FULGOROIDEA OF FIJI

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BERNICE P. BISHOP MUSEUM

BULLETIN 202

HONOLULU, HAWAII

PUBLISHED BY THE MUSEUM

1950

Issued October 25, 1950.

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DEPARTMENTS OF AGRICULTURE, WINDWARD AND LEEWARD ISLANDS
BRITISH WEST INDIES

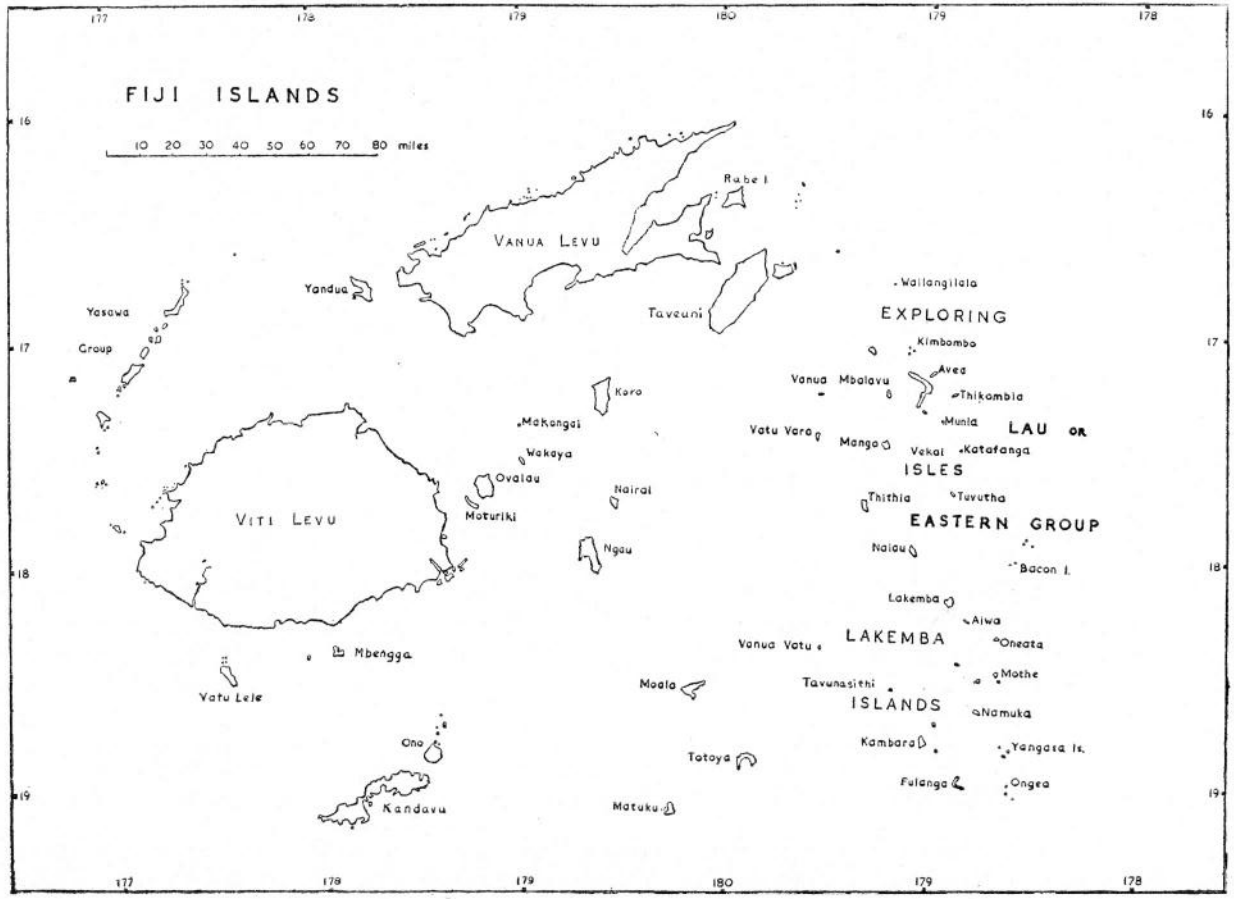
INTRODUCTION

This report deals with fulgoroid Homoptera collected in the Fiji Islands by E. H. Bryan, Jr., J. M. Valentine, N. L. H. Krauss, E. C. Zimmerman, and others between 1924 and 1941 and on Rotuma by H. St. John in 1938. The Fijian material examined comprises some 1,347 specimens collected on 30 islands and has provided the foundation for a study of species formation in the archipelago. My thanks are due to the trustees of Bernice P. Bishop Museum and Mr. Zimmerman for the opportunity of examining the collections. The assistance of Dr. W. E. China of the British Museum (Natural History) is also gratefully acknowledged.

HISTORY

In 1858, Walker described a tropiduchid, *Vanua respicienda* (*Cixius*), from Ovalau and a ricaniid, *Euricania aperiens* (*Pochazia*), from "Nauai," presumably Naiau. Seven years later, Stål described *Euricania tristicula* (*Ricania*) from Viti Levu. In 1906 and 1907, Kirkaldy published two reports based in large part on collections made by Muir, in which he described or recorded 56 true species. In 1901, Melichar described the flatid, *Euphanta acuminata,* and a few color variants of material of *Euricania tristicula* from Viti Levu, Fiji; in 1906, the issid *Tylana intrusa* from Upolu, Samoa, and Ovalau, Fiji. The name is here applied to the Fiji material, which agrees well with the description. A second issid, *T. orientalis,* reported both from the "Indischer Archipel" and Ovalau must apparently be considered as non-Fijian or sunk in synonymy with *T. intrusa.* In 1913, Muir described the Derbidae, *Nesocore crocea, N. coccinea, Paralyricen jepsoni,* and *P. knowlesi;* in 1917, the Delphacidae, *Dicranotropis cognata, Kelisia kirkaldyi,* and *Delphacodes lacteipennis;* in 1922, the derbid genus, *Anomaloderbe,* based on the new species *pembertoni;* and in 1931, the tropiduchid, *Rhinodictya granulata.* The records of occurrence of *Tylana picea* (Walker) (Melichar, Abh. Zool.-Bot. Ges. Wien 3 : 205, 1906) and *Scolypopa australis* (Walker) [Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9) : 449, 1906] are considered erroneous.

In the present report, 52 genera and 177 species are listed as belonging to the Fijian fauna. Of these, 44 genera and 144 species have been examined in


FIJI ISLANDS
10 20 30 40 50 60 70 80 miles
177
178
179
180
179
178
16
17
18
19
Rabe I
VANUA LEVU
Yandua
Taveuni
Wallangilala
EXPLORING
Kimbombo
Avea
Thikombia
Munia
LAU OR
ISLES
Katafanga
Tuvutha
EASTERN GROUP
Bacon I.
Lakemba
Aiwa
LAKEMBA
Oneata
Mothe
Namuka
Yangasa Is.
Ongea
Yasawa
Group
VITI LEVU
Mbengga
Vatu Lele
Ono
Kandavu
Koro
Makongai
Wakaya
Ovalau
Moturiki
Nairai
Ngau
Vanua Mbalavu
Vatu Vara
Mango
Vekai
Thithia
Naiau
Vanua Vatu
Moala
Tavunasithi
ISLANDS
Kambara
Fulanga
Totoya
Matuku

the Bishop Museum collections and include four genera and 98 species which are new. Four species, three of them new, are listed from Rotuma. The types of all new species and topotypes of a number of Kirkaldy's species are in the collection of Bishop Museum.

GEOGRAPHICAL DISTRIBUTION

The genera listed below include 14 which have not as yet been recorded outside the Fiji Islands. Of the remainder most have been found in Samoa, the Philippines, the East Indies and Australia, and some in the intervening New Hebrides and New Caledonia.

The species are largely endemic in Fiji. Of those which occur elsewhere, two belong in the Cixiidae, 20 in the Delphacidae, three in the Derbidae, and one (though probably endemic) in the Meenoplidae. The distribution of species for which accurate locality records are available is given below in Table 1. The almost complete absence of collections from Vanua Levu, Koro, Taveuni, and the Yasawa Group precludes any close study of the fulgoroid zoogeography of the islands. It is, however, permissible to conclude from available data that the Lakemba Islands (comprising, in the locality labels, the islands Bacon, Tavunasithi, Lakemba, Vanua Vatu, Aiwa, Oneata, Mothe, Komo, Wangava, Kambara, Yangasa, Fulanga, and Ongea) have a fulgoroid fauna distinct from that of Viti Levu, Ovalau, and Kandavu. This fauna is closely allied with that of the adjacent Exploring Isles, which, of the islands visited, include Wailangilala, Avea, Vekai, Kanathea, Vanua Mbalavu, Thikombia-i-Lau, Munia, Vatu Vara, Mango, Katafanga, and Tuvutha.

Table 1. Distribution of Fijian Fulgoroidea

	Vanua Levu	Rotuma	Lakemba	Viti Levu	Ovalau	Kandavu	Wakaya	Moala	Totoya	Matuku	Exploring Isles
Cixiidae											
Andes vitiensis (Kirkaldy)				×	×						
Epaustraloma simois*				×							
Oliarus laertes Kirkaldy				×							
Oliarus tasmani Kirkaldy				×							×
Oliarus lubra vitiensis Kirkaldy				×							
Oliarus (Nesopompe) felis Kirkaldy						×					
Oliarus (Nesopompe) saccharicola Kirkaldy				×							
Urvillea melanesica Kirkaldy				×							
Myndus vitiensis Kirkaldy				×						×	
Myndus xanthus*				×							
Myndus personatus*				×	×						
Myndus pica*				×							

* Described as new.

Table 1. Distribution of Fijian Fulgoroidea—Continued

	Vanua Levu	Rotuma	Lakemba	Viti Levu	Ovalau	Kandavu	Wakaya	Moala	Totoya	Matuku	Exploring Isles
Myndus ulysses*				X				X			
Myndus antenor*				X							
Dystheatias vitiensis (Kirkaldy)			X	X	X						
Dystheatias beecheyi Kirkaldy				X	X						X
Dystheatias aeneas*				X							
Dystheatias smaragdus*				X							
Dystheatias nigricosta*				X							
Dystheatias ensicauda*								X			
Dystheatias fuscata Kirkaldy				X						X	
Dystheatias lacon*				X				X			
Dystheatias clymene*		X									
Dystheatias cleon*										X	
Nesochlamys kalypso (Kirkaldy)			X	X	X					X	X
Delphacidae											
Ugyops demeter* and subspp.*			X	X	X	X		X		X	X
Ugyops vitiensis Kirkaldy				X	X						
Ugyops zimmermani*					X						X
Ugyops astrolabei*			X								X
Ugyops necopinus*								X			X
Ugyops laui*			X								
Ugyops bianor*		X									
Ugyopana cassia*				X							X
Melanesia pacifica Kirkaldy				X	X						
Sogata kirkaldyi Muir				X							
Sogata furcifera (Horvath)	X		X	X	X					X	X
Sogata ochrias (Kirkaldy)				X							
Sogata eupompe (Kirkaldy)				X		X	X				
Sogata disonymos (Kirkaldy)				X							
Sogata paludum (Kirkaldy)			XX								X
Dicranotropis cognata Muir				X							
Dicranotropis ucalegon*				X							
Phyllodinus sauteri Muir			X							X	X
Phyllodinus kirkaldyi Metcalf				X							
Perkinsiella vitiensis Kirkaldy			X	X		X				X	
Sardia pluto Kirkaldy			X	X							
Stenocranus pacificus Kirkaldy				X							
Delphacodes lazulis (Kirkaldy)				X							
Delphacodes disonymos (Kirkaldy)			X								
Delphacodes matanitu (Kirkaldy)			X	X							X
Delphacodes dilpa (Kirkaldy)			X	X		X					X
Delphacodes dryope (Kirkaldy)				X							
Peregrinus maidis (Ashmead)				X	X						
Tarophagus proserpina (Kirkaldy)				X	X						
Nilaparvata lugens (Stål)				X							
Meenoplidae											
Nisia atrovenosa (Lethierry)				X							
Suva koebelei Kirkaldy				X							
Suva cretacea*				X							
Suva fuscomarginata*				X							

* Described as new.

Table 1. Distribution of Fijian Fulgoroidea—Continued

	Vanua Levu	Rotuma	Lakemba	Viti Levu	Ovalau	Kandavu	Wakaya	Moala	Totoya	Matuku	Exploring Isles
Derbidae											
Muiria stridula Kirkaldy				×							
Sikaiana nesiope Kirkaldy				×							
Sikaiana flammeivittata*				×							
Nesoniphas insignissima Kirkaldy				×							
Flaccia imthurni Kirkaldy				×							
Flaccia bicornis*											×
Flaccia pyrrhoneura*				×							
Flaccia tumidifrons*				×	×						
Flaccia oediceras*				×							
Paralyricen knowlesi Muir				×							
Paralyricen astyanax*			×								
Paralyricen sphaeromma*				×							
Paralyricen vespillo*				×							
Paralyricen similis*				×	×						
Anomaloderbe pembertoni Muir				×							
Harpanor fuligo*				×							
Kamendaka nigrospersa*				×	×						
Kamendaka rubrinervis*				×							
Pyrrhoneura charonea*											×
Pyrrhoneura saccharicida Kirkaldy				×		×				×	×
Pyrrhoneura poecila*					×						
Pyrrhoneura vitiensis Kirkaldy				×							
Nesocore coccinea Muir				×							
Nesocore fidicina Kirkaldy				×							
Nesocore subfulva*											×
Nesocore clitoria*				×							
Nesocore pygmaea*				×							
Nesocore candida*				×							
Nesocore nivea*				×							
Nesocore elutriata*				×							
Nesocore purpurigena*				×							
Niphaphodite insulicola Kirkaldy				×							
Swezeyia lyricen Kirkaldy				×	×	×					×
Phaciocephalus miltodias Kirkaldy				×	×						
Phaciocephalus pullatus Kirkaldy				×							
Phaciocephalus vitiensis Kirkaldy				×							
Phaciocephalus minyrias Kirkaldy				×	×						
Phaciocephalus nesogonias Kirkaldy					×						
Phaciocephalus nesodreptias Kirkaldy				×							
Phaciocephalus marpsias*				×							
Phaciocephalus troas*				×							
Levu vitiensis Kirkaldy			×	×	×	×		×	×	×	×
Levu halosydne (Kirkaldy)				×							
Lamenia caliginea (Stål)		×									
Achilidae											
Callichlamys muiri Kirkaldy				×							
Callichlamys undulata Kirkaldy				×							
Nephelia tristis Kirkaldy				×	×						

* Described as new.

Table 1. Distribution of Fijian Fulgoroidea—Continued

	Vanua Levu	Rotuma	Lakemba	Viti Levu	Ovalau	Kandavu	Wakaya	Moala	Totoya	Matuku	Exploring Isles
Nephelia bicuneata Kirkaldy				X							
Eurynomeus argo*				X							
Callinesia pulchra Kirkaldy				X							
Callinesia ornata Kirkaldy				X							
Callinesia venusta Kirkaldy				X							
Callinesia pusilla Kirkaldy				X							
Tropiduchidae											
Vanua paphia* and subspp.*			X								X
Vanua respicienda (Walker) and subspp.*				X	X						
Vanua deiopeia*			X								
Vanua sambucina*				X							
Vanua deidamia*										X	
Vanua pleone*											X
Vanua taygete*			X							X	
Vanua spp.			X					X			X
Rhinodictya paeminosa*				X							
Rhinodictya cuneolus*								X			
Rhinodictya belone*											X
Rhinodictya granulata Muir				X							
Macrovanua demissa (Fennah)											X
Issidae											
Capelopterum phormio*				X							
Capelopterum lyco*											X
Capelopterum dolabra*					X						
Capelopterum tanaquil*								X			
Capelopterum vacuna*											X
Capelopterum zetes*											X
Capelopterum ranula*											X
Capelopterum betulus*			X								
Capelopterum sp.						X					
Tylana intrusa Melichar						X		X			
Tylana carcinias*		X									
Sarima erythrocyclos*				X	X						
Lollius pyrrhoceras*				X							
Ricaniidae											
Plestia circe*				X							
Plestia cassiopeia*					X						
Plestia artemis*											X
Plestia naias*			X								
Plestia thetis*			X								
Plestia io*											X
Plestia medusa*			X								
Plestia nereis*			X								
Plestia danae*			X								
Plestia deianira*											X
Plestia arethusa*			X								
Plestia iphigeneia*			X								
Plestia antigone*											X

* Described as new.

Table 1. Distribution of Fijian Fulgoroidea—Continued

	Vanua Levu	Rotuma	Lakemba	Viti Levu	Ovalau	Kandavu	Wakaya	Moala	Totoya	Matuku	Exploring Isles
Plestia calypso*					×						
Plestia cassandra*						×					
Plestia andromeda*			×								×
Plestia eurydice*			×					××			
Plestia galatea*				×						×	
Plestia scylla*					×						
Plestia niobe*				×							
Euricania aperiens Walker											×
Euricania tristicula (Stål)				×							
Euricania laetoria*											××
Euricania licinia*											×××
Euricania procilla*								×			×
Euricania cyane*			×								
Euricania dinon*					×						
Euricania furina*			×								
Euricania cliduchus*									×		
Euricania progne*										×	
Euricania camilla*			×			×					
Euricania moneta*											×
Euricania opora*			×								
Euricania sirenia*			×								
Euricania sterope*							×				
Flatidae											
Euphanta acuminata Melichar					×						

* Described as new.

Species listed from unknown locality in Fiji include *Perkinsiella pseudomaidis* Kirkaldy, *Perkinsiella saccharicida* Kirkaldy, *Dicranotropis koebelei* Kirkaldy, *Dicranotropis pseudomaidis* Kirkaldy, *Delphacodes lacteipennis* Muir, *Pyrrhoneura citharista* Kirkaldy, *Pyrrhoneura rubida* Muir, *Paralyricen jepsoni* Muir, *Nesocore crocea* Muir, and *Euricania aperiens* (Walker).

Where it is obvious that members of a genus have morphologically diverged *pari passu* in their respective localities, it is reasonable to consider that they have developed as the result of the successful colonization of one or more of the islands by a single ancestral species. Where markedly distinct species occur side by side in the same island and occupy the same habitat, those of *Phaciocephalus,* for example, it is not improbable that they represent the modified offspring of more than one successful immigrant species.

TAXONOMIC METHOD

Where a series was available from a single locality, comparisons were made to determine the extent of morphological variation within it. For the most part,

a high degree of uniformity is found. In view of this, it is considered that constant differences between series call for taxonomic recognition.

When long homogeneous series have been found to occur side by side in various localities of a single island, and to differ constantly from each other in characters of recognized "specific" value in Fulgoroidea (such as size, bodily proportions, tegminal venation, form of the genitalia, and color), they have been accepted as representing different species. Viti Levu species of *Phaciocephalus* or *Nesocore* may be cited as examples. Where a species A is known to live alongside a species B in one island and both differ in like degree and in the same characters from a form C on another island, C has been accorded the status of a true species. (An example is furnished by *Flaccia bicornis* described below.) Where only one phenotype (an apparently homogeneous series of individuals) is known from any one island and such phenotypes differ from one another to an equal degree, suggesting that they are all the modified descendants of a single species which immigrated into the Fiji Islands, they unquestionably represent one another geographically. The concept which they collectively represent may be a clearly defined unit within the genus, and *ex hypothesi* represents the fragmentation of a single ancestral phenotype. It remains to be settled whether each such unit is of subspecific, specific, or superspecific rank. If the characters which separate the various island phenotypes show no modifications which can be regarded as intergrading between two series, and if the males of one phenotype ignore the females of another, yet mate with those of their own, these phenotypes must be recognized as true species. Only the resident worker, however, is in a position to make the last observation, which is one of the crucial tests of reproductive isolation (the other being the production of fertile offspring), and in its absence the assessment of taxonomic status is of necessity guided largely by probability.

The Fijian forms of *Capelopterum* provide an example of this problem. The aedeagal armature in this genus abounds in points of instability and numerous differences are noted between males from different islands. Nevertheless, in males from Ovalau the aedeagus is found to conform rigidly to a single pattern, hence the representatives of the genus on various islands are reported as distinct species. In making these dispositions, I consider that these species are to be regarded as members of an *artenkreis*.

It is in the Tropiduchidae that the most complete range of phenotypic divergence is displayed. In the Fijian material of this group the form of the adult female is stable within the genus in all external characters; that of the male varies in the shape of the anal segment and aedeagus and, especially, of the right and left lateral processes of the hind margin of the pygofer. Individual males from a single locality show some degree of variation in the shape

of the processes of the pygofer, whereas they agree in other characters. If island phenotypes which share a common structure of the tenth abdominal (anal) segment are grouped together, the aedeagal structure and the general facies of the processes of the pygofer are so similar that, allowing for a little genotypic, or individual, variation, it can be accepted that the evolutionary distance separating these forms is very short. By contrast, when comparison is made between phenotypes with markedly differently shaped anal segments, the shape of the aedeagus and the facies of the lateral processes also are substantially divergent. Two such phenotypes occur in Nandarivatu, Viti Levu. This fact, when considered in conjunction with the magnitude of the differences observed in the male genitalia, leaves no reasonable doubt that reproductive isolation is complete, and that these phenotypes are true species. The commoner of these, to which Kirkaldy's name *vitiensis* has been applied, is closely approached by a phenotype on Ovalau (Walker's *Cixius respiciendus*), of which the male genitalia may be described as a close caricature of those of *vitiensis,* but not of the other species from Viti Levu. This phenotype is beyond doubt the geographical representative on Ovalau of *vitiensis,* although it could not be mistaken for the Viti Levu form where both are available for comparison. The species *respicienda* is accordingly reported below as a true *rassenkreis,* and the identity of its component members is preserved by according to them subspecific names after characterising their differences. With this example as a basis of reference, it has been found that the tropiduchid fauna includes two other *rassenkreise* in the material examined, and with further collecting it may well prove that other species recognized below have their geographical representatives in other islands of the group. The extent to which the Fijian Fulgoroidea, whatever their family, occur throughout the group as *rassenkreise* will only be known with further collecting. It may well be considerable. I believe that the derbid species *Levu vitiensis* Kirkaldy is a *rassenkreis;* the differences between island phenotypes, however, are subtle and difficult to describe clearly.

The degree of genotypic, or individual, variation observed in series from one island is of interest in revealing the plasticity of the species. In the tegmina the area suffused with fuscous is subject to considerable variation between individual specimens of some species from a single island. In *Nesochlamys,* for example, the contrast between extreme forms is so marked as to have led to the erection by Kirkaldy of two monotypic genera (*Nesocharis kalypso* and *Nesochlamys vitiensis*). Genitalic differences between individuals are uncommon, though, as already noted, they occur in *Vanua.* Perhaps the most notable example is provided by the delphacid *Sogata furcifera* Horvath, which even within the relatively narrow limits of the Lau Islands shows as great variation in the U-shaped concavity on the dorsal margin of the diaphragm and in the

degree of production of the apical angles of the genital styles as that found in the most divergent forms yet examined from anywhere in its world-wide range.

The way in which genera are formed is perhaps most clearly shown by the tropiduchid genera *Vanua, Macrovanua* (described below), and *Rhinodictya,* with the addition of the non-Fijian *Leptovanua* and *Peggioga.* These forms, conventionally recognized as genera, differ in the length of the frontal carinae, in the shape of the vertex, and by correlation of structure in that of the pronotum, and in details of the tegminal venation. They agree in all other characters above the specific level, including a bizarre structure—a compound and extremely asymmetrical plate formed by fusion of the genital styles. A plate of this precise form is known only in these and a few other genera which belong to the Australasian area. If these forms are correctly interpreted as genera, then the concept defined by a tricarinate frons and a compound asymmetrical genital style must be a supergenus. Alternatively, if these be taken as the generic characters then the clearly differing species groups with the above names must be subgenera. The inter-relationship and status of these genera are remarkably similar to that of the Caribbean *Cyphoceratops, Chasmacephala,* and *Parahydriena.* I have not examined the Samoan issid, *Neolollius viridis* Muir, but if it is retained as something more than a species of *Lollius* Melichar, the two genera will stand in similar relationship.

Key to Families of Fulgoroidea

1. Second post-tarsal segment not very small in relation to first, armed with a row of spines at apex; apex truncate or emarginate 2
   Second post-tarsal segment small in relation to first, devoid of spines at apex or with a single spine at each side; apical margin usually rounded or subconical 10
2. Anterior claval vein bordered with conspicuous secretory pores or tubercles 3
   Anterior claval vein not tuberculate; if granules present, then along all veins of corium 4
3. Labium with apical segment much longer than wide, rounded or conical at apex, median ocellus generally present on frons; the sixth, seventh and eighth abdominal tergites bearing tracts of wax-secreting pores. Male genitalia with a tubular phallobase; ovipositor reduced or absent ..... **Meenoplidae**
   Labium with apical segment about as broad as long, abruptly truncate and flattened at apex, no median ocellus on frons; ninth tergite of male fused with anal segment and not with pygofer. Ovipositor with valvulae short or reduced, pregenital sternite usually produced ..... **Derbidae**
4. The sixth, and often seventh and eighth, abdominal tergites bearing tracts of wax-secreting pores. Male genitalia with a tubular phallobase, ovipositor with valvulae small or reduced ..... **Kinnaridae**
   Tracts of wax-secreting pores absent from abdominal tergites, or, if present, then anal area of hind wings with reticulate venation 5
5. Anal area of hind wings with dense network of irregular veins. Phallobase of male in form of a tubular membranous sac; phallus reduced to a sclerotised ring with simple appendages; ovipositor with valvulae short and stout ..... **Fulgoridae**
   Anal area of wings not reticulate 6

6. Tegmina with claval suture not quite reaching margin (clavus open); united claval veins entering apex. Ovipositor with an accessory lobe below first valvulae at base 7

   Tegmina with claval suture reaching margin (clavus closed); united claval veins entering commissure near apex 8

7. Base of abdomen slightly produced laterally on each side into one or two short broad processes, each hollowed out into three hemispheroidal depressions. Tegmina relatively long and narrow, tectiform in repose. Aedeagus with a short simple, widely tubular phallobase ..... **Achilixiidae**

   Base of abdomen devoid of lateral processes. Tegmina usually overlapping distally in repose, rarely long and tectiform. Aedeagus much retracted into body, phallobase tubular, not short, usually with complete armature ..... **Achilidae**

8. Post-tibiae with a long mobile spur at apex. In most genera a transverse carina on genae below antennae. Aedeagus tubular, sometimes withdrawn into a crypt, if long, often recurved and membranous distally; ovipositor long, curved, ensiform ..... **Delphacidae**

   Post-tibiae without a mobile spur 9

9. Vertex often markedly produced before eyes; if not, disk of frons with submedian longitudinal carinae or tegulae absent and claval suture of tegmina obscure. Median ocellus absent from frons. Aedeagus with phallobase in form of a tubular membranous sac. Ovipositor never ensiform, valvulae usually short; if prolonged then porrect, not curved ..... **Dictyopharidae**

   Vertex rarely much produced before eyes, disk of frons without submedian longitudinal carinae, carinate at lateral margins and usually medially. Median ocellus often present. Tegulae present. Tegmina with claval suture distinct. Aedeagus tubular, often membranous and recurved distally, or expanded and complex. Ovipositor with valvulae long, curved, ensiform or if short, narrow and porrect beneath a vertical ovate tract of wax-secreting pores on hind surface of ninth segment ..... **Cixiidae**

10. Second post-tarsal segment with a spine on each side, apical margin rounded or subconical 11

    Second post-tarsal segment small, devoid of spines 16

11. Adult with antennal flagellum segmented. Lateral ocelli not outside lateral carinae of frons; clypeus shallowly rounded with lorae (mandibular sclerites) broadly visible from front. Tegmina leathery. Genital styles narrow or fused into a broad lobate plate, aedeagus sac-like with supporting sclerites. Ovipositor with valvulae reduced or absent ..... **Tettigometridae**

    Adult with antennal flagellum not distinctly segmented. Lateral ocelli outside lateral marginal carinae of frons, usually anteroventrad of eyes; lorae forming a distinct angle with clypeus, little visible from front 12

12. Mesonotum with posterior angle separated from disk by a transverse groove; post-trochanter usually directed caudad. Aedeagus usually tubular, laterally compressed, with distal portion membranous and more or less retracted within basal portion ..... **Tropiduchidae**

    Mesonotum without a transverse groove between posterior angle and disk; post-trochanter directed ventrad; aedeagus with a distinct phallobase 13

13. Tegmina with pustules (secretory pores) in basal half of clavus and often between R and M basally; costal vein submarginal, costal area traversed by numerous veinlets ..... **Flatidae**

    Tegmina not as above 14

14. Disk of mesonotum longer than broad; tegmina with basal cell relatively large; ocelli present 15

    Disk of mesonotum usually broader than long; tegmina with basal cell very small or obscure; ocelli present or absent ..... **Issidae**

15. Tegmina with costal vein at margin throughout, or margin thickened below and flanged; hind tibiae unarmed, clypeus not carinate.....**Acanaloniidae**
    Tegmina with costal vein distinctly submarginal, clypeus usually laterally carinate, hind tibiae armed.....**Nogodinidae**
16. Tegulae small, adpressed, partly overlapped by pronotum; post-tibiae with five spines at apex, abdominal spiracles large and exposed; eighth and ninth abdominal tergites concealed below seventh.....**Gengidae**
    Tegulae moderately large to large, scarcely, if at all, overlapped by pronotum; post-tibiae almost invariably with 8-10 spines at apex; abdominal spiracles small and more or less obscure; eighth and ninth abdominal tergites exposed.....17
17. Mesonotum normally relatively long, convex, a pair of incomplete carinae often present anteriorly laterad of lateral discal carinae; post-trochanters normally rocking in an oblique (mesoventrad-laterodorsad) plane, basal metatarsal joint normally shorter than second plus third.....**Ricaniidae**
    Mesonotum short, broadly triangular, flat or weakly convex; post-trochanters rocking in a horizontal (mesad-laterad) plane; basal metatarsal joint normally longer than second plus third.....18
18. Vertex not three times as broad as long in middle line; head with eyes normally narrower than pronotum; clypeus usually carinate medially or laterally near base; rostrum with apical joint extremely short, rarely even twice as long as broad, not expanded distally.....**Lophopidae**
    Vertex fully three times as broad as long in middle; head with eyes as wide as pronotum; clypeus normally ecarinate; rostrum with apical joint more than twice as long as broad, often dilated and obliquely truncate distally.....
    .....**Eurybrachyidae**

Family CIXIIDAE Spinola

Key to Genera of Cixiidae of Australasia (Adapted from Muir)

1. A subantennal process present on genae (subfamily Bothriocerinae).....41
   No process on genae below antennae (subfamily Cixiinae).....2
2. Tegmina with Sc, R and M arising separately from basal cell, not united, tegmina steeply tectiform.....3
   Tegmina with Sc, R and M not arising separately from basal cell, Sc and R or all three united in a common stem; tegmina steeply or shallowly tectiform.....4
3. Procoxae with outer margin straight.....**Andes** Stål
   Procoxae with outer margin considerably produced and rounded.....**Parandes** Muir
4. Tegmina with Sc and R united for part of length, M arising from basal cell or from base of Sc+R but not forming a common stem.....5
   Tegmina with M arising from Sc+R some distance from base, forming a distinct common stem Sc+R+M.....34
5. A long slender process on each side at base of abdomen. Tegmina steeply tectiform.....6
   Base of abdomen without processes. Tegmina steeply or shallowly tectiform.....13
6. Median carina of frons distinct.....**Benna** Walker
   Median carina of frons absent or indistinct.....**Bennaria** Melichar
7. Tegmina steeply tectiform with apical margins contiguous when at rest; ovipositor usually ensiform, with valvulae elongate, distally upcurved; ninth segment of abdomen in female posteriorly rounded or flattened.....8
   Tegmina shallowly tectiform with apical margins not contiguous when at rest; ovipositor with valvulae porrect, often rather short; posterior surface of ninth abdominal segment of female flattened.....16
8. Vertex generally much produced in front of eyes, conical in outline or at least twice as long in middle line as broad at apex.....9

9. Clypeus without lateral carinae; frons with median carina absent or developed only in apical half ..... **Gelastocephalus** Kirkaldy
Clypeus carinate laterally; medial carina on frons distinct[1] 10

10. Length of vertex in middle line much greater than width at base, anterior marginal carina acutely angulate ..... **Nesocharis** Kirkaldy
Length of vertex less than width at base ..... **Nothocaris** Muir

11. A transverse carina across vertex basad of apical marginal carina, base of vertex truncate or shallowly concave; frons wider than long ..... **Leptolamia** Metcalf
Vertex devoid of a transverse carina basad of anterior marginal carina 12

12. Vertex distinctly angulately emarginate at apex ..... **Kirbyana** Distant
Vertex truncate at apex, or nearly so 13

13. Vertex longer in middle line than wide at apex ..... **Dystheatias** Kirkaldy
Vertex wider at apex than long in middle line 14

14. Base of frons visible from above, tegmina three times as long as broad ..... **Epaustraloma***
Base of frons not visible from above, tegmina much less than three times as long as broad 15

15. Frons at widest part about 1.4 times width at base; apical margin of tegmina distinctly oblique ..... **Ptoleria** Stål
Frons at widest part about 2.5 times width at base; apical margin of tegmina broadly rounded ..... **Australoma** Kirkaldy

16. Mesonotum with five carinae 17
Mesonotum with less than five carinae 20

17. Frons and clypeus devoid of median carina ..... **Huttia** Myers
Frons with a median carina, sometimes developed only in part 18

18. Median carina of frons obscure at base, forked about middle; vertex without a transverse carina ..... **Malpha** Myers
Median carina of frons simple or forked basad of middle 19

19. Vertex with an angular transverse carina basad of anterior marginal carina which it touches to cut off two areolets in lateroapical areas; post-tibiae with less than 20 spines apically ..... **Oliarus** Stål
Vertex with subapical transverse carina not touching apical margin; post-tibiae with about 20 small spines along apex ..... **Nesopompe** Kirkaldy

20. Antennae as long as frons, second segment much longer than wide ..... **Solonaima** Kirkaldy
Antennae much shorter than frons, second segment at most only a little longer than wide 21

21. Clypeus convex, inflated, without a median carina ..... **Semo** White
Clypeus with a median carina 22

22. Carina between vertex and frons obsolete, median carina of frons absent or present only in part 23
Carina between vertex and frons and median carina of frons distinct 24

23. Frons less than 1.5 times as broad as long in middle; pronotum posteriorly angulately emarginate; tegmina with M_{1+2} forked basad of subapical transverse veins ..... **Kuvera** Distant
Frons about twice as broad as long in middle when viewed anteriorly at a right angle to face; posterior margin of pronotum roundly concave; tegmina with M_{1+2} forked at or distad of subapical transverse veins ..... **Betacixius** Matsumura

24. Median carina of frons forking in apical half ..... **Aka** White
Median carina of frons not as above 25

[1] *Tarberus* Jacobi may belong here, separated from *Nesocharis* and *Nothocaris* by the vertex being about as long in middle line as broad across base of middle line, and the median carina of the frons developed only distally.

* Asterisks in keys indicate genera and species described as new in this paper.

25. Vertex without a transverse carina basad of anterior marginal carina.....26
Vertex with a transverse carina basad of anterior marginal carina.....28
26. Vertex much broader than long, truncate at apex; tegmina broad....**Mundopa** Distant
Vertex as long as broad or relatively longer.....27
27. Vertex produced before eyes for more than half its median length, anterior margin deeply rounded convex.....**Carolus** Kirkaldy
Vertex produced before eyes for less than half its median length, anterior margin angulate .....**Colvanalia** Muir
28. Pronotum carinate at lateral margins between eye and tegula.....
.....**Calamister** Kirkaldy
Lateral margins of pronotum not carinate; lateral carinae of disk following hind margin of eyes laterad.....29
29. Transverse carina of vertex straight or slightly convex.....30
Transverse carina of vertex angular, sometimes touching anterior marginal carina at middle.....33
30. Procoxae large, profemora and protibiae short and thick.....**Cajeta** Stål
Procoxae not large, front legs slender.....31
31. Post-tibiae with conspicuous spines.....**Koroana** Myers
Post-tibiae without spines, or spines, if present, very small.....32
32. Frons with disk depressed, lateral margins foliate.....**Macrocixius** Matsumura
Frons with disk not depressed, lateral margins not foliate.....**Myndus** Stål
33. Post-tibiae with well-developed spines.....**Cixius** Latreille
Post-tibiae without spines, or spines, if present, very small.....**Iolania** Kirkaldy
34. Antennae with second segment longer than broad.....35
Antenna with second segment about as long as broad, tegmina not steeply tectiform 36
35. Frons widest at apex, tegmina distinctly widening distally, Sc+R+M stalk moderately long .....**Brixia** Stål
Frons widest about level of antennae, tegmina not or only slightly widening distally, Sc+R+M stalk very short.....**Tiriteana** Myers
36. Frons medially carinate throughout or at least near apex, clypeus with well-developed lateral carinae.....37
Frons without median carina; clypeus devoid of lateral carinae.....
.....**Gelastocephalus** Kirkaldy
37. Vertex subtriangular with apex strongly convex, no median ocellus on frons.....38
Vertex five-sided with apex subtruncate or obtusely angulate, frons with median ocellus 39
38. Vertex and frons medially carinate.....**Carolus** Kirkaldy
Vertex ecarinate, frons carinate only in apical half.....**Tarberus** Jacobi
39. Vertex much broader than long, carinate medially on anterior and posterior compartments of disk; pronotal disk very short.....**Leades** Jacobi
Vertex not as above, at most only a little broader than long.....40
40. Frons about as broad as long, lateral margins very strongly curved at level of antennae, vertex relatively elongate. Tegmina with Sc+R forked at or distad of middle.....**Myndus** Stål
Frons a little longer than broad, lateral margins moderately incurved at level of antennae, vertex slightly broader than long, if at all; tegmina with Sc+R forked in basal third.....**Innobindus** Jacobi
41. Tegmina with Sc and R not united at base or scarcely so.....**Borysthenes** Stål
Sc and R united basally in a long stalk.....42
42. Sc and R forked near stigma, M leaving Sc+R at middle, Sc+R thickened, costal cell large.....**Euryphlepsia** Muir
Sc+R forked considerably before stigma, M leaving Sc+R nearer to base, Sc+R not thickened.....**Stenophlepsia** Muir

Genus **Andes** Stål

Andes Stål, Hemipt. Africana **4**: 166, 1866; Öfv. K. Sven. Vet. Akad. Förh. **27**: 747, 1870. Logotype, *Andes undulatus* Stål, op. cit.

1. **Andes vitiensis** (Kirkaldy).

Leirioessa vitiensis Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 112, 1907.

Anal segment of female parallel-sided, twice as long as broad, anal foramen at apex. Ovipositor complete, long, curved dorsad, with a large wax-bearing plate above it.

Four males and eight females from Viti Levu: Tholo-i-Suva, June 21, 29, 1924, Bryan; Nandarivatu, Aug. 1 to Sept. 6, 1938, Zimmerman; Belt Road, 45-50 miles west of Suva, July 26, 1938, Zimmerman. One male from Ovalau: Andubangda, alt. 1,300-1,800 ft., July 15, 1938, Zimmerman.

Genus **Epaustraloma,** new genus

Vertex transverse, not extending before eyes, basal margin truncate, width at this level fully twice length in middle line, apex almost as wide as base, lateral margins carinate, only slightly raised, slightly convergent distally, disk only slightly depressed, anterior margin carinate, forming an angle of about 50 degrees at apex; frons with clypeus rhomboidal; frons broader than long in middle line (about 1.1:1), base as wide as apex, margins laterally foliate, median carina strongly present, median ocellus absent; clypeus short, strongly carinate medially and laterally; head in profile with vertex smoothly curving into frons, not at all angulate; antennae short, second segment subglobose. Pronotum short, anterior margin truncate, posterior margin subrectangulately excavate, lateral carinae of disk not attaining hind margin of pronotum but curved laterad behind eyes, no carina between eye and tegula, lateral pronotal lobes forming an acute angle exteriorly, mesonotal disk narrow, tricarinate. Tegmina about 3.1 times as long as wide, apex at M_{1+2}, apical margin posterior to this strongly oblique, shallowly curved, Sc+R and Cu_1 forked at basal third, M arising from basal cell and forked at nodal line.

Anal segment of female very short, tubular. Ovipositor complete, curved dorsad.

Type species, *Epaustraloma simois,* new species.

Epaustraloma simois, new species (fig. 1, *a-d*).

Testaceous; disk of clypeus, apical portion of disk of frons, mesonotum in lateral fields and a little inside lateral carinae of disk, sometimes entirely, ventral half of pro- and mesofemora longitudinally dark fuscous castaneous. Tegmina hyaline more or less suffused fuscous or dark fuscous castaneous, costal cell, distal portion of apical cells of Sc, R, and M hyaline, not infuscate; area between second claval vein and commissural margin pallid yellow to pale fuscous, veins fuscous but second claval vein pallid. Wings slightly infuscate, veins fuscous.

Aedeagus with a spine at base directed obliquely ventrocaudad, a longer spine on right decurved at apex, with a small spine at its base, a spine at middle on right directed ventro-cephalad and mesad, a small spine dorsally near middle; flagellum produced in a short point distally.

Male: length 3.5 mm., tegmen 5.0 mm.; female: length 3.5 mm., tegmen 5.5 mm.

Two males and three females from Viti Levu: ridge west of Nandarivatu, alt. 2,800 ft., beating shrubs, Sept. 11, 1938, holotype male; alt. 3,600 ft., Sept.

6, 1938; Tholo-i-Suva, alt. 500 ft., beating shrubs, July 25, 1938; all by Zimmerman.

This species differs so markedly in the characters of the head from the genotypes of *Ptoleria* Stål and *Australoma* Kirkaldy that I feel it necessary to erect a genus for it. It is nearest to *Australoma,* but the frons is visible from above, the anterior margin of the vertex is angulate, the disk, unlike that of *A. austrina* Kirkaldy, is not deeply depressed, the frons is broader than long; in *austrina* it is longer than broad. The mesonotal disk is more than three times the combined length of vertex and pronotum; in *austrina* it is three times as long. The tegmina are 3.1 times as long as wide, 2.5 in *austrina.* The venation is similar. The Samoan species *baumanensis* Muir and *wilkesi* Muir belong to this genus.

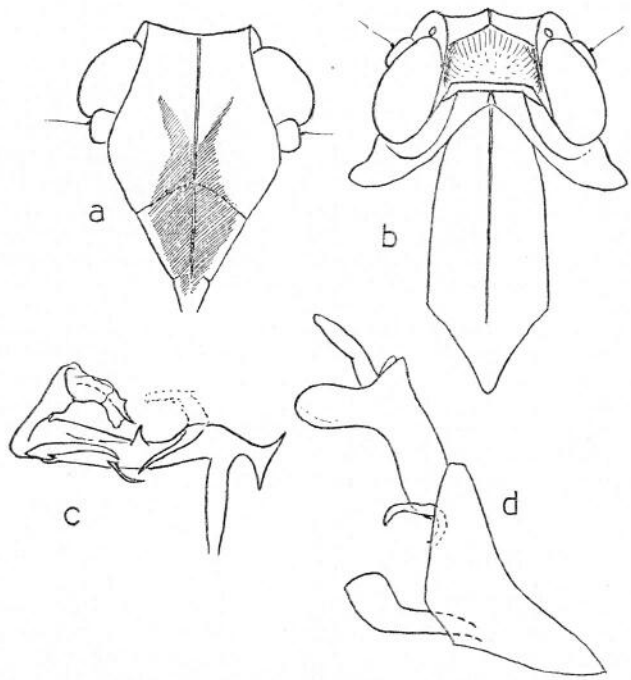


FIGURE 1.—*Epaustraloma simois:* **a,** frons and clypeus; **b,** vertex and pronotum; **c,** aedeagus; **d,** anal segment, pygofer, and genital style, right side.

Genus **Oliarus** Stål

Oliarus Stål, Berliner Ent. Zeitschr. 6: 306, 1862. Logotype, *Cixius walkeri* Stål, Freg. Eugenies Resa, Zoologi 2(1): 272, 1859.

1. **Oliarus laertes** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1: 398, 1906.

Vertex longer to level of basal angle than broad across base (2:1), carinae meeting rectangulately apically.

One male from Viti Levu: Nandarivatu, October 1937, holotype, J. M. Valentine.

2. **Oliarus tasmani** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3:108, 1907.

Vertex longer than broad across base (1.5:1), carinae meeting at apex in a subacute curve, not angulately.

Two males and 10 females from Viti Levu: ridge west of Nandarivatu, alt. 2,800-3,000 ft., Sept. 3-11, 1938; Lami quarry near Suva, alt. 10-250 ft., July 24, 1938; Tholo-i-Suva, July 27, 1938; all by Zimmerman. One female from Vanua Mbalavu: Buthalevu, alt. 200-300 ft., Aug. 10, 1938, Zimmerman.

The last-mentioned specimen differs from the remainder in having the base of the tegmina and a broad band from the costal margin across the forks of Sc+R and Cu_1 to commissural margin brownish fuscous. No taxonomic significance is attached to this, as a precisely similar variant is found in the West Indian *Vincentia interrupta* Uhler from St. Vincent.

3. **Oliarus lubra** subspecies **vitiensis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 109, 1907.

Vertex as broad across base as long from apex to level of basal angle. Female: length 7.5 mm.

One female from Viti Levu: Tailevu, Korovou, at light, August 1937, Valentine.

Genus **Oliarus (Nesopompe)** Kirkaldy

Nesopompe Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 107, 1907. Orthotype, *Oliarus felis* Kirkaldy, op. cit.

1. **Oliarus (Nesopompe) felis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 107, 1907.

One female from Kandavu: Kaivala, April 29, 1941, Krauss.

Genus **Urvillea** Kirkaldy

Urvillea Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 110, 1907. Haplotype, *Urvillea melanesica* Kirkaldy, op. cit.

1. **Urvillea melanesica** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 110, 1907 (fig. 2, *a-c*).

Anal segment of female greatly dilated laterally, broader than long, and almost as broad as abdomen, shallowly decurved laterally, apical margin convex. Anal segment of male very large, asymmetrical. Pygofer with a tapering lobe on left and a fold directed mesad. Aedeagus with a complex biramous process on right side, flagellum comprising a

rectangular membranous lobe and two long spines, one curving almost through a circle, the other through 180 degrees.

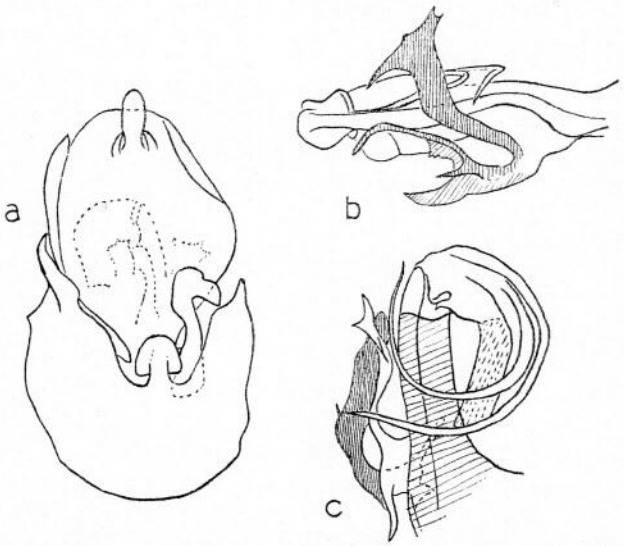


FIGURE 2.—*Urvillea melanesica:* **a,** anal segment, pygofer, and right genital style; **b,** aedeagus, right side; **c,** aedeagus, dorsal view.

One male and two females from Viti Levu: Tailevu, August 1937, Valentine; Belt Road, 16 to 18 miles west of Suva, beating shrubs, July 22, 1938, Zimmerman.

This genus is quite distinct from *Oliarus* (*s.s.*).

Genus **Myndus** Stål

Myndus Stål, Berliner Ent. Zeitschr. **6**: 307, 1862. Logotype, *Flata musiva* Germar, Fauna Ins. Europae, fasc. 11, pl. 21, 1825.

1. **Myndus vitiensis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 111, 1907 (fig. 3, *a, b*).

Ovipositor long, complete. Anal segment of female short, porrect, sides deflexed, apical angles incurved to meet below anal style. Anal foramen at apex of segment.

Four females from Viti Levu: Belt Road, 9 and 42 miles west of Suva, July 22, 23, 1938; ridge west of Vatuthere, alt. 2,600-3,000 ft., Sept. 8, 1938; Tholo-i-Suva, alt. 500-600 ft., July 21, 1938; all by Zimmerman. One female from Mango: south of Marona, alt. 200-300 ft., Aug. 14, 1938, Zimmerman.

2. **Myndus xanthus,** new species (fig. 3, *c, d*).

Vertex 1.36 times as broad across base as long in middle line, apex 0.66 width of base. Stramineous; frons, vertex, pronotum yellow, mesonotum a little darker. Tegmina sordid hyaline on corium, clear on membrane; costal cell at apex, a spot near apex of

clavus and distal half of apical cells fuscous, veins yellowish brown. Wings hyaline, veins fuscous.

Aedeagus with a broad sinuate spine below at apex, directed ventrocephalad; two short spines on left at base of flagellum. Flagellum with two short spines and one long spine distally on left; two short spines in basal half on right, a short spine on right directed cephalad. Male: length 3.2 mm.; tegmen, 4.0 mm.

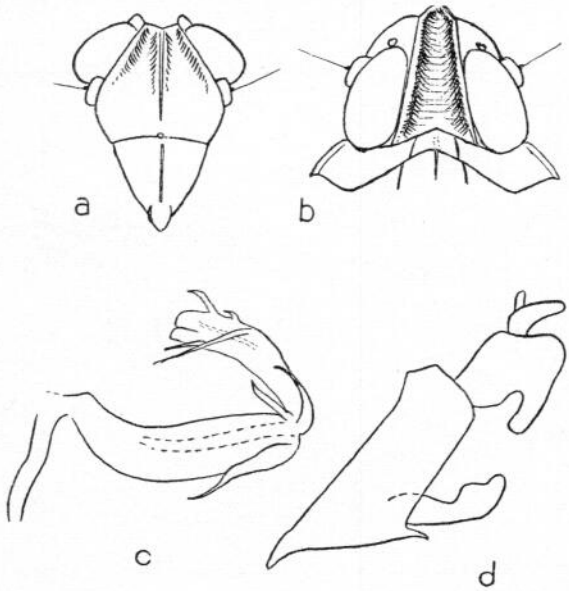


FIGURE 3.—**a, b,** *Myndus vitiensis: a,* frons and clypeus; *b,* vertex and pronotum. **c, d,** *M. xanthus: c,* aedeagus; *d,* anal segment, pygofer, and genital style.

Four males from Viti Levu: west slope of Mt. Victoria, Tholo North [now in Mba], alt. 3,000 ft., beating, Sept. 16, 1938, holotype; Nandarivatu, on ridge west of Vatuthere, alt. 2,000-3,000 ft., Sept. 8, 1938; all by Zimmerman.

This species is distinguished by its broad vertex, the shape of the genitalia, and the coloration. Both this and the species which follow may belong to *Innobindus* but the venation is somewhat different.

3. **Myndus personatus,** new species (fig. 4, *a-c*).

Vertex 1.3 times as broad across base as long in middle line; apex nine-thirteenths width of base.

Pallid or dark testaceous; vertex, pronotum, and mesonotum castaneous, basal half of frons piceous except on median carina. Tegmina hyaline, sometimes with an oblique band from base of costa to middle of clavus, commissural margin of clavus, and a band from stigma to apex of clavus fuscous. Wings hyaline, veins fuscous.

Aedeagus with a long spine below, markedly sinuate near its base; two subequal spines on left at base of flagellum. Flagellum with a spine on left in basal third and a tapering pointed submembranous process distally; on right, a long straight spine directed ventro-cephalad, and a pair of subequal spines, one curved dorsad, the other, ventrad.

Male: length, 2.8 mm., tegmen, 3.5 mm.; female: length, 3.2 mm., tegmen, 3.8 mm.

Four males and nine females from Viti Levu: Tholo-i-Suva, June 28, 1924, Bryan; Tholo-i-Suva, alt. 500-600 ft., July 21, 25, 1938, holotype male, Zimmerman; Nandarivatu, ridge west of Vatuthere, alt. 2,600-3,000 ft., Sept. 5, 7, 1938, Zimmerman. One female from Ovalau: Andubangda, alt. 1,000-1,500 ft., July 18, 1938, Zimmerman.

This species is distinguished by the proportions of the head, the genitalia, and coloration. Two females from Viti Levu lack the piceous bar across the basal portion of the frons.

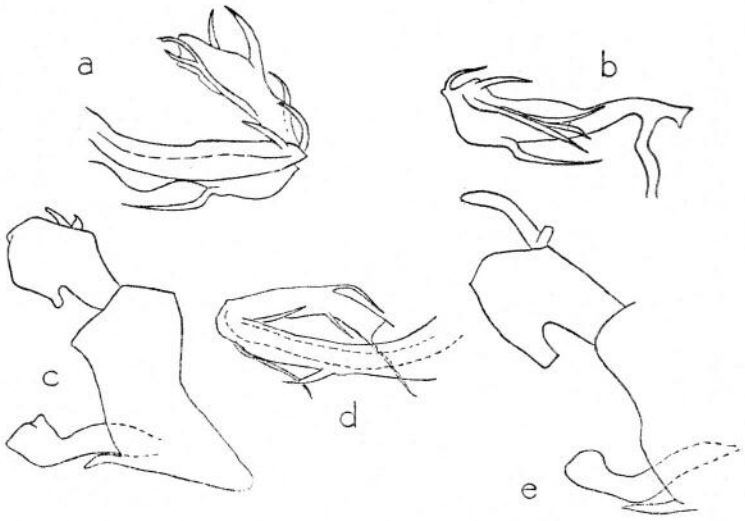


FIGURE 4.—**a-c,** *Myndus personatus: a,* aedeagus, left side; *b,* aedeagus, right side; *c,* anal segment, pygofer, and genital style. **d, e,** *M. pica: d,* aedeagus; *e,* anal segment, pygofer, and genital style.

4. **Myndus pica,** new species (fig. 4, *d, e*).

Vertex 1.1 times as broad across base as long in middle line; apex 0.75 width of base.

Clypeus, legs, and lower side of body pallid yellow; frons, genae near antennae fuscous; antennae, vertex, pronotum, and tip of mesonotum testaceous; mesonotum otherwise castaneous. Tegmina hyaline, a broad oblique band from base of costa to commissural margin just distad of apex of clavus and apical cells of membrane dark fuscous, veins concolorous; sometimes a fuscous band across base of clavus. Wings infuscate, veins dark.

Aedeagus with a spine below at middle directed caudad, a slender sinuate spine at apex directed ventro-cephalad, a spine on left at base of flagellum, flagellum with a straight slender spine on right at base and a longer curved slender spine near apex, membrane produced in two long filaments at apex.

Male: length, 2.5 mm., tegmen, 3.5 mm.; female: length, 3.7 mm., tegmen, 4.0 mm.

Nine males and two females from Viti Levu: Nandarivatu, alt. 2,400 ft., Sept. 14, 1938, holotype male; alt. 3,500 ft., beating, Sept. 5, 6, 1938, Zimmerman.

This species is distinguished by the proportions of the vertex, the genitalia, and the coloration.

5. Myndus antenor, new species (fig. 5, *a*).

Vertex as long in middle line as broad across extreme base; apex one-half width of base.

Testaceous; disk of frons basally on each side of median carina, procoxae, all femora, and protibiae reddish fuscous; mesonotum castaneous. Tegmina hyaline, a spot overlying M and Cu at base, a spot in middle and another at apex of commissural margin of clavus, an irregular narrow line from apex of subcostal cell to apex of clavus, subapical transverse veins, apices of all veins at margin and last cubital cell on margin fuscous. Wings hyaline, veins concolorous.

Female: length, 3.7 mm., tegmen, 4.5 mm.

One female from Viti Levu: Nandarivatu, alt. 3,600 ft., Sept. 5, 1938, holotype, Zimmerman.

This species is distinguished by the proportions of the vertex, the size, and the coloration.

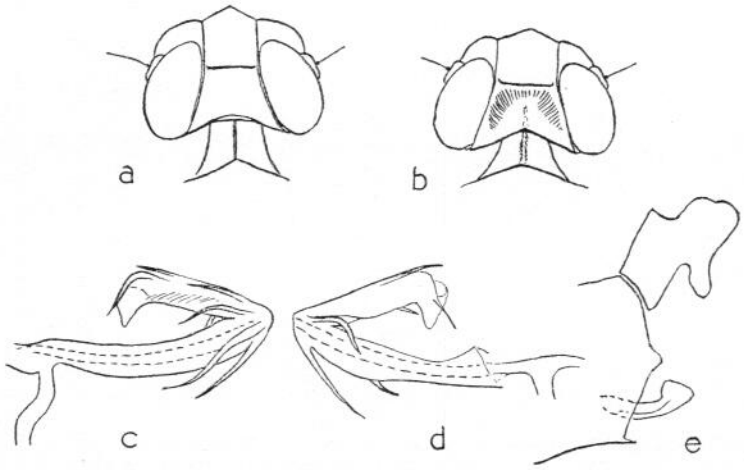


FIGURE 5.—**a,** *Myndus antenor,* vertex. **b-e,** *M. ulysses: b,* vertex; *c,* aedeagus, left side; *d,* aedeagus, right side; *e,* anal segment, pygofer, and genital style.

6. Myndus ulysses, new species (fig. 5, *b-e*).

Vertex slightly broader across extreme base than long in middle line (1.1 : 1), apex about half the width between basal angles.

Pale reddish brown, lower side of body testaceous. Tegmina hyaline; stigma, costal and apical margin round to apex of clavus, veins Sc, R, and M at apex narrowly fuscous, veins in corium yellowish or fuscous.

Aedeagus with a slender spine ventrally at apex directed ventro-cephalad, a moderately long sinuate spine on left at base of flagellum, and a shorter, downward-curved spine on right side in a corresponding position; flagellum with two diverging spines on left about at middle, and a short spine curved ventrad at apex; overlying this and a little basad of it a pair of short spines directed cephalad.

Male: length, 2.5 mm., tegmen, 3.8 mm.; female: length, 3.0 mm., tegmen, 3.9 mm.

Three males and two females from Viti Levu: Nandarivatu, alt. 3,600 ft., Sept. 5, holotype male, and Sept. 6, 1938, Zimmerman. A female from Moala collected by R. H. Beck, July 9, 1924, is placed here, but in the absence of a male is not considered as belonging in the paratype series.

Genus **Dystheatias** Kirkaldy

Dystheatias Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 113, 1907. Haplotype, *Dystheatias beecheyi* Kirkaldy, op. cit.

1. **Dystheatias beecheyi** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 113, 1907 (fig. 6, *a-c*).

Lateral margins of frons foliate and oblique, curved through 70 degrees, clypeus with lateral margins strongly foliate, disk of frons and clypeus strongly curved. Length of vertex in middle line twelve-thirteenths of width across truncate base. Anal segment of male with lower margin convex, upcurved distally.

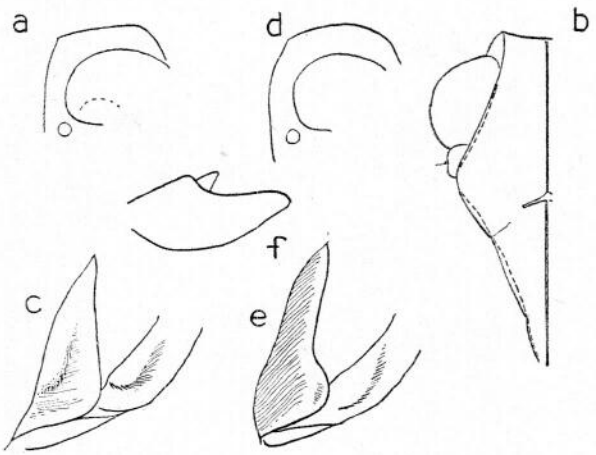


FIGURE 6.—**a-c,** *Dystheatias beecheyi: a,* vertex in profile; *b,* left side of frons and clypeus (dotted line); *c,* lateral portion of eighth abdominal segment of female. **b, d, e,** *D. clymene: b,* left side of frons and clypeus (solid line); *d,* vertex in profile; *e,* lateral portion of eighth abdominal segment. **f,** *D. vitiensis:* anal segment of male.

Three males and 16 females from Viti Levu: ridge west of Nandarivatu, alt. 2,800 ft., Sept. 11, 12, 1938; Belt Road, 40-50 miles west of Suva, July 26, 1938; Mt. Victoria, Mba (Tholo North), alt. 3,000-4,000 ft., Sept. 13, 1938; Lami Quarry near Suva, alt. 10-250 ft., July 24, 1938; all by Zimmerman. Two females from Ovalau: Draiba trail, alt. 600-1,000 ft., July 8, 9, 1938, Zimmerman.

2. **Dystheatias vitiensis** (Kirkaldy) (fig. 6, *f*).

Quirosia vitiensis Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 114, 1907.

One female from Ongea, Aug. 2, 1924, Bryan. Two males and two females from Viti Levu: ridge west of Nandarivatu, alt. 2,800 ft., Sept. 11, 1938; Tholo-i-Suva, alt. 500-600 ft., July 21, 1938; all by Zimmerman. Two females from Ovalau: Thawathi, alt. between 600 and 900 ft., July 12, 1938, Zimmerman.

3. Dystheatias aeneas, new species (fig. 7, *a-d*).

Vertex broader across truncate base than long in middle line (1.2:1), lateral carinae of frons curved through 70 degrees.

Stramineous yellow; frons, vertex, and mesonotum testaceous, one or two darker marks near base of frons. Tegmina yellow hyaline, veins and apical margin at apex of veins sometimes faintly interrupted with pale fuscous. Sometimes a faint fuscous transverse bar a little distad of Sc+R and Cu forks.

Anal segment of male slightly asymmetrical, deep at sides, left ventroapical angle slightly produced. Aedeagus with two subequal diverging spines on right, a curved spine on upper surface of flagellum, membrane of flagellum tapering to a point.

Male: length, 4.5 mm., tegmen, 2.8 mm.; female: length, 3.2 mm., tegmen, 5.0 mm.

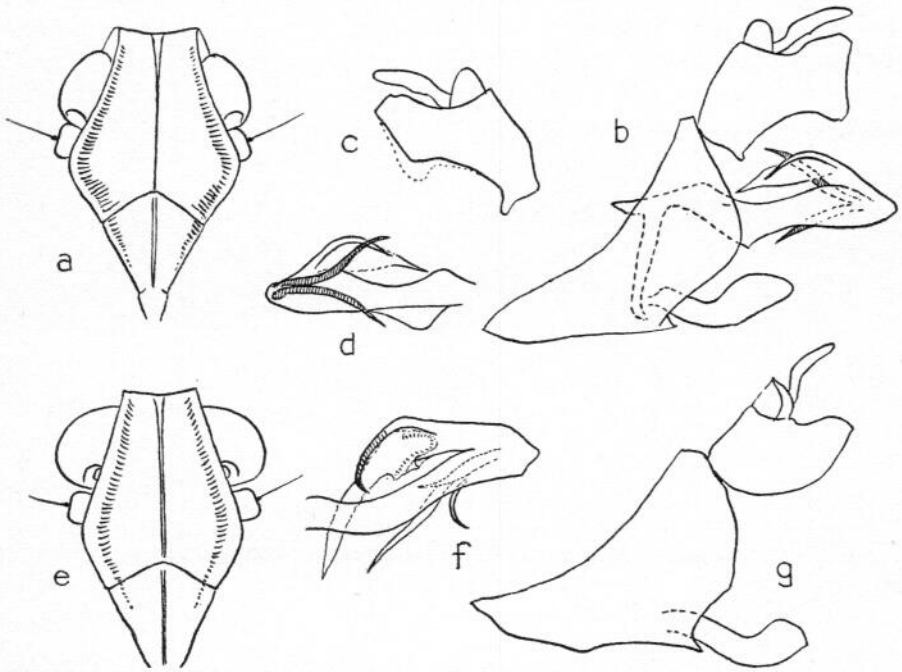


FIGURE 7.—**a-d,** *Dystheatias aeneas: a,* frons and clypeus; *b,* male genitalia, left side; *c,* anal segment of male, right side; *d,* aedeagus, right side. **e-g,** *D. smaragdus: e,* frons and vertex; *f,* aedeagus, left side; *g,* anal segment, pygofer, and genital style.

Two males and three females from Viti Levu: ridge west of Nandarivatu, alt. 2,600-3,000 ft., Sept. 9-11, 1938, alt. 3,700 ft., Sept. 10, 1938; Navai-Nasonga trail, alt. 3,400 ft., beating, Sept. 12, 1938, holotype male; all by Zimmerman.

This species is distinguished by the proportions of the head, the shape of the genitalia, and the coloration.

4. Dystheatias smaragdus, new species (fig. 7, *e-g*).

Vertex slightly broader across truncate base than long in middle line (1.1 : 1), lateral carinae of frons curved through 50 degrees.

Green to greenish testaceous; vertex, disk of pronotum, disk and upper part of sides of mesonotum, protibiae, and tarsi, slightly, fuscous. Legs yellow or testaceous. Tegmina hyaline green or testaceous yellow, stigma and a spot just distad of apex of clavus, commissural margin of clavus, and a row of short interruptions on posterior claval vein fuscous.

Anal segment of male symmetrical with lower margins strongly convex. Aedeagus with three spines on right distally, flagellum with margin sclerotised, extending in a spine subangulately curved mesad and to left, apical portion of flagellum membranous, long and tapering to a point.

Male: length, 2.5 mm., tegmen, 4.5 mm.; female: length, 3.5 mm., tegmen, 5.4 mm.

Nine males and 10 females from Viti Levu: Mt. Victoria, Mba (Tholo North), alt. 4,341 ft., Sept. 13, 1938, holotype male and one paratype, Zimmerman; alt. 3,000-4,000 ft., Sept. 10, 1938, one paratype, Y. Kondo.

This species is distinguished by the proportions of the head, the shape of the genitalia, and the coloration.

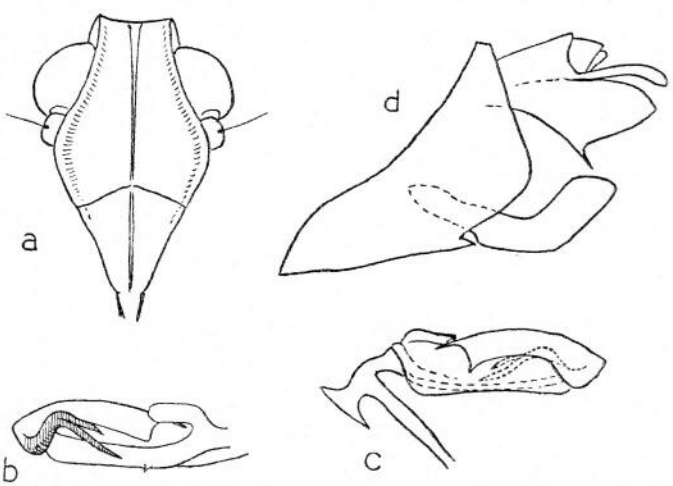


FIGURE 8.—*Dystheatias nigricosta:* **a,** frons and clypeus; **b,** aedeagus, right side; **c,** aedeagus, left side; **d,** anal segment, pygofer, and genital style.

5. Dystheatias nigricosta, new species (fig. 8, *a-d*).

Vertex broader across truncate base than long in middle line (1.5 : 1), lateral carinae of frons curved through 50 degrees. Apical margin of tegmen mostly oblique.

Testaceous, sometimes suffused greenish; pronotum behind eyes and lateral fields of mesonotum castaneous fuscous. Tegmina hyaline, slightly tinged yellow toward commissural margin, costal vein to stigma piceous, part of stigma, apices of veins of Sc, R, and first branch of M fuscous piceous. Wings hyaline, veins fuscous.

Anal segment of male deep at sides, lower margin obtusely angulate at middle where it is produced in a short spine. Aedeagus with a minute tooth ventrally at basal third, a sinuate process on right at base of flagellum, forking distally into two unequal spines; flagellum moderately sclerotised, subtruncate at apex with one angle narrowly produced.

Male: length, 3.0 mm., tegmen, 5.2 mm.

Two males from Viti Levu: Navai-Nasonga trail, summit, alt. 3,400 ft., beating shrubs, Sept. 12, 1938, holotype, Zimmerman.

This species is distinguished by the proportions of the head, the shape of the genitalia, and the coloration.

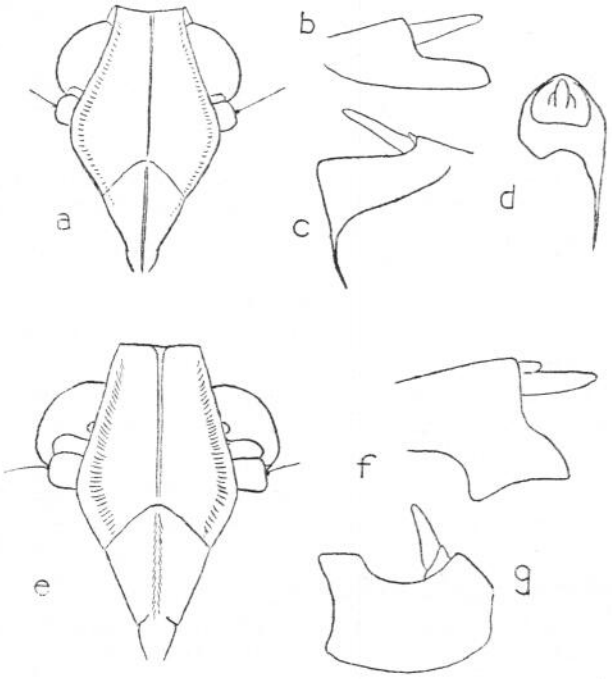


FIGURE 9.—**a-d,** *Dystheatias ensicauda: a,* frons and clypeus; *b,* anal segment of male, left side; *c,* anal segment of male, right side; *d,* anal segment of male, posterior view. **e-g,** *D. fuscata: e,* frons and clypeus; *f,* anal segment of male, left side; *g,* anal segment of male, right side.

6. Dystheatias ensicauda, new species (fig. 9, *a-d*).

Vertex broader across truncate base than long in middle line (1.1:1), lateral carinae of frons curved through 50 degrees.

Testaceous; frons, vertex, and mesonotum reddish brown. Tegmina yellowish hyaline, veins concolorous, stigma pallid yellow, veins granulate.

Anal segment of male asymmetrical, left side shallow, lower margin slightly convex, right side deep, expanding distally, lower margin straight, apical margin on right side truncate, a slender spinose process directed ventrad at apical angle on right side.

Male: length, 3.0 mm., tegmen, 4.5 mm.

One male from Moala: Naroi, alt. 500-800 ft., August 24, 1938, holotype, Zimmerman.

This species is distinguished by the proportions of the head, the shape of the genitalia, and the coloration.

7. Dystheatias fuscata Kirkaldy (fig. 9, *e-g*).

Dystheatias beecheyi var. *fuscata* Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 114, 1907.

Vertex longer in middle line than broad across truncate base (1.2:1), lateral carinae of frons curved through 50 degrees.

Testaceous; base of frons, sides of head, pronotum, and mesonotum castaneous; vertex, disk of pronotum, and mesonotum pallid to creamy white, abdomen slightly infuscate. Tegmina hyaline, infuscate; stigmal area hyaline or pale, veins of M and Cu distally, apical margin between apices of veins, posterior claval vein and area between it and commissural margin, pallid or creamy white, the latter area sometimes interrupted by a piceous spot at level of junction of claval veins. Veins with fuscous granules bearing yellowish setae. Wings infuscate, veins darker.

Anal segment of male asymmetrical, tectiform, sides deep, ventral margin of right side shallowly convex, that of left side markedly concave, ventro-apical angle of left side more produced ventrad than that on right.

Male: length, 2.7 mm., tegmen, 4.0 mm.; female: length, 3.0 mm., tegmen, 4.3 mm.

Two males and 10 females from Viti Levu: Belt Road, 16-18 miles west of Suva, July 22, 1938; ridge west of Nandarivatu, alt. 2,800 ft., Sept. 11, 1938; Nandarivatu, Aug. 31 to Sept. 6, 1938. One female from Mango: one mile south of Marona, beating shrubs, Aug. 14, 1938. One female from Vanua Mbalavu: Bavatu, Aug. 16, 1938. All by Zimmerman.

This species is distinguished by the proportions of the head, the shape of the genitalia, and the coloration. The Vanua Mbalavu specimen has the vertex proportionately a little longer than the specimens from Viti Levu.

8. Dystheatias lacon, new species (fig. 10, *a, b*).

Vertex broader across truncate base than long in middle line (1.1: 1), lateral carinae of frons curved through 50 degrees. Apical margin of tegmina mostly oblique.

Frons, clypeus, rostrum, lateral lobes of pronotum, and whole of under surface of thorax and abdomen stramineous; vertex, dorsal portion of pronotum, mesonotum, abdominal tergites, and valves of ovipositor uniformly fuscous, legs slightly suffused fuscous. Tegmina yellowish hyaline or uniformly suffused fuscous, veins and granules concolorous. Wings very slightly infuscate, veins dark.

Female: length, 3.5 mm., tegmen, 5.2 mm.

Five females from Viti Levu: Suva Bay, Ditch trail, July 22, 1924, Bryan; ridge west of Nandarivatu, alt. 2,800 ft., Sept. 11, 1938, Zimmerman; Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, Zimmerman; Vunindawa, May 2, 1941, holotype, Krauss. One female from Moala: Naroi, alt. 500-800 ft., Aug. 24, 1938, Zimmerman.

This species is distinguished by the proportions of the head, the shape of the apical margin of the tegmina, and the coloration.

9. Dystheatias cleon, new species (fig. 10, *c-e*).

Vertex broader across truncate base than long in middle line (1.1 : 1), lateral carinae of frons curved through 50 degrees. Frons with basal margin angulately emarginate, pronotal disk very short. Apical margin of tegmina almost symmetrically rounded.

Stramineous; three spots along each lateral carina of mesonotum and a spot near posterior margin of lateral fields of mesonotum fuscous piceous. Tegmina hyaline, slightly yellowish in membrane, veins concolorous, in corium faintly interrupted with fuscous. Wings hyaline, veins darker.

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

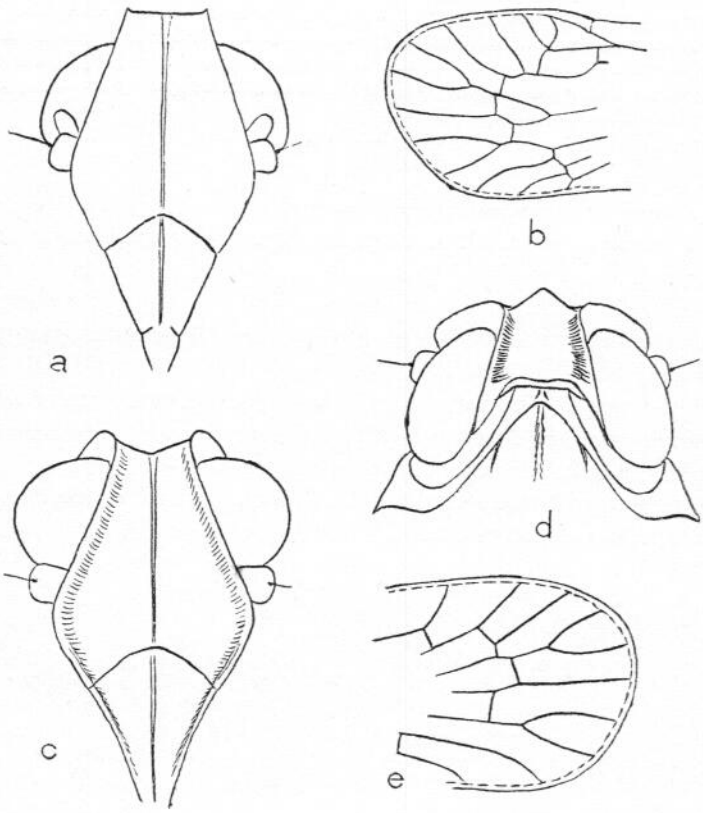


FIGURE 10.—**a, b,** *Dystheatias lacon: a,* frons and clypeus; *b,* apical portion of tegmen. **c-e,** *D. cleon: c,* frons and clypeus; *d,* vertex and pronotum; *e,* apical portion of tegmen.

One female from Vanua Mbalavu: Bavatu, Aug. 16, 1938, holotype, Zimmerman.

This species very closely resembles females of *D. aeneas,* but differs in the angle at which the vertex meets the frons, the total absence of a median carina on the vertex (indicated in *aeneas*), the shape of the vertex and the proportionately shorter pronotal disk, the distinctly greater convexity of

the curve at the base of the costa, and the coloration, especially of the mesonotum.

10. Dystheatias clymene, new species (fig. 6, *b, d, e*).

Vertex in profile meeting frons subroundingly, not sharply angulate. Frons with lateral margins forming a smooth curve below level of antennae, not subangulately bent; lateral margins of clypeus in anterior view slightly convex. Posterior margin of sides of eighth abdominal segment of female distinctly concave.

Testaceous; most of frontoclypeal suture, antennae, and lateral fields of pronotum pallid stramineous; mesonotum except at scutellum and most of abdomen uniformly brownish fuscous, legs with faintest indication of brown transverse bands on pro- and mesotibiae near base and apex and at base of first post-tarsal joint. Tegmina hyaline, uniformly tinged brown; veins densely granulate, almost uninterruptedly brown, apical margin between veins hyaline to pallid.

Female: length, 2.5 mm., tegmen, 4.2 mm.

One female from Rotuma: Soluaka, Aug. 29, 1938, holotype, H. St. John.

This species resembles *D. beecheyi,* but is well-distinguished in the vertex in profile not forming a clearly defined angle with the frons, in the lateral margins of the frons being smoothly curved and not subangulately bent below the level of the antennae, and in the sides of the clypeus being slightly convex, not straight. The hind border of the ventrolateral portion of the eighth segment is concave, not straight as in *beecheyi.* The uniform brown hue of the tegmina is not found in *beecheyi,* and though even the palest forms of the latter have the veins strongly and regularly spotted with brown, in *clymene* they are almost uniformly brown. The coloration of the head and thorax also is more subdued in *clymene.*

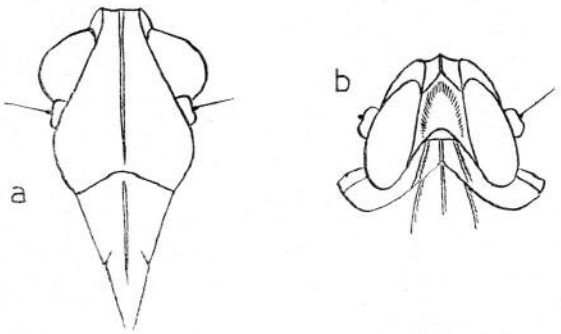


FIGURE 11.—*Nesochlamys kalypso:* a, frons and clypeus; b, vertex and pronotum.

Genus **Nesochlamys** Kirkaldy

Nesochlamys Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 115, 1907. Haplotype, *Nesochlamys vitiensis* Kirkaldy, op. cit.

1. **Nesochlamys kalypso** (Kirkaldy) (fig. 11, *a, b*).

Nesocharis kalypso Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 111, 1907.

Nesochlamys vitiensis Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 115, 1907.

Ovipositor long, complete, curved upward distally. Tegmina largely infuscate, with pallid areas near stigma and in clavus.

Three males and three females from Viti Levu: Belt Road, 42-44 miles west of Suva, Sept. 12, 1938, Zimmerman; Navai-Nasonga trail, alt. 3,400 ft., Sept. 12, 1938, Zimmerman; Lami, July 24, 1938, Zimmerman, May 6, 1941, Krauss; Vunindawa, May 2, 1941, Krauss. Five females from Vanua Mbalavu: Sept. 24, 1924, Bryan; Bavatu, Aug. 16, 1938, Zimmerman. Two females from Ongea, July 31, 1924, Bryan. One male from Avea, Sept. 22, 1924, Bryan. One female from Ovalau: Andubangda, alt. 1,500-1,800 ft., July 15, 1938, Zimmerman.

Nesochlamys kalypso (Kirkaldy) subspecies **insulicola,** new subspecies.

As in typical subspecies, but distinguished by the constant presence of a fuscous suffusion in the middle and at the apex of the clavus, a narrow oblique pale spot overlying the basal vein of the stigma, and another larger spot distad of the stigmal cell, this latter spot sometimes divided by a fuscous vein.

Three males and three females from Mango: one mile south of Marona, Aug. 14, 1938, holotype, Zimmerman.

In the Viti Levu specimens, the whole of the area near the stigma is pale, even though the fuscous area on the remainder of the tegmen is variable. *N. vitiensis* is merely a dark form of *kalypso*.

Family Delphacidae Leach

Key to Genera of Delphacidae of Australasia and Pacific Islands (Adapted from Muir)

1. Post-tibial spur subulate, circular or angulate in cross section, acute at apex, devoid of teeth laterally (Asiracinae) 4
   Post-tibial spur cultrate or laminate, thick, convex on each side or concave on inner surface with teeth on hind margin (Delphacinae) 2
2. Post-tibial spur cultrate, solid 3
   Post-tibial spur laminate or foliaceous, sometimes tectiform, with or without teeth along posterior margin (Delphacini) 33
3. Post-tibial spur with inner and outer surfaces convex, with distinct teeth on posterior margin (Alohini) 12
   Post-tibial spur with inner surface concave; no teeth along posterior margin (Tropidocephalini) 21
4. Anal angle of tegmina subquadrate; frons 1.5 times broader at widest part than at base ..... **Ostama** Walker
   Anal angle of macropterous tegmina deeply rounded; frons not as above 5

5. Both segments of antennae cylindrical or nearly so 7
   First segment of antennae cylindrical, shorter than second; second segment elongate-ovate and considerably flattened, at least basally 6
6. Frons with a single median carina only ..... **Punana** Muir
   Frons with two longitudinal submedian carinae, no median carina ..... **Ugyopana***
7. Frons with two longitudinal submedian carinae, no median carina 8
   Frons with median carina only, forked or simple 10
8. Second segment of antennae more than three times length of first 9
   Second segment of antennae less than three times length of first ..... **Ugyops** Guérin-Méneville
9. Vertex quadrate, relatively short ..... **Perimececera** Muir
   Vertex three times as long as broad ..... **Jugodina** Schumacher
10. First segment of antennae less than half length of second, latter slightly flattened ..... **Melanesia** Kirkaldy
    First and second segments of antennae subequal, cylindrical 11
11. Median carina of frons simple ..... **Eucanyra** Crawford
    Median carina of frons forked ..... **Ugyops** Guérin-Méneville
12. Antennae with first segment broader than long, second segment short, thick, often subovoid 13
    Antennae with first segment distinctly longer than broad, second segment cylindrical or only slightly enlarged at middle 15
13. Frons with two submedian longitudinal carinae, approximated basally, distally or both, but not united ..... **Leialoha** Kirkaldy
    Frons with a single median carina simple or at most forked only at extreme base 14
14. Form slender, elongate ..... **Nesodryas** Kirkaldy, subgenus **Nesodryas** Kirkaldy
    Form relatively broad and robust ..... **Nesodryas** Kirkaldy, subgenus **Nesothoe** Kirkaldy
15. Head considerably elongated, longer than thorax and abdomen combined ..... **Dictyophorodelphax** Swezey
    Head not elongate 16
16. Frons with two submedian longitudinal carinae 17
    Frons with a single median carina, simple or forked 18
17. Basal segment of antennae much shorter than second, clypeus flat in profile ..... **Aloha** Kirkaldy
    Basal segment of antennae as long as second, clypeus convex in profile ..... **Nesorestias** Kirkaldy
18. Mesonotum with disk rounded and separated from scutellum by a depression 20
    Mesonotum with disk flattened, no distinct depression between disk and scutellum 19
19. Basal segment of antennae longer than second; rostrum reaching to base of abdomen ..... **Ilburnia** White
    Basal segment of antennae shorter than second; rostrum scarcely attaining posttrochanters ..... **Nothorestias** Kirkaldy
20. Antennae with second segment twice as long as first; vertex with mediolateral carinae uniting at apex of head ..... **Proterosydne** Kirkaldy
    Antennae with second segment about 1.6 times length of first; vertex with mediolateral carinae united basad of apex of head ..... **Vizcaya** Muir
21. Lateral carinae of vertex and frons foliately raised 22
    Lateral carinae of vertex and frons not foliate 23
22. Antennae with first segment flattened, foliaceous, longer than second ..... **Purohita** Distant[2]
    Antennae with first segment not foliaceous, subequal to second ..... **Lanaphora** Muir

[2] If Tropidocephaline, *Holzfussella* Jacobi belongs here, being separated from *Purohita* by the strong median carina on vertex and the first antennal segment being only a little longer than the second.

23. Antennae with first segment smoothly cylindrical, if at all flattened then longer than broad with lateral margins subparallel 25
Antennae with first segment only a little longer than wide, broader at apex than at base 24
24. Frons broader at base than at apex ..... **Belocera** Muir
Frons narrower at base than at apex ..... **Bambucibatus** Muir
25. Vertex triangular with sides more or less curved, sometimes elongate 26
Vertex quadrate 27
26. Vertex three times as long as pronotum and mesonotum combined, flattened laterally ..... **Pseudembolophora** Muir
Vertex much shorter, flattened dorsally ..... **Tropidocephala** Stål
27. Antennae longer than frons, if only slightly, frons with lateral carinae straight, subparallel, clypeus in profile not bent at a right angle to face 29
Antennae not longer than frons 28
28. Lateral carinae of frons arcuate or subparallel; antennae with first segment not two-thirds as long as second; clypeus in profile slightly curved 30
Lateral carinae of frons arcuate; antennae with first joint two-thirds as long as second; clypeus in profile bent at right angle to frons ..... **Arcofacies** Muir
29. Antennae slightly longer than frons, first segment slightly flattened, about as long as second ..... **Sogatopsis** Muir
Antennae much longer than frons, first segment distinctly shorter than second ..... **Malaxa** Melichar
30. Vertex triangular, frons four times as long as broad ..... **Conocraera** Muir
Vertex not triangular, frons shorter 31
31. Median carina of frons forked at base; tegmina with Sc+R forked basad of nodal line 32
Median carina of frons not forked; tegmina with Sc+R not forked basad of nodal line ..... **Upachara** Distant
32. Frons less than twice as long as broad, lateral margins arcuate; tegmina with Sc+R fork near level of union of claval veins ..... **Pundaluoya** Kirkaldy
Frons twice as long as broad, lateral margins straight, diverging distad; tegmina with Sc+R fork distad of union of claval veins ..... **Zuleika** Distant
33. Mesonotum with five carinae 34
Mesonotum with less than five carinae 35
34. Head in profile semicircular; antennae terete ..... **Paranda** Melichar
Head in profile not semicircular; antennae with first segment compressed, dilated, obliquely triangular; second segment slightly longer than first ..... **Eodelphax** Kirkaldy
35. Antennae with one or both segments distinctly flattened 36
Antennae cylindrical or at most only slightly flattened 37
36. Frons with median carina forked near level of lower margin of eyes ..... **Perkinsiella** Kirkaldy
Frons with median carina forked at extreme base ..... **Brachycraera** Muir
37. Femora and tibiae of first and second pairs of legs compressed and foliaceous ..... **Phyllodinus** Van Duzee, **Peliades** Jacobi
Legs not foliaceous 38
38. Carinae of head obscure, vertex little broader than long, second segment of antennae about twice as long as first, first segment of post-tarsus longer than second and third combined ..... **Anectopia** Kirkaldy
Carinae of head distinct 39
39. Frons with two submedian longitudinal carinae, vertex quadrate, lateral carinae of pronotum not reaching hind margin ..... **Criomorphus** Curtis
Frons with a single median carina, simple or forked 40
40. Mediolateral carinae of vertex converging apically, continued separately onto frons where they unite (median carina of frons forked) 41

Mediolateral carinae of vertex uniting on vertex, union sometimes indistinct, continued onto frons as a single carina 48

41. Basal segment of antennae longer than broad 42
Basal segment of antennae as broad as long 44

42. Vertex longer than broad 43
Vertex as broad as long ..... **Peregrinus** Kirkaldy

43. Median carina of frons simple ..... **Megamelus** Fieber
Median carina of frons furcate ..... **Tarophagus** Zimmerman

44. Vertex distinctly longer than broad 45
Vertex as broad as long or broader 46

45. Post-tibial spur with 12-15 small teeth ..... **Stenocranus** Fieber
Post-tibial spur with 8 large teeth ..... **Kelisia** Fieber

46. Frons with median carina simple or forked not more than one-third from base ..... **Delphacodes** Fieber
Frons with median carina forked more than one-third from base 47

47. Median carina of frons forked near middle ..... **Dicranotropis** Fieber
Median carina of frons forked near apex ..... **Leimonodite** Kirkaldy

48. Lateral carinae of pronotal disk straight or converging posteriorly, attaining posterior margin or nearly so 49
Lateral carinae of pronotal disk curved, diverging posteriorly, not reaching posterior margin 55

49. Head including eyes distinctly wider than pronotum; posterior edge of eyes reaching nearly to posterior angle of pronotum; vertex only slightly produced before eyes, apically truncate ..... **Smicrotatodelphax** Kirkaldy
Head including eyes not wider than pronotum; posterior edge of eyes not reaching near to posterior angle of pronotum 50

50. Antennae with second segment not twice as long as first 51
Antennae with second segment more than twice as long as first 52

51. Lateral carinae of pronotal disk parallel in apical half, angulate at middle and diverging in basal half; lateral carinae of mesonotal disk diverging basally ..... **Gelastodelphax** Kirkaldy
Lateral carinae of pronotal disk not parallel in apical half, straight or slightly concave, diverging throughout; lateral carinae of mesonotum parallel or nearly so ..... **Megamelus** Fieber

52. Length from apex of vertex to tip of mesoscutellum at least twice width of head including eyes ..... **Stenocranus** Fieber
Length from apex of vertex to tip of mesoscutellum about 1.5 times width of head with eyes 53

53. Frons truncate at base, widest at apex, lateral margins straight ..... **Sogata** Distant
Frons curved or subconical at base, narrower at apex than at middle, lateral margins slightly arcuate 54

54. Apex of head in profile angular ..... **Haplodelphax** Kirkaldy
Apex of head in profile rounded, not angular ..... **Kelisia** Fieber

55. Mediolateral carinae of vertex meeting before its apex, vertex markedly produced beyond eyes ..... **Sardia** Melichar
Mediolateral carinae of vertex meeting at its apex 56

56. Vertex distinctly longer than broad, narrower at apex than at base ..... **Chloriona** Fieber
Vertex not or only slightly longer than broad 57

57. Frons almost as broad as long 58
Frons longer than broad 59

58. Apex of head in profile angular, median carina of frons and mesonotum distinct ..... **Eoeurysa** Muir
Apex of head in profile rounded, median carina of frons and mesonotum feeble or obsolete ..... **Eumetopina** Breddin

59. Frons much longer than broad (about 2.5:1) ..... **Nilaparvata** Distant
Frons longer than broad but not greatly so ..... **Delphacodes** Fieber

Genus **Ugyops** Guérin-Méneville

Ugyops Guérin-Méneville, Voyage aux Indes Belanger **1**: 477, 1834. Haplotype, *Ugyops percheronii* Guérin-Méneville, op. cit.

1. Ugyops vitiensis Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 127, 1907.

Two males and two females from Viti Levu: Navai Mill near Nandarivatu, Sept. 7, 1938; Mt. Victoria, Mba (Tholo North), Sept. 16, 1938; Belt Road, 42-44 miles west of Suva, July 23, 1938; all by Zimmerman. One male from Ovalau: Thawathi, alt. 600-800 ft., July 12, 1938, Zimmerman.

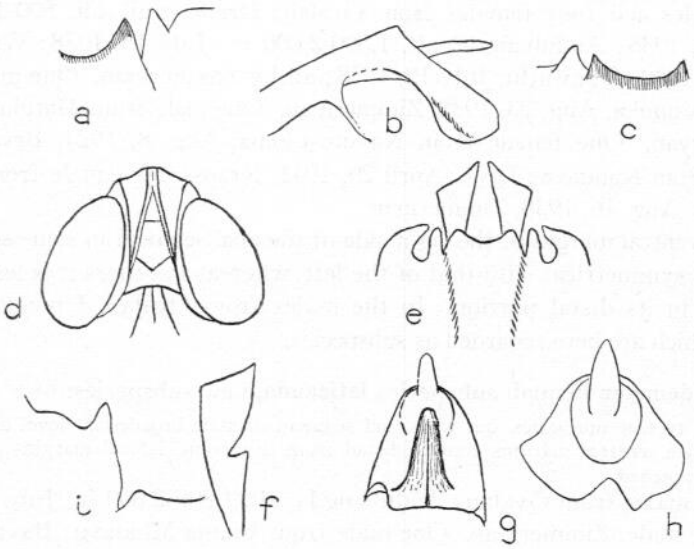


FIGURE 12.—**a-c,** *Ugyops demeter: a,* hind margin of pygofer, postero-ventrolateral view; *b,* anal segment, left side; *c,* medioventral process of pygofer. **d-g,** *U. zimmermani: d,* vertex; *e,* posterior ventral margin of pygofer; *f,* genital style; *g,* anal segment of male. **h, i,** *U. necopinus: h,* anal segment, posterior view; *i,* hind margin of pygofer, postero-ventrolateral view.

2. Ugyops demeter, new species (fig. 12, *a-c*).

Vertex with sublateral carinae meeting at level of anterior margin of eyes, slightly convex laterad, distad of transverse carina at middle, which is strongly developed; frons with submedian carinae rather closely approximated, distinctly united at base and apex, distinct to frontoclypeal suture. Antennae with second segment exactly twice as long as first.

Anal segment of male asymmetrical, ventral margin of right side sinuate, sometimes concave, with a short process at middle, that of left broadly and deeply concave with a long stout spine at middle directed ventrally and slightly incurved, apical portion distad of anal foramen strongly deflexed, apical margin deeply notched at middle, lateroapical angles rounded. Pygofer in middle line 1.4 times as long as broad with a notch on lateral margins at level of lower margin of anal segment, its lower lip slightly produced in a blunt point,

medioventral process prominent and trough-like, deeply and evenly concave on posterior margin.

Testaceous, marked red or fuscous. Three distinct transverse bands distally on frons and spots basally fuscous and red; two bands on second antennal segment, pronotum and mesonotum between carinae, two bands on pro- and mesotibiae, posterior abdominal ventrites, medioventral process of pygofer and apex of anal segment dark fuscous. Tegmina hyaline, veins stramineous interrupted with fuscous.

Male: length, 5.2 mm., tegmen, 5.0 mm.; female: length, 6.5 mm., tegmen, 6.0 mm.

Eight males from Viti Levu: ridge west of Nandarivatu, alt. 2,600-3,000 ft., Sept. 6, 9 (holotype), 1938, Zimmerman; Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, Zimmerman; Mt. Victoria, Mba (Tholo North), alt. 3,000-4,000 ft., Sept. 13, 1938, Zimmerman; Bulu near Sovi, May 21, 1941, Krauss. Four males and four females from Ovalau: Draiba trail, alt. 800-1,000 ft., July 7-9, 1938; Andubangda, alt. 1,800-2,000 ft., July 15, 1938; Wainiloka, July 11, 1938. Thawathi, July 12, 1938; all by Zimmerman. One male from Moala: Vunuka, Aug. 23, 1938, Zimmerman. One male from Matuku, July 7, 1924, Bryan. One female from Navutu-i-loma, Aug. 8, 1924, Bryan. One female from Kandavu: Drue, April 29, 1941, Krauss. One male from Vanua Mbalavu, Aug. 16, 1938, Zimmerman.

The ventral margin of the right side of the anal segment in some specimens is almost symmetrical with that of the left, whereas in others it is less deeply concave in its distal portion. In the males from Ovalau, I recognize two forms which are here regarded as subspecies.

Ugyops demeter Fennah subspecies **laticauda,** new subspecies.

As in typical subspecies, but with anal segment of male broadest at level of insertion of anal style, ventral margins convex distad from this point, lateral margins of pygofer shallowly notched.

Two males from Ovalau: Andubangda, alt. 1,800-2,000 ft., July 15, 1938, holotype male, Zimmerman. One male from Vanua Mbalavu: Bavatu, Aug. 16, 1938, Zimmerman.

This subspecies differs from the typical subspecies of *demeter* from Viti Levu in the shape of the apical margin of the anal segment.

Ugyops demeter Fennah subspecies **angusticauda,** new subspecies.

As in typical subspecies, but with anal segment broadest a little basad of insertion of anal style, ventral margins deeply concave distad from this point, lateral margins of pygofer deeply notched.

Two males from Ovalau: Wainiloka, July 11, 1938, holotype male, Zimmerman; Draiba, July 7, 1938, Zimmerman. One male from Moala: Vunuka, Aug. 23, 1938, Zimmerman. One male from Matuku, July 7, 1924, Bryan.

This subspecies differs from the typical subspecies in the greater symmetry and more trilobate form of the anal segment. It is possible that longer series will show intergrades between the above forms.

3. Ugyops zimmermani, new species (fig. 12, *d-g*).

Vertex longer than wide, the submedian carinae apposed at apex, transverse carina moderately distinct; frons with the two submedian carinae united at base and before apex. Macropterous, Sc+R fork at basal quarter, much basad of Cu_1 fork.

Testaceous to light brown; carinae of head orange, a series of spots or sometimes transverse bars on vertex and frons, pronotum interruptedly on disk and at sides, mesonotum between and outside carinae, two bands on second antennal segment, and on pro- and mesotibiae fuscous. Tegmina hyaline, veins pallid, interrupted with fuscous on corium and infuscate near apex.

Anal segment distally expanded in profile to form a horn-like process. Pygofer with lateral margins produced in a short slender process, medioventral process broad, shallowly excavate; genital styles elongate-triangular, widening distally, notched at middle of inner margin.

Male: length, 5.8 mm., tegmen, 5.5 mm.

Two males from Mango: Sept. 17, 1924, Bryan; one mile south of Marona, Aug. 14, 1938, alt. 200-300 ft., holotype, Zimmerman. One male from Ovalau: Andubangda, alt. 1,500-1,800 ft., beating shrubs, July 15, 1938, Zimmerman.

This species seems to be near *U. wilkesi* Muir, but differs in the coloration and genitalia.

4. Ugyops astrolabei, new species (fig. 13, *a-e*).

Vertex much longer than wide, the submedian carinae broadly fused at apex, transverse carina moderately distinct, frons with the two submedian carinae parallel to apex. Second segment of antennae much longer than first. Sc+R fork near basal third, somewhat basad of Cu_1 fork. Macropterous.

Yellow; carinae of vertex, pronotum, and mesonotum, hind femora and abdomen fuscous; legs otherwise testaceous, a band between submedian frontal carinae and procoxae red.

Pygofer with lateral margins produced in a short blunt process, medioventral process prominent, tapering distally, strongly convex at apex. Genital styles slightly incurved distally, broadest at base, truncate at apex with inner angles produced.

Male: length, 5.0 mm., tegmen, 5.2 mm.

One male from Kambara, Aug. 24, 1924, holotype, Bryan.

This species seems to be near *U. rufus* Muir.

5. Ugyops laui, new species (fig. 14, *a-d*).

Vertex longer than wide, the submedian carinae separate at apex, transverse carina obscure, frons with submedian carinae united at apex, slightly convex. Brachypterous.

Testaceous to stramineous; intercarinal areas of frons fuscous-piceous. Tegmina hyaline, veins stramineous, sometimes interrupted fuscous with transverse veins fuscous.

Anal segment slightly asymmetrical, apical margin transverse, left apical angle slightly produced ventrad. Pygofer with lateral margin angulate in profile at middle produced in a short blunt point, medioventral process broad, shallowly excavated on hind margin. Genital styles with outer margin straight, inner margin strongly concave, less so distally, apical margin very oblique.

Male: length, 4.5 mm., tegmen, 3.0 mm.; female: length, 4.5 mm., tegmen, 3.0 mm.

Fifteen males, 11 females, and two mutilated specimens from Vanua Masi, Sept. 5, 1924, holotype male. One male and one female from Wailangilala, Sept. 29, 1924. One male from Fulanga, Aug. 5, 1924. One male from

Navutu-i-loma, Aug. 10, 1924. One female from Ongea, July 31, 1924. All by Bryan.

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

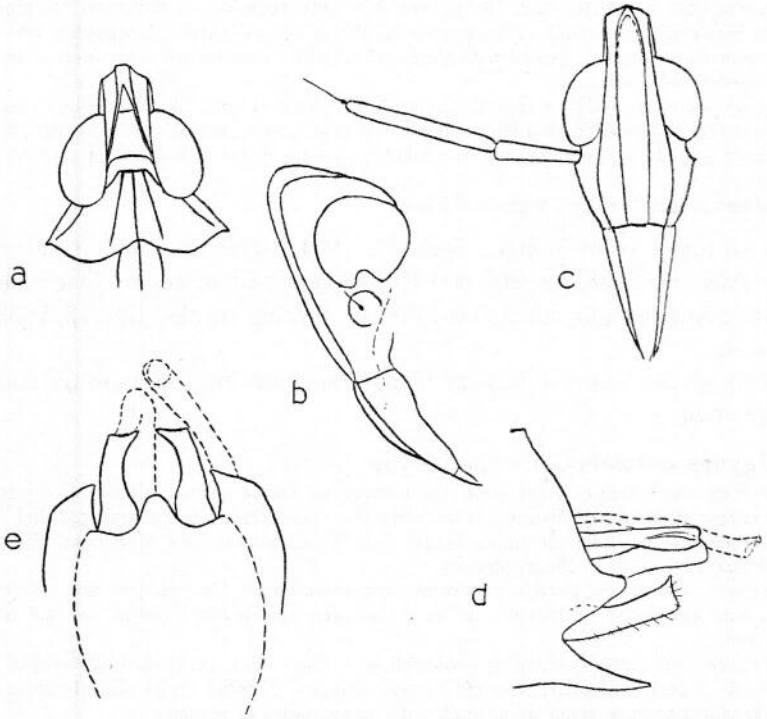


FIGURE 13.—*Ugyops astrolabei:* **a,** vertex and pronotum; **b,** head, side view; **c,** frons, clypeus, and antenna; **d,** male genitalia, left side; **e,** male genitalia, ventral view.

6. **Ugyops necopinus,** new species (fig. 12, *h, i*).

Vertex with sublateral carinae meeting in middle at level of anterior margin of eyes, transverse carina at middle distinct; frons with submedian carinae united at base and apex; antennae cylindrical, second segment 1.9 times length of first. Anal segment with ventrolateral margins convex throughout, apical margin slightly asymmetrical, with right laterоapical angle shortly produced. Pygofer with lateral margins notched at level of lower edge of anal segment, the lower lip of the notch distinctly produced in a short spinose process, medioventral process with posterior margin truncate, not excavate. Genital styles similar to those of *U. bianor.*

Stramineous; markings similar to those of *U. bianor,* but second segment of antennae lightly infuscate but not banded.

Male: length, 5.0 mm., tegmen, 4.3 mm.; female: length, 5.2 mm., tegmen, 4.3 mm.

Twelve brachypterous males and three brachypterous females from Lau Islands: Vekai, Sept. 9, 1924, holotype male; Wangava, Aug. 21, 1924; Ongea, July 27, Aug. 1, 1924; Namuka, Aug. 13, 1924; Vanua Masi, Sept.

5, 1924; Avea, Sept. 22, 1924; Oneata, Aug. 18, 1924; Vanua Vatu, Sept. 13, 1924; all by Bryan. Oneata, Aug. 21, 1938; Vanua Mbalavu, Aug. 7, 1938; Moala, Aug. 25, 1938; Munia, alt. 800-900 ft., beating shrubs, Aug. 3, 1938; all by Zimmerman.

This species is distinguished by the shape of the pygofer and anal segment and by the coloration. The holotype is from Vekai.

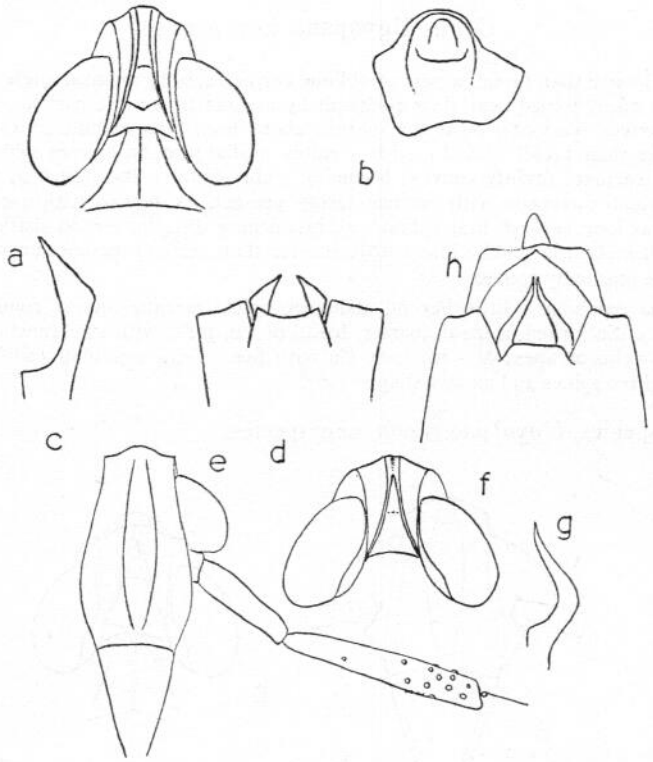


FIGURE 14.—**a-d,** *Ugyops laui: a,* vertex; *b,* anal segment of male, posterior view; *c,* genital style; *d,* posterior ventral margin of pygofer. **e-h,** *U. bianor: e,* frons and antenna; *f,* vertex; *g,* genital style; *h,* male genitalia, ventral view.

7. **Ugyops bianor,** new species (fig. 14, *e-h*).

Vertex broader at apex than at truncate basal margin (1.3:1), intermediate carinae united a little distad of anterior margin of eyes, transverse carina at middle feebly indicated, frons with submedian carinae separate from base, weakly convex, not quite uniting distally and obsolete before attaining frontoclypeal suture; antennae cylindrical, second segment 1.8 times length of first. Tegmina with Sc+R forked at basal third. Anal segment with ventral margin entire, not excavate, and not deflexed distally. Genital styles as figured. Pygofer with medioventral process posteriorly truncate, not excavate, lateral margins not produced but forming a small groove at level of lower margin of anal segment.

Stramineous; about seven interrupted transverse bars on each side of frons reddish brown, a mottling on lateral portions of vertex and a spot on genae before eyes red; two

bands on second antennal segment, an oblique stripe across lateral fields of pronotum, two bands on tibiae, and basal joints of tarsi lightly infuscate. Tegmina hyaline, veins stramineous, lightly infuscate across tegmen on veins at level of Sc+R fork and in three places on posterior claval veins.

Male: length, 3.7 mm., tegmen, 3.7 mm.

One male from Rotuma: Oinata, Aug. 23, 1938, holotype, H. St. John.

Genus **Ugyopana,** new genus

Vertex longer than broad, a pair of oblique carinae arising at basal angles and uniting in middle at apex, joined near their midpoint by a short transverse carina, apical margin of vertex convex, carinate, posterior margin about level with middle of eyes, truncate. Frons longer than broad (1.5:1) with a callus medially at base from which arise two longitudinal carinae, slightly convex, becoming feeble distally and united at apex, lateral margins carinate; clypeus with carinae feebly present. Antennae with second segment three times as long as first, first cylindrical, broadening distally, second shallowly convex, flattened. Pronotum in middle line a little shorter than vertex; mesonotum with intermediate carinae markedly convex.

Tegmina reaching a little beyond abdomen, apical margin acutely rounded between M_2 and M_{3+4}. Sc forked in basal quarter, basad of Cu_1 fork, with six branches to margin, R with two veins at apex, M with four, Cu with five. Veins granulate, piliferous. Post-tibiae with three spines and an awl-shaped spur.

Type species, *Ugyopana cassia,* new species.

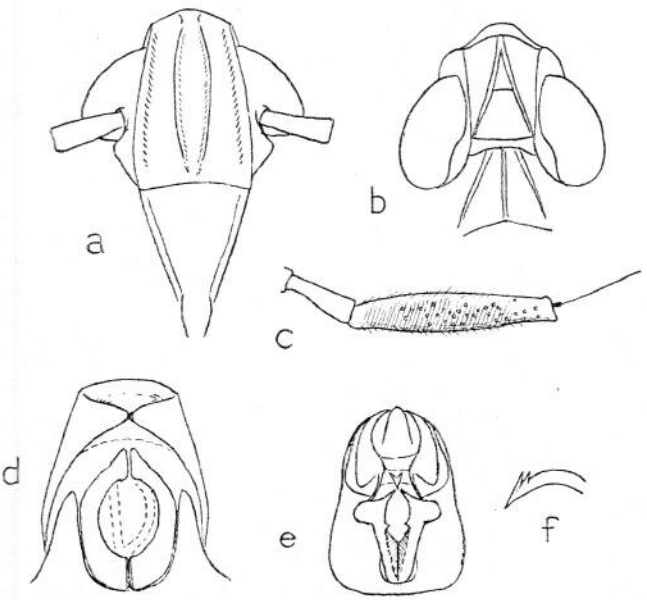


FIGURE 15.—**a-d,** *Ugyopana cassia: a,* frons and clypeus; *b,* vertex; *c,* antenna; *d,* male genitalia, ventral view. **e, f,** *Dicranotropis ucalegon: e,* male genitalia; *f,* apex of aedeagus, in slightly oblique view.

1. Ugyopana cassia, new species (fig. 15, *a-d*).

Testaceous; a few transverse spots on base of frons and genae, an intercarinal suffusion on vertex, pronotum and mesonotum fuscous, the first darkest. Tibiae sometimes twice ringed with fuscous. Tegmina hyaline with veins rather sparsely interrupted fuscous, or with a broad fuscous band overlying M, Cu, and first claval vein, and tapering across membrane to margin at M_1.

Anal segment tubular, expanded ventrolaterally, anal foramen at extreme apex. Pygofer with lateral margin produced in a short point at middle and ventrally in a rather long tapering process just outside of genital styles; the margin between these concave. Styles widest at base, crescentic, flattened distally where they meet in middle line.

Male: length, 6.1 mm., tegmen, 5.2 mm.; female: length, 7.0 mm., tegmen, 6.7 mm.

One male and two females from Viti Levu: Lami Quarry, near Suva, July 24, 26, 1938; Belt Road, 40-50 miles west of Suva, beating shrubs, July 26, 1938. One male from Vanua Mbalavu: Buthalevu, alt. 200-300 ft., Aug. 10, 1938, holotype. One male from Munia, alt. 800-900 ft., Aug. 3, 1938. All by Zimmerman.

This genus differs from *Ugyops* in the shape of the antennae and of the frons, in the more acutely curved apical margin of the tegmina and in their greater number of distal veins, as well as in the facies of the genitalia. It differs from *Punana* Muir and *Onkelos annulatus* Distant in having two carinae on the frons and a vertex longer than broad. The general facies of the genitalia is similar to that of *Punana*.

Genus **Melanesia** Kirkaldy

Melanesia Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 128, 1907. Haplotype, *Melanesia pacifica* Kirkaldy, op. cit.

1. Melanesia pacifica Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 129, 1907.

Twenty-one males and 14 females from Viti Levu: Tholo-i-Suva, June 28, 1924, Bryan, July 21, 25, 1938, Zimmerman; Nandarivatu, alt. 3,600 ft., Sept. 6, 1938, Zimmerman; Belt Road, 16-18 miles west of Suva, July 22, 1938, Zimmerman; Mt. Korombamba, Aug. 1, 1938, Zimmerman; Vunindawa, May 3, 1941, Krauss. One male and three females from Ovalau: Draiba trail, alt. 800-1,000 ft., July 8, 14, 1938, Zimmerman.

Five of the females from Viti Levu and one from Ovalau have the coloration of variety *strigata* Kirkaldy; only one male from Viti Levu shows any appreciable infuscation of the corium, but in the females various intermediate forms occur.

Genus **Sardia** Melichar

Sardia Melichar, Homopt.-Fauna von Ceylon, 96, 1903. Haplotype, *Sardia rostrata* Melichar.

Hadeodelphax Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9) : 410, 1906.

1. **Sardia pluto** (Kirkaldy).

Hadeodelphax pluto Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 140, 1907.

One male from Ongea, July 28, 1924, Bryan.

Genus **Sogata** Distant

Sogata Distant, Fauna Brit. India 3 : 471, 1906. Orthotype, *Sogata dohertyi* Distant.

The present assignments of species to *Sogata* are provisional on taxonomic grounds. The name *Liburnia* is not available for nomenclatorial reasons. Stål erected *Embolophora* in 1853 with haplotype *E. monoceros*. When he proposed *Liburnia* in 1866, he either proposed the name as a substitute for *Embolophora* or gave a name to a generic concept embracing *Embolophora* Stål and *Delphax* auctt. not Fabricius. No type was designated for *Liburnia* at the time of its proposal. Consequently, if the first interpretation is placed on Stål's action, then, by the application of Article 30(f) of the International Rules of Zoological Nomenclature, *monoceros* Stål becomes the type of *Liburnia* which sinks in synonymy with *Embolophora*. Alternatively, if the second interpretation is placed on Stål's action, then, as laid down in Article 28, the new generic concept must take the oldest valid generic or subgeneric name of its components. As the components are *Delphax* auctt. (not Fabricius) and *Embolophora* Stål, the oldest valid name is *Embolophora*. In either case, the generic name *Liburnia* proposed by Stål in 1866 must be suppressed as a synonym of *Embolophora*.

The elevation of Stål's species group (aa)—or its taxonomic residue—to generic status calls for the application of a generic name. *Liburnia* Muir, 1917 et auctt. is not available as it is a primary homonym of *Liburnia* Stål, 1866, which is itself invalid as a result of the operation of Article 28. A name for the generic concept based on *Delphax vitticollis* Fabricius, which is at least provisionally suitable, is *Chloriona* Fieber, 1866. Direct holotype comparison by me has revealed that Muir unsuspectingly redescribed *Delphax vitticollis* Fabricius under the name *Chloriona turneri*.

1. **Sogata furcifera** (Horváth).

Delphax furcifera Horváth, Termes. Fuzetek 22 : 372, 1899.

Two males and one female from Vanua Levu : Savu Savu Bay, Balanga, January 1941, O. Degener. Two males from Matuku, July 5, 1924, Bryan. Four males and three females from Viti Levu : Tholo-i-Suva, June 21, 1924, Bryan ; Suva, Feb. 14, 1933, C. H. Edmondson ; Nandarivatu, Aug. 31, 1938,

Zimmerman; Vunindawa, May 3, 1941, Krauss. Three males and one female from Bacon Island, Sept. 5, 1924, Bryan. Thirty-one specimens (two macropterous), mostly males, from Kimbombo, Sept. 28, 1924, Bryan. Two brachypterous males and one macropterous male from Fulanga, Aug. 6, 1924, Bryan. One macropterous female from Ovalau, Oct. 19, 1924, Bryan. Two macropterous males from Wailangilala, Sept. 29, 1924, Bryan. Two macropterous males, one brachypterous male, and one brachypterous female from Ongea, July 28, 1924, Bryan. Two macropterous and two brachypterous males from Yangasa Levu, Aug. 9, 1924, Bryan.

2. **Sogata paludum** (Kirkaldy).
Kelisia paludum Kirkaldy, Fauna Hawaiiensis, Suppl., 579, 1910.

One macropterous and four brachypterous males and one brachypterous female from Fulanga, Aug. 5, 6, 1924, Bryan. One brachypterous and five macropterous males and two brachypterous females from Yangasa Levu, Aug. 9, 1924, Bryan. One brachypterous male and two brachypterous females from Mango, 1 mile south of Marona, alt. 200 ft., Aug. 14, 1938, Zimmerman. One brachypterous and 10 macropterous males and four brachypterous females from Wailangilala, Sept. 29, 1924, Bryan. Two brachypterous males and two brachypterous females from Kimbombo, Aug. 28, 1924, Bryan. One macropterous male from Ongea, July 28, 1924, Bryan.

3. **Sogata eupompe** (Kirkaldy).
Delphax eupompe Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 162, 1907.

One male from Wakaya, Oct. 17, 1924, Bryan. One male from Kandavu: Kaivala, April 29, 1941, Krauss.

Genus **Dicranotropis** Fieber

Dicranotropis Fieber, Zool.-Bot. Ges. Wien, Verh. **16**: 521, 1866. Logotype, *Delphax hamata* Boheman, K. Sven. Vet.-Akad., Handl., 45, 1847.

1. **Dicranotropis cognata** Muir, Hawaiian Ent. Soc., Proc. **3**: 317, 1917.
One male from Mothe, Aug. 16, 1924, Bryan.

2. **Dicranotropis ucalegon,** new species (fig. 15, *e, f*).

Frontal carinae forking very slightly basad of level of ocelli.

Testaceous stramineous; frons and genae shading into pale fuscous testaceous basally, vertex, pronotum behind eyes and lateral fields of mesonotum fuscous. Tegmina hyaline, a faint suffusion between M and Cu distally in corium, darker at transverse line, and overlying posterior three apical cells, fuscous.

Anal segment of male short, lateroapical angles produced ventrally in a short curved spine. Pygofer with dorsal angles not produced, sides oblique, no medioventral process, diaphragm large, closely investing styles at their base. Styles with a small spine in middle

of inner margin, and a short incurved spine on inner angle at apex, outer angle dilated in a semicircular lobe. Aedeagus slightly decurved, apex arrowhead-shaped.

Macropterous male: length, 2.0 mm., tegmen, 2.8 mm.

Three macropterous males from Viti Levu: Nandarivatu, at light, Aug. 31, 1938, holotype and two paratypes, Zimmerman.

Genus **Phyllodinus** Van Duzee

Phyllodinus Van Duzee, Buffalo Soc. Nat. Sci., Bull. **5**: 240, 1897. Haplotype, *Phyllodinus nervatus* Van Duzee, op. cit.

1. **Phyllodinus sauteri** Muir, Hawaiian Ent. Soc., Proc. **3**: 319, 1917.

Two brachypterous males and one brachypterous female from Matuku, July 5, 1924, Bryan. One brachypterous male from Fulanga, Aug. 5, 1924, Bryan. One brachypterous male from Mango: Marona, alt. 200 ft., Aug. 14, 1938, Zimmerman. One macropterous male from Vanua Mbalavu: Mvana, Aug. 9, 1938, Zimmerman. Two macropterous females from Mothe, Aug. 16, 1924, Bryan.

The specimens agree perfectly with Muir's description and the male genitalia with his figures.

Genus **Peregrinus** Kirkaldy

Peregrinus Kirkaldy, Entomologist **37**:175, 1904. Orthotype, *Delphax maidis* Ashmead, Psyche **5**: 323, 1890.

1. **Peregrinus maidis** (Ashmead), Psyche **5**: 323, 1890.

Four macropterous males and seven macropterous females from Ovalau: Oct. 19, 20, 1924, Bryan; Wainiloka, Sept. 28, 30, 1937, Valentine; Draiba trail, alt. 800-1,000 ft., July 8, 1938, Zimmerman. One brachypterous male and four macropterous females from Viti Levu: Suva Bay, July 16, 1923, G. P. Wilder; Nandarivatu, Aug. 31, 1938, Zimmerman; Bulu near Sovi, April 21, 1941, Krauss.

Genus **Perkinsiella** Kirkaldy

Perkinsiella Kirkaldy, Entomologist **36**: 179, 1903. Orthotype, *Perkinsiella saccharicida* Kirkaldy, op. cit.

1. **Perkinsiella vitiensis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9): 406, 1906.

One macropterous male from Viti Levu, Naivithula, Tailevu, Aug. 26, 1937, Valentine. One brachypterous female from Kandavu: Kaivala, April 29, 1941, Krauss. Two brachypterous females from Mothe, Aug. 16, 1924, Bryan. One brachypterous female from Matuku, May 5, 1924, Bryan.

Genus **Tarophagus** Zimmerman

Tarophagus Zimmerman, Insects of Hawaii **4**: 245, 1948.

1. **Tarophagus proserpina** (Kirkaldy), Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull **3**: 147, 1907.

One brachypterous male from Ovalau, Oct. 20, 1924, Bryan. There is also a brachypterous male from Raiatea, Society Islands, Feb. 1, 1925, G. P. Wilder, which is worth including for the record.

Genus **Delphacodes** Fieber

Delphacodes Fieber, Zool.-Bot. Ges. Wien, Verh. **16**: 524, 1866. Logotype *Delphax mulsanti* Fieber, op. cit., p. 526.

1. **Delphacodes lazulis** (Kirkaldy).

Delphax lazulis Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 155, 1907.

One brachypterous male from Viti Levu: Suva Bay, June 9, 1924, Bryan.

2. **Delphacodes disonymos** (Kirkaldy).

Delphax disonymos Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 156, 1907.

One macropterous male and one brachypterous female from Komo, Aug. 20, 1924, Bryan. Five brachypterous females from Bacon Island, Sept. 5, 1924, Bryan.

3. **Delphacodes matanitu** (Kirkaldy).

Delphax matanitu Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 155, 1907.

A series of 41 specimens, two macropterous, of both sexes from Yangasa Levu, Aug. 9, 1924. Five brachypterous males from Wailangilala, Sept. 29, 1924. One brachypterous male from Namuka, Aug. 13, 1924. Two macropterous females from Mothe, Aug. 16, 1924. Eight brachypterous males and three brachypterous females from Fulanga, Aug. 5, 1924. All by Bryan.

4. **Delphacodes dilpa** (Kirkaldy).

Delphax dilpa Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 162, 1907.

Viti Levu: four macropterous males and one macropterous female, Nandarivatu, alt. 2,100 ft., Sept. 11, 1938, Zimmerman; one brachypterous male, Suva Bay, July 22, 1924, Bryan. Four brachypterous males from Fulanga, Aug. 5, 1924, Bryan. One macropterous male from Kandavu: Kaivala, April 19, 1941, Krauss. One brachypterous female from Mango: one mile south of Marona, Aug. 14, 1938, Zimmerman. One brachypterous male from Wailangilala, Sept. 29, 1924, Bryan.

Family MEENOPLIDAE Fieber

Key to Australasian Genera of Meenoplidae (Adapted from Muir)

1. Frons with a distinct median carina.....**Phaconeura** Kirkaldy
   Frons devoid of a median carina..... 2
2. Clypeus devoid of lateral carinae.....**Nisia** Melichar
   Clypeus with lateral carinae distinct..... 3
3. Tegmina greatly broadened apically, usually with eight or nine apical areoles.....
   .....**Kermesia** Melichar
   Tegmina not greatly broadened apically, usually with seven apical areoles.....
   .....**Suva** Kirkaldy

Genus **Nisia** Melichar

Nisia Melichar, Homopt. Fauna Ceylon, 53, 1903. Haplotype, *Meenoplus atrovenosus* Lethierry, Mus. Civ. Stor. Nat. Genova, Ann. **26**: 466, 1888.

1. Nisia atrovenosa (Lethierry) (fig. 16, *a-c*).

Meenoplus atrovenosus Lethierry, Mus. Civ. Stor. Nat. Genova, Ann. **26**: 466, 1888.

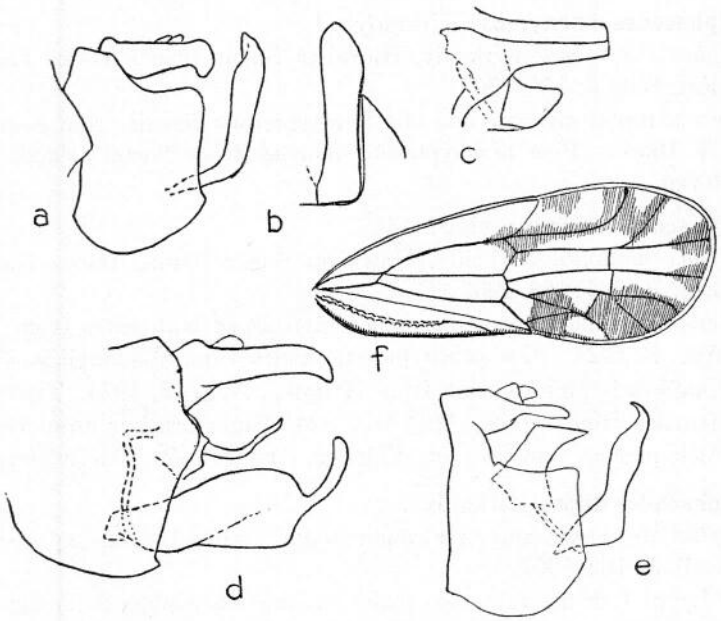


Figure 16.—**a-c**, *Nisia atrovenosa: a*, anal segment, pygofer, and genital style; *b*, genital style, posterior view; *c*, aedeagus, left side. **d**, *Suva koebelei*, genitalia. **e**, *S. cretacea:* male genitalia. **f**, *S. fuscomarginata*, tegmen.

One male and two females from Viti Levu: Tailevu, Korovou, Aug. 27, 1937; Naivithula, Aug. 26, 1937; all by Valentine.

The genitalia differ from Singh-Pruthi's figure (Ent. Soc. London., Trans., pl. 30, fig. 261, 1925) and until those of the type species have been examined, it is best to regard the Viti Levu representative as a subspecies.

Nisia atrovenosa (Lethierry) subspecies **levuana,** new subspecies.

Size and coloration as in typical subspecies. Anal segment in profile deflexed at apex. Pygofer with dorso-lateral angles produced and rounded. Aedeagus with a stout prorate median flange below, with two straight equal submembranous tube-like processes, one overlying the other throughout its length directed caudad. Genital styles curved near base, thence more or less straight, not constricted in distal quarter.

Genus **Suva** Kirkaldy

Suva Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9) : 428, 1906. Haplotype, *Suva koebelei* Kirkaldy, op. cit.

1. **Suva koebelei** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9) : 428, 1906 (fig. 16, *d*).

Two males and two females from Viti Levu: Bulu near Sovi, April 21, 1941, Krauss.

2. **Suva cretacea,** new species (fig. 16, *e*).

Tegmina 2.07 times as long as wide. Testaceous pallid; base of frons and mesonotum slightly darker. Tegmina hyaline, powdered pure white, veins pallid. Wings hyaline, powdered white.

Male: length, 1.8 mm., tegmen, 3.3 mm.; female: length, 2.0 mm., tegmen, 3.4 mm.

Two males and three females from Viti Levu: Mt. Korombamba, alt. 3,000-4,000 ft., Aug. 1, 1938, holotype male; Mt. Victoria, Sept. 13, 1938; Nandarivatu, Sept. 8, 1938; all by Zimmerman.

3. **Suva fuscomarginata,** new species (fig. 16, *f*).

Tegmina 2.4 times longer than broad. Testaceous; base of frons, pronotum and mesonotum slightly infuscate. Tegmina hyaline, powdered white, veins pallid; a spot in stigmal cell, apical branches of Sc and Cu and veins of M at margin, a quadrate spot distad of apex of clavus and commissural margin fuscous. Wings hyaline, powdered white. Length, 2.2 mm.; tegmen, 3.4 mm.

One mutilated specimen from Viti Levu: ridge west of Vatuthere, alt. 2,600-3,000 ft., beating shrubs, Sept. 8, 1938, Zimmerman.

This species differs from the preceding one, which it generally resembles, in the tegminal proportions and the coloration.

Family DERBIDAE Spinola

Key to Subfamilies and Tribes of Derbidae

1. Tegmina long and relatively narrow; wings reduced or not more than half length of tegmina, with cubital and anal areas greatly reduced (Zoraidinae)..... 2
   Tegmina not very long; wings almost invariably more than half length of tegmina, with cubital and anal areas not reduced (Derbinae)..... 3

2. Eyes in front not reaching to base of clypeus; subcostal cell long, sometimes very narrow ..... **Zoraidini**
   Eyes in front reaching to base of clypeus; subcostal cell very short or absent..... **Sikaianini**
3. Tegmina with veins of Cu_1 reaching hind margin; clavus closed distally, or if narrowly open then claval vein reaching no farther than last cubital vein..... 4
   Clavus open distally; tegmina with veins of Cu_1 not reaching hind margin but meeting produced claval vein which extends to last apical cell..... **Otiocerini**
4. Cu in tegmen with four or more veins reaching hind margin (*Zeugma* Westwood) Australian ..... **Derbini**
   Cu in tegmen with less than four veins reaching hind margin..... 5
5. Cu in tegmen simple or branched, reaching margin direct, not joining with basal median sector ..... **Cenchreini**
   Cu in tegmen joined with basal median sector for some distance forming a polygonal or rhomboidal cell; sometimes a triangular cell near base of first median sector; tegmina broad..... **Rhotanini**

Key to Australasian Genera of Zoraidini

1. Antennae shorter than frons, arista apical, one to three cubital veins reaching hind margin, valvulae of ovipositor reduced or absent..... 2
   Antennae as long as face or longer, arista subapical, four to six cubital veins reaching hind margin, valvulae of ovipositor not reduced..... 10
2. Tegmina with none of the sectors of M forked..... 3
   Tegmina with second or third sector of M forked..... 6
3. Head as wide as thorax or wider..... **Lydda** Westwood
   Head narrower than thorax..... 4
4. Basal cell of media narrow; wings about half as long as tegmina, rounded at apex..... 5
   Basal cell of media broad; wings much less than half as long as tegmina, acute at apex ..... **Diostrombus** Uhler
5. Second segment of antennae at least three times as long as broad..**Shizuka** Matsumura
   Second segment of antennae short, about twice as long as broad.....**Proutista** Kirkaldy
6. Head in profile rounded at apex, not conically produced between eyes..... 7
   Head in profile conically produced..... **Helcita** Stål
7. Vertex longer in middle line than broad across base; rostrum with apical segment regularly cylindrical, not distinctly broader than apex of subapical segment..... 8
   Vertex broader across base than long in middle line; rostrum with apical segment asymmetrically produced on one side, markedly broader than apex of subapical segment ..... **Monochorhynchus** Muir
8. Tegmina with Sc+R forked near base; wings acute at apex.....**Neocamma** Melichar
   Tegmina with Sc+R forked near or distad of middle; wings rounded at apex..... 9
9. Second antennal segment with a triangular subspinose flange laterally near apex ..... **Acanthocerana** Metcalf
   Second antennal segment not furnished with a process.....**Pamendanga** Distant
10. Vertex broader than long, frons wide, antennae large, flat.....**Peggia** Kirkaldy[3]
    Vertex not broader than long, frons narrow or linear.....11
11. Tegmina with hind margin produced between apex of clavus and cubital veins.....12
    Hind margin of tegmina not so produced, serrate.....**Losbañosia** Muir
12. Head in profile produced conically before eyes.....**Pseudohelcita** Muir
    Head in profile rounded, not conically produced.....13
13. Pronotum with posterior margin transverse.....**Neodiostrombus** Muir
    Pronotum with posterior margin angulately excavate.....**Zoraida** Kirkaldy

[3] *Shirakia* Matsumura belongs here, but the frons is very narrow between the eyes.

KEY TO AUSTRALASIAN GENERA OF SIKAIANINI

1. Tegmina with Cu united with M for some distance from base.....**Distantinia** Muir
   Tegmina with Cu arising from base, not united with M; basal cell of media present.. 2
2. Basal cell of media broad and short, not reaching to middle of tegmen..... 3
   Basal cell of media very narrow, reaching to about middle of tegmen.....
   .....**Leomelicharia** Muir
3. Antennae much shorter than head and thorax combined, cylindrical, slightly constricted near middle.....**Sikaiana** Distant
   Antennae as long as head and thorax combined, or nearly so.....**Muiria** Kirkaldy

Genus **Sikaiana** Distant

Sikaiana Distant, Ann. Mag. Nat. Hist. VII, **19**: 398, 1907. Orthotype, *Sikaiana hyalinata* Distant, op. cit.

1. **Sikaiana flammeivittata,** new species (fig. 17, *a-d*).

Pallid yellowish; eyes piceous, antennae orange brown, a small spot on its second segment at base of arista, a small spot on side of head before eyes, a broad band on each side sublaterally on pronotum and mesonotum, and laterally on abdomen, orange red. Tegmina vitreous, basal half of costal cell translucent yellowish, a band from base along cell Sc+R, extending distad of middle to include costal margin to apex, orange red, veins concolorous with membrane. Wings hyaline, anterior veins orange red.

Female: length, 2.0 mm., tegmen, 4.9 mm.

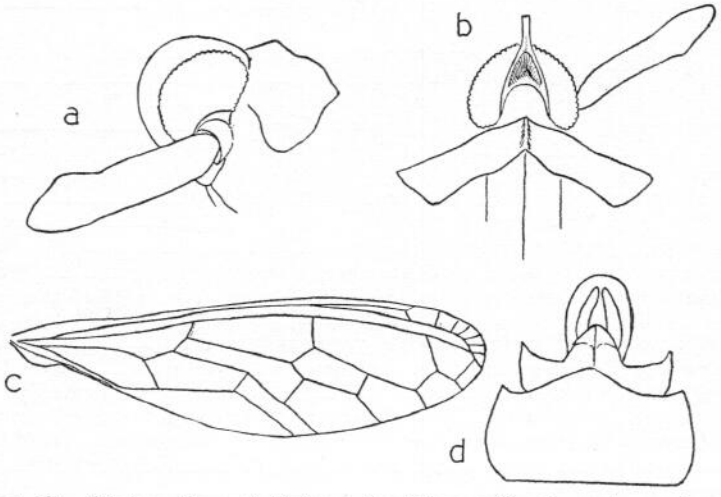


FIGURE 17.—*Sikaiana flammeivittata:* **a,** head in profile; **b,** vertex and pronotum; **c,** tegmen; **d,** pregenital sternite of female.

One female from Viti Levu: Belt Road, 48-50 miles west of Suva, beating shrubs, July 26, 1938, holotype, Zimmerman.

This species differs from the description of *S. nesiope* Kirkaldy in almost every detail of coloration.

Key to Australasian Genera of Otiocerini

1. Media not arising from radius or arising basad of Sc+R fork 2
   Media separating from R distad of Sc+R fork 25
2. First median sector arising before apical third of tegmen 3
   Median sectors confined to apical third of tegmen 20
3. First joint of antennae short, at most as wide as long 4
   First joint of antennae more than twice as long as broad 19
4. Sc+R fork at or basad of middle of tegmen, subcostal cell long 5
   Sc+R fork distad of middle of tegmen, subcostal cell short 17
5. Subantennal process and lateral keels of pronotum absent or very small 6
   Subantennal process well-developed 11
6. Head in profile not angulate at junction of vertex and frons, latter not wider at base than at apex 7
   Head in profile angulate at apex or frons wider at base than at middle 9
7. Margin of head in profile subparallel to eye, head not markedly produced ..... **Pyrrhoneura** Kirkaldy
   Margin of head in profile not subparallel to eye, head distinctly produced before eyes 8
8. Antennae not reaching as far as apex of head (female) ..... **Swezeyia** Kirkaldy
   Antennae reaching as far as apex of head ..... **Kuranda** Distant
9. Frons at base at least as wide as at apex, head in profile produced before eyes ..... **Swezeyia** Kirkaldy
   Frons at base narrower than at apex 10
10. Vertex in profile sinuous ..... **Kampulokara** Muir
    Vertex in profile not sinuous ..... **Kamendaka** Distant
11. Lateral carinae of pronotum absent or reduced 12
    Lateral carinae of pronotum well-developed 14
12. Vertex and frons in profile rounded, vertex not ascending distad ..... **Nesocore** Kirkaldy
    Vertex in profile ascending distad 13
13. Vertex in profile curved upward and backward ..... **Nesoniphas** Kirkaldy
    Vertex in profile curved upward but not backward ..... **Nesoneura** Kirkaldy, subgenus of **Pyrrhoneura**
14. Subantennal process spatulate, attached to gena by a slender stalk 15
    Subantennal process not spatulate, broadly attached to gena 16
15. Head considerably produced before eyes ..... **Kaha** Kirkaldy
    Head not considerably produced before eyes ..... **Nesokaha** Muir
16. Lateral carinae of frons not contiguous, vertex truncate at apex ..... **Flaccia** Stål
    Lateral carinae of frons contiguous, vertex acutely angular or notched at apex ..... **Paralyricen** Muir
17. Head in profile angulate at junction of vertex and frons 18
    Vertex in profile curving into frons, not angulate at junction ..... **Makula** Distant
18. Costal margin entire ..... **Kamendaka** Distant
    Costal margin more or less sinuous, interrupted by an angular projection; a distinct area between costa and margin in basal third of tegmen ..... **Banksiella** Muir
19. Subantennal process absent ..... **Dendrokara** Melichar
    Subantennal process present ..... **Neodendrokara** Muir
20. Vertex twice as long as pronotum and mesonotum combined ..... **Vivaha** Distant
    Vertex not so long 21
21. Tegmina with subcostal cell short, antennae large 22
    Tegmina with subcostal cell long 23
22. Vertex produced before eyes for nearly twice length of an eye ..... **Epotiocerus** Matsumura
    Vertex produced before eye for scarcely length of an eye ..... **Leptaleocera** Muir
23. Head in profile angulate or narrowly rounded at junction of vertex and frons, produced before eye for more than width of an eye ..... **Interamma** Walker

Head in profile with vertex curving into frons, not produced before eyes for so much as width of an eye 24

24. Head as wide as thorax or nearly so, vertex truncate at apex, lateral carinae of frons very large, not contiguous on frons ..... **Megatropis** Muir

Head narrower than thorax, vertex triangular, lateral carinae of frons large, contiguous on frons ..... **Nicerta** Walker

25. Subantennal process absent or very small 26

Subantennal process present ..... **Mysidioides** Matsumura

26. Antennae longer than frons 27

Antennae shorter than frons 28

27. Tegmina with clavus very narrowly open, Sc and R dilated at apex, vertex elongate, mesonotum with a vertical flange on line of each obsolete lateral carina ..... **Anomaloderbe** Muir

Tegmina not as above; vertex relatively short; mesonotum without vertical laminae on lateral carinae ..... **Platocera** Muir

28. Antennae with second segment cylindrical; frons wider at apex than at base, which is linear ..... **Heronax** Kirkaldy

Antennae with second segment branched near base, appendage strongly curved; frons at least as wide at base as at apex ..... **Harpanor,** new genus

Genus **Flaccia** Stål

Flaccia Stål, Hemiptera Africana 4 : 193, 1866. Haplotype, *Flaccia conspersa* Muir, Ent. Soc. Washington, Proc. 26 : 18, 1924.

Lyricen Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 172, 1907. Haplotype, *Lyricen imthurni* Kirkaldy, op. cit., p. 173.

1. **Flaccia imthurni** (Kirkaldy), Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 173, 1907 (fig. 18, *a-d*).

A female from Viti Levu, Belt Road, 42-44 miles west of Suva, alt. 300 ft., July 23, 1938, Zimmerman, agrees with both Kirkaldy's description and figures and with Muir's figure of the female genitalia. The figures are of this specimen.

The above nomenclatorial dispositions result from the fact that *Flaccia* Stål, though described in 1866, remained without species until 1924, when Muir assigned to it the described species *imthurni* Kirkaldy together with the name *conspersa* which seems to have been a label name in the Stål collection. If this is so, Kirkaldy's specific name has priority, though his generic name must be suppressed.

2. **Flaccia bicornis,** new species (fig 19, *a-c*).

Vertex tapering distally, apex narrowly truncate and transversely carinate, lateral margins narrow. Frontal carinae separate at base, contiguous at one-fourth from base, then diverging, disk of frons reaching to level of middle of eyes, head in profile obtusely angulate at apex. Tegmina 2.7 times as long as broad; margin not sinuate. Fuscous; carinae and margins, legs except profemora and pro- and mesotibiae at apex, and ventrites of abdomen tawny.

Tegmina yellowish hyaline, powdered with white, with fuscous markings as in the genotype, though rather more extensive, veins yellow. Wings hyaline, powdered white, veins concolorous to stramineous.

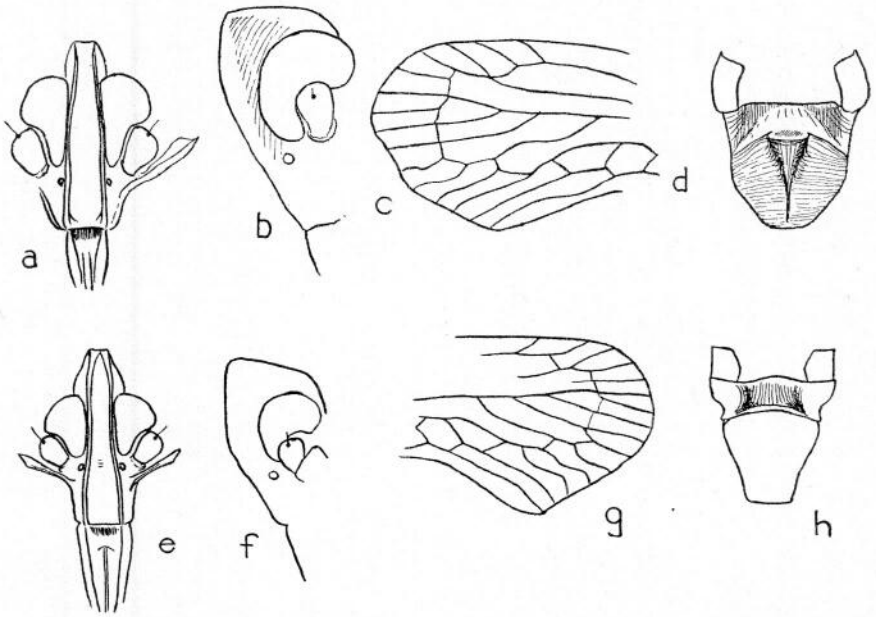


FIGURE 18.—**a-d,** *Flaccia imthurni: a,* frons; *b,* head in profile; *c,* apical portion of tegmen; *d,* pregenital sternite of female. **e-h,** *F. tumidifrons: e,* frons; *f,* head in profile; *g,* apical portion of tegmen; *h,* pregenital sternite of female.

Seventh abdominal sternite of female curved, devoid of a transverse carina, hind margin produced, convex distally, postero-lateral angles strongly produced into lobes, each about twice as long as broad, slightly swollen at apex.

Aedeagus in ventral view slightly constricted just distad of the bulbous base with a flange projecting along the right side, bending mesad one-fourth from apex; flagellum reflected forward, terminating in a straight spine almost half as long as remainder of flagellum.

Male: length, 4.5 mm., tegmen, 7.4 mm.; female: length, 4.3 mm., tegmen, 8.0 mm.

Eight males and 10 females, and one mutilated specimen from Tuvutha, Sept. 9, 1924, holotype male, Bryan.

The species is distinguished by the shape of the head, in which it approaches *Paralyricen,* the shape and proportions of the tegmina (which are relatively broader than in the genotype), the coloration, and the genitalia.

3. **Flaccia pyrrhoneura,** new species (fig. 19, *d-f*).

Vertex tapering distally, rather abruptly narrowed near apex, where carinae become almost contiguous, being joined by a minute transverse carina. Lateral carinae of frons narrowly separated at base, contiguous one-third from base, thence diverging, disk of frons in facial view reaching to level of middle of eyes. Tegmina 2.7 times as long as broad, apical margin not sinuate.

Testaceous, margins pale yellow; an oblique stripe above eyes, mesonotum, pro- and mesotibiae at apex, ventrites of abdomen anteriorly fuscous. Tegmina translucent, obscurely infuscate with more distinct marks on Sc, M, Cu, and clavus in basal third of

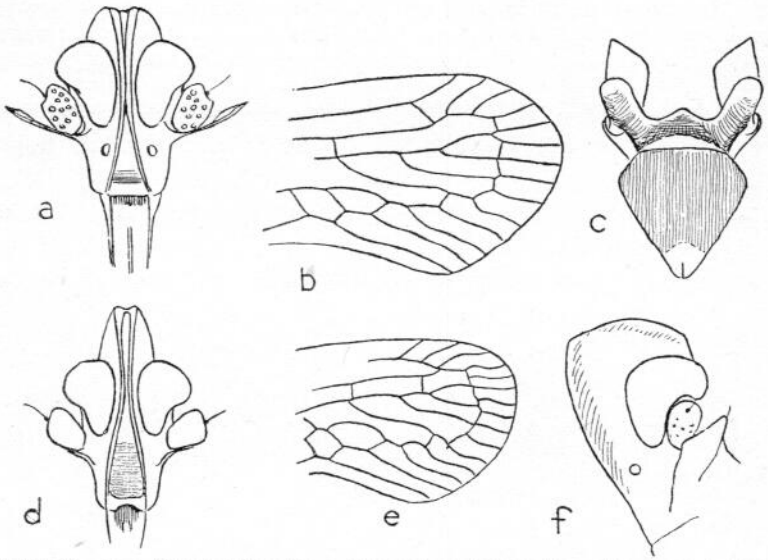


FIGURE 19.—**a-c,** *Flaccia bicornis: a,* frons; *b,* apical portion of tegmen; *c,* pregenital sternite of female. **d-f,** *F. pyrrhoneura: d,* frons; *e,* apical portion of tegmen; *f,* head in profile.

tegmen, and in apical cells of Sc, R, and M_1; costal and apical margin, R, M, and Cu distad of middle of tegmen orange red. Wings hyaline, powdered white, veins fuscous.

Pygofer with dorso-lateral angles not produced. Aedeagus in ventral view not constricted near base, flange of right side bending mesad about one-eighth from apex, flagellum reflected cephalad, tapering to a slightly decurved point at apex, not spinose.

Male: length, 5.7 mm., tegmen, 9.8 mm.

One male from Viti Levu: Belt Road, 15 miles west of Suva, alt. 250 ft., July 22, 1938, holotype, Zimmerman.

This species is distinguished by the shape of the genitalia.

4. Flaccia tumidifrons, new species (fig. 18, *e-h*).

Vertex tapering distally, truncate at apex. Lateral carinae of frons separated throughout, though concave and convergent between eyes. Disk of frons distinctly tumid between ocelli, forming a broad transverse ridge. Tegmina 2.5 times as long as broad, apical margin not sinuate.

Stramineous to testaceous; an oblique line above eye, pro- and mesotibiae apically fuscous, seventh sternite piceous, membrane red. Tegmina subopaque, stramineous to ochraceous, weakly infuscate in four or five small spots in basal half of corium, across transverse veins and in apical cells of R, M_1 and M_{3+4} and Cu_1.

Seventh abdominal sternite of female relatively narrow, devoid of a transverse carina or with carina one-fourth from apical margin, apical margin shallowly convex, posterolateral angles produced obliquely laterad, slightly concave on distal margin and convex on latero-proximal.

Dorsolateral angles of pygofer distinctly produced in a triangular lobe. Aedeagus in ventral view slightly constricted just distad of bulbous base, lateral flange trough-like, curved inward one-third from apex. Flagellum reflected anteriorly, bearing a subsymmetrical pair of short, stout, slightly curved spines enclosing the bifid limb of the

flagellum; limb on left, short, broad, abruptly tapering with distal angles unequally produced in two minute spines; the other on right comprising a lanceolate process overlying a trapezoidal plate as broad as long, tapering abruptly to bluntly rounded apex. Genital styles with lower distal angles rounded, not at all pointed.

Male: length, 4.0 mm., tegmen, 8.0 mm.; female: length, 4.5 mm., tegmen, 8.8 mm.

Six males and six females from Viti Levu: Tailevu, Korovou, July 1937, Valentine; Suva Bay, June 16, 1923, Swezey; Vunindawa, May 3, 1941, holotype male, Krauss. One female on Ovalau: Draiba trail, alt. 800-1,000 ft., July 8, 1938, Zimmerman.

This species is distinguished by the shape of the frontal disk and of the genitalia, the proportions of the tegmina, and the coloration.

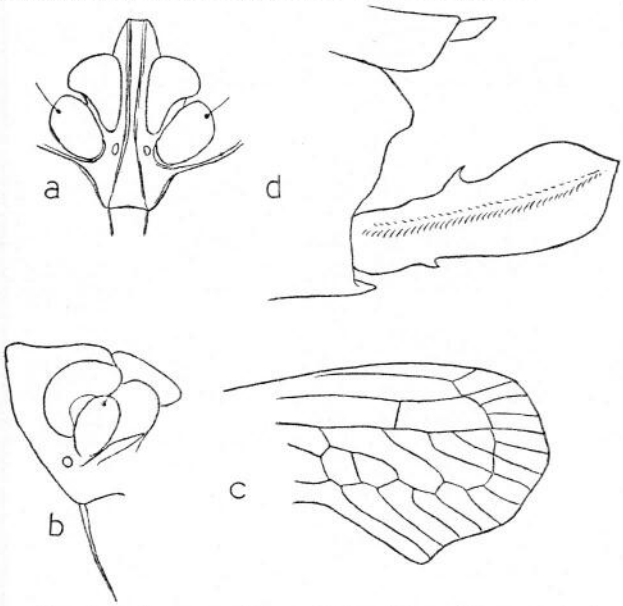


FIGURE 20.—*Flaccia oediceras:* **a,** frons; **b,** head in profile; **c,** apical portion of tegmen; **d,** anal segment, pygofer, and genital style.

5. Flaccia oediceras, new species (fig. 20, *a-d*).

Vertex tapering distally, truncate at apex. Lateral carinae of frons subparallel, very narrowly separate throughout, subcontiguous near eyes. Disk of frons entirely flat. Antennae with second segment enlarged, 1.5 times as wide as in males of *tumidifrons,* eyes deeply emarginate. Tegmina 2.2 times as long as broad.

Testaceous; vertex except at margins, sides of head, mesonotum except carinae, brown to fuscous. Tegmina yellowish hyaline, slightly infuscate at forks of veins, M and Cu between their first forks and transverse subapical line, and distal half of first claval vein and apical margin extensively marked with red. Wings hyaline, veins concolorous.

Pygofer with dorsolateral angles slightly produced in a convex lobe. Aedeagus tubular, reflected in a flagellum. A spine at left ventrally at base of flagellum, slightly curved. Flagellar lobe longitudinally furrowed, on one side broad, tapering cephalad to a point in profile, on the other distally truncate with apical angles minutely pointed, and laterally with a curved groove.

Two males from Viti Levu, Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, holotype male; July 25, 1938; both by Zimmerman.

This species is readily distinguished by the swollen antennae, the shape of the genitalia, and the coloration of the tegmina.

Genus **Paralyricen** Muir

Paralyricen Muir, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **12**: 52, 1913. Orthotype, *Paralyricen jepsoni* Muir, op. cit.

1. Paralyricen knowlesi Muir, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **12**: 53, 1913 (fig. 21, *a-e*).

Vertex in dorsal view distinctly triangular, tapering to apex, lateral margins narrow, not thickened. Aedeagus tubular, in ventral view strongly sinuate, a shagreen area distally. Flagellum reflexed, curved slightly to left, with a pair of short unequal slightly divergent spinose processes at apex.

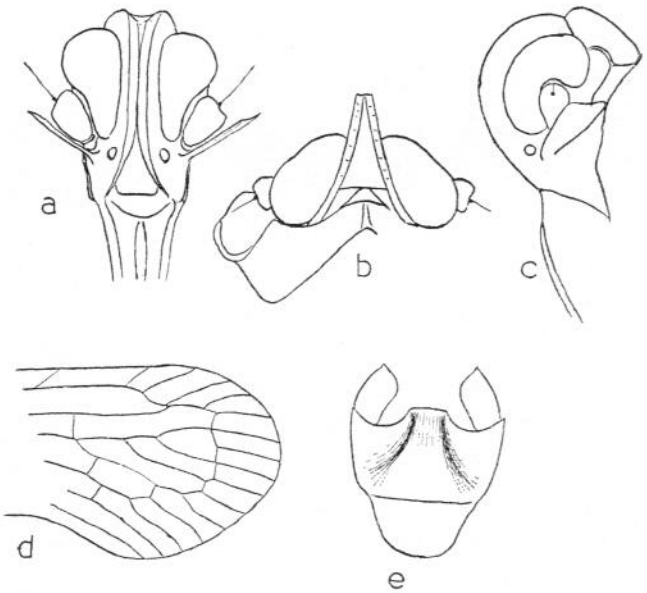


FIGURE 21.—*Paralyricen knowlesi:* **a,** frons; **b,** vertex; **c,** head in profile; **d,** apical portion of tegmen; **e,** pregenital sternite of female.

Two males and two females from Viti Levu: Bulu near Sovi, April 21, 1941, Krauss.

2. Paralyricen astyanax, new species (fig. 22, *a-d*).

Vertex in dorsal view not triangular, lateral margins parallel except at base, distally thickened.

Stramineous; head sometimes suffused reddish brown with disk of frons and of clypeus, except for median carina, fuscous. Tegmina sordid hyaline, powdered white,

lightly suffused fuscous over transverse veins and in apical cells R_1 and M_{1a}, veins yellowish, apical margin narrowly red. Wings hyaline, powdered white, veins orange to brown. Anal segment short, ventral margin in profile obtusely convex and angulate at middle, distal angles not produced. Pygofer with dorsolateral angles produced, strongly tapering to a point; medioventral process shortly triangular, about 2.5 times wider across base than long. Aedeagus tubular, curved upward and hollowed out dorsally distally, apex reflected cephalad, armed with a pair of broad lobes, unequal and tapering to a point, enclosing two lobes in middle line, one above the other, the dorsal broad, expanding distally, produced in two unequal spines at apex, the ventral of about same length in form of a straight, parallel-sided lamina truncate at apex. Genital styles expanding distally, apical margin subtruncate, oblique, lower angle rectangulate-acute, dorsal margin with a slight eminence at middle bearing a short spine directed laterad.

Male: length, 3.5 mm., tegmen, 6.0 mm.

Seven males from Ongea, July 27, 1924, holotype, Bryan.

This species is distinguished by the shape of the head dorsally and in profile and by the genitalia, coloration, and size.

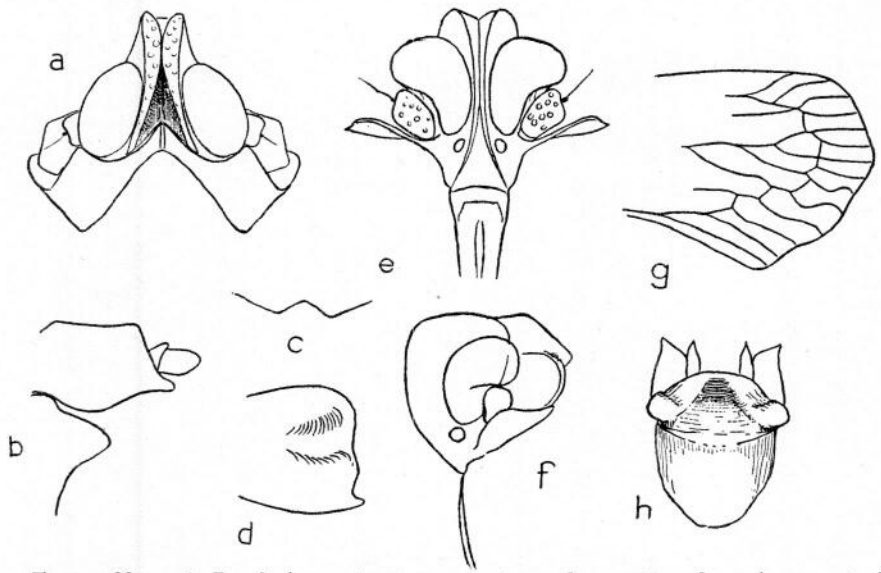


FIGURE 22.—**a-d,** *Paralyricen astyanax: a,* vertex and pronotum; *b,* anal segment of male; *c,* medio-ventral process of pygofer; *d,* apex of genital style. **e-h,** *P. sphaeromma: e,* frons; *f,* head in profile; *g,* apical portion of tegmen; *h,* pregenital sternite of female.

3. **Paralyricen sphaeromma,** new species (fig. 22, *e-h*).

Vertex in dorsal view rather narrowly triangular, tapering distally, lateral margins not thickened. Ocelli large, hemispherically protuberant.

Testaceous; sides of head before eyes, base of clypeus at sides, mesonotum and abdomen subcastaneous. Tegmina sordid hyaline, slightly infuscate at transverse veins, in R and M at apex and in subapical cells of M_{3+4} and Cu_1, veins concolorous to orange. Wings hyaline, veins yellowish. Seventh abdominal sternite of female with a transverse carina at middle, slightly convex cephalad; hind margin shallowly and evenly convex, lateral angles slightly tumid.

Female: length, 4.2 mm., tegmen, 7.0 mm.

A single female, holotype, from Viti Levu, Matawailevu, Aug. 3-11, 1937, H. St. John.

This species is distinguished by shape of head and pregenital sternite, by size, and coloration. It is readily separable from *P. knowlesi* by the larger and protuberant ocelli.

4. Paralyricen vespillo, new species (fig. 23, *a-d*).

Vertex rather narrowly triangular, tapering to narrowly truncate apex, lateral margins not at all thickened; disk of frons minute, as broad across apex as long in middle line. Tegmina with apical margin sinuate, apical veinlets of M_{3+4} strongly sinuate.

Fuscous; all carinae and margins, sides of head below subantennal process, a patch on side of clypeus, middle portion and apex of hind tibiae and apices of tarsal joints, sternites of abdomen, tawny. Seventh abdominal sternite piceous, scarlet at base, a transverse band notched at middle and distal margins pallid testaceous. Tegmina translucent, infuscate with dark fuscous markings as in other species, veins prominent, yellow, costal and apical margin narrowly red. Wings hyaline, veins brown.

Seventh abdominal sternite of female with a median transverse carina, apical margin shallowly convex, ventrolateral lobes of eighth segment in posterior view relatively narrow, about three times as long as broad, tapering dorsally to a slender point.

Female: length, 4.0 mm., tegmen, 9.0 mm.

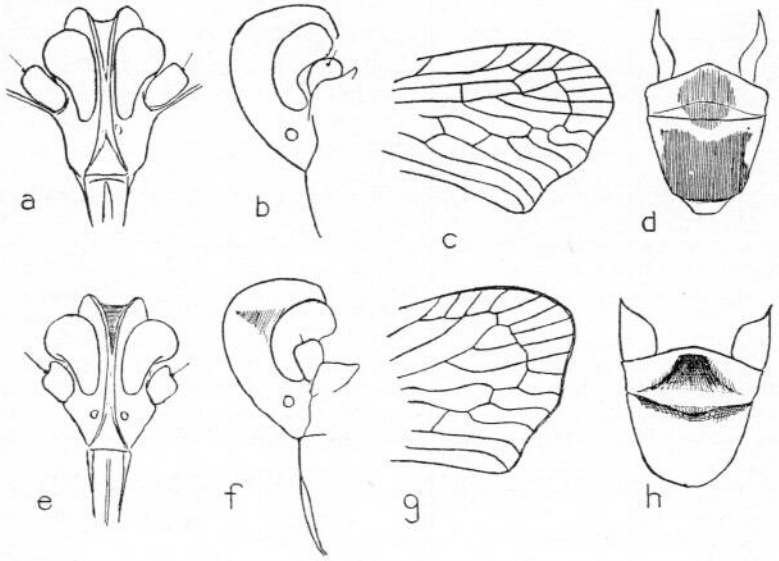


FIGURE 23.—**a-d,** *Paralyricen vespillo: a,* frons; *b,* head in profile; *c,* apical portion of tegmen; *d,* pregenital sternite of female. **e-h,** *P. similis: e,* frons; *f,* head in profile; *g,* apical portion of tegmen; *h,* pregenital sternite of female.

One female from Viti Levu: Tailevu, Aug. 1937, holotype, Valentine.

This species is distinguished by its size, the shape of the head and apical margin of the tegmina and genitalia, and by its coloration. It differs from the following species in the shorter visible portion of frontal disk and in the distinctly narrower ventrolateral portions of the eighth abdominal segment.

5. Paralyricen similis, new species (fig. 23, *e-h*).

Vertex rather narrowly triangular, tapering to pointed apex, lateral margins not thickened; disk of frons markedly longer in middle line than broad across apex. Tegmina with apical margin slightly sinuate, apical veins of M_{3+4} distinctly sinuate.

Testaceous; sides of head, intercarinal areas of mesonotum, post-tibiae and tarsi subapically fuscous. Abdomen infuscate laterally and dorsally in male. Tegmina translucent, brownish yellow, lightly suffused fuscous distally over transverse veins and in cells of M_{3+4} and Cu_1. Seventh sternite piceous, membrane at its base scarlet.

Seventh abdominal sternite of female with a transverse and slightly angulate carina at middle, distal margin shallowly convex. Ventrolateral lobes of eighth abdominal segment in posterior view drop-shaped, broad below and tapering rapidly to a short point dorsally, height not more than twice width across base.

Aedeagus of male scarcely sinuate in ventral view, flagellum reflected cephalad and terminated in a stout, bluntly pointed spinose process.

Male: length, 4.5 mm., tegmen, 7.7 mm.; female: length, 4.1 mm., tegmen, 8.0 mm.

Two males and two females from Viti Levu: Tailevu, Korovou, at light, Aug. 1937, Valentine; Vunindawa, May 4, 1941, Krauss; Matawailevu, Aug. 3-11, 1937, holotype male, H. St. John. One female from Ovalau: Andubangda, alt. 900-1,500 ft., July 18, 1938, Zimmerman.

This species is distinguished by the shape of the head and genitalia and by its coloration. It is very like *P. vespillo* but has a relatively longer frontal disk, broader ventrolateral lobes on the eighth abdominal segment, and a generally lighter coloration.

Genus **Harpanor,** new genus

Vertex longer than broad (1.7 : 1), lateral margins straight, tapering distally, apical margin concave, lateral margins raised; frons narrow but distinct, about as broad at base as at apex, narrowest at level of lower margin of eyes; clypeus medially carinate. Head in profile with vertex straight, meeting shallowly curved frons at an angle of 70 degrees; antennae in male not longer than head, second segment with two subequal cylindrical limbs, one straight, expanding distally, truncate at apex, where arista is attached, the other U-shaped, arising near the base and curved upward. No subantennal process. Pronotum very short, angulately convex anteriorly, posterior margin angulately excavate with a distinct acute notch in middle line, hollowed out laterally behind eyes, lateral lobes broadly rounded ventrally; mesonotum convex, broader than long, carinae obsolete, a pair of small wartlike eminences near middle on traces of lateral carinae. Legs long and slender.

Tegmina with Sc+R+M fork at about basal fifth, R+M fork at middle, R two-branched at apex, M_{1+2} five-branched, M_{3+4} two-branched. Wings only a little shorter than tegmina, stridulatory area well-developed, slightly bullate.

Anal segment of male long with a large vertical process medially on lower surface. Genital styles each with four spinose processes, one mediodorsally, one apically, and two ventrally.

Type species, *Harpanor fuligo,* new species.

This genus differs from *Archara, Cyclometopum,* and *Heronax* in the shape of the head and antennae, and from *Interamma* in venation. It is close to *Megatropis flexicornis* Muir but larger and differently colored. It differs in venation from *coccineolinea* Muir, type of *Megatropis,* which in this character is indistinguishable from *Interamma ascendens* Walker.

1. Harpanor fuligo, new species (fig. 24, *a-f*).

Fuscous; margins of head and carinae of clypeus almost piceous, all surfaces powdered pruinose. Tegmina smoky, powdered pruinose, middle areas of cells somewhat paler; veins dark fuscous, except those in costal cell, and in Sc and M between ultimate transverse line of veinlets and margin, which are pallid. Wings smoky, darker distally, veins fuscous.

Anal segment moderately long, distal margin transverse, apical angles produced in long, slender processes, decurved through 90 degrees, a large vertical conical process directed ventrad, arising from lower surface directly below anal foramen. Aedeagus tubular, reflected distally in a flagellum, this flagellum with a delicate elongate membranous lobe on left, a longer lobe on right obliquely bisected with a narrow membranous band, a simple spine directed dorsad in middle. Genital styles expanded distally, a short outwardly curved spinose process at middle of dorsal margin, an incurved spinose process at apex, two short incurved spinose processes ventrally near middle.

Male: length, 4.0 mm., tegmen, 6.5 mm.

One male from Viti Levu: Nandarivatu, alt. 3,600 ft., beating shrubs, Sept. 6, 1938, holotype, Zimmerman.

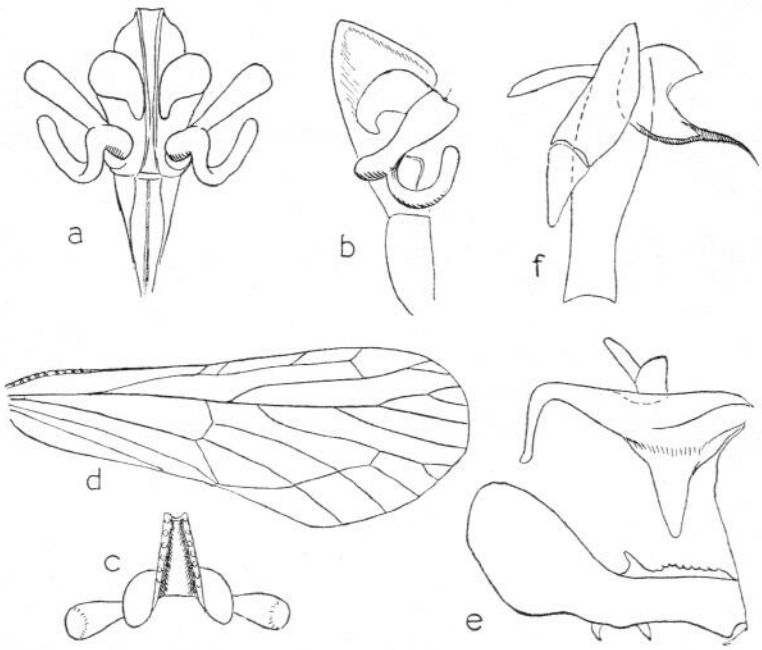


FIGURE 24.—*Harpanor fuligo:* **a,** head, anterior view; **b,** head, profile; **c,** vertex; **d,** tegmen; **e,** anal segment and genital style; **f,** aedeagus.

Genus **Kamendaka** Distant

Kamendaka Distant, Fauna Brit. India 3: 310, 1906. Orthotype, *Kamendaka spectra* Distant, op. cit., p. 311.

1. Kamendaka nigrospersa, new species (fig. 25, *a-d*).

Yellowish to red; a narrow line on side of head before eyes, three spots on mesonotum and a spot on pleurite below each tegula, profemora, a spot in basal third and at apex of post-tibiae, piceous. Tegmina golden yellow, four small spots in basal third, linear marks in apical cells of Sc and M and two spots in subapical cells of M, fuscous, a broad curved band of pink following nodal line; veins orange to red, apical margin narrowly red. Wings hyaline, veins concolorous.

Female: length, 2.8 mm., tegmen, 4.6 mm.

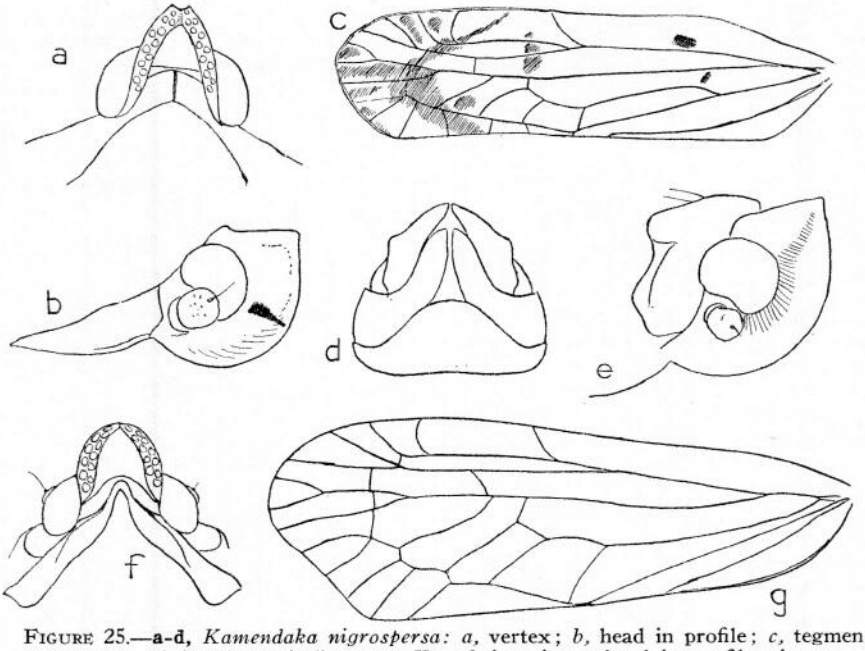


FIGURE 25.—**a-d,** *Kamendaka nigrospersa: a,* vertex; *b,* head in profile; *c,* tegmen; *d,* ventral view of female genitalia. **e-g,** *K. rubrinervis: e,* head in profile; *f,* vertex; *g,* tegmen.

Three females from Viti Levu: Tholo-i-Suva, June 28 (holotype), 29, 1924, Bryan; Nandarivatu, October 1937, Valentine. One specimen from Ovalau: Draiba trail, alt. 600-800 ft., July 9, 1938, Zimmerman.

2. Kamendaka rubrinervis, new species (fig. 25, *e-g*).

Anal segment of male about twice as long as broad, lateral margins subparallel in basal half, slightly concave in distal half, apical angles broadly rounded, apical margin shallowly excavate. Pygofer with dorsolateral angles prominently produced to form a triangle, angle slightly acute, medioventral process about 1.3 times as long as broad, margins slightly tapering distally, apical margin about semicircularly convex. Aedeagus tubular, curved shallowly dorsad distally, a curved flagellum at apex reflected cephalad above aedeagus for two-thirds of its length; flagellum expanding distally, curved to right; a moderately long and slender spinose process at base on right, profile of dorsal margin with two triangular eminences, the first formed by a vertical triangular sclerite on the left side, the second by a similar but more symmetrical plate on the right side. Genital styles thin, of subequal width throughout, tapering to an acute point at apex, dorsal margin at middle with

a small spine curved laterad apically, basad of this a long shallowly convex submembranous eminence, a large narrowly triangular lobe on inner surface near base directed mesad.

Reddish orange, underside of body stramineous; keels of frons, a suffusion on genae, lateral fields of mesonotum, and pleurites, fuscous. Tegmina hyaline, slightly smoky, a broad band from costa to commissural margin at basal third, distal veins of Sc+R and M and distal transverse veins orange yellow, remaining veins and portions of margin red. Wings hyaline, powdered white, veins concolorous.

Male: length, 4.5 mm., tegmen, 6.0 mm.

One male from Viti Levu: Nandarivatu, alt. 2,700 ft., at light, Sept. 9, 1938, holotype, Zimmerman.

This species is distinguished from the preceding by its size and coloration.

Genus **Pyrrhoneura** Kirkaldy

Pyrrhoneura Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9): 434, 1906. Haplotype, *Pyrrhoneura saccharicida* Kirkaldy, op. cit.

1. Pyrrhoneura saccharicida Kirkaldy, Hawaiian Sugar. Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9): 435, 1906 (fig. 26, *c*).

Anal segment rather long, considerably and slightly asymmetrically expanded in basal half; length scarcely exceeding basal width, sides distally curving into rounded apical margin. Pygofer asymmetrical, left posterior margin produced in dorsal half in a shallow lobe drawn out at middle in a sharp point, corresponding portion of right margin not or obsoletely lobate, shallowly convex. Aedeagus cylindrical, asymmetrical, curved upward distally, dorsal margin of left side expanded distally in a shallow convex lobe with a minute excavation basad of it; aedeagus at apex reflected in a short flagellum giving off two slender sinuately decurved spines, that of left side two-thirds length of aedeagus, that of right distinctly shorter. Genital styles long, very narrow, feebly expanded distally and smoothly curved dorsad, longitudinally sulcate in distal half; apical margin rounded; a shallow convex lobe on dorsal margin bearing a small stout curved process directed laterad at its apex. Pregenital sternite introverted in middle submarginally, apical margin broadly and evenly convex, interrupted by a narrow parallel-sided incision in middle line.

Two males, five females, and two mutilated specimens from Viti Levu: Belt road, 42-44 miles west of Suva, July 23, 1938, Zimmerman; Tholo-i-Suva, July 27, 1938, Zimmerman; Bulu near Sovi, April 21, 1941, Krauss. Seven males and five females from Matuku, July 8, 1924, Bryan. Two females from Vanua Mbalavu, Sept. 23, 1924, Bryan. One female from Avea, Sept. 22, 1924, Bryan. One male from Kanathea, Sept. 19, 1924, Bryan. One female from Kandavu: Solo Tavine, April 23, 1941, Krauss. One male from Mango: Marona, Aug. 14, 1938, Zimmerman.

The intensity of the infuscation and the development or suppression of the hyaline areas, with perhaps the exception of that between the median fork and the claval apex, are variable. No definite subspecies have been recognized.

2. Pyrrhoneura charonea, new species (fig. 26, *a, b*).

Width across base of vertex, excluding margins, 1.5 times length in middle. Frons with carinae not contiguous in basal half, vertex in profile rounding into frons, lateral carinae of pronotum subfoliate. Tegmina fully three times as long as maximum width.

Seventh sternite shallowly convex, apical margin convex, not reflexed, slightly indented at middle, a slight eminence in middle line just distad of middle, surface between this and hind margin flat, not introverted along middle line.

Fuscous; clypeus, rostrum, and legs stramineous. Tegmina uniformly dark fuscous, powdered with white; veins dark red, of a brighter hue apically.

Female: length, 3.5 mm., tegmen, 5.5 mm.

One female from Avea, Sept. 22, 1924, holotype, Bryan.

This species is distinguished by the shape of the seventh abdominal sternite and by coloration.

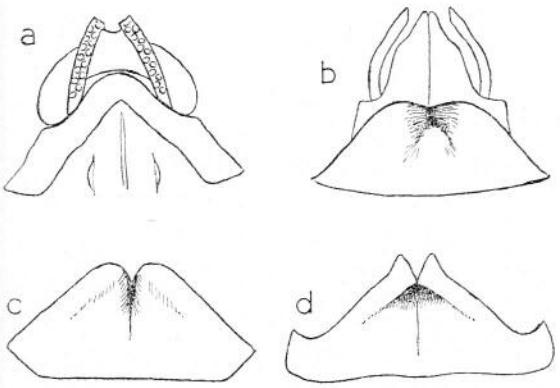


FIGURE 26.—**a, b,** *Pyrrhoneura charonea: a,* vertex and pronotum; *b,* female genitalia. **c,** *P. saccharicida,* pregenital sternite of female. **d,** *P. poecila,* pregenital sternite of female.

3. **Pyrrhoneura poecila,** new species (fig. 26, *d*).

Anal segment moderately long, scarcely twice as long as broad across base; in profile margins straight, parallel, apex truncate, slightly oblique. Pygofer with lateral margins distinctly convex in dorsal half, very slightly excavate in ventral half, a slight submarginal protuberance medioventrally. Aedeagus cylindrical, curved upward distally and reflected cephalad, terminating in a pair of long slender spinose processes extending cephalad, decurved apically. Genital styles gradually expanding distally, tapering in distal quarter to pointed apex, a large quadrate lobe in middle of dorsal margin giving off a slender oblique porrect lobe dorsocaudad. Pregenital sternite of female distinctly introverted in middle line submarginally, apical margin triangularly produced, cleft in middle line, apical lobes acute.

Testaceous pallid; mesonotum testaceous brown, antennae, lateral lobes of pronotum, tegulae, abdomen, and dorsal lobe of genital styles orange red or red. Tegmina fuscous, corium distinctly variegated ochraceous especially in Cu and claval areas, apical margin and two small submarginal spots pallid yellow: veins red, all except those of Cu pallid near margin; wings faintly infumed, veins red.

Male: length, 2.0 mm., tegmen, 3.8 mm.; female: length, 2.0 mm., tegmen, 3.9 mm.

Four males and one female from Ovalau: Draiba trail, alt. 800-1,000 ft., July 8, 1938, allotype female; Thawathi, July 12, 1938, holotype male; all by Zimmerman.

This species is distinguished from *P. saccharicida* by the shape of the frons and from other species by the color and the genitalia of both sexes.

Genus **Nesocore** Kirkaldy

Nesocore Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 172, 1907. Haplotype, *Nesocore fidicina* Kirkaldy, op. cit.

Key to Species of Nesocore

1. Carinae on face not contiguous 9
   Carinae on face contiguous, if only basally 2
2. Total length with folded tegmina more than 5.9 mm 3
   Total length with folded tegmina less than 5.9 mm 4
3. Disk of frons extending almost to level of upper margin of eyes. Lau ..... **subfulva***
   Disk of frons minute, not attaining level of eyes. Viti Levu ..... **clitoria***
4. Total length less than 5 mm. Viti Levu ..... **pygmaea***
   Total length more than 5 mm 5
5. Tegmina and body cretaceous 6
   Tegmina and body more or less colored 7
6. Pregenital sternite of female with 2 points. Viti Levu ..... **candida***
   Pregenital sternite rounded. Viti Levu ..... **nivea***
7. Head, pleurites, and veins of tegmina bright red. Viti Levu ..... **coccinea** Muir
   These parts at most dark red or not red 8
8. Body stramineous, tegmina pallid, apical margin and upper veins red, wings pallid. Viti Levu ..... **elutriata***
   Body reddish fuscous, tegmina smoky, veins red orange; wings clouded fuscous. Viti Levu ..... **purpurigena***
9. Tegmina infuscate in posterior half, wings milky hyaline. Viti Levu ..... **fidicina** Kirkaldy
   Tegmina irregularly suffused fuscous, wings fuscous ..... **crocea** Muir

1. Nesocore coccinea Muir, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **12** : 51, 1913 (fig. 27, *a*).

One male from Viti Levu: Lami Quarry, near Suva, July 24, 1938, Zimmerman.

2. Nesocore subfulva, new species (fig. 27, *b, c*).

Lateral carinae of frons contiguous only at base, disk of frons in facial view extending narrowly to level of upper margin of eyes. A pair of small vertical flanges on mesonotum near apex of lateral carinae, which elsewhere are obsolete, and a round callus on each hind margin.

Ochraceous fulvous; tegmina yellowish hyaline, a diffuse faint fuscous cloud overlying M and Cu to apex, a dark spot in M near apex, apical veinlets orange.

Seventh sternite with posterior margin produced submedially into a pair of short acute points.

Female: length, 3.2 mm., tegmen, 4.8 mm.

One female from Tuvutha, Sept. 10, 1924, holotype, Bryan.

3. Nesocore clitoria, new species (fig. 27, *d, e*).

Lateral carinae of frons contiguous to near apex, disk of frons minute. Mesonotum with lateral carinae not more prominent than median.

Pale fuscous; head before eyes tawny, tinged red, clypeus, lower part of body, fore and middle legs stramineous, seventh sternite dark fuscous. Tegmina hyaline, slightly infuscate, darker in distal half, R and M between middle of tegmen and transverse vein-

lets, and apical margin red, veins otherwise yellow to pallid; a spot in M at transverse line piceous. Wings slightly fuscous, veins red.

Seventh sternite about as long as broad, equilaterally triangular, narrowly cleft at apex with an ovate depression basad of cleft.

Female: length, 3.1 mm., tegmen, 5.0 mm.

One female from Viti Levu: Belt road, 16-18 miles west of Suva, beating shrubs, July 22, 1938, holotype, Zimmerman.

This species is distinguished by its coloration, the shape of the seventh sternite, and its size.

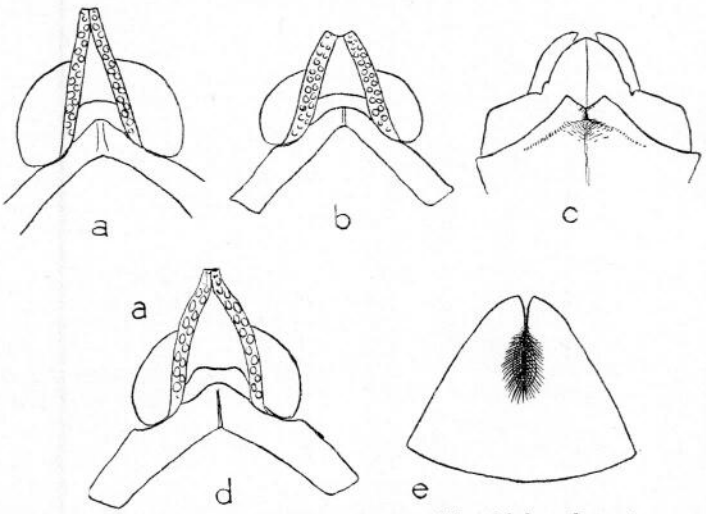


FIGURE 27.—**a,** *Nesocore coccinea,* vertex. **b, c,** *N. subfulva: b,* vertex; *c,* pregenital sternite of female. **d, e,** *N. clitoria: d,* vertex and pronotum; *e,* pregenital sternite of female.

4. Nesocore pygmaea, new species (fig. 28, *a, b*).

Lateral carinae of frons contiguous to base of antennae, disk of frons small but distinct, mesonotal carinae feebly developed in apical half.

Testaceous. Sides of head above eyes, vertex, lateral carinae of frons at base, a line on pronotum behind eyes, and lateral fields of mesonotum fuscous. Tegmina hyaline, powdered with white, slightly infuscate over most of surface, a piceous spot in M at transverse line, M and Cu_1 distad of middle red, veins otherwise concolorous. Wings slightly infuscate, veins red.

Seventh sternite more than twice as broad as long, apical margin sinuately convex, subtruncate medially, marginal area broadly tumid, narrowly interrupted by cleft-like depression medially.

Female: length, 2.1 mm., tegmen, 3.1 mm.

One female from Viti Levu: Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, holotype, Zimmerman.

This species is distinguished by its coloration, the shape of the seventh sternite, and its size.

5. Nesocore candida, new species (fig. 28, *c, d*).

Lateral carinae of frons contiguous only in basal half, disk of frons in facial view extending almost to level of middle of eyes. Lateral margins of pronotum eleven-sixteenths length of eye, mesonotal carinae distinct in apical half. Stramineous, powdered white; tegmina hyaline, powdered white, a small area near node, membrane distad of transverse veins, a spot on transverse veins in M, and a small spot at apex of clavus fuscous, veins concolorous. Wings hyaline, powdered white, veins concolorous.

Seventh abdominal sternite subequilaterally triangular with a longitudinal cleft-like groove at apex, with margin terminating in a small point at each side of it.

Female: length, 2.3 mm., tegmen, 4.0 mm.

One female from Viti Levu: Tholo-i-Suva, June 28, 1924, holotype, Bryan.

This species is distinguished by coloration and by shape of seventh abdominal sternite.

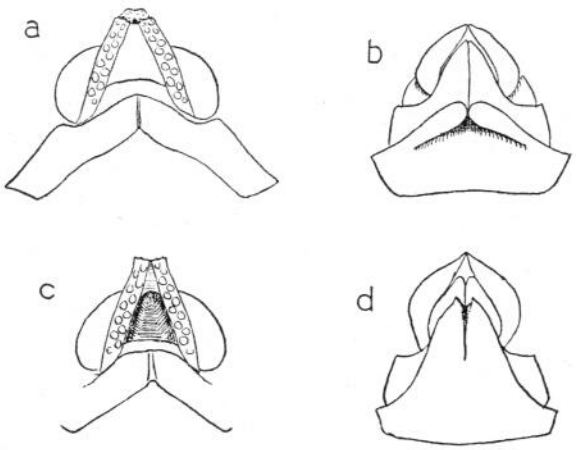


FIGURE 28.—**a, b,** *Nesocore pygmaea: a,* vertex and pronotum; *b,* pregenital sternite of female. **c, d,** *N. candida: c,* vertex; *d,* pregenital sternite of female.

Nesocore nivea, new species (fig. 29, *a, b*).

Lateral carinae of frons contiguous only in basal half, disk of frons in facial view extending to level of upper margin of eyes. Lateral margins of pronotum fourteen-sixteenths length of eye. Mesonotal carinae distinct in apical half.

Stramineous, powdered white; head, apart from clypeus and antennae, suffused brownish-purple. Tegmina hyaline, powdered white; a spot at transverse veins in M and a pale narrow suffusion inside apical margin fuscous. Wings hyaline, powdered white, veins concolorous.

Seventh abdominal sternite broadly subtriangular, apical margin produced with the sides meeting at apex at right angles, slightly truncate in middle line, submarginal area flattened, not tumid, margin not pointed on each side of distal median notch.

Female: length, 2.8 mm., tegmen, 4.8 mm.

One female from Viti Levu: Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, holotype, Zimmerman.

This species is distinguished by its coloration and the shape of the seventh sternite. It is also readily separable from *candida* by the longer frontal disk and by the relatively longer carinae on the pronotum between the eyes and tegulae.

7. Nesocore elutriata, new species (fig. 29, *c, d*).

Lateral carinae of frons contiguous to level of base of antennae, narrow disk of frons in facial view slightly longer than broad; mesonotal carinae distinct in apical half.

Testaceous stramineous, mesonotum castaneous. Tegmina hyaline, very faintly suffused with fuscous in cell Cu_1 and across M fork, a piceous spot in M at transverse line, apical veinlets and margin red, veins otherwise yellowish. Wings hyaline, powdered white, veins concolorous.

Seventh sternite of abdomen more than twice as broad as long, subrhomboidal, distal margins straight, oblique, converging to meet at apex in an angle of 125 degrees, separated by a narrow but deep cleft which extends cephalad as a trough. Hind marginal area tumid.

Female: length, 2.1 mm., tegmen, 4.0 mm.

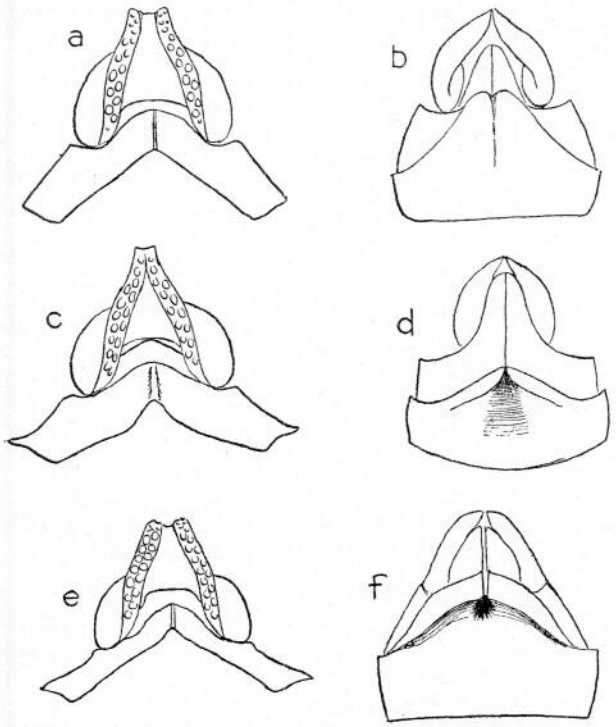


FIGURE 29.—**a, b,** *Nesocore nivea: a,* vertex and pronotum; *b,* pregenital sternite of female. **c, d,** *N. elutriata: c,* vertex and pronotum; *d,* pregenital sternite of female. **e, f,** *N. purpurigena: e,* vertex and pronotum; *f,* pregenital sternite of female.

One female from Viti Levu: Lami Quarry near Suva, alt. 10-250 ft., beating shrubs, July 24, 1938, holotype, Zimmerman.

This species is distinguished by its size, its coloration, and the shape of the seventh sternite. The last is somewhat like that in *N. pygmaea,* but the apex is less truncate, while the marginal area is less tumid than in *pygmaea. N. elutriata* is also separated from *pygmaea* by size and tegminal coloration.

8. Nesocore purpurigena, new species (fig. 29, *e, f*).

Lateral carinae of frons contiguous to level of lower margin of eye; mesonotal carinae distinct in apical half. Fuscous, suffused reddish, sides of head reddish purple, mesonotum fuscous, darker laterally. Tegmina hyaline, infuscate except in cells C, Sc, and portions of R, a dark spot in M at transverse line, veins vermilion red. Wings slightly infuscate, veins red.

Seventh abdominal sternite large, twice as broad as long, hind margin strongly and sinuately convex, marginal area distinctly flattened, a short narrow cleft medially at apex with margins forming a very slight point at edge of cleft.

Female: length, 2.8 mm., tegmen, 4.5 mm.

One female from Viti Levu: alt. 500 ft., Tholo-i-Suva, beating, July 25, 1938, holotype, Zimmerman.

This species is distinguished by its size, its coloration, and the shape of seventh abdominal sternite in the female.

Genus **Swezeyia** Kirkaldy

Swezeyia Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9): 430, 1906. Haplotype, *Swezeyia lyricen* Kirkaldy, op. cit.

Phantasmatocera Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9): 430, 1906. Orthotype, *Phantasmatocera arborea* Kirkaldy, op. cit., p. 431.

Arunta Distant, Ann. Mag. Nat. Hist. VII, **19**: 406, 1907. Orthotype, *Arunta rubrovenosa* Distant.

Nesophantasma Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3: 177, 1907. Orthotype, *Nesophantasma vitiensis* Kirkaldy.

1. Swezeyia lyricen Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9): 430, 1906.

Four males and one female from Ovalau, Oct. 19, 1924, Bryan. One male from Thikombia, Sept. 26, 1924, Bryan. One male and one female from Kandavu: Kaivala, April 29, 1941, Krauss.

Key to Australasian Genera of Cenchreini

1. Subantennal process absent or very small 2
   Subantennal process well-developed 7
2. Pronotum with lateral carinae absent or feebly developed 3
   Pronotum with lateral carinae well-developed 5
3. Frons and vertex in profile meeting at an angle 4
   Frons and vertex in profile forming a curve ..... **Dawnaria** Distant
4. Subcostal cell long ..... **Goneokara** Muir
   Subcostal cell short ..... **Vekunta** Distant
5. Frons with lateral carinae contiguous in basal half ..... **Tempora** Matsumura
   Frons with lateral carinae not contiguous 6
6. Length of vertex subequal to width at base ..... **Phaciocephalus** Kirkaldy
   Length of vertex much exceeding width at base, vertex narrow ..... **Basileocephalus** Kirkaldy

7. Pronotum with lateral carinae absent or feebly developed 8
   Pronotum with lateral carinae strongly developed 12
8. Tegmina with subcostal cell long 9
   Tegmina with subcostal cell short 10
9. Frons with a median carina ..... **Eocenchrea** Muir
   Frons without a median carina ..... **Herpis** Stål
10. Frons and vertex in profile meeting at an angle, subantennal process forming a carina below antenna 11
    Frons and vertex in profile forming a curve, subantennal process semicircular; antennae ovate, not reaching to apex of head ..... **Cyclometopum** Muir
11. Antennae small ..... **Lamenia** Stål
    Antennae large ..... **Neolamenia** Muir
12. Tegmina long, distally pointed, wider at middle than across middle of clavus; subcostal cell beginning slightly before middle of tegmen ..... **Neocyclokara** Muir
    Tegmina with costal and commissural margins subparallel, rounded-truncate at apex, not much wider at middle than across middle of clavus, subcostal cell beginning relatively near to base ..... **Herpis** Stål

Genus **Phaciocephalus** Kirkaldy

Phaciocephalus Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9) : 428, 1906. Haplotype, *Phaciocephalus vitiensis* Kirkaldy, op. cit.

Key to Fijian Species of Phaciocephalus

1. Tegmina marked with red or orange at least in area of claval suture 2
   Tegmina not as above 3
2. Tegmina with two golden-yellow spots on commissural margin, red hue brilliant; pygofer and pregenital sternite pallid ..... **miltodias** Kirkaldy
   Tegmina duller, markings orange with commissural margin of clavus pallid, or fuscous with crimson area overlying claval suture; pygofer and pregenital sternite fuscous ..... **nesodreptias** Kirkaldy
3. Tegmina grayish white, Sc and first claval vein dark fuscous, M and basal part of Cu_1 paler fuscous; mesonotum outside disk fuscous ..... **marpsias***
   Tegmina with yellowish or fuscous-piceous ground color 4
4. Tegmina with costal cell creamy white, remainder fuscous piceous, sometimes with red veins ..... **pullatus** Kirkaldy
   Tegmina not as above 5
5. Clypeus fuscous at apex, at least on sides 6
   Clypeus pallid at apex or its median carina fuscous 7
6. Pronotum sublaterally fuscous, fuscous band on tegmina not connected with commissural margin ..... **vitiensis** Kirkaldy
   Pronotum pallid, tegminal fuscous band touching commissural margin near middle ..... **nesogonias** Kirkaldy
7. Median carina of clypeus fuscous, first claval vein narrowly infuscate, fuscous band on tegmina absent from clavus, not touching commissural margin ..... **troas***
   Clypeus wholly pale, first claval vein pallid except near apex, fuscous band on tegmina touching commissural margin near apex of clavus ..... **minyrias** Kirkaldy

1. **Phaciocephalus vitiensis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9) : 428, 1906.

Stramineous yellow; apex of clypeus, carinae of frons at base, side of head before eyes, pronotum behind eye and mesonotum in same line, tibiae at apex fuscous, legs other-

wise sordid stramineous. Pygofer and pregenital sternite fuscous. Tegmina hyaline, powdered white; a band of equal width throughout, extending from mesonotal margin of clavus to apex in R and M and including junction of Sc+R and M, fuscous, sometimes replaced by tawny orange over claval suture. Commissural marginal area pallid in clavus, yellow distad of clavus, not invaded at any point by fuscous. Wings hyaline, powdered white.

Three males and four females from Viti Levu: Tholo-i-Suva, June 24, 1924, Bryan; alt. 500-600 ft., July 21, 1938, Zimmerman; Mt. Victoria, Mba (Tholo North), Sept. 13, 1938, Zimmerman; Vunindawa, May 2, 1941, Krauss; Navai-Nasonga trail, alt. 3,400 ft., summit, Sept. 12, 1938, Zimmerman.

This species is distinguished by the coloration, especially by the complete separation of the longitudinal band on the tegmina from the commissural margin.

2. **Phaciocephalus miltodias** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 168, 1907.

Pallid stramineous; upper half of head, middle of pronotum, upper half of antennal chamber and middle of mesonotum golden yellow; pro- and mesotibiae and postfemora at apex, post-tibiae at base, infuscate. Eyes, pronotum laterad of middle, lateral fields and base of mesonotum orange red. Tegmina translucent, pallid cream; a broad suffusion in costal cell near base fuscous, extreme basal area of clavus and an area between posterior claval vein and margin golden yellow; remainder of tegmen posterior to M orange red.

One male and four females from Viti Levu: Tholo-i-Suva, alt. 500-600 ft., July 21, 1938, Zimmerman; June 21, 1924, Bryan. One male from Ovalau: Andubangda, alt. 900-1,500 ft., July 18, 1938, Zimmerman.

The Ovalau specimen is distinctly brighter than those from Viti Levu, the color being scarlet rather than reddish orange and invading the basal portion of the frons. The pygofer and pregenital sternite of all specimens are pallid stramineous.

3. **Phaciocephalus pullatus** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **3**: 168, 1907.

Testaceous; vertex and sides of head above eyes, apex of clypeus and rostrum, pronotum on each side of median carina and inside antennal chamber, mesonotum and tegulae, forelegs and mesotibiae, sternites of abdomen and genitalia fuscous. Tegmina dark fuscous; costal cell pallid or yellowish, veins sometimes orange red, with intervenal areas of M, Cu and clavus invaded from veins with khaki. Wings smoky, veins fuscous.

Male: length, 3.0 mm., tegmen, 4.5 mm.; female: length, 4.5 mm., tegmen, 6.0 mm.

One male and five females and one mutilated specimen from Viti Levu: Tholo-i-Suva, June 21-29, 1924, Bryan, alt. 500-600 ft., July 21, 1938, Zimmerman; Nandarivatu, alt. 3,700 ft., Sept. 3, 10, 1938, Zimmerman; Matawailevu, Aug. 3-11, 1937, H. St. John.

This is the largest of the species before me and is readily recognizable by its somber colors.

4. **Phaciocephalus minyrias** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 168, 1907.

Yellowish stramineous; carinae of frons at base, a triangular area in posterolateral angles of pronotum, including margin, lateral angles and posterolateral margins of mesonotum and apex of scutellum, profemora subapically, all tibiae apically, and apical segment of pro- and mesotarsi fuscous to fuscous piceous; mesonotum otherwise orange brown. Pygofer and pregenital sternite fuscous. Tegmina yellowish hyaline, powdered white, anterior half appearing gray; a spot at angle of clavus and vein Sc fuscous piceous; a curved fuscous band of subequal width throughout but basally darkest where overlying veins, beginning just posterior to junction of Sc+R and M, invading anterior portion of clavus and reaching commissural margin near apex of clavus, thence curving over Cu, M to cells R_1 and M_1 at margin, costal margin in Sc and last apical cell of Cu fuscous; intervenal areas between M and Cu, and Cu and claval suture orange fuscous. Wings hyaline, powdered white.

One female from Viti Levu: ridge west of Nandarivatu, alt. 2,600-3,000 ft., Sept. 9, 1938, Zimmerman. One female from Ovalau: Andubangda, alt. 1,000-1,500 ft., July 18, 1938, Zimmerman.

The species is distinguished by its coloration.

5. **Phaciocephalus nesogonias** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 167, 1907.

Pallid stramineous; sides of clypeus at apex, frontal carinae, portions of pleurites, mesonotum laterad of disk, apical ventrites of abdomen, and genitalia fuscous.

Tegmina hyaline, sparsely powdered white, portion adjacent to commissural margin creamy white to yellowish; a fuscous band, slightly broadening distally, from mesonotal margin of clavus to apical margin in all cells of R and M; an oblique fuscous band arising at junction of Sc+R and M entering the above one-fourth from base and emerging to cross clavus to commissural margin; apical margin narrowly red.

One male from Ovalau: Draiba trail, alt. 600-800 ft., July 9, 1938, Zimmerman.

This species is distinguished by its coloration and tegminal pattern. The pallid pronotum readily separates it from the preceding species. The tegminal pattern, as noted by Kirkaldy, is the same as in *miltodias,* which, however, differs in color and in the sublaterally pigmented pronotum.

6. **Phaciocephalus nesodreptias** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 167, 1907.

Viti Levu specimens: pallid cream, median carina of clypeus, lateral carinae of mesonotum yellow; pronotum behind eyes, lateral fields of mesonotum, profemora and tibiae, fuscous. Tegmina hyaline, powdered white in anterior half, infuscate in a longitudinal band to apex along M, with an orange-red adjoining band on corium between this and first claval vein, posterior area of tegmen from base to apex dull yellow. Infuscate areas of body and tegmina sometimes replaced with pale orange yellow.

Matuku specimens: coloration generally more vivid, fuscous areas confined to distal half of tegminal band, posterior portion of tegmen sometimes white, not yellow.

Vanua Mbalavu specimens: carinae of frons narrowly fuscous. Tegmina dark fuscous at base of clavus, and in a narrow band overlying M in front of orange-red area of M-Cu on corium, infuscation in M in membrane dark, pale areas of tegmen grayish hyaline.

Pygofer and pregenital sternite in all specimens dark fuscous.

Seven males and 9 females and one mutilated specimen from Viti Levu: Vunindawa, May 2, 1941, Krauss; Tholo-i-Suva, June 21, 1924, Bryan, alt. 500-600 ft., July 21, 1938, Zimmerman; Nandarivatu, 3,700 ft. and 2,800 ft., Sept. 9, 11, 1938, Zimmerman; summit of Navai-Nasonga trail, alt. 3,400 ft., Sept. 12, 1938, Zimmerman. Three males and three females and two mutilated specimens from Matuku, July 4-8, 1924, Bryan. Two males and four females and one mutilated specimen from Vanua Mbalavu: Mvana, alt. 200 ft., Aug. 9, 1938; Bavatu, Aug. 16, 1938; Buthalevu, alt. 200-300 ft., Aug. 10, 1938, two specimens; all by Zimmerman.

It is evident from the above series that *P. nesodreptias* is a polytypic species.

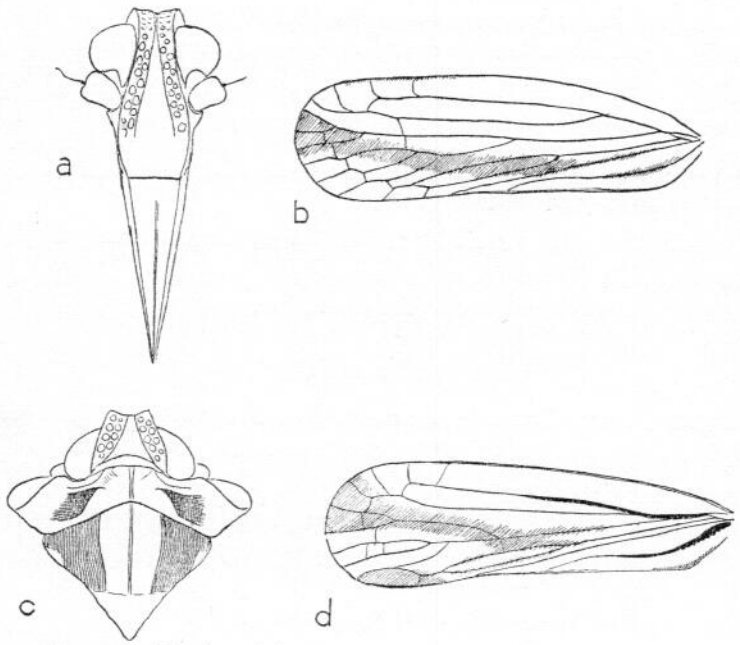


FIGURE 30.—**a, b,** *Phaciocephalus troas: a,* frons and clypeus; *b,* tegmen. **c, d,** *P. marpsias: c,* head and thorax; *d,* tegmen.

7. Phaciocephalus troas, new species (fig. 30, *a, b*).

Testaceous yellow; median carina of clypeus, but not sides at apex, fuscous. Tegmina yellowish hyaline; clavus and veins near commissural margin golden yellow; first claval vein, claval suture except at base, a slightly curved band overlying Cu_1 basally, then M_{3+4}, and finally M_{1+2} near apical margin, fuscous, costal margin near apex narrowly dark. Wings hyaline, powdered white, veins concolorous except M and Cu_1 which are piceous. Pygofer with dorsolateral angles obtuse, not produced, medioventral process distinctly subangulately produced caudad and thickened dorsoventrally. Aedeagal flagellum with a spine, decurved at apex, at its base on each side; medially below a long slender spine slightly curved upward; lying above basal portion of aedeagus dorsally a short lobe terminated in a pair of porrect slender filaments. Pregenital sternite of female

produced distally in a subrectangulate lobe, as long as broad across its base, slightly narrowed apically.

Male: length, 3.0 mm., tegmen, 5.0 mm.; female: length, 3.0 mm., tegmen, 5.0 mm.

Three males and two females from Viti Levu: Tholo-i-Suva, alt. 500 ft., beating, July 25 (holotype), 27, 1938; Mt. Korombamba, alt. 800-1,200 ft., beating shrubs, Aug. 1, 1938; alt. 2,600-3,000 ft., on ridge west of Nandarivatu, Sept. 9, 1938; Belt Road, 40-50 miles west of Suva, July 26, 1938; all by Zimmerman.

In the material before me, the pregenital sternite of the female is pallid whereas the subrectangular posterior portion is fuscous. The species is distinguished by fuscous median carina of clypeus and by tegminal coloration.

8. **Phaciocephalus marpsias,** new species (fig. 30, *c, d*).

Stramineous; lateral carinae of frons, pronotum behind eyes, lateral fields of mesonotum, tibiae at apex, apical joint of pro- and mesotarsi dark fuscous. Tegmina milky, Sc+R in basal half and claval veins at base narrowly piceous, a marginal cloud in apical cells of R and M_{1+2} fuscous, whole tegminal area posterior to M suffused yellowish with veins fuscous, veins otherwise pallid, apical margin and apex of clavus orange.

Pygofer with medioventral process longer than broad, distally rounded.

Male: length, 2.6 mm., tegmen, 4.0 mm.

One male from Viti Levu: Navai Mill, near Nandarivatu, alt. 2,500 ft., beating, Sept. 17, 1938, holotype, Zimmerman.

This species is distinguished by the coloration.

Genus **Lamenia** Stål

Lamenia Stål, Freg. Eugenies Resa, Zoologi **2**(1): 277, 1859. Haplotype, *Delphax caliginea* Stål, Öfv. K. Sven. Vet.-Akad., Förh. **11**: 246, 1854.

1. **Lamenia caliginea** (Stål).

Delphax caliginea Stål, Öfv. K. Sven. Vet.-Akad., Förh. **11**: 246, 1854.

One male from Rotuma: Soluara, Aug. 11, 1938, H. St. John.

Key to Australasian Genera of Rhotanini

1. Tegmina with a triangular cell present at base of first median sector..... 2
   Tegmina without a triangular cell at base of first median sector....**Sumangala** Distant
2. Frons with lateral carinae not contiguous.....**Decora** Dammerman
   Frons with lateral carinae contiguous to apex or near it..... 3
3. Pronotum with lateral carinae well-developed....**Muiralyricen** Metcalf, **Levu** Kirkaldy
   Pronotum with lateral carinae feeble or absent.....**Rhotana** Walker

Genus **Levu** Kirkaldy

Levu Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1** (9): 434, 1906. Haplotype, *Levu vitiensis* Kirkaldy, op. cit.

1. **Levu vitiensis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. **1**(9): 434, 1906 (fig. 31, *a-c*).

Ovalau specimens: anal segment very short, in profile broader than long, anal style short and broad. Pygofer with lateral margins produced in a convex lobe at middle. Aedeagus cylindrical, curved upward distally, reflected anteriorly in a short flagellum, which is straight on lower margin, convex on upper with sides straight or weakly convex. Genital styles moderately long, expanding distally, apex truncate, apical angles rounded, dorsal margin with two processes directed obliquely dorso-caudad, both minutely spinose at apex, the distal process much longer than basal.

Matuku specimens: as above, but lateral margins of pygofer less produced at middle. Aedeagus with sides of flagellum strongly convex. Genital styles with apical margin convex, forming a single smooth curve with ventral margin; distal dorsal process in side view slightly sinuate and more closely approximated throughout its length to dorsal margin.

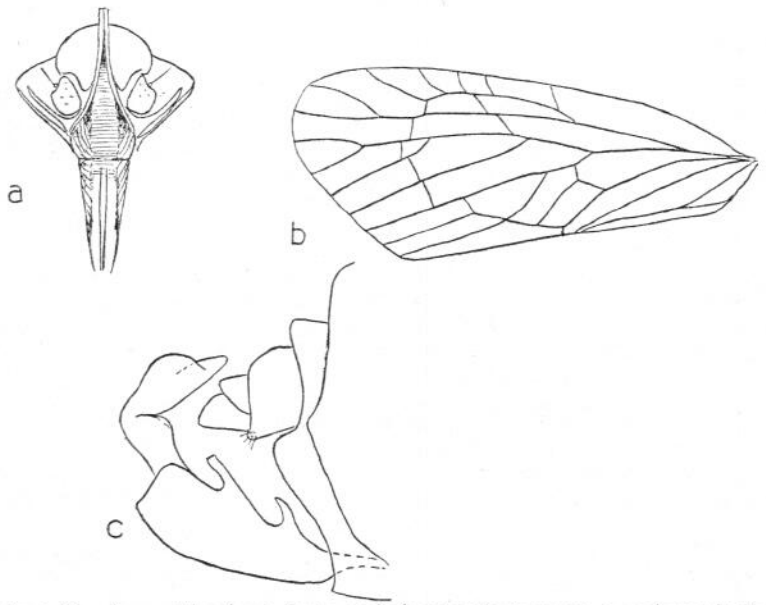


FIGURE 31.—*Levu vitiensis:* **a,** frons and clypeus; **b,** tegmen; **c,** male genitalia, right side.

Ten males and seven females from Viti Levu: Belt Road, 16-18 miles west of Suva, July 22, 1938, Zimmerman; Lami, May 6, 1941, Krauss; Bulu near Sovi, April 21, 1941, Krauss; Vunindawa, May 2, 3, 1941, Krauss. Five males and seven females from Matuku, July 4, 1924, Bryan. Two males and six females from Ovalau: Thawathi, July 12, 1938, C. M. Cooke, Jr.; Draiba trail, July 7-9, 1938, Zimmerman. Two males and three females from Aiwa, Sept. 1, 1924, Bryan. Six males and five females from Kandavu: Solo Tavine, April 23, 1941, Krauss. One male and two females from Ongea, July 28, 31, 1924, Bryan. Two females from Oneata, Aug. 19, 1924, Bryan. One male from Vanua Mbalavu: Loma Loma, seashore, Aug. 7, 1938, Zimmerman. One female from Vanua Vatu, Sept. 13, 1924, Bryan. One female from Namuka,

Aug. 12, 1924, Bryan. One female from Totoya, July 15, 1924, Bryan. One male from Navutu-i-loma, Aug. 8, 1924, Bryan. One male from Avea, Sept. 22, 1924, Bryan. One female from Yangasa Levu, Aug. 9, 1924, Bryan. One mutilated specimen from Mango: Marona, Aug. 14, 1938, Zimmerman.

In the specimens from Viti Levu, the transverse veins of the tegmina are pallid, except in one or two where the whole of the venation is narrowly infuscate. In the Lau Islands, infuscation of the transverse veins and the apical forks of R and M is normal, whether the longitudinal veins are infuscate or not. The material does not show sufficient variation to warrant recognition of distinct forms.

As regards nomenclature, Kirkaldy was at liberty to treat his barbaric generic name *Levu* as belonging to any gender he wished; there is accordingly no evidence that his trivial name stands in need of emendation.

Family ACHILIDAE Stål

Key to Genera of Achilidae of Australasia

1. Width of vertex not more than two-thirds width of pronotum 2
   Width of vertex more than two-thirds width of pronotum 8
2. Metathoracic wings notched at Cu_2; post-tibiae with six spines; medioventral process of pygofer paired and detached from margin; pregenital sternite of female large, elongate triangular ..... **Rhotala** Walker
   Not as above 3
3. Vertex with disk not depressed, anterior marginal carinae obsolete, second segment of antennae projecting laterad beyond eyes ..... **Achilus** Kirby
   Vertex with disk depressed, or with three broad sublongitudinal sulci 4
4. Vertex five-sided with three broad sublongitudinal sulci, devoid of median carina but with two diverging submedian ridges ..... **Bunduica** Jacobi
   Vertex not as above 5
5. Margins of frons and clypeus not foliate, one carina at lateral margin of pronotum 6
   Margins of frons and clypeus foliate, two carinae at lateral margin of pronotum 7
6. Basal width of vertex not twice length in middle; clypeus with frons forming a shallow curve in profile ..... **Faventia** Stål
   Basal width of vertex twice length in middle; clypeus with frons strongly convex in profile ..... **Booneta** Distant
7. Vertex more than twice as broad as long, anterior margin transverse ..... **Catonidia** Uhler
   Vertex not more than twice as broad as long, anterior margin angulate at apex ..... **Aneipo** Kirkaldy
8. Width of vertex measured at base of middle line at least twice length along middle, usually more, posterior margin not deeply excavate, base of frons visible from above, frons relatively broad throughout, no areolets sublaterally between vertex and frons 9
   Width of vertex not twice length along middle; lateroapical areolets present or absent 14
9. Vertex with anterior margin broadly and evenly rounded, distinctly depressed just inside anterior margin; frons with two pale transverse bands ..... **Pyrrhyllis** Kirkaldy
   Vertex with anterior margin truncate or obtusely angulate at apex 10

10. Vertex about six times as broad as long in middle; tegmina with foliate elevations on M, Cu, and claval veins ..... **Tropiphlepsia** Muir
    Vertex and tegmina not as above 11
11. Frons with disk markedly impressed in apical third, with a transverse pallid band ..... **Aristyllis** Kirkaldy
    Frons with disk not depressed, with two pallid transverse bands or none 12
12. Tegmina with Sc and R together with only three veins at margin, M_{1+2} forking at apical transverse line, Cu_{1b} strongly convex before this line ..... **Plectoderoides** Matsumura
    Venation not as above 13
13. Frons with two pallid transverse bands ..... **Benella** Kirkaldy
    Frons devoid of such bands, pronotum very narrