stål |
| (17) (18) | Apex of head angulate in profile; subantennal process forming a ridge below antennae | (19) |
| (18) (17) | Vertex curving into frons; profile not angulate; subantennal process semicircular, antennae ovate, not reaching to apex of head | Cyclometopum Muir |
| (19) (20) | Antennae small | Lamenia Stål |
| (20) (19) | Antennae broad, as long as frons | Neolamenia Muir |
| (21) (22) | Frons very narrow, lateral carinae contiguous to near apex | Fordicidia Dist. |
| (22) (21) | Frons narrow but lateral carinae not touching | (23) |
| (23) (24) | Vertex declivous, curving into frons; frons in profile weakly convex; genae narrow; M with four sectors, the distad forked at transverse line | Neocyklokara Muir |
| (24) (23) | Vertex horizontal, meeting frons in an angle; frons in profile strongly convex; genae broad; M with five sectors, the distad forked basad of transverse line | Muirileguatia Metc. |
| (25) (26) | Lateral pronotal carinae and ventral lateral margins of pronotum not foliately raised | (27) |
| (26) (25) | Lateral pronotal carinae and ventral margins of pronotum foliate, forming an antennal fovea | (51) |
| (27) (28) | Head distinctly angulate in profile | (29) |
| (28) (27) | Head rounded in profile, vertex curving into frons | (41) |
| (29) (30) | Subcostal cell long | (31) |
| (30) (29) | Subcostal cell short | (35) |
| (31) (32) | Vertex markedly produced before eyes, acutely angulate in profile | Persis Stål subgen. Persis |
| (32) (31) | Vertex not produced, forming with frons an obtuse angle in profile | (33) |
| (33) (34) | Head with a small subantennal process; tegmina not three times as long as broad; Sc + R fork at basal quarter; no Sc + R + M stalk, M ₃ and M ₄ not united | Goneokara Muir |
| (34) (33) | Head without a subantennal process; tegmina fully three times as long as broad; a distinct Sc + R + M stalk; Sc + R fork at least distad of basal third, M ₃ and M ₄ united in a common stalk as far as subapical cross-veins | Persis Stål subgen. Eritalaena * |
| (35) (36) | Pronotum with a distinct medial disc bounded laterally by carinae | (37) |
| (36) (35) | Pronotum with no distinct medial disc | (37) |

- (37) (38) Frons little longer than broad, margins convex; antennae long, apical joint of rostrum long **Vinata** Dist.
- (38) (37) Frons distinctly longer than broad, margins parallel; antennae very short, apical joint of rostrum short **Goneokarella***
- (39) (40) Tegmina with each sector of M forked once at about same level **Vekunta** Dist.
- (40) (39) Tegmina with anterior sector of M three-branched distally, posterior sector simple **Perandenina** Dist.
- (41) (42) Antennae large, at least in female, reaching beyond apex of head (43)
- (42) (41) Antennae small, not surpassing apex of head (47)
- (43) (44) Frons linear; carinae contiguous to near apex; vertex small, triangular; M forked level with or distad of apex of clavus (45)
- (44) (43) Frons narrow but not linear; carinae not contiguous; M forked distinctly basad of level of apex of clavus **Equirria** Dist.
- (45) (46) Tegmina with Cu forked basad of level of apex of clavus **Aequalicum** Dist.
- (46) (45) Tegmina with Cu forked distad of level of apex of clavus **Patara** Westw.
- (47) (48) Sc + R forked level with union of claval veins; M with first sector forked level with apex of clavus (49)
- (48) (47) Sc + R forked distad of union of claval veins **Dawnaria** Dist.
- (49) (50) Head not laterally compressed, frons broad; tegmina less than three times as long as broad **Phrygia** Stål
- (50) (49) Head laterally compressed, frons narrow; tegmina more than three times as long as broad **Phenice** Westw.
- (51) (52) Disc of frons moderately broad, usually medially carinate, flat or slightly convex, not at all concave (53)
- (52) (51) Frons not as above (55)
- (53) (54) Vertex nearly twice as broad as long in middle; frons broad, lateral margins parallel; genital styles narrowed at base; medioventral process elongate-conical; pregenital sternite produced caudad in a quadrate lobe, narrowing distally and apically transverse **Oropuna***
- (54) (53) Vertex as long as broad or longer than broad; frons usually medially carinate; genital styles broadened at base, medioventral process triangular; pregenital sternite produced caudad in a subcircular lobe **Herpis** Stål
- (55) (56) Tegmina with subcostal cell short (not extending basad of claval apex); frons very narrow; a fine transverse carina between vertex and frons; pronotum with a distinct medial disc bounded by carinae (57)
- (56) (55) Tegmina with subcostal cell long, no demarcated pronotal disc (59)
- (57) (58) Medioventral process present on pygofer **Cenchrea** Westw.
- (58) (57) Medioventral process reduced **Contigucephalus** Cald.
- (59) (60) Tegmina with Sc + R fork distad of Cu₁ fork, latter about level with union of claval veins (61)
- (60) (59) Tegmina with Sc + R fork basad of Cu₁ fork, latter about level with claval apex (63)
- (61) (62) Tegmina with papillate portion of anterior margin equal to smooth basal portion (node medial); pygofer with no medioventral process **Neocenchrea** Metc.
- (62) (61) Tegmina with papillate portion of anterior margin distinctly shorter than smooth basal portion (node distad of middle); pygofer with a medioventral process **Persis** Stål subgen. **Anapersis***

- (63) (64) Apex of clavus distad of middle of tegmen (67)
- (64) (63) Apex of clavus at middle of tegmen; head compressed, but not linear; frons widest at distal border (65)
- (65) (66) Pronotum medially carinate, with a median discal area; apical cells of M in tegmina not more than twice as broad as long; lateral margins of vertex not foliate and curved outward basad **Basileocephalus** Kirk.
- (66) (65) Pronotum with an elevated disc bounded by sinuate carinae, median carina weak **Cenanges***
- (67) (68) Frons in middle line at least three times as long as broad at widest part. Anal segment of male very long and narrow **Anchimothon***
- (68) (67) Frons relatively shorter; anal segment of male not as above (69)
- (69) (70) Frons in middle line more than twice as long as broad at widest part, tegmina with first M fork basad of claval apex **Phaciocephalus** Kirk.
- (70) (69) Frons in middle line less than twice as long as broad at widest part, tegmina with first M fork at level of claval apex **Omoligna** Fenn.

Cenchrea Westwood.

Cenchrea Westwood, 1841: 15. Haplotype, *Cenchrea dorsalis* Westwood.

This genus is one of a small natural group in which the frons is more or less narrowed, and separated from the vertex by a fine transverse carina, the Sc + R fork is usually distad of the level of the claval apex ("subcostal cell short"), though not invariably, and the median discal area of the pronotum is elevated and very distinctly tricarinate or only the median carina feeble. The other genera which share these characters are *Contigucephalus* Caldwell and *Cenanges* (described below).

Cenchrea itself is at present unequally divided. A striking feature of its species is the exuberant development of processes on the lateral margins of the pygofer and on the genital styles. *C. dorsalis* stands strongly apart from the other species, *C. exquisita* and others described below. These latter form a compact natural group extending in a chain from British Guiana through Venezuela and Trinidad to Grenada and St. Vincent, but not further northward. Apart from their bold tegminal markings they are characterised by having relatively short tegmina, in which vein Cu_{1a} is strongly angulately bent, and Cu_{1b} is not bent. *C. dorsalis*, by contrast, is without any known close relative, and has not been taken outside St. Vincent, where it is common in high forest. In this species Cu_{1a} is only very weakly angulate and Cu_{1b} is not bent; the tegmina are relatively longer than in *exquisita*. The natural relationship of all these species is perhaps best expressed by regarding characters of the group (given above) as those of a supergenus *Cenchrea*. Within this are included *Cenchrea*, *Contigucephalus* and *Cenanges*. *Cenchrea* itself may be regarded as comprising two subgenera, of which the typical (*Cenchrea*) includes only *C. dorsalis* while the other includes *exquisita* and its allies, the two groups being distinguished by tegminal characters as given above.

Cenckrea dorsalis Westwood (fig. 10E-I).

Westwood, 1840: 85.

Anal segment moderately long distally, porrect caudad. Pygofer with laterodorsal angle produced in a straight, narrow, finger-like process. Aedeagus with a complex system of elongate spinose processes, as follows: a pair ventrally at apex directed ventrocephalad below aedeagus; a pair of very large processes, almost as long as aedeagus, arising near apex and lying along dorsal margin of aedeagus; a pair of shorter, sinuate lateroapical processes directed dorsocephalad; a pair of forked blade-like processes lying just mesad of the preceding, and distinctly longer, with a slender curved process attached near base; a submedian pair of spinose processes dorsally near apex of flagellum; a second submedian pair of very short curved spinose processes near tip of ventral lip of flagellum, the latter produced at apex in a median decurved spine. Genital styles rather narrow in lateral view, deeply and widely bifid on apical margin; a stout triangular tooth on inner face at middle, and a semi-membranous flange along dorsal margin directed mesad.

B.W.I.: St. Vincent, Morne Garu, 20.viii.1941, "on *Heliconia bihai*", 14 ♂, 22 ♀ (R. G. Fennah).

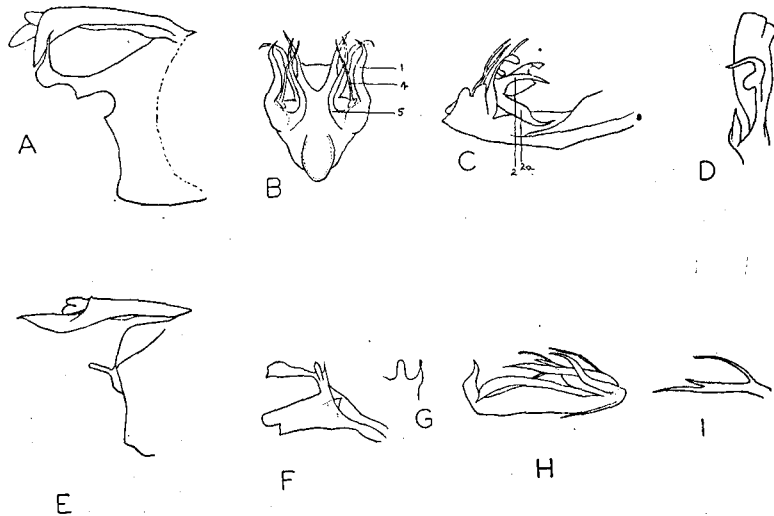


FIG. 10.—*Cenckrea exquisita* Uhl. A, anal segment and pygofer, side view; B, aedeagus, posterior view; C, aedeagus, side view; D, right genital style, dorsal view.

Cenckrea dorsalis Westw. E, anal segment and pygofer, side view; F, genital style, side view; G, dorsal processes of genital style, anterior view; H, aedeagus, side view; I, compound process of aedeagus.

Cenckrea exquisita Uhler (fig. 10A-D).

Uhler, 1895: 69.

Anal segment relatively long, abruptly deflexed at apex. Pygofer with laterodorsal angles strongly produced in a narrow process, biconcave on lower margin and abruptly bent dorsad near apex. Aedeagus tubular, with three pairs of spinose processes latero-

dorsally near apex, directed dorsad (1, 4, 5 in figure), a pair of stout broad bifid processes laterally (2, 2a); flagellum in form of a wide-mouthed trumpet, with a pair of slender processes dorsolaterally at apex, and a pair of broader processes ventrolaterally. Genital styles relatively straight and narrow; a stout spinose process on inner face near base, and a more slender incurved process, produced into a plate near its base, at middle on inner face.

B.W.I.: St. Vincent, Morne Garu, "on *Heliconia bihai*," 20.viii.1941 (R. G. Fennah); Grenada, Grand Etang, 7.i.1948, 23 ♂, 29 ♀ (R. G. Fennah).

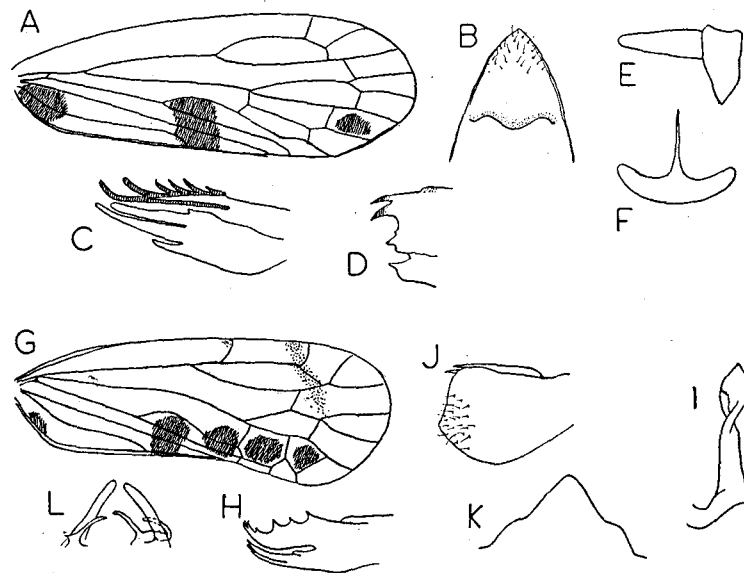


FIG. 11.—*Cenckrea sexguttata* sp. n. A, tegmen; B, apical portion of pregenital sternite, dorsal view; C, first valvula of ovipositor, right side, side view; D, do., ventral view; E, spinose sclerite on wall of vagina at entrance to bursa copulatrix, side view; F, do., dorsal view.

Cenckrea sororia sp. n. G, tegmen; H, first valvula of ovipositor, right side, side view; I, second valvula of ovipositor, right side; J, third valvula of ovipositor, right side, side view; K, posterior margin of pregenital sternite; L, processes in vagina at entrance to bursa copulatrix, dorsal view.

Cenckrea sororia sp. n. (fig. 11G-L).

Female: length, 2.5 mm.; tegmen, 3.1 mm.

Venation of tegmina as figured. Wings with R and M simple, Cu₁ three-branched (2, 1).

Stramineous; mesoscutellum fusco-piceous. Tegmina pallid, translucent, a faint oblique mark at basal edge of stigma; a faint band from costal margin distad of stigma across to M, and between this and apex a narrow, more distinct, line from costal margin to M₁₊₂, brownish-fuscous. An ovate spot in basal fifth of clavus, a short broad band

from Cu_1 just distad of fork passing across clavus to commissural margin; three spots in M beyond this band, with the basal pair subequal, fusco-piceous; posterior claval vein and commissural margin of clavus tinged orange.

Anal segment of female small. Pregenital sternite sinuately rectangulately produced caudad. First valvulae of ovipositor with a submembranous bifid lobe ventrally and a sclerotised limb bearing six teeth dorsally; second valvulae terminating in a membranous lobe distinctly twisted in relation to basal portion; third valvulae broad with dorsal margin almost straight, ventral margin convex; a horizontal lobe dorsally. Vagina with a broad sclerotised plate forming ventral surface, and a set of three short teeth on each side. Bursa copulatrix ornamented with sclerotised rings in dense array; an unequally two-pronged process on left and an unequally three-pronged process on right at its entrance.

Holotype, ♀, B.W.I.: Trinidad, 27.i.1929 (*J. G. Myers*) (B.M. 1929-170).

A mutilated female from VENEZUELA: Aragua, Rancho Grande, iii.1949 (*Marcuzzi*), unquestionably belongs to this species. This species recalls *Cenchrea bipunctata* (*Muir*) (**comb. nov.**) but differs in the tegminal markings: it is possible that further collecting may show it to be merely a geographical subspecies of *bipunctata*.

***Cenchrea sexguttata* sp. n.** (fig. 11A-F).

Female: length, 2.5 mm.; tegmen, 3.0 mm.

Stramineous, pronotum slightly darker; eyes red. Tegmina translucent, pale yellowish, a spot at base of clavus, another near its apex, and a third in apical cell M_2 fuscous. Insect powdered white.

Anal segment very short. Pregenital sternite subconically produced posteriorly. First valvulae of ovipositor bilobate with upper lobe distally sclerotised and bearing on dorsal margin four subequal teeth with two longer teeth distally, all directed obliquely dorsocaudad; ventral lobe submembranous, deeply cleft distally; second valvulae as in *C. sororia*; third valvulae broad, dorsal margin horizontal, ventral margin convex. Vagina with a pair of dentate processes, each about as long as broad. Bursa copulatrix armed at entrance with a blade-like spine arising from a crescentic sclerite.

Holotype, ♀, BRITISH GUIANA: N.W. District, Mabaruma, 9.v.1929 (*J. G. Myers*) (B.M. 1929-406).

Paratype, 1 ♀, same particulars as holotype.

This species is distinguished by the shape of the genitalia and the coloration of the tegmina.

***Cenanges* gen. n.**

Head with eyes narrower than pronotum; vertex triangular, posteriorly incised, small, deeply hollowed out, rounding evenly into frons, which is medially ecarinate, narrow, gradually widening distally; subantennal processes absent; antennae with basal segment short, cylindrical, second segment round, broader than long; clypeus longer than frons, feebly tricarinate, rostrum distinctly surpassing post-trochanters. Pronotum feebly excavate posteriorly, almost transverse; pronotal disc prominent, with lateral discal carinae more prominent than median carina, and reaching hind margin; lateral marginal carinae prominent, forming a large and deep fovea; mesonotum feebly tricarinate; carinae parallel.

Tegmina with anterior and posterior margins subparallel; apical margin deeply rounded; Sc + R + M stalk forked at base; Sc + R fork about level with union of claval veins; M forked level with apex of clavus and Cu_1 fork basad of this; M with four

branches reaching margin, Cu_1 with two; clavus closed. Wings only a little shorter than tegmina; R and M simple to apex, Cu_{1a} furcate near margin, Cu_{1b} simple.

Anal segment of female relatively very small. Lower margin of pregenital sternite in profile straight, continuing line of lower margin of abdomen.

Anal segment of male with lateroapical angles produced. Pygofer with a distinct medioventral process. Genital styles in ventral view triangularly produced mesad at middle and incurved distally.

Type species, *Cenanges spectralis* sp. n.

***Cenanges spectralis* sp. n.** (fig. 12A-H).

Male: length, 4.3 mm.; tegmen, 5.5 mm. *Female*: length, 4.5 mm.; tegmen, 5.9 mm.

Ivory-white; lateral carinae of vertex and frons, a suffusion antero-laterally on mesonotum, and on abdominal tergites and genitalia, fuscous. Tegmina hyaline; middle

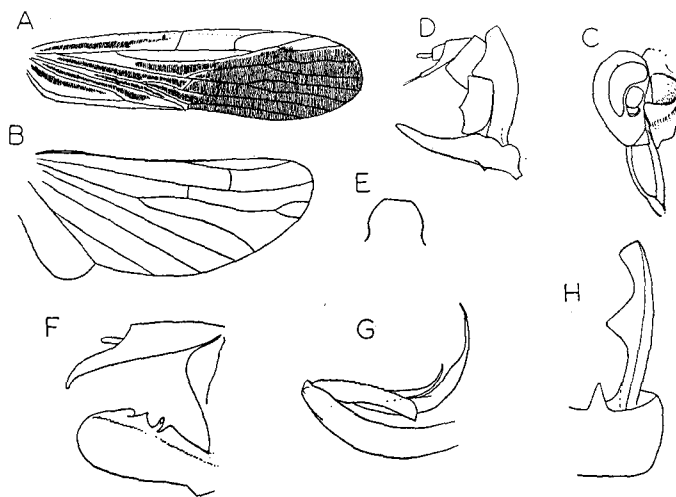


FIG. 12.—*Cenanges spectralis* gen. et sp. n. A, tegmen; B, wing; C, head and pronotum, side view. D, anal segment and genitalia of female, side view; E, posterior margin of pregenital sternite; F, anal segment, posterior margin of pygofer and right genital style, side view; G, aedeagus, right side; H, right genital style, right side of pygofer and medioventral process, ventral view.

portion of costal cell, apex of cell R in corium, cell M and Cu_1 in corium, a suffusion over membrane posterior to R at apex brown, faintly fuscous near margin in anal lobe; veins pallid, adjoining areas in corium hyaline. Wings hyaline, veins concolorous, with exception of M and R and Cu_{1a} in part, which are narrowly fuscous. Insect in life powdered pallid.

Anal segment of male moderately long, distally strongly deflexed; lateroapical angles acute, apical margin deeply incised. Laterodorsal margins of pygofer shallowly rounded, medioventral process acutely triangular. Aedeagus bilaterally symmetrical, a pair of processes arising on each side dorsally at apex, directed cephalad, the outer broad, blade-like, translucent, the inner long, sinuate, serrulate on both sides; flagellum with a pair of

broad processes dorsally, distally tapering and curved dorsad, and below these a long membranous tapering process, distally curved dorsad, with a linear sclerite at each margin. Genital styles in profile slightly expanding distally, rounded at apex, with two triangular processes and an outwardly curved spine on dorsal margin.

Pregenital sternite of female broad, slightly narrowed distally, apical margin rounded-transverse.

Holotype, ♂, B.W.I.: Dominica, near Saltoun, 1000 ft. in mountain forest, 12, 19. vi. 1939 (R. G. Fennah).

Paratype, 1 ♀, same particulars as holotype.

This species runs down in Muir's generic key (1918: 232) to *Basileocephalus* and in Metcalf's key (1938: 326) to *Neocenchrea*. It differs from the former in the elevated pronotal disc, in the relatively shorter mesonotum, in the ecarinate and hollowed mesoscutellum, and the shape of the lateral mesonotal carinae: from *Neocenchrea* it differs in the pronotal disc, the much greater development of the upper lateral marginal carinae of the pronotum (upper wall of fovea), in the round, not subangulate shape of the fovea, in the relatively longer rostrum, and longer legs. Species of *Cenchrea* have a moderately short trapezoidal vertex; in *Cenanges* the vertex is elongate-triangular. In *Cenchrea* the rostrum just attains the post-trochanters, the subcostal cell in the tegmina is short, and vein Cu_{1a} is more or less angulately bent, while Cu_{1b} is almost straight, not angulately bent. In *Cenanges* the rostrum completely surpasses the post-trochanters; the subcostal cell of the tegmina is long; vein Cu_{1a} is not at all bent, whereas Cu_{1b} is quite markedly bent. Moreover, in *Cenanges* the tegmina are relatively longer than in *Cenchrea*. In *Cenchrea* the length of the post-tibiae is not or scarcely equal to the greatest width of a tegmen; in *Cenanges* the corresponding length is 1.5 that of the greatest width of a tegmen; moreover in *Cenchrea* the male anal segment is elongated, the laterodorsal angles of the pygofer are produced, while no definite medioventral process is developed: in *Cenanges* the male anal segment is not elongate, the laterodorsal angles of the pygofer are not produced, and a medioventral process is present.

Omolicna Fennah.

Fennah, 1945: 440. Orthotype, *Omolicna proxima* Fennah.

Omolicna proxima Fennah (fig. 13i, k).

Fennah, 1945: 441.

Tegmina uniformly pale fuscous, veins concolorous, costal cell with a hyaline marginal spot slightly basad of stigma.

Pregenital sternite of female in profile shallowly concave with a transverse callus at base; lateral sclerite of eighth abdominal segment obovate, posterior border convex throughout.

Aedeagus with three processes on left directed cephalad, subequal in length, the upper two flattened and blade-like; on right side two equal blade-like processes, from near base of which arise a pair of united flagellar spines, one surpassing the other and dilated distally into an oblique, lanceolate lobe, hollowed beneath, tapering to a point. Genital styles with dorsal process comprising a short spine directed laterad and curved caudad, attached basally to a sinuately-tapering flattened process directed caudad and narrowing to a point.

VENEZUELA: Chivacoa, 24. x. 1947, 2 ♂, 1 ♀ (H. E. Box).

Omolicna dominicana sp. n. (fig. 13A-F, H).

Male: length, 3.2 mm.; tegmen, 4.0 mm. Female: length, 3.3 mm.; tegmen, 4.0 mm.

Pallid yellow; margins of frons and vertex narrowly dark; metanotum, abdominal tergites and genitalia yellowish-brown. Tegmina sub-hyaline, lightly suffused with yellowish-brown except in costal cell, which is hyaline or, where opaque, greyish-white; membrane a little darker than corium; Sc, R, M and base of Cu , slightly infuscate, apical veinlets paler than membrane, apical margin in part more or less suffused with pink. Wings faintly tinged fuscous, veins slightly darker. Insect in life powdered white, tinged by ground-colour.

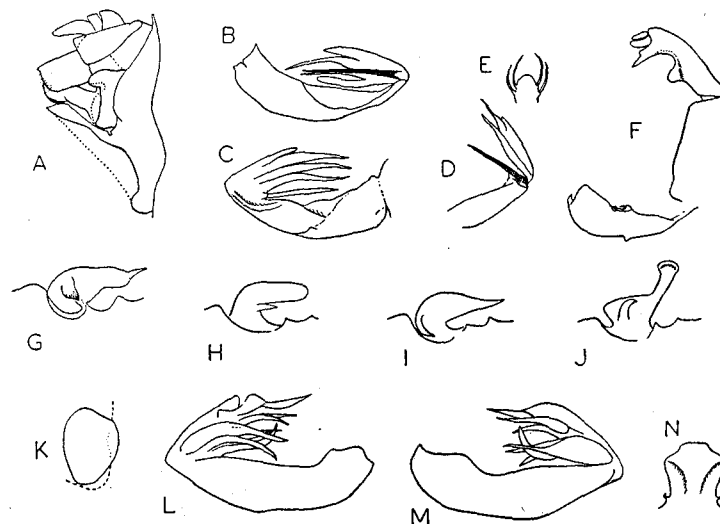


FIG. 13.—*Omolicna dominicana* sp. n. A (solid line throughout), anal segment and genitalia of female, side view; B, aedeagus, left side; C, do., right side; D, do., left side, flagellum elevated; E, diagram of flagellum in dorsal view, showing arrangement of processes; F, anal segment, pygofer, and right genital style; H, process on dorsal margin of genital style.

Omolicna cubana (Myers). G, process on dorsal margin of genital style; L, M, aedeagus, right and left side; N, medioventral process.

Omolicna proxima Fenn. I, process on dorsal margin of genital style; K, lateral sclerite of eighth abdominal segment of female.

Omolicna latens sp. n. J, process on dorsal margin of genital style.

Anal segment of male in profile produced in a deeply rounded lobe at middle of lateral margin; lateroapical angles acuminate, produced ventrad for a distance equal to length of anal style. Aedeagus tubular, a pair of stout blade-like processes, united at their base, arising on right at base of flagellum, directed cephalad; on left side, in corresponding position, a single straight rather slender process directed cephalad; flagellum almost bilaterally symmetrical, with a pair of subequal slightly curved blade-like processes on each side, arising near its base; apical margin of median dorsal lobe rounded. Genital styles with an incurved spine on ventral margin near base, a short triangular pointed lobe

on apical margin directed mesad and dorsad, a compound process in middle of dorsal margin comprising a short spine directed laterad and curved caudad, arising from a stouter process which is rectangularly bent basad of its middle and directed caudad, apically bluntly rounded. Pregenital (seventh) sternite of female in profile markedly concave with a stout transverse callus at base; lateral sclerite of eighth abdominal segment more or less straight along most of posterior margin, but in its dorsal portion produced caudad in a blunt lobe.

Holotype, ♂, B.W.I.: Dominica, Saltoun, "taken in mountain forest," 11. vi.-8. vii. 1939 (*R. G. Fennah*).

Paratypes, 20 ♂, 37 ♀, same particulars as holotype.

This species is distinguished by the shape of the male and female genitalia.

***Omolicna latens* sp. n. (figs. 13J, 24E).**

Male: length, 2.8 mm.; tegmen, 3.1 mm. *Female*: length, 3.3 mm.; tegmen, 3.7 mm.

Head, pronotum, legs and membrane of abdomen pallid, mesonotum and sometimes abdominal sclerites yellowish-brown; metanotum and sometimes abdominal sclerites and female genitalia fuscous, eyes dark red. Tegmina hyaline, very lightly infuscate and with a yellow suffusion in cells of corium and clavus; R at apex and a submarginal suffusion fuscous, apical margin tinged with red. Wings sub-hyaline, veins yellow suffused fuscous distally. Insect in life powdered white.

Anal segment of male with lateroapical angles acuminately produced ventrocaudad, ventral lateral margins in profile triangularly produced at basal third. Aedeagus tubular, a long slender spinose process at apex on left side, directed cephalad; mesodorsad of this, on left side of flagellum, a broad blade-like process, slightly deflexed distally and obliquely tapering; a short and slender spine on flagellum just dorsad of base of this process, directed cephalad; on right side a sinuate blade-like tapering process, much longer than all the others, directed cephalad; mesodorsad of this, on base of flagellum, two subequal blade-like processes, distally tapering, decurved then upcurved at apex. Genital styles with mediodorsal process comprising a short spine directed laterad, and curved caudad at apex, arising from the broad base of a club-like process directed caudad and curved laterad distally.

Pregenital sternite of female in profile almost straight, devoid of an obvious transverse callus at base; lateral sclerite of eighth abdominal segment approximately ovate, with posterior margin narrowly and rather deeply excavate at its dorsal third.

Holotype, ♂, B.W.I.: Trinidad, Northern Range, St. John's Valley, "500 ft. in secondary growth," 6. viii. 1948 (*R. G. Fennah*).

Paratypes, 2 ♀, same particulars as holotype.

This species is distinguished by tegminal coloration and by the shape of the genitalia in both sexes.

***Omolicna cubana* (Myers) comb. nov. (fig. 13G, L-N).**

Phaciocephalus cubanus Myers, 1926: 103.

Dr. W. E. China kindly prepared the figures of the male genitalia reproduced here. They are based upon a paratype from the Myers' Collection.

Phaciocephalus fulvus Van D., *P. uhleri* and *P. brunnea* McAtee belong in this genus.

***Oropuna* gen. n.**

Vertex distinctly broader than long in middle, apically transverse; lateral margins broadly explanate and beset with sensory pits; frons only slightly more than twice as

long as broad; disc not depressed, ecarinate, lateral margins not elevated; clypeus slightly shorter than frons, genae devoid of subantennal process; antennae small, second segment scarcely twice as long as broad. Pronotum moderately long, medially carinate, posteriorly shallowly angulately excavate, a deep antennal fovea developed on each side. Tegmina with subcostal cell long. Anal segment of male extremely short. Pygofer with a large subquadrate or trapezoidal medioventral process. Genital styles in ventral view with two processes directed mesocaudad. Aedeagus bilaterally symmetrical.

Hind margin of pregenital sternite of female produced caudad in a semicircular lobe.

Type species, *Phaciocephalus minutianus* Caldwell, 1944: 102.

This genus is distinguished by the shape of the head, anal segment, medioventral process of pygofer, genital styles and symmetrical aedeagus.

***Anchimothon* gen. n.**

Vertex slightly broader across base than long in middle line, apically concave, lateral margins broadly raised and beset with sensory pits; frons about three times as long as broad, medially ecarinate, margins elevated; clypeus about two-thirds as long as frons, genae without a subantennal process; antennae short, second segment about twice as long as broad. Pronotum moderately broad, posterior margin shallowly concave, medially carinate, a deep antennal fovea developed on each side. Tegmina with subcostal cell long.

Anal segment of male elongate, relatively narrow; anal foramen near apex; apical angles shortly produced ventrad. Pygofer with a deeply rounded medioventral process, longer than broad. Genital styles in ventral view with a lobe directed mesad near base; apical margin curved mesad. Aedeagus bilaterally symmetrical.

Type species, *Phaciocephalus parishi* Muir, 1918: 418.

This genus is distinguished by the shape of the head, anal segment, and medioventral process of the pygofer, and by the symmetrical aedeagus.

***Neocenchrea* Metcalf.**

Metcalf, 1923: 193. Orthotype, *Cenchrea heidemanni* Ball, 1902: 261.

***Neocenchrea mero* sp. n. (fig. 14A-G).**

Male: length, 3.6 mm.; tegmen, 4.8 mm.

Stramineous, in life powdered pallid. Lateral carinae of vertex and frons and a prominent round spot on pronotum behind eyes fuscous. Tegmina milky-hyaline, in life powdered white; a stripe along middle of costal cell; cells between R and M and basal portion of cell M in corium and commissural margin fuscous, the last infuscation extending over Cu_{1B} as a fainter and broader suffusion; apical cells faintly tinged with yellowish brown, apical margin lightly tinged with orange. Veins pale. Wings milky hyaline, veins concolorous.

Anal segment moderately long, latero-apical angles produced and deflexed apically. Pygofer with dorsolateral angles produced in a short broad process, abruptly tapering to a point distally. Aedeagus bilaterally symmetrical, dorsoventrally depressed, shallowly curved dorsad distally, deeply cleft along middle line, each half of aedeagus bearing a long spinose process dorsally lying parallel to upper margin; a stout spine at apex strongly deflexed and slightly curved cephalad distally; a slender spine ventrally, directed ventrad then curved at middle to point caudad; on each side of this spine at its base a minute spine, that on laterad side directed ventrocaudad, that on mesad side directed mesocaudad. Genital styles with a longitudinal dorsolateral ridge on exterior face, a small uncinat process on dorsal margin followed by two rounded-triangular eminences; in ventral view genital

styles with mesad borders converging from base almost to meet at middle, then abruptly excavated just distad of middle.

Holotype, ♂, B.W.I.: Trinidad, Aripo Valley, "on bean foliage," 20.ix.1949 (R. G. Fennah).

This species is distinguished by coloration and by the shape of the male genitalia.

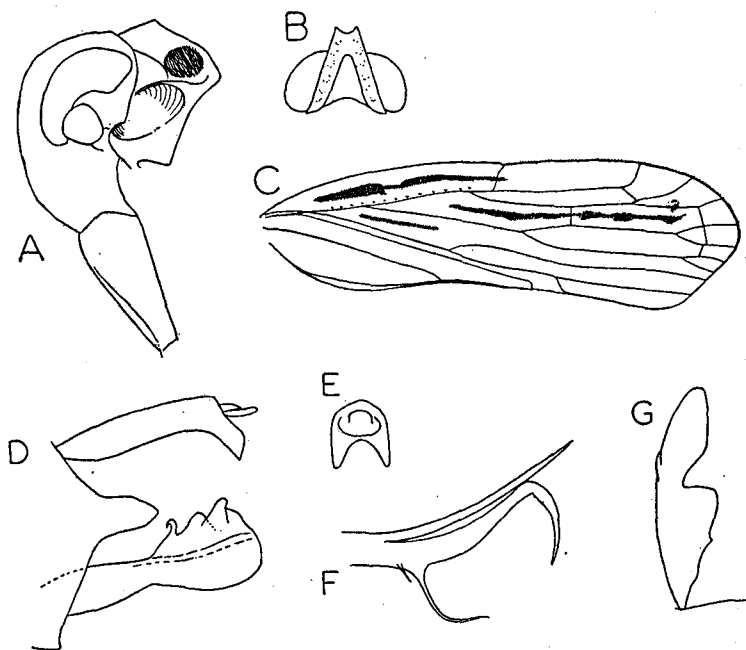


FIG. 14.—*Neocenchrea mero* sp. n. A, head and pronotum, side view; B, head, dorsal view; C, tegmen; D, anal segment, pygofer and left genital style, side view; E, anal segment of male, posterior view; F, aedeagus, left side; G, left genital style, ventral view.

Persis Stål.

Stål, 1862: 7. Haplotype, *Persis pugnax* Stål, *loc. cit.*

Persis subg. typ.

Head compressed, in profile more or less acutely angulate at apex; vertex elongate, narrow, tapering distally; lateral margins elevated; frons elongate, narrow, with lateral carinae subparallel and raised; eyes excavate posteroventrally; antennae short, subglobose. Pronotum very short, laterally wider, with a low curved ridge behind eyes and lateral margin shallow but definitely laminate, bounding an extremely shallow antennal fovea. Tegmina long, narrow, almost parallel-sided; Sc + R fork slightly basad of middle, M forked about level with apex of clavus, Cu₁ forked about level with Sc + R fork, R and both branches of M forked near apex.

Anal segment of male moderately long, relatively narrow, slightly deflexed beyond anal foramen; lateroapical angles acuminately produced; anal foramen situated more than two-thirds from base. Pygofer with a broadly triangular medioventral process. Genital styles with dorsal margin longer than ventral; apical margin, which is shallowly convex or sinuate, consequently very oblique; inner (ventral) margin sinuate, usually with one or more short eminences in basal half; dorsal margin with a broad process at basal third, this process ornamented with about three spines or lobes distally. Aedeagus bilaterally symmetrical. Pregenital sternite of female produced at middle in a deeply rounded or turbinate lobe, this produced area not longer than basal part of sternite.

The species *pugnax* Stål, *fabriciana* Metcalf, *stáli* Muir, *foveatis* Caldwell, and *novacula* (described below) are placed in this sub-genus. They agree closely in general appearance, and share the same colour pattern. *Persis fuscinervis* Muir falls outside the concept defined above, and is referred to a new subgenus.

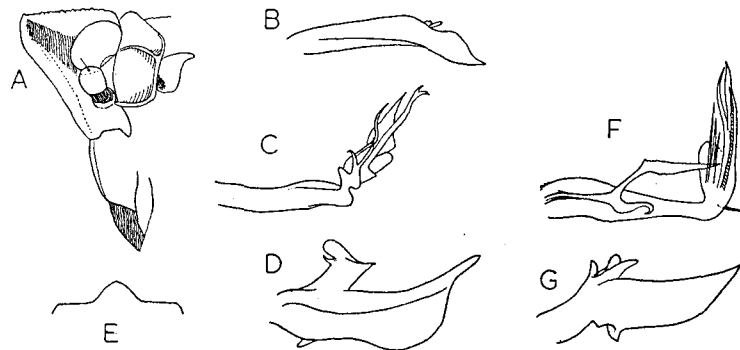


FIG. 15.—*Persis stáli* Muir. A, head, side view; B, anal segment of male, left side; C, aedeagus, left side; D, left genital style; E, medioventral process of pygofer. *Persis novacula* sp. n. F, aedeagus, left side; G, left genital style.

Persis (*Persis*) *stáli* Muir (fig. 15A-E).

Muir, 1918: 417.

Male: length, 4.1 mm.; tegmen, 6.1 mm.

Aedeagus tubular; flagellum with an outer pair of short stout processes at base, each produced distally in an unequal pair of rather short curved spines; mesad of these processes, and arising at about same level, a pair of long slightly sinuate ribbon or blade-like processes, each shortly cleft at apex; a pair of slender, sinuate, moderately long processes; submedially a pair of thin triangular lobes, acuminately produced distally: all these processes extending in the same general direction, cephalad when flagellum is folded. Genital styles with dorsal process subquadrate, large; inner (ventral) margin armed with a blunt tooth near base; apex of style produced, narrow.

BRITISH GUIANA: Kanuku Mts., i.1934, 1 ♂ (*J. G. Myers*).

This species is distinguished by the aedeagal armature and by the shape of the genital styles. Its relation to *P. fabriciana* Metcalf, also apparently from the Guianas, is unknown.

Persis (Persis) novacula sp. n. (fig. 15F, G).

Male: length, 5.4 mm.; tegmen, 6.3 mm. *Female*: length, 5.6 mm.; tegmen, 6.5 mm.

Shape and coloration of *P. stali* Muir.

Anal segment moderately long and narrow with anal foramen at distal third; apical margin almost semicircularly excavate with apical angle acuminate.

Aedeagus bilaterally symmetrical with an unequally bifurcate process on each side arising at base; flagellum with a pair of short spatulate lobes anteriorly at base; behind each of these a close series of three slender spines, equal in thickness but graded in length; arising slightly above these a longer and slightly thicker spine; submedially a pair of long lanceolate processes on each side, both shallowly sinuate with the broader pair slightly surpassing the narrower, the latter much narrowed and acuminate distally.

Genital styles moderately long, narrowed and curved slightly dorsad distally, acutely pointed at apex; basal half of dorsal margin with an eminence bearing three processes, the basal acuminate and curved laterad, the middle dome-like, the distal finger-like.

Holotype, ♂, B.W.I.: Trinidad, Northern Range, Aripo, 500 ft., 17. ix. 1949 (R. G. Fennah).

Paratypes, 4 ♀, same particulars as holotype.

This species is distinguished by the shape of the aedeagal armature.

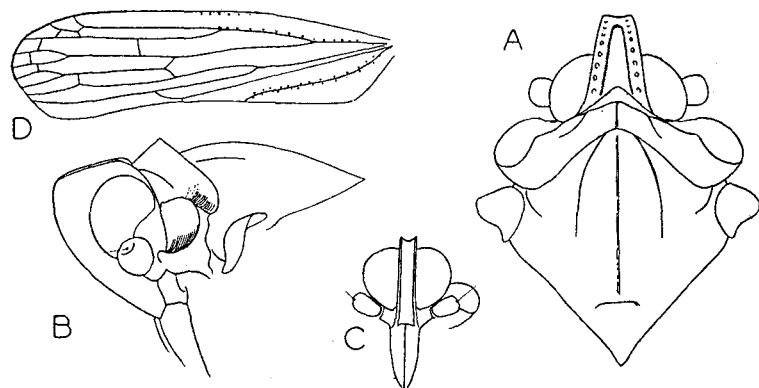


FIG. 16.—*Persis (Anaparsis) spreta* (Fowl.). A, head and thorax, dorsal view; B, do., side view; C, head, anterior view; D, tegmen.

Persis.**Anaparsis** subgen. n.

Head with eyes narrower than pronotum; vertex about 1.5 times as long as broad, with straight sides narrowing anteriorly; width at apex about half width at base; anterior margin carinate, transverse; posterior margin subrectangulately excavate, disc moderately depressed; lateral margins in profile horizontal, meeting those of frons subangulately; frons moderately narrow, medially ecarinate; lateral margins raised, not quite parallel, gradually widening from base to apex; subantennal process absent; antennae with first joint short, ringlike, second short, obovate; clypeus about as long as frons, tricarinate; rostrum just attaining post-trochanters. Pronotum widely angulately excavate posteriorly; median carina prominent, elevated; sublateral areas strongly inclined away

from it to lateral margins; lateral marginal carinae forming a fovea, with the dorsal margin foliate, not merely carinate; mesonotum slightly broader than long, feebly tricarinate.

Tegmina long, costal and commissural margins parallel, apical margin anteriorly rounded, then straight and obliquely truncate. Sc + R + M fork at basal fifth, Sc + R forking basad of, and M forked about level with, apex of clavus, Cu₁ forked about level with union of claval veins, Sc and R together with three branches at apical margin, M with four, Cu₁ with two.

Wings ample, only a little shorter than commissural margin of tegmina; R simple to apex, M simple, Cu₁ with two branches.

Anal segment of male relatively long and narrow with anal style near apex. Pygofer with a well-developed medio-ventral process.

Anal segment of female short, broader than long. Pregenital sternite broadly produced and rather deeply rounded on posterior margin, in profile shallowly sinuate.

Type species, *Neocenchrea gregaria* Fennah.

This subgenus is distinguished from typical *Persis* by the prominent pronotal foveae, which are obsolete in *Persis*, and by the narrow form of the medioventral process of the pygofer. The profile of the head is considerably different. The subgenus differs from *Neocenchrea*, to which its type species was originally referred, in shape of head, in the presence of a carina between vertex and frons, in the more strongly developed dorsal margin of the pronotal foveae, in the relatively broader mesonotum, in the shape of the tegmina, in the presence of a medioventral process on the pygofer and in the pattern of the aedeagus and genital styles. *Mysidia* ? *spreti* Fowler (fig. 16A-D) is here transferred to this subgenus, to which also *Neocenchrea pallescens* Metcalf appears to belong.

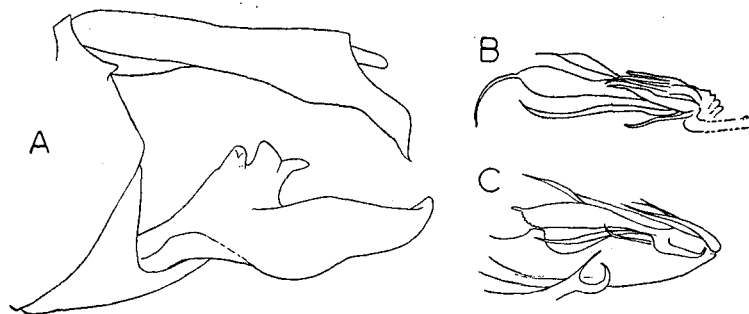


FIG. 17.—*Persis (Anaparsis) gregaria* (Fenn.). A, anal segment, pygofer and left genital style, side view; B, aedeagal flagellum and appendages, reflected caudad, right side; C, aedeagus, apical portion, left side.

Persis (Anaparsis) gregaria (Fennah) (fig. 17A-C).

Persis lineata Uhler, 1895: 69.

Neocenchrea gregaria Fennah, 1945b: 443.

B.W.I.: St. Vincent, Petit Bordel, 19. viii. 1941, 3 ♀; Grenada, Grand Etang, 28. x. 1943, 2 ♂, 3 ♀; Grenada, St. George's, Mt. Wheldale, 16. viii. 1947, 1 ♂, 2 ♀; St. Lucia, Quilisse, 22-24. ii. 1941, 1 ♂, 1 ♀ (all R. G. Fennah).

The figure is of a specimen from Grenada.

*Persis**Eritalaena* subgen. n.

Vertex with lateral margins in profile horizontal, little produced beyond level of eyes, rounding into base of frons; frons moderately narrow, medially ecarinate, lateral margins elevated, subparallel; no subantennal process on genae; antennae with first segment short, ring-like, second short subovoid; clypeus about as long as frons. Pronotum with marginal carinae obsolete, no antennal fovea developed.

Tegmina long, costal and commissural margins parallel, apical margin rounded. Sc + R + M fork at basal fifth, Sc + R forking basad of, and M forked about level with apex of clavus; Cu₁ forked almost level with union of claval veins, Sc and R together with three branches at margin, M with four and Cu₁ with two.

Anal segment of male relatively long and narrow with anal style near apex. Pygofer with a short triangular medioventral process.

Anal segment of female short, broader than long. Pregonital sternite produced on hind margin in a large deeply rounded lobe which is longer than basal part of sternite.

Type species, *Persis fuscineris* Muir, 1918: 417.

This subgenus is distinguished from the typical subgenus and from *Anaparsis* by the shape of the head in profile, by the absence of distinct lateral carinae on the pronotum, by the shape of the medioventral process of the pygofer and of the posterior lobe of the pregenital sternite.

Goneokarella gen. n.

Frons longer than broad (1.6: 1), transverse at base; lateral margins slightly diverging to below level of antennae, distally incurved to suture, which is subequal in width to base; vertex slightly more than twice as broad across base as long in middle, laterally carinate, devoid of median carina; frons and clypeus medially and laterally carinate throughout; lateral ocelli distinct; antennae with first joint very short, second segment ovoid, 1.5 times as long as broad. Pronotum short, disc tricarinate, a pair of carinae at each side between eyes and tegulae; lateral foveae absent, lower margin of lateral lobes rounded; mesonotum tricarinate; lateral carinae arcuately divergent basad, median carina not complete basally. Post-tibiae with a small spine at base and at middle.

Tegmina 3.6 times as long as broad; Sc + R united to base of stigma, M four-branched, Cu_{1a} and Cu_{1b} simple; wings with R and M simple.

Type species, *Goneokarella maculivenis* sp. n.

Goneokarella maculivenis sp. n. (fig. 18A-K).

Female: length, 3.5 mm.; tegmen, 5.0 mm.

Fusco-piceous; basal angles of clypeus, carinae of vertex, pronotum and mesonotum, margin of tegulae, a spot on mesonotum behind tegulae, margin of scutellum, margin of pleurites, femora at base and apex, tibiae in middle and at apex stramineous. Tegmina with corium mostly ivory-hyaline, veins overlain fuscous, Sc with about four pallid spots before transverse line; M with three spots, Cu₁ with one; membrane fuscous, transverse and most of apical veins, a spot across distal half of apical cells of M and Cu_{1a} and an elongate spot beyond apex of clavus ivory-hyaline; clavus fuscous, pale on basal fifth and penultimate fifth. Wings slightly smoky.

Anal segment short. Ovipositor with first valvulae bilobate, the lower lobe upcurved, distally bifid with both limbs acuminate; upper lobe with five stout teeth; second valvulae as figured, third valvulae broadly quadrate with distal margin slightly oblique, a horizontal lobe attached dorsally on inner face. Pregonital sternite produced at middle

of hind margin in a deep rounded lobe. Vagina ornamented with a plate bearing four blade-like processes equidistantly separated; bursa copulatrix ornamented with a small plate bearing a single stout spine, decurved distally.

Holotype, ♀, ARGENTINA: Territory of Rio Negro, 18-25. xi. 1926 (*F.* and *M. Edwards*) (B.M. 1927-63).

Goneokarella runs to *Vekunta* in Muir's key, but differs in shape of frons and vertex, in pronotal structure and in tegminal venation. This species is closely similar to a plectoderine achilid such as *Amblyceratus*. The genus is isolated, but is perhaps nearest to *Phrygia*: the head in slight degree recalls

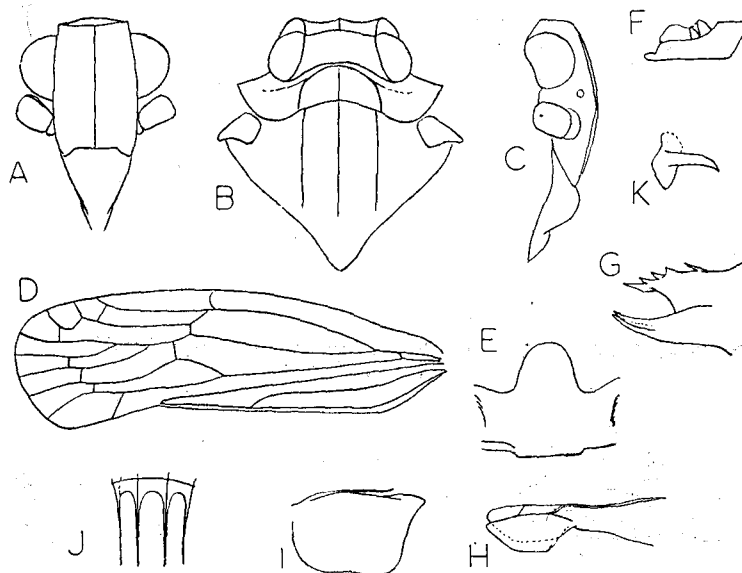


FIG. 18.—*Goneokarella maculivenis* gen. et sp. n. A, head, anterior view; B, head and thorax, dorsal view; C, head, side view; D, tegmen; E, posterior margin of pregenital sternite; F, anal segment of female, right side; G, right first valvula of ovipositor, side view; H, second valvulae of ovipositor, slightly dorsolaterally viewed; I, left third valvula of ovipositor; J, sclerite at entrance to bursa copulatrix; K, sclerite on bursa copulatrix.

that of *Cedusa* (though a subantennal process is lacking); the tricarinate pronotal disc can be compared only with the condition found in the *Cenchrea* group of species, in *Phrygia*, or—at great remove—in *Vinata*. The tegminal venation, while relatively unspecialised, is unusual in that a row of subequal subapical cells is formed. This development may be interpreted as an intermediate stage between the usual condition (as in *Vekunta*) and that of *Vinata*.

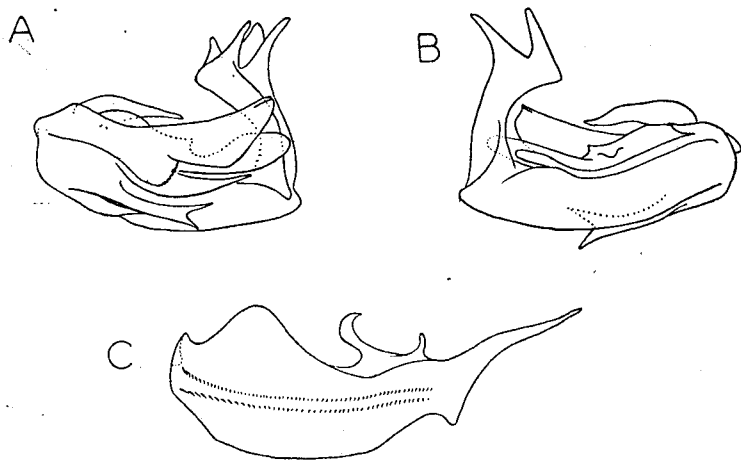
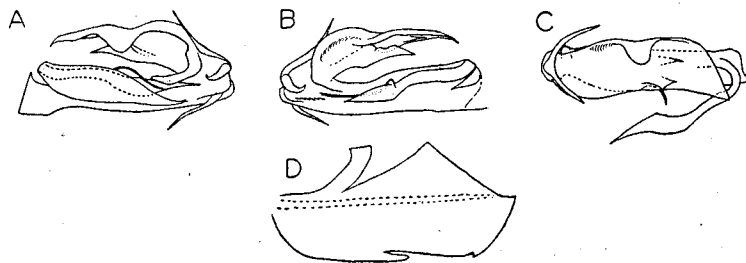
Cedusa Fowler.

Fowler, 1904: 112. Logotype, *Cedusa funesta* Fowler.

Cedusa funesta Fowler (fig. 19A-C).

Fowler, 1904: 112, pl. 11, figs. 28, 28a-b.

The figures have been prepared by Dr. China from the type.

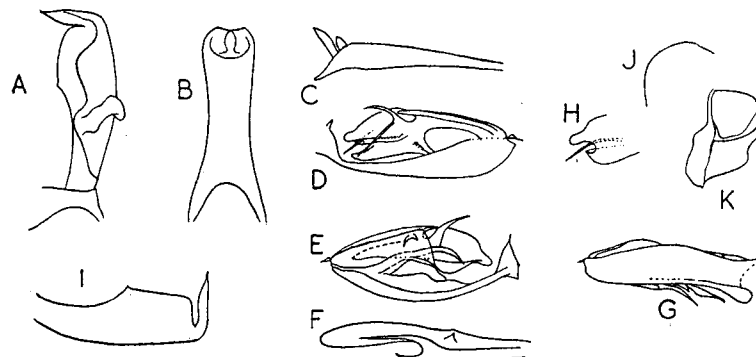
FIG. 19.—*Cedusa funesta* Fowl. A, aedeagus, right side; B, aedeagus, left side; C, right genital style, side view.FIG. 20.—*Cedusa albolineata* sp. n. A, aedeagus, left side; B, do., right side; C, do., dorsal view; D, left genital style, side view.*Cedusa albolineata* sp. n. (fig. 20A-D).*Male*: length, 2.4 mm.; tegmen, 3.6 mm.

Fuscous to fuliginous; frons and clypeus in middle line and at margins, subantennal processes in part, antennae, lateral fields of pronotum narrowly at margins, and legs testaceous-stramineous. Tegmina sooty, membrane slightly paler; node and a portion of each cross-vein on nodal line to apex of clavus narrowly white; veins concolorous. Wings hyaline, powdered white, with fuscous veins.

Aedeagus tubular; a small slender spine ventrally near apex directed cephalad; an asymmetrical pair of stout shallowly-curved spines arising from a common stem at apex; two spines arising at base of flagellum, that on right moderately long, very slender, sinuate, directed cephalad, that on left long and broad, sinuate, directed cephalad as far as base of aedeagus, then curved sharply to right to point caudad, slightly constricted in middle portions of its length, obliquely truncate distally; flagellum with left margin widely excavated with a lobe at each end of excavation, abruptly and convexly tapering distally to a short deflexed spine at apex, a short, broad submembranous process near middle of right margin of flagellum, and a similar process, subfoliate and horizontal, underlying apical portion of flagellum in its apical third. Genital styles with ventral (inner) margin produced mesad near middle and at apex, dorsal margin produced at its basal third in a short, vertical flattened process, distally truncate; distad of this process dorsal margin shallowly triangularly produced.

Holotype, ♂, VENEZUELA: Chivacoa, 24.x.1947, "taken on sugar-cane" (H. E. Box).

This species is distinguished by the aedeagal armature and the shape of the genital styles.

FIG. 21.—*Cedusa inflata dominicana* subsp. n. A, left genital style, dorsal view; B, anal segment, dorsal view; C, do., side view; D, aedeagus, left side; E, do., right side; F, process of left side of aedeagus, semi-diagrammatic; G, aedeagus, ventral view; H, apex of flagellum, left side; I, right genital style, ventral view; J, profile of vertex and basal part of frons; K, sclerites of seventh and eighth abdominal segments of female, left side.*Cedusa inflata* (Ball).*Lamenia inflata* Ball, 1902: 262.*Cedusa inflata dominicana* subsp. n. (fig. 21A-K).*Male*: length, 3.0 mm.; tegmen, 3.8 mm. *Female*: length, 3.1 mm.; tegmen, 3.9 mm.

Fuscous; median disc of frons and clypeus testaceous; sides of head and coxae slightly paler; rostrum and legs stramineous to creamy-white; external female genitalia dark fuscous. Tegmina uniformly fuscous; veins concolorous, with exception of transverse veins in membrane, which are hyaline. Wings infused, veins darker, a line along anal fold hyaline. Insect in life powdered with pale wax, so as to appear smoky-blue.

Aedeagus tubular; flagellum with a minute curved spine at base directed posteriorly, arising on left side; a long sinuate spine on right arising near base, directed cephalad above aedeagus; below this a broad sclerotised plate, shallowly trough-like along middle, tapering to a point distally, left margin or submargin strongly sinuately sclerotised; below this again a stout sclerotised process on left side directed cephalad, forking distally into a pair of short curved spines, at the same level expanded mesad in a broad thin plate, with a small triangular tooth near the point of origin of the two spines. Genital styles as in *C. funesta*, the longer limb of the basal process on the dorsal margin approximately mushroom-shape or clavate in side view.

Holotype, ♂, B.W.I.: Dominica, Saltoun, "1000 ft. in mountain forest," 11-30. vi. 1939 (*R. G. Fennah*).

Paratypes, 6 ♀, same particulars as holotype. This is here recognised as a subspecies of *C. inflata* Ball, distinguished from the Haitian type by differences in the shape of the inner (ventral) margin of the genital styles. It otherwise agrees with the published data on *inflata*, but the relationship between Haitian and Dominican material cannot be finally settled without comparison of aedeagal structures.

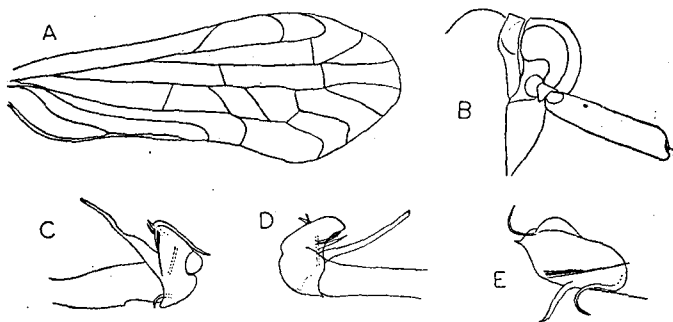


FIG. 22.—*Patara guttata* Westw. A, tegmen; B, head and pronotum, left side; C, aedeagus, right side; D, aedeagus, left side.

Patara fumipennis sp. n. E, apical portion of aedeagus, anterior view.

Patara Westwood.

Patara Westwood, 1841: 13. Logotype, *Patara guttata* Westwood.

Patara guttata Westwood (fig. 22A-D).

Westwood, 1840: 85.

Aedeagus asymmetrical with a short spine arising ventrally near apex, curved cephalad and to left; near anterior margin of flagellum a slender spine directed ventrad, lying close above the thickened subvertical ridge on left side; arising submedially below this from a transverse strut a long sinuate process obliquely truncate at apex, directed cephalad; apex of flagellum narrowly triangular and produced in a short acuminate process directed caudad; on right side of aedeagus near apex a very short two-pronged process directed cephalad, and arising slightly posteriorly to its base a moderately long spine directed obliquely.

B.W.I.: St. Vincent, Morne Garu, 20. viii. 1941, 44 ♂, 67 ♀ (*R. G. Fennah*).

Of these approximately a quarter, including both sexes, have the tegmina, when freed of wax, mostly infusate, another quarter is pale, and marked almost exactly as pale *Patara* from other islands, while the remainder are intermediate in varying degrees. *P. albida* Westw. (*ibid.*) as described and figured agrees with the pale form of *P. guttata*. There are no genitalic differences between the colour-forms.

Patara cyanea sp. n. (fig. 23A, B).

Male: length, 2.1 mm.; tegmen, 3.4 mm. Female: length, 2.8 mm.; tegmen, 4.0 mm.

Fuscous; clypeus, rostrum and legs ivory-white. Tegmina fuscous; apical margin and apical veins, at least distally, pallid, hyaline; veins otherwise concolorous. Wings fuscous, paler basally, veins concolorous.

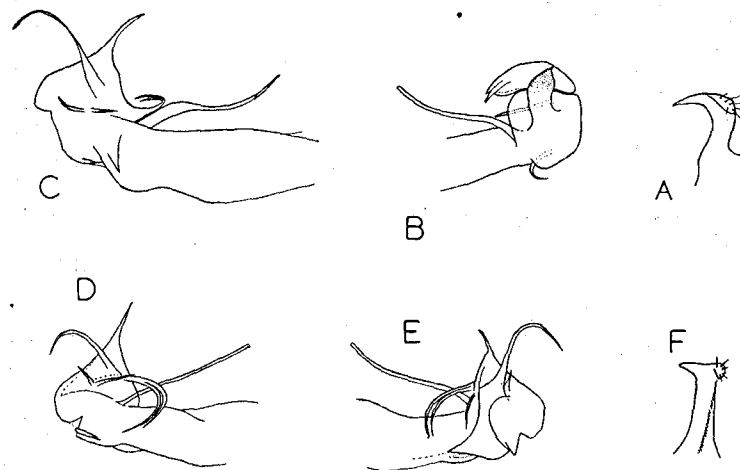


FIG. 23.—*Patara cyanea* sp. n. A, process on dorsal margin of genital style; B, aedeagus, left side.

Patara mimula sp. n. C, aedeagus, right side (Montserrat, B.W.I.); D, do. (Dominica, B.W.I.); E, do., left side (Dominica, B.W.I.); F, process on dorsal margin of genital style (Dominica, B.W.I.).

Anal segment, pygofer and genital styles as in *P. guttata*. Aedeagus with a short spinose process ventrally on right near apex curved to left; a rather long, slender process on right side distally, directed ventrolaterad; a short bifurcate process on right anterior margin of flagellum, directed cephalad; a long sinuate process medially arising from flagellum, directed cephalad; on left side of flagellum a broad flattened process directed dorsad, shortly produced in a point directed dorsocaudad.

Holotype, ♂, B.W.I.: Dominica, near Saltoun, "1000 ft. in mountain forest," vi. 1940 (*R. G. Fennah*).

Paratypes, 1 ♂, 1 ♀, same particulars as holotype.

This species is distinguished from *P. guttata*, to which it is very closely allied, by the genital armature, particularly in the absence of a spine on the flagellum directed ventrocaudad.

***Patara mimula* sp. n. (figs. 23C-F, 24D).**

Male: length, 1.6 mm.; tegmen, 3.1 mm. *Female*: length, 2.7 mm.; tegmen, 3.4 mm.

Second antennal segment of male longer than broad (3.4:1).

Ivory-white; a spot before eyes, a suffusion dorsally at base and ventrally at apex on antennae, pronotum and mesonotum laterally, and abdominal sclerites brown to fuscous. Tegmina marked exactly as in *P. inermis*, but with all markings on corium darker and larger and spot at apex of costal cell expanded to overlie Sc + R fork. Wings pearly-hyaline. Insect in life powdered white.

Anal segment of male short, latero-apical angles not produced. Pygofer with latero-dorsal angles not produced, medioventral process absent. Genital styles broad, upcurved distally; apical margin convex, process on dorsal margin as figured. Aedeagus asymmetrical, a short spine arising at apex on right directed cephalad beneath aedeagus; a pair of spines on right, one, the shorter, directed dorso-caudad, the other directed dorso-cephalad; a long slender process arising dorsally near base of flagellum directed dorso-cephalad; a two-pronged process arising anteriorly on flagellum near right side curved to left, then ventrad; a median slender spinose process arising dorsally near apex, directed dorsad, then curving caudad and finally ventrad; flagellum in form of a shallowly curved triangular lobe, partly surrounding base of preceding process, and itself tapering dorsally into a delicate oblique spine.

Holotype, ♂, B.W.I.: Dominica, near Morne Gay, "1600 ft. in mountain forest," 8.vii.1939 (*R. G. Fennah*).

Paratypes, 4 ♀, same particulars as holotype; 4 ♂, 2 ♀, DOMINICA: Saltoun, "1000 ft. in mountain forest," 11-30.vi.1939 (*R. G. Fennah*).

This species is distinguished by the aedeagal armature.

The following additional specimens are also to be assigned here: ST. KITTS: Ottley's Level, "in forest," 26.i.1942, 1 ♂, 1 ♀; ST. KITTS: Brimstone Hill, 28.i.1942, 3 ♂, 1 ♀; NEVIS: Nevis Mountain, "forest," 18.i.1942, 2 ♂; MONTserrat: Chance's Mountain, 18.i.1939, 5 ♂, 21 ♀ (all *R. G. Fennah*).

A short series from St. Lucia from the tunnels made by passalid larvae in the rotting trunks of felled trees is assigned to this species, but is recognised as a distinct geographical subspecies, *Patara mimula unicoloris* subsp. n., distinguished by having only a single spine on the right side of the aedeagus distally where, in *P. mimula mimula*, there are two spines diverging from a common base.

Holotype, ♂, B.W.I.: ST. LUCIA: Quillesse, "1000 ft., in the tunnels of Passalid larvae in felled trees," 21.iii.1939 (*R. G. Fennah*).

Paratypes, 2 ♂, 9 ♀, and 34 nymphs, same particulars as holotype.

***Patara fumipennis* sp. n. (fig. 22E).**

Male: length, 1.9 mm.; tegmen, 3.0 mm. *Female*: length, 2.3 mm.; tegmen, 3.2 mm.

Fuscous; clypeus, rostrum, antennae at apex, sides of head immediately before eyes, ivory white. Tegmina fuscous, apical margin and all apical veinlets near margin hyaline-pallid, veins otherwise concolorous. Wings infumated, apical margin narrowly pallid.

Anal segment of male short, latero-apical angles shortly produced. Pygofer with latero-dorsal angles not produced, medioventral process absent. Genital styles as in *P. guttata*.

Aedeagus asymmetrical, a two-pronged process, with the dorsal limb shorter, on right side porrect cephalad; flagellum with a slender spinose process directed dorsally, curved through a right angle and directed laterad to left at apex; a long bifurcate process arising near right lateral margin of flagellum directed cephalad and to left; apex of flagellum dorsally produced in a subspinose triangular eminence; an elongate sinuate process medially directed cephalad, and directly below it, arising from the lower margin of the flagellum, a deeply sinuate process curved dorsad, then cephalad to lie parallel with the medial process above.

Holotype, ♂, B.W.I.: St. Lucia, near Castries, "800 ft. in secondary growth," 3.ii.1940 (*R. G. Fennah*).

Paratypes, 3 ♀, same particulars as holotype.

This species is distinguished by aedeagal armature; the usual short spine arising ventrally on the right side and directed to the left below the aedeagus is replaced, as it were, by the long deeply-sinuate spine developed from the lower flagellar margin.

***Patara gausapata* sp. n. (fig. 26A-G).**

Female: length, 2.3 mm.; tegmen, 3.2 mm.

Ivory-white; margins of frons, a spot on genae before eyes, margins of second antennal joint and abdominal sclerites infuscate; a linear stripe parallel with hind margin of eyes, and median carina of mesonotum at middle; tibiae at apical margin and tarsi at base almost piceous. Tegmina brown with three broad, transverse bands in costal cell, and borders of apical veins hyaline; transverse veins of corium fuscous. Wings hyaline, powdered white.

Antennae ovate, distinctly compressed, eyes not reaching frontoclypeal suture. Rostrum just reaching to base of hind femora. Vertex more shortly triangular than in type species; frons distinctly more compressed, projecting before eyes for half length of an eye. Frontal carinae contiguous to apex. Pronotum medially carinate, lateral marginal carinae feeble, no fovea present. Mesonotum in lateral view strongly convex, ascending from base (excluding mesoscutellum) and apex to the middle, which is distinctly carinate in middle line. Post-tibiae with six stout spines at apex, basal metatarsal joint with six spines on apical margin, second metatarsal joint with five spines on apical margin. Tegmina about 2.3 times as long as greatest width, costal, apical and commissural margins markedly sinuate.

Anal segment of female short. Pregenital sternite broadly triangulately produced on posterior margin. Lateral sclerites of eighth segment trapezoidal, acute dorsally, as in *P. guttata*.

Holotype, ♀, B.W.I.: St. Vincent, near Three Rivers Settlement, "1000 ft. in mountain forest," 5.ix.1941 (*R. G. Fennah*).

This species is strongly distinguished by the shape of the antennae and tegmina and by markings. It stands so far apart from the other species that it may eventually have to be recognised as subgenerically different.

***Patara inermis* sp. n. (fig. 24A-C).**

Male: length, 1.9 mm.; tegmen, 3.0 mm. *Female*: length, 1.8 mm.; tegmen, 3.0 mm.

Second antennal joint four times as long as broad.

Ivory-white, a suffusion on margins of frons and sometimes on genae before eyes; second antennal joint, mesopleurites at base of mesocoxae, and abdominal sclerites lightly

infusate. Tegmina pearly hyaline, in life powdered white; two small spots in costal cell, one at base of M; a suffusion along sides of R, M and Cu in corium, expanding in membrane, except in M, to cover most of apical cells fuscous; veins pallid except transverse veins between R and M, one apical veinlet of R and two apical veinlets of M in part, which are infusate. Wings pearly-hyaline, powdered white.

Anal segment of male short, latero-apical angles shortly but acutely produced. Pygofer with laterodorsal angles not produced, medioventral process absent. Genital styles broad, upcurved distally, apical margin strongly convex, a rather long process on dorsal margin. Aedeagus asymmetrical, a spine arising at apex directed cephalad beneath

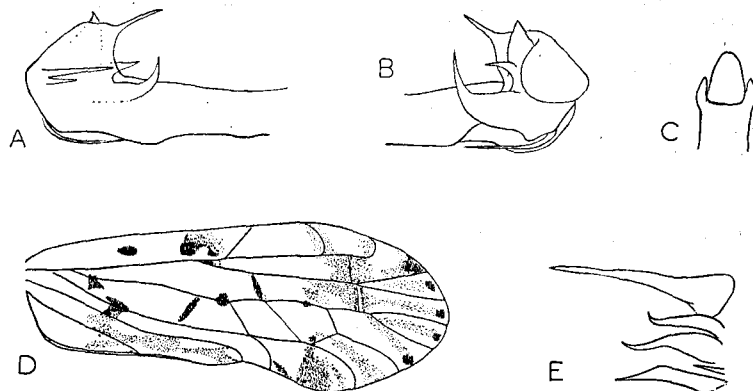


FIG. 24.—*Patara inermis* sp. n. A, aedeagus, right side; B, do., left side; C, anal segment, dorsal view.

Patara mimula sp. n. D, tegmen.

Omolocna latens sp. n. E, processes of aedeagus, separated, semi-diagrammatic.

aedeagus; a pair of spines on right, one more than twice length of the other, porrect cephalad; flagellum comprising a broad flattened process on left, directed cephalad, curved upward and tapering to a point; a straight slender spine at apex directed dorso-cephalad, a pair of short subsidiary processes, one spinose, the other triangular, on anterior face, the spinose process in direct line above the broad flattened process.

Holotype, ♂, B.W.I.: St. Lucia, Castries, Morne Fortunée, 1.xii.1938 (R. G. Fennah).

Paratypes, 16 ♂, 24 ♀, same particulars as holotype.

This species is distinguished by the shape of the aedeagus.

***Patara pakaraima* sp. n. (fig. 25A-G).**

Male: length, 2.3 mm.; tegmen, 3.5 mm.

Pallid, powdered greyish white, a suffusion across frons and on each side of head before eyes, a small spot on each side of suture below antennae, second segment of antennae, a slight suffusion on mesonotum and sublaterally on tergites of abdomen, fuscous. Tegmina pallid, two quadrate spots in costal cell fuscous; a round spot distad of Sc + R and M fork, a narrow oblique band from Cu across middle of clavus; a broad fascia from R near

middle to sutural angle giving off two short oblique stripes on basal side; a suffusion over apical cells of Sc, R and M₁, reaching margin between apical veins, pale brown.

Anal segment short, broader than long, latero-apical angles produced slightly in short rounded lobes. Pygofer short, posterior lateral margin convex, ventral margin transverse. Aedeagus tubular, hollowed on ventral surface near base, slightly curved upward distally,

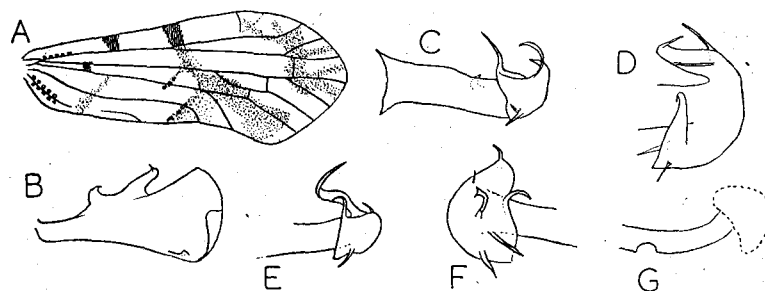


FIG. 25.—*Patara pakaraima* sp. n. A, tegmen; B, right genital style, inner aspect; C, aedeagus, ventral view; D, apex of aedeagus, ventral view; E, apex of aedeagus, left side, lateroventral view; F, apex of aedeagus, dorsal view; G, diagram of aedeagus in profile, showing ventral concavity near base.

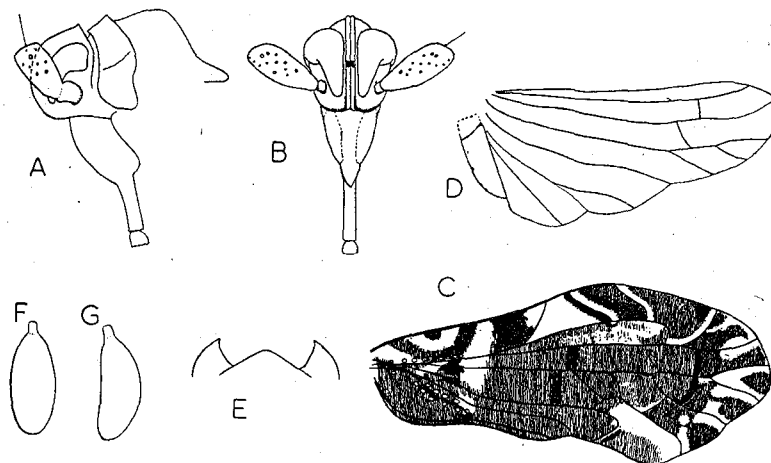


FIG. 26.—*Patara gausapata* sp. n. A, head and pronotum, side view; B, head, anterior view; C, tegmen (broken line indicates condition in *P. guttata*); D, wing; E, posterior margin of pregenital sternite; F, G, egg, anterior and side view.

expanding at apex into a hemispherical cap ornamented as follows: on right, a short spine latero-dorsally, with a blade-like, distally furcate process curved laterad arising below it, a narrow spine directed obliquely ventro-cephalad arising below the preceding, followed in turn by a short spine directed rather more ventrad; on left, dorsally a large

spine bent through 90° to point laterad to left; arising from lower part of cap a spine directed dorsad and recurved at tip, at apex of cap a small spine directed dorsad. Genital styles spatulate, an elongate lobe on dorsal margin with a short curved tooth at its basal end and a furcate process distally; apical margin incurved, a small lobe on inner face near ventro-apical angle.

Holotype, ♂, BRITISH GUIANA: Pakaraima Mountains, near head of R. Mazaruni, 1932 (*J. G. Myers*) (H.3068, B.M. 1933-400).

This species resembles *P. vittatipennis* Fennah in tegminal markings, but differs from this, as from all other species, in shape of genitalia.

TRIBE OTIOCERINI.

In this tribe the head, antennae and tegmina show remarkable variation, though within comparatively narrow limits: the head, however bizarre, is narrow even at its broadest development; the tegmina relatively long; the apical cells, at least in M, always short. The great plasticity of the head, even between sexes in *Swezeyia*, makes its characters undependable for rigorous generic separation. It is likely that when sufficient material has been examined it will be found that the relationship of several concepts at present generic will be more accurately expressed by a subgeneric classification. *Kamendaka* is an acceptable basis of reference in this respect. With series of varied *Anotia* before him the writer found intermediate stages in characters which serve to distinguish *Anotia bonnetii* Kby. from *Amalopota uhleri* Van Duzee, and accordingly cannot at present recognise *Amalopota* as a separate genus, or even as a subgenus.

Labicerus is omitted from the key. Antennal characters associate it with the *Otiocerus* group or with *IQUITOSA*, while the size would seem to place it with the former.

Key to Genera of Otiocerini.

- | | | | |
|------|------|--|------|
| (1) | (2) | Media not arising from radius or arising basad of Sc + R fork | (3) |
| (2) | (1) | Media arising from radius distad of Sc + R + M fork | (71) |
| (3) | (4) | First (basal) median sector arising before apical third of tegmen | (5) |
| (4) | (3) | Median sectors confined to apical third of tegmen | (59) |
| (5) | (6) | First segment of antennae short, as broad as long or broader | (7) |
| (6) | (5) | First segment of antennae more than twice as long as broad | (51) |
| (7) | (8) | Sc + R fork at or basad of middle of tegmen, subcostal cell elongate | (9) |
| (8) | (7) | Sc + R fork distad of middle, subcostal cell short | (47) |
| (9) | (10) | Subantennal process absent or very small; lateral pronotal carinae absent or very small | (11) |
| (10) | (9) | Subantennal process well developed | (35) |
| (11) | (12) | Head in profile apically forming a curve, or subconical; frons not wider at base than at apex | (13) |
| (12) | (11) | Head in profile angulate at apex, or frons wider at base than at middle | (27) |
| (13) | (14) | Vertex little produced beyond eyes; anterior margin in profile subparallel to anterior margin of eye | (15) |
| (14) | (13) | Vertex considerably produced beyond eyes | (17) |
| (15) | (16) | Frontal carinae rarely contiguous at base | |

Pyrrhoneura subgen. *Pyrrhoneura* Kirk.

- | | | | |
|------|------|--|---|
| (16) | (15) | Frontal carinae contiguous at base | |
| | | <i>Pyrrhoneura</i> subgen. <i>Tempora</i> Mats. | |
| (17) | (18) | Antennae not reaching as far as apex of head | (19) |
| (18) | (17) | Antennae reaching to apex of head; if not, then base of costal margin of tegmina triangularly produced | (21) |
| (19) | (20) | Vertex not two-thirds as long as mesonotum; tegmina broadest two-thirds from base | <i>Cobacella</i> * |
| (20) | (19) | Vertex at least as long as mesonotum; tegmina broadest three-quarters from base | <i>Swezeyia</i> Kirk. |
| (21) | (22) | Vertex and frons in profile deeply and evenly rounded; apical cells in tegmina not twice as long as broad | <i>Kuranda</i> Dist. ² |
| (22) | (21) | Vertex and frons in profile subconical or narrowly rounded; most apical cells in tegmina more than twice as long as broad | (23) |
| (23) | (24) | Costal margin near base produced in a triangular reflected lobe | (25) |
| (24) | (23) | Costal margin not produced | <i>Anotia</i> Kby. |
| (25) | (26) | Mesonotum bituberculate; antennae with appendage | <i>IQUITOSA</i> Fenn. |
| (26) | (25) | Mesonotum smooth, antennae simple | <i>Sayiana</i> Ball |
| (27) | (28) | Frons basally at least as wide as at apex | <i>Swezeyia</i> Kirk. |
| (28) | (27) | Frons narrower at base than at apex | (29) |
| (29) | (30) | Vertex in profile sinuate | <i>Kampulokara</i> Muir |
| (30) | (29) | Vertex not as above | (31) |
| (31) | (32) | In profile vertex meeting frons rectangulately; frons strongly convex, especially distally | |
| | | <i>Kamendaka</i> subgen. <i>Eosaccharissa</i> Kirk. | |
| (32) | (31) | Vertex and frons in profile meeting at an acute angle; frons in profile not deeply convex | (33) |
| (33) | (34) | Vertex and frons in profile meeting at angle of about 45° | |
| | | <i>Kamendaka</i> subgen. <i>Nicertoides</i> Mats. | |
| (34) | (33) | Vertex and frons in profile meeting at angle between 45° and 80° | <i>Kamendaka</i> subgen. <i>Kamendaka</i> Dist. |
| (35) | (36) | Lateral pronotal carinae not forming a prominent subfoliate ridge | (37) |
| (36) | (35) | Lateral pronotal carinae forming a subfoliate ridge | (41) |
| (37) | (38) | In profile vertex not ascending distad; forming an even curve with frons | <i>Nesocore</i> Kirk. |
| (38) | (37) | In profile vertex ascending distad | (39) |
| (39) | (40) | In profile vertex ascending and curved backward | <i>Nesoniphias</i> Kirk. |
| (40) | (39) | In profile vertex ascending, but not curved backward | |
| | | <i>Nesoneura</i> Kirk. | |
| (41) | (42) | Subantennal process spatulate, attached to genae by a slender stalk | (43) |
| (42) | (41) | Subantennal process not spatulate, attached to genae along a broad base | (45) |
| (43) | (44) | Head in profile considerably produced beyond eyes; antennae either small with large sensoria, or with second joint produced, bearing laminae so as to appear pectinate | <i>Kaha</i> Kirk. |
| (44) | (43) | Head in profile not much produced beyond eyes; antennae moderately large with small sensoria | <i>Nesokaha</i> Muir |
| (45) | (46) | Vertex truncate at apex; lateral carinae of frons not contiguous, except rarely at middle of frons | <i>Flaccia</i> Stål |
| (46) | (45) | Vertex acutely angulate, lateral carinae meeting at apex and remaining contiguous along frons to near apex | <i>Paralyricen</i> Muir |

² *Deribia* may run down to *Kuranda* or *Epotiocerus*, but as head characters in these genera are unreliable criteria it may well prove to be the same as *Leptaleocera*.

- (47) (48) In profile vertex and frons forming a curve, not meeting angu-
lately **Makula** Dist.
(48) (47) In profile apex of head angulate (49)
(49) (50) Tegmina with costal margin more or less sinuate and inter-
rupted by an angular projection; a distinct precostal area in
basal third **Banksiella** Muir
(50) (49) Costal margin entire, not as above (see (31) above) **Kamendaka** Dist.
(51) (52) A subantennal process present **Neodendrokara** Muir
(52) (51) Subantennal process absent (53)
(53) (54) Head in profile not much produced beyond eyes, apically
rounded **Dendrokara** Mel.
(54) (53) Head in profile considerably produced beyond eyes, apically
narrowly rounded or angulate (55)
(55) (56) Head in profile rounded at apex **Shellenius** Ball
(56) (55) Head in profile angulate at apex (57)
(57) (58) Head in profile notched near apex, beyond which apex angu-
lately ascends **Apache** Kirk.
(58) (57) Vertex in profile not notched, apex of head ascending in a curve
 **Otiocerus** Kby.
(59) (60) Head twice as long as pronotum and mesonotum combined
 **Vivaha** Dist.
(60) (59) Head relatively shorter (61)
(61) (62) Subcostal cell short (63)
(62) (61) Subcostal cell long; antennae cylindrical, sometimes complex (67)
(63) (64) Antennae large, laterally compressed (65)
(64) (63) Antennae cylindrical **Robigus** Dist.
(65) (66) Vertex little produced before eyes. Frons in profile parallel to
margin of eye **Leptaleocera** Muir
(66) (65) Vertex much produced before eyes; frons in profile almost oval.
 **Eptiocerus** Mats.
(67) (68) Head in profile angulate or narrowly rounded apically, pro-
duced beyond eyes for more than width of an eye **Interamma** Wlk.
(68) (67) Head in profile apically forming a wide curve, not produced
beyond eyes for more than width of an eye (69)
(69) (70) Head with eyes as wide as pronotum or nearly so; vertex
quadrate, wider at base than apex, distally truncate; lateral
carinae of vertex and frons very large, not compressed to-
gether on frons **Megatropis** Muir
(70) (69) Head with eyes narrower than pronotum; vertex triangular;
lateral carinae of vertex and frons large, compressed together,
on frons **Nicerta** Wlk.
(71) (72) Subantennal process present **Mysidioides** Mats.
(72) (71) Subantennal process absent or very small (73)
(73) (74) Antennae with first segment much longer than broad **Phra** Dist.
(74) (73) Antennae with first segment not longer than broad (75)
(75) (76) Antennae longer than frons (77)
(76) (75) Antennae shorter than frons (83)
(77) (78) Tegmina with Sc and R dilated at apex; vertex elongate,
strongly ascending distally; mesonotum with a vertical
flange-like lobe on line of each obsolete lateral carina
 **Anomaladerbe** Muir
(78) (77) Tegmina with Sc and R not dilated distally; vertex relatively
short; mesonotum without vertical laminae on disc (79)

- (79) (80) Frons in profile semicircularly rounded; vertex not ascending
 **Platonax** Metc.
(80) (79) Frons in profile shallowly convex; vertex ascending distally, or
very short (81)
(81) (82) Media in tegmen with four sectors; vertex ascending distad,
antennae flattened **Platocera** Muir³
(82) (81) Media in tegmen with five sectors; vertex very short, not ascend-
ing, antennae cylindrical **Platocerella***
(83) (84) Antennae with second segment branched near base; appendage
curved; frons at least as wide at base as at apex **Harpanor** Fenn.
(84) (83) Antennae with second segment cylindrical, devoid of appendage (85)
(85) (86) Vertex little produced beyond eyes; frons distinctly wider at
apex than at base (87)
(86) (85) Vertex markedly produced beyond eyes, frons compressed
throughout, apex not wider than base **Archara** Metc.
(87) (88) Subantennal process present; ocelli present or indicated;
clypeus as long as frons **Heronax** subgen. **Heronax** Kirk.
(88) (87) No subantennal process; ocelli absent; clypeus two-thirds
length of frons **Heronax** subgen. **Homometria***

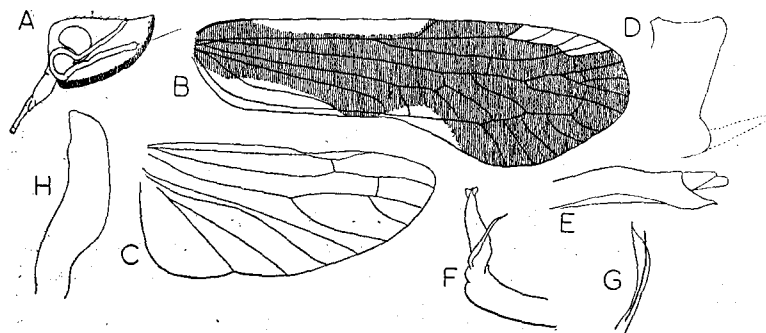


FIG. 27.—*Otiocerus regalis* sp. n. A, head, left side; B, tegmen; C, wing; D, pygofer, left side; E, anal segment of male, left side; F, distal portion of aedeagus, right side; G, flagellum of aedeagus, left side; H, genital style, left side, side view.

Otiocerus Kirby.

Kirby, 1821: 13, pl. 1, figs. 1-8. Logotype, *Otiocerus stollii* Kirby, 1821: 16.

Otiocerus regalis sp. n. (fig. 27A-H).

Male: length, 5.0 mm.; tegmen, 6.8 mm.

Head in profile subtriangular, slightly curved dorsad and acute at apex. Pallid stramineous, powdered pallid, lateral margins of frons and a faint suffusion at apex of antennal process orange. Male genitalia lightly infusate.

Tegmina bronzy-fuscous, distal portion of costal cell, apical cells of Sc and R, excluding nodal cell, two broadly crescentic areas, one in clavus, the other just distad of its apex,

³ *Niphadodite* is apparently closely related to *Platocera*, but the vertex is produced almost as far as in *Anomaladerbe*.

pallid. In life these areas are pale yellow and the infusate area is purple. Wings hyaline, powdered greyish-white.

Anal segment of male elongate, narrow, approximately parallel-sided, anal foramen near apex, lateroapical angles produced. Pygofer with laterodorsal angles subacutely rounded. Aedeagus long, narrowly tubular, shallowly curved, a spine on right side at base of flagellum, directed dorsad, two subequal spines on left side at base of flagellum; flagellum with two subparallel sclerotised rods from base to near apex, apical margin transversely bicuspidate. Genital styles in lateral view elongate, sinuate, of subequal width throughout, obliquely rounded-truncate distally.

Holotype, ♂, B.W.I.: St. Vincent, Morne Garu, 20.viii.1941, "taken on leaf of *Heliconia bihai*" (R. G. Fennah).

In shape of profile this species resembles *O. venustus* Fowler, but differs abundantly in coloration.

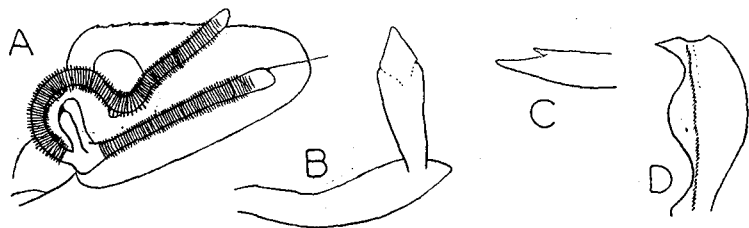


FIG. 28.—*Otiocerus fontis* sp. n. A, head, left side; B, aedeagus, right side, flagellum raised dorsad; C, apex of flagellum in profile; D, left genital style, side view.

***Otiocerus fontis* sp. n. (fig. 28A-D).**

Male: length, 3.9 mm.; tegmen, 5.3 mm. *Female*: length, 4.1 mm.; tegmen, 6.2 mm.

Head in profile broadly rounded at apex, slightly concave on dorsal margin, apical margin only slightly surpassing antennae.

Pale stramineous, powdered white, margins of head at apex orange in male. Tegmina pale creamy-white, translucent, powdered white. Wings hyaline, powdered white.

Anal segment of male of moderate length, parallel-sided, porrect caudad, rounded-truncate at apex, not at all deflexed; anal foramen at apex, lateroapical angles not produced. Pygofer with laterodorsal angles obtusely rounded, not produced. Aedeagus tubular, unarmed, slightly curved upward distally; flagellum unornamented, slightly expanding distally, then tapering to a blunt point at apex, in profile slightly indented near apex. Genital styles in lateral view narrow, shallowly and evenly curved dorsad; in ventral view with a shallowly rounded eminence near middle.

Holotype, ♂, B.W.I.: St. Lucia, near Quilesse, "taken on dead leaf-bases of *Cyathea* at 1000 ft.," 22.iii.1939 (R. G. Fennah).

Paratype, 1 ♀, same particulars as holotype.

This species is distinguished by coloration and shape of genitalia.

***Otiocerus lyncaeste* sp. n. (fig. 29A-G).**

Male: length, 4.0 mm.; tegmen, 5.5 mm.

Head in profile broadly rounded at apex; dorsal margin distinctly concave, apical margin markedly surpassing antennae.

Pale testaceous, head and abdomen pallid; lower margins of frons sparsely, a suffusion on antennae, a spot on pronotum behind eyes and on mesonotum near tegulae, orange. Tegmina translucent, faintly suffused dull yellow; medial portion of each cell, except at extreme base and in clavus, with a very pale fuscous suffusion. Wings hyaline, powdered white.

Anal segment of male of moderate length, apical margin abruptly deflexed; anal foramen at apex. Pygofer with latero-dorsal angles obtusely rounded, not produced. Aedeagus tubular, a pair of short curved spines distally at base of flagellum; flagellum tubular, shallowly sulcate in distal half, a short acuminate process near middle, a broadly lanceolate lobe arising near middle, directed towards apex, acute at its tip; flagellum bluntly pointed and slightly curved at apex. Genital styles in lateral view elongate narrow, of subequal width throughout, shallowly curved, in ventral view produced in a subtriangular eminence at middle of inner margin, sinuately transverse at apex.

Holotype, ♂, B.W.I.: Trinidad, Northern Range, St. John's Valley, 12.vi.1942 (R. G. Fennah).

This species is distinguished by the shape of the head and genitalia, and by coloration. In the shape of the profile this species resembles *O. griseus* Fowler, but differs very markedly in colouring.

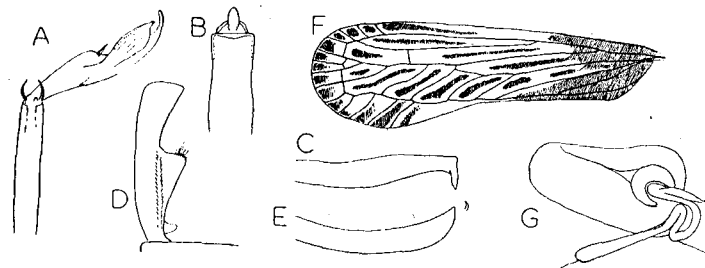


FIG. 29.—*Otiocerus lyncaeste* sp. n. A, aedeagus, ventral view with flagellum twisted laterocaudad; B, distal part of anal segment of male, dorsal view; C, anal segment of male, side view; D, left genital style, ventral view; E, left genital style, side view; F, tegmen; G, head, side view.

***Anotia* Kirby.**

Kirby, 1821: 20, pl. 1, figs. 9-11. Haplotype *Anotia bonnetii* Kirby, *ibid.*

***Anotia sanguinea* sp. n. (fig. 30A-E).**

Male: length, 3.2 mm.; tegmen, 5.5 mm. *Female*: length, 3.5 mm.; tegmen, 6.5 mm.

Testaceous-yellow; antennae, sides of head, a broad band across pronotum behind eyes continued across mesonotum; middle line of mesonotum, pleurites and membrane of abdomen red. Abdominal tergites infusate. Tegmina infusate, two irregular spots in costal cell; a fascia from middle of tegmen in M to apex of clavus, a fascia from distal portion of costal margin to M in membrane, a marginal spot in apical cell Rs and a larger marginal spot in M, and a spot at distal third of clavus hyaline; veins red. Wings infusate, a hyaline spot at forks of Cu.

Anal segment of male moderately short, lateroapical angles not produced, apical margin transverse. Pygofer with laterodorsal angles acutely produced. Aedeagus tubular, shallowly curved dorsad distally; flagellum relatively short and stout, sub-

membranous throughout, with a rectangular sclerite on right side. Genital styles with mesoventral margin almost straight, dorsal margin with an auriculate process near middle.

Anal segment of female very short, distally rounded, broader than long. Pregenital sternite conically produced posteriorly. First valvulae of ovipositor with a subquadrate minutely denticulate lobe on inner face at base; a series of five teeth on dorsal margin distally, the three distal teeth larger than basal two; below this limb a submembranous lobe produced distally into two processes, one finger-like, the other subspinose; second valvulae tapering and slightly deflexed distally with lower margin excavate two-thirds

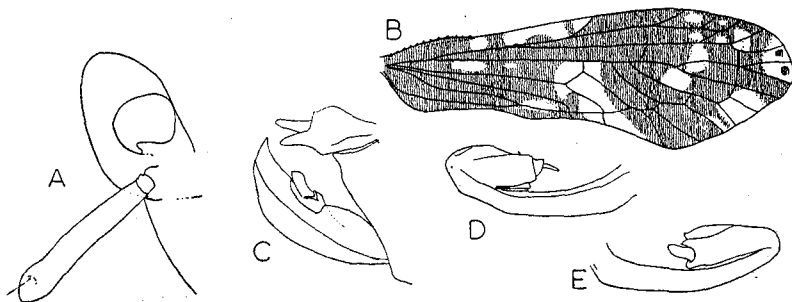


FIG. 30.—*Anotia sanguinea* sp. n. A, head and antenna, left side; B, tegmen; C, anal segment, posterior margin of pygofer and right genital style; D, aedeagus, right side; E, do., left side.

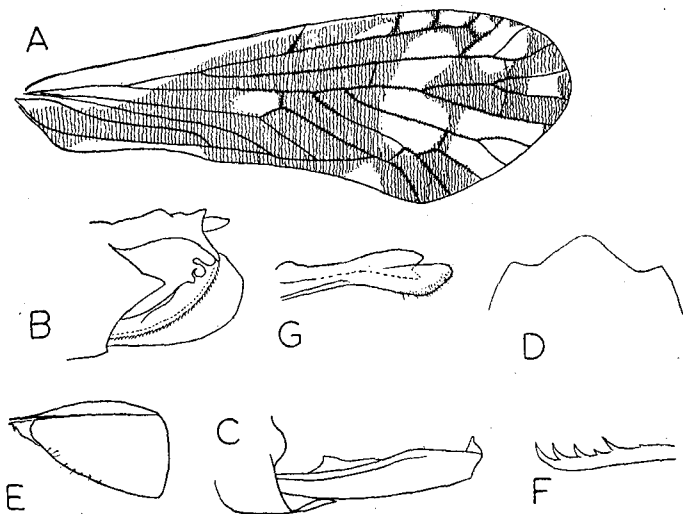


FIG. 31.—*Anotia fitchi trinitatis* subsp. n. A, tegmen; B, anal segment, pygofer and left genital style; C, right genital style and medioventral process, ventral view; D, pregenital sternite of female; E, third valvula of ovipositor, right side; F, dorsal sclerite of first valvula of ovipositor; G, second valvula of ovipositor, side view.

from base, a triangular lobe at base and a smaller triangular lobe on inner face one quarter from base; third valvulae comprising a narrowly triangular lobe dorsally and a more broadly triangular sclerite laterally, traversed by an oblique membranous furrow near apex. Bursa copulatrix beset with minute sclerotised rings with an irregular row of about seven large rings each bearing a short single spine, or two spines, on one side.

Holotype, ♀, B.W.I.: Trinidad, 18.xii.1928 (*J. G. Myers*) (B.M. 1929-170).

Paratypes, 9 ♂, 14 ♀, B.W.I.: Trinidad, La Reunion, Carapo, 14.ix.1949 (*R. G. Fennah*).

This species seems to be nearest to *A. venustula* Fowler, from which it differs in coloration.

Anotia fitchi Van Duzee.

Van Duzee, 1893 : 280.

Anotia fitchi trinitatis subsp. n. (fig. 31A-G).

Male: length 3.5 mm.; tegmen, 4.7 mm. Female: length, 3.4 mm.; tegmen, 5.8 mm.

Antennae of female distinctly shorter than in male. Apex of head in profile rounded, not subangulate.

Creamy-white, a suffusion on genae before lower margin of eyes, a broad stripe on each side of pronotum behind eyes, red, tinged with fuscous; a stripe on each side of mesonotum light fuscous, tinged with red; abdominal sclerites yellowish-fuscous, separated mediodorsally and at side by scarlet membrane. Antennae lightly infuscate with darker granules.

Tegmina mostly infuscate: a triangular area bounded by costal margin and a line from base of clavus to node, an area between M and Cu_{1b} at level of claval apex, a spot at apex of cell Sc, another in middle of subapical cell R, and a larger area immediately posterior to it in M, most apical cells except near margin, hyaline. Veins concolorous basally, becoming suffused with red distad, hyaline at apical margin. Wings lightly infuscate, veins rather darker. Male genitalia fuscous but anal segment pallid.

Anal segment of male moderately short, almost quadrate in dorsal view, latero-apical angles strongly produced caudad to form an acute angle; medioventral process shallowly convex. Aedeagus with flagellum short, sclerotised on its dorsal surface in a quadrate plate produced distally in a slender spinose process on right, and in a similar but slightly stouter process on left. Genital styles moderately elongate, triangularly inflected apically; inner margin shallowly triangularly produced; in profile as figured.

Pregenital sternite of female as figured.

Holotype, ♂, B.W.I.: Trinidad, La Reunion, Carapo, "below leaves of 'wild tobacco,' *Acnistus arborescens*," 14.ix.1949 (*R. G. Fennah*).

Paratypes, 1 ♂, 3 ♀, same particulars as holotype.

This species is distinguished from *A. sanguinea* by its smaller size and more sober colouring. The antennae are shorter in both sexes, and are fuscous instead of scarlet, while the thoracic pleurites are pallid, not scarlet. The wing veins, and tegminal veins basally, are not red, as in *sanguinea*. The subspecies is distinguished by the wholly infuscate wings and the greater infuscation of the corium of the tegmen.

Anotia rubrinoda sp. n. (fig. 32A-D).

Male: length, 3.1 mm.; tegmen, 5.1 mm. Female: length, 3.5 mm.; tegmen, 5.2 mm.

'Apex of head in profile bluntly conical, not broadly rounded; second antennal joint cylindrical, shallowly sinuate. Tegmina with Sc giving off 5 veinlets to margin, Sc with 3 apical veinlets.

Creamy-white, dorsal part of pronotum, mesonotum, and abdominal tergites pale golden yellow. Tegmina hyaline, a narrow diffuse fascia across basal third, another, following veins, from node to anal angle, most of claval area, all transverse veins, and a small round submarginal spot in apical cells, lightly infuscate; veinlets between Sc and anterior margin red, the basal veinlet both black and red, veins otherwise pale stramineous. Wings hyaline, veins pallid stramineous with exception of R-M crossvein, which is infuscate. Insect powdered white.

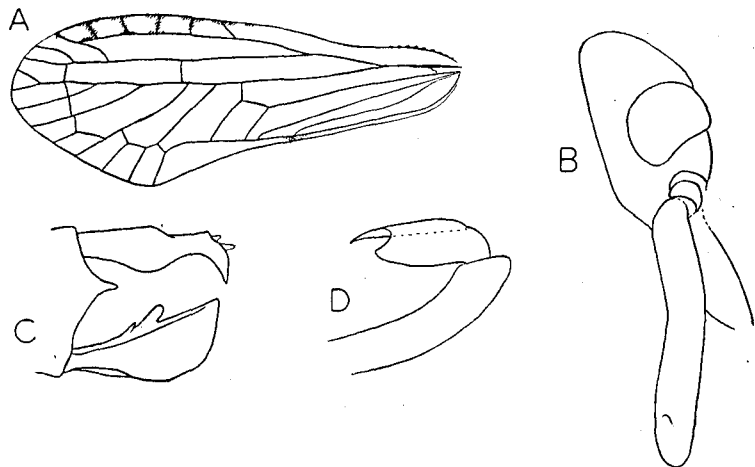


FIG. 32.—*Anotia rubrinoda* sp. n. A, tegmen; B, head, right side; C, anal segment, posterior margin of pygofer, and left genital style; D, aedeagus, left side.

Anal segment of male about as long as genital styles; lateral margin sinuate in profile, strongly decurved at apex; anal foramen near apex. Pygofer with laterodorsal angles produced in a short narrow lobe. Aedeagus tubular, shallowly curved; flagellum about half as long as aedeagus dorsally, dorsally convex, hollowed out below, distally bluntly lobate on left side and acuminate on right. Genital styles as figured.

Holotype, ♂, B.W.I.: Trinidad, La Reunion, "resting on leaves of 'wild tobacco,' *Acnistus arborescens*," 16.vii.1949 (R. G. Fennah).

Paratypes, 8 ♂, 11 ♀, same particulars as holotype.

This species appears to be nearest to *Anotia tenella* Fowler in colouring, but differs in the distal venation of Sc, in which it approaches *Anotia smithi* Fowler, from which, in turn, and from *Anotia invalida* Fowler, it is separated by its colour pattern.

Anotia formaster sp. n. (fig. 33A-J).

Male: length, 3.4 mm.; tegmen, 5.7 mm. Female: length, 4.4 mm.; tegmen, 6.3 mm.

Head in profile produced ascendingly before eyes, apex acute. Antennae cylindrical, in male scarcely surpassing apex of head, in female shorter, arista subterminal. Costal margin of tegmina produced at base in a shallow reflexed lobe.

Vertex and genae translucent white; middle line of vertex, and frons, a curved line between lower margin of eye and frontoclypeal suture, and antennae, scarlet; clypeus

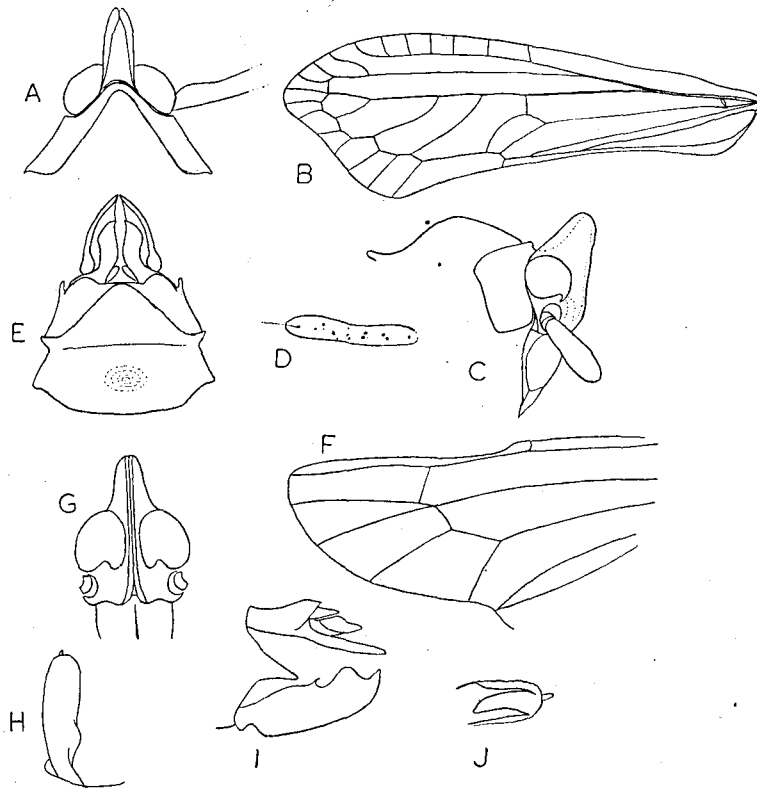


FIG. 33.—*Anotia formaster* sp. n. A, head and pronotum, dorsal view; B, tegmen; C, head and pronotum and mesonotum, side view; D, antenna; E, female genitalia, ventral view; F, distal part of wing; G, frons, anterior view; H, left genital style; I, anal segment, posterior margin of pygofer and left genital style; J, flagellum of aedeagus, right side.

scarlet suffused fuscous medially; subapical joint of rostrum white, apical joint fuscous; pronotal disc, tegulae, and mesonotum except mesoscutellum orange with slight fuscous suffusion; pronotum red behind eyes; ventrally and posterolaterally white; base of procoxae, mesepimera and metepimera, mesoscutellum and metanotum, meso- and metatibiae and tarsi, abdominal tergites narrowly along anterior and posterior edges, anal styles and tip of lateral process on pygofer, white; other parts of legs, mesepisterna and

metepisterna, membrane of abdomen, anal segment, and a suffusion over male genitalia, scarlet; abdominal sclerites and male genitalia otherwise fuscous.

Tegmina mostly deeply infusate; costal margin, most of costal cell near base, a triangular area on hind margin just distad of apex of clavus, extending inward to middle, yellowish-hyaline; interval areas along distal part of anterior margin, and a spot at junction of each apical veinlet with margin, white; veins in fuscous areas scarlet, in yellow areas concolorous. Wings fuscous except for a yellowish-hyaline marginal area in Cu; veins and stridulatory area scarlet.

Anal segment of male moderately short, latero-apical angles strongly produced with narrow processes; mediadorsally a small blunt tooth. Pygofer with laterodorsal angles strongly produced caudad in an acutely triangular process; medioventral process absent. Aedeagus ventrally with a single longitudinal carina close to middle line with a small narrow triangular depression at its base; flagellum short, thick and fleshy, a small fuscous scoop-like semicircular sclerite medially at apex, lying at bottom of a broad shallow depression; left side of flagellum sclerotised but unarmed, right side with a stout adpressed spine dorsally, and a broader adpressed spine below it, both directed cephalad.

Pregenital sternite of female as figured.

Holotype, ♂, B.W.I.: Trinidad, La Reunion, Carapo, "taken below leaves of 'wild tobacco,' *Acnistus arborescens*," 14.ix.1949 (R. G. Fennah).

Paratypes, 3 ♀, same particulars as holotype.

This species is distinguished from *A. sanguinea*, to which, of Trinidad species, it bears closest general resemblance, by the acutely angulate profile of the head, by the shorter antennae and by the shape of the tegmina.

Cobacella gen. n.

Vertex about twice as long as broad across base; posterior margin excavate, lateral margins converging distally; disc depressed, in profile moderately produced before eyes, rounding into frons; genae without subantennal process; antennae subcylindrical, shorter than head. Pronotum short medially, medially carinate; mesonotum relatively large, about as broad as long; posterior margin of mesoscutellum transverse, ecarinate. Tegmina widest three-fifths from base, apical margin deeply rounded; Sc + R fork about one-fifth from base, M arising from basal cell or very nearly so, Cu₁ forked near level of union of claval veins; apical areoles at least twice as long as broad; clavus extending for a little more than one-third of length of whole tegmen.

Anal segment of male short, anal foramen near apex, apical angles shortly produced lateroventrad. Pygofer devoid of medioventral process.

Type species, *Otiocerus* (?) *rubescens* Fowler, 1900: 76, pl. 9, fig. 2.

This genus differs from *Otiocerus* and *Anotia* by characters given in the key. In the field it is unmistakably distinguished when at rest by the carriage of the tegmina, which are directed laterocaudally with the apical portion touching the substrate, or nearly so. *Anotia* characteristically directs the tegmina steeply upward and slightly outward, and thus assumes a V-shape when viewed from front or rear.

Cobacella sexguttata sp. n. (fig. 34C-I).

Male: length, 6.0 mm.; tegmen, 8.3 mm. Female: length, 5.5 mm.; tegmen, 8.8 mm.

Ivory-white; lateral margins of vertex, frons and anterior portion of genae, middle line of clypeus, sometimes profemora and mesofemora at base and apex, and protibiae at apex, anal segment of male, ventral surface of pygofer, and a suffusion on genital styles, orange-red; six round spots on latero-caudad margins of mesonotum piceous, abdominal

tergites fuscous. Tegmina translucent, dull yellow, a suffusion at base and across apical portion of membrane fuscous; veins concolorous except at apex and Sc and claval veins at base, where, like the costal and apical margin, they are scarlet-red. Wings hyaline, suffused with fuscous at base and apex.

Anal segment of male short, almost as broad across apex as long in middle line; latero-apical angles acute and diverging. Aedeagus asymmetrical, sinuately tubular; flagellum with a single spinose process at its base, and a flattened plate, acute at tip, on left; on right two sclerites, distally acute, supporting membranous portion. Genital styles narrow in

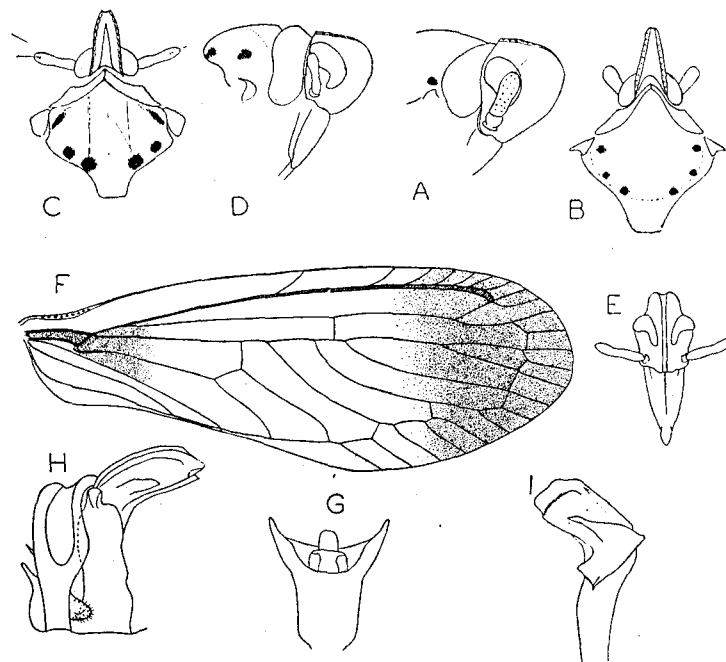


FIG. 34.—*Cobacella rubescens* (Fowl.). A, head and pronotum, side view; B, head and thorax, dorsal view.

Cobacella sexguttata sp. n. C, head and thorax, dorsal view; D, head and pronotum, side view; E, head, anterior view; F, tegmen; G, anal segment of male, dorsal view; H, left genital style and aedeagus, ventral view; I, aedeagus, dorso-lateral view, right side, flagellum raised.

profile, curved dorsad distally, broadly sulcate longitudinally in distal three-quarters, a small spine near middle dorsally, directed latero-caudad, and a subconical setose eminence on inner face near base.

Holotype, ♂, B.W.I.: Trinidad, La Reunion, Carapo, "resting on leaves of 'wild tobacco,' *Acnistus arborescens*," 14.ix.1949 (R. G. Fennah).

Paratype, 1 ♀, same particulars as holotype.

This species is close to *Cobacella rubescens* Fowler (fig. 34A, B), but the vertex is not produced so far before the eyes. The coloration is different,

while the bodily size is substantially greater than that of *C. rubescens*. The figures of the type of *C. rubescens* Fowler have been kindly provided by Dr. W. E. China.

Platocerella gen. n.

Vertex small, triangular; lateral margins of frons contiguous, in profile more or less following anterior margin of eyes, convex but not deeply so, only slightly indented at frontoclypeal suture; eyes reniform, not deeply excavate; antennae with basal joint short, second joint surpassing anterior margin of head, approximately cylindrical, third joint inserted apically. Pronotum narrow medially, relatively broad laterally, posterior margin angulately excavate; mesonotum moderately convex. Tegmina narrow basally, moderately dilated distally. R separating from M at level of apex of clavus, typically with three veinlets at margin; M five-branched with first and fourth branches forked at transverse line of cross-veins; Cu₁ two-branched, with anterior branch fused with last branch of M for a short distance.

Anal segment of male elongate, narrow, anal foramen in profile situated at middle. Pygofer with laterodorsal angles more or less angulately produced, medioventral process present, distally acute. Genital styles rather elongate, subspatulate, a shallow lobe dorsally near base, bearing a brush-like series of minute setae and a short stout curved spine.

Type species, *Platocera rubicundum* Muir.

This genus differs from *Platocera annulipes* Muir, the type species of *Platocera*, in that the lateral margins of the frons are close to, and follow the curve of, the anterior margin of the eyes, instead of being strongly produced before them, in the antennae being cylindrical and relatively shorter, and in tegminal venation. From *Platonax* Metcalf it differs in profile of frons (which in *Platonax* is almost semicircular) and in shape of antennae; in external male genitalia *Platocerella* differs from *Platonax* in the shape of the laterodorsal angles of the pygofer, which are not at all produced in *Platonax*, and in the general shape of the genital styles, especially in the deeply rounded apical margin as contrasted with the obliquely truncate apical margin of *Platonax*. These two genera, however, are probably rather closely allied.

Platocerella rubicunda (Muir) (fig. 35A-F).

Platocera rubicundum Muir, 1918 : 421.

Male: length, 4 mm.; tegmen, 8.5 mm.

Fuscous, with red suffusion; carinae of frons, rostrum, lower side of thorax and legs stramineous. Tegmina fuscous, costal margin and distal portion of costal cell except at node, an area at apical angle, another at middle of apical margin, a small spot near R + M fork, another just basad of Cu fork and about four spots anteriorly in M, and a lenticular area between margin and M₄ hyaline, powdered white; clavus between anterior vein and sutural margin testaceous; veins in anterior part of tegmen and apical margin crimson red, elsewhere concolorous. Wings slightly smoky, an area in Cu at margin translucent, pallid, veins red.

Anal segment elongate, narrow, latero-apical angles produced and deflexed through 105°. Pygofer rather narrow, laterodorsal angle rectangulate, posterior margin oblique with an eminence near middle, medioventral process pointed. Aedeagus tubular, curved, with a pair of spinose processes distally at point of insertion of flagellum; flagellum with two narrow lobes at base, a sinuate spine on left side near base, a broad membranous lobe distad of this, tapering abruptly to a short spine; a long slender process on dorsal margin,

distally subtruncate and on right side a stout pigmented spine with a semi-detached supporting rod below; upper surface of flagellum more or less sclerotised. Genital styles rather elongate, subspatulate in profile; dorsal margin bearing a brush-like series of minute setae and a short, stout curved spine on an eminence near middle, a small triangular process near apex, apical margin deeply rounded.

Redescribed from 1 ♂ (H.2972) from BRITISH GUIANA: Pakaraima Mountains, Upper Ireng River, 1932 (*J. G. Myers*) (B.M. 1933-400).

Sayiana Ball.

Ball, 1928 : 197. Orthotype, *Anotia sayi* Ball, 1902 : 259.

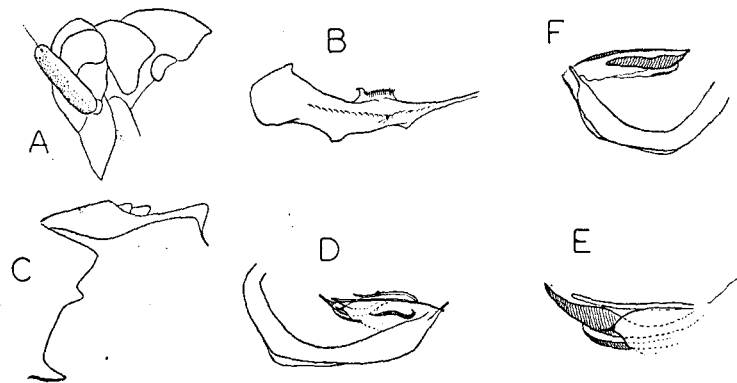


FIG. 35.—*Platocerella rubicunda* (Muir). A, head and pronotum, side view; B, right genital style; C, anal segment and posterior margin of pygofer, side view; D, aedeagus, left side; E, apex of flagellum, left side; F, aedeagus, right side.

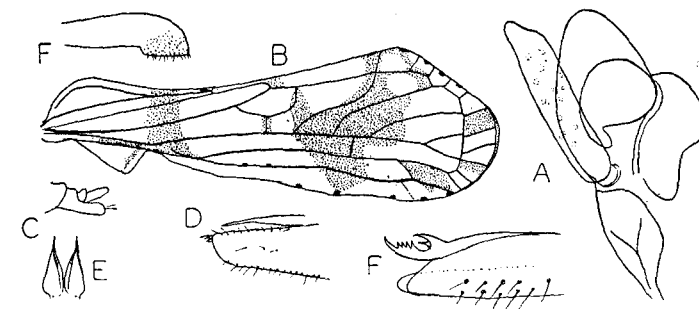


FIG. 36.—*Sayiana maracasa* sp. n. A, head and pronotum, side view; B, tegmen; C, anal segment of female, side view; D, third valvula of ovipositor, right side; E, dorsal lobes of third valvulae, dorsal view; F, first valvula of ovipositor, right side.

Sayiana maracasa sp. n. (fig. 36A-F).

Female: length, 2.7 mm.; tegmen, 4.2 mm.

Stramineous; a broken line between pustules outside lateral carinae of frons, a stripe on side of head above eyes, antennae, apex of rostrum, tarsi, femora at apex, a spot near base of Cu in wing, red or fuscous. Tegmina translucent, a suffusion in basal quarter and another between Sc and sutural angle pale fuscous; distal portion of Sc and base of Sc orange.

Anal segment of female short. Pregenital sternite triangular. First valvulae of ovipositor comprising a ventral sparsely setiferous lobe and a dorsal sclerotised limb bearing seven teeth, with the basal two and the apical tooth larger than intervening four; second valvulae moderately narrow, ventral margin straight, dorsal margin decurved in

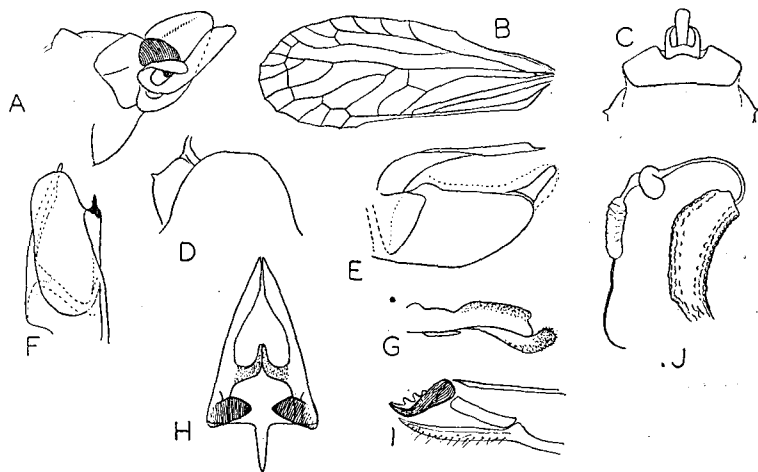


FIG. 37.—*Iquitosa scalprata* sp. n. A, head and thorax, side view; B, tegmen; C, eighth segment and anal segment of female, dorsal view; D, pregenital sternite and lateral sclerite of left side of eighth segment; E, third valvula of ovipositor, left side; F, do., dorsal view; G, second valvula of ovipositor, left side; H, second valvula of ovipositor, dorsal view; I, second valvula of ovipositor, ventral view; J, first valvula of ovipositor, right side; K, spermatheca.

distal half; third valvulae moderately elongate with dorsal and ventral margins straight, tapering distally, each with a membranous triangular lobe dorsomesally. Vagina devoid of sclerites, bursa copulatrix densely beset with thick-walled rings.

Holotype, ♀, B.W.I.: Trinidad, Maracas, "on coconut," 2.vii.1924 (C. L. Withycombe) (B.M. 1924-383).

This species differs markedly from the typical species in shape of antenna, the simple venation of Sc and R and in the size and shape of the basicostal eminence in the tegmina. The wings have R simple, M and Cu₁ each forked once.

Iquitosa Fennah.

Fennah, 1945a: 101. Orthotype *Iquitosa shannoni* Fennah, *ibid.*, pl. 2, figs. 23-26; pl. 3, figs. 39-41.

Iquitosa scalprata sp. n. (fig. 37A-J).

Female: length, 3.2 mm.; tegmen, 5.0 mm.

Form as in typical species. Antennal appendage shorter than second segment, curved outward and forward. Stramineous; sides of head above posterior margin of eyes, and anteroventrally before eyes, clypeus, except in middle part of median carina, apex of rostrum, femora suffusedly, a transverse band across middle of pro- and mesotibiae, and basal half of post-tibiae, pro- and mesotarsi, fuscous; lateral areas of pronotum except margins, mesonotum except carinae and a triangular area from eminences to postero-lateral margin, thoracic pleurites, reddish-brown. Tegmina pearly-translucent, powdered pallid; basally, including costal appendage, fuscous interrupted with pallid spots, elsewhere very sparsely lightly suffused fuscous as figured, costal margin between apical veinlets of Sc spotted red. Wings pearly, powdered white.

Anal segment of female short, broader than long. Pregenital sternite broadly and semicircularly rounded; lateral sclerites of eighth segment each bearing a pointed tubercle at middle. First valvulae each with a stout V-shaped pigmented lobe attached at base terminating in a thick short curved plate with five short blunt teeth on apical margin; second valvulae with a short triangular lobe on each side basally, directed mesad, a narrow setose lobe near middle of each limb, directed caudad, apex in profile as figured; third valvulae longer than broad (1.6:1), apical margin oblique, produced at dorsal angle in a blunt process; dorsal lobe of valvulae distally twisted and acuminate; vagina with a large sabot-shaped sclerite in its ventral wall, and a small rounded sclerite on its left side; wall of vagina thickened opposite entrance of spermatheca; entrance to bursa copulatrix armed with two very small sclerites, one bearing a distinct short peg-like process, the other similar but its process obsolete.

Holotype, ♀, B.W.I.: Trinidad, 1939 (A. M. Adamson).

The present species differs from *I. shannoni* in the rather less acute profile of the head, in the relatively longer and much more widely curved antennal appendage, in the triangular shape of the mesonotal eminences, in tegminal venation (first and second sectors of M—veins M₃ and M₄—being united basally in a short common stalk), and in coloration.

As *I. shannoni* was taken in Peru, it would appear from the above record that the genus is widespread in the northern part of South America.

Heronax Kirkaldy.

Kirkaldy, 1906: 431. Orthotype, *Heronax parnassius* Kirkaldy, *loc. cit.*

Homometria subgen. n.

Vertex triangular, little produced beyond eyes, apex in profile subangulate; rostrum with apical joint about half as long as subapical; genae without a subantennal process; ocelli absent; antennae less than three-quarters of length of frons, with first segment short, not longer than broad; second segment short, cylindrical, narrower medially, devoid of appendages. Pronotum medially short, carinate, laterally broad; posterior margin angulately excavate, a sinuate carina at lateral margin behind eye.

Tegminal venation as in *Heronax*.

Type species, *Mysidia elatior* Fowler.

Homometria elatior (Fowler) (fig. 38).

Mysidia elatior Fowler, 1900: 73, pl. 8, fig. 22.

The figure was prepared by Dr. China from the female type. This subgenus differs from Old World *Heronax* in the absence of a subantennal process

and of all trace of ocelli; in the long apical rostral segment (which is less than twice as long as broad in the typical subgenus), and in the relative lengths of clypeus and frons. In profile the clypeus of *Heronax* measured from apex of labrum to frontoclypeal suture is as long as the distance from the suture to the margin of the vertex above the eye: in *Homometria* the clypeus, similarly measured, is only two-thirds of the length of the frons.

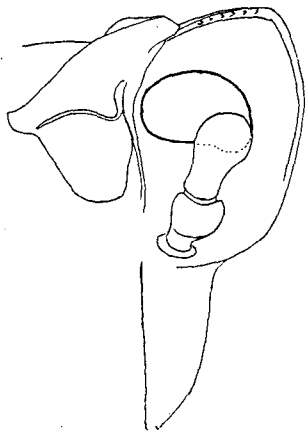


FIG. 38.—*Heronax (Homometria) elatior* (Fowl.). Head and pronotum, side view.

TRIBE RHOTANINI.

The writer is not wholly satisfied with current generic concepts in this tribe, but considers that a critical study can only be made on adequate series from the Orient and the Pacific.

The following key is offered as an alternative to that of Muir (1918: 231); both have been constructed with the aid of relatively weak characters.

Muir has suppressed *Alara* Distant under *Levu* Kirkaldy without accounting for the discrepancies. On this basis other synonymy would appear equally justifiable, and until a critical review is possible the writer considers it preferable to keep these concepts apart.

Key to Genera of Rhotanini.

- | | | |
|---------|--|------------------------|
| (1) (2) | Tegmina not more than twice as long as broad, usually less | (3) |
| (2) (1) | Tegmina at least twice as long as broad | (5) |
| (3) (4) | Frons with lateral carinae not at all contiguous | Decora Damm. |
| (4) (3) | Frons with lateral carinae contiguous at least basally. | Rhotana Wlk. |
| (5) (6) | Second antennal segment at least twice as long as broad | (7) |
| (6) (5) | Second antennal segment little longer than broad | Levu Kirk. |
| (7) (8) | Second antennal segment robust, tumid, more than twice as long as broad; frons not strongly compressed distally. Base of M and Cu widely separated | Alara Dist. |
| (8) (7) | Second antennal segment not exceptionally large, barely twice as long as broad; frons compressed throughout. M and Cu branching together from Sc + R | Sumangala Dist. |

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170 Mr. R. G. Fennah on the generic classification of Derbidae (Fulgoroidea)

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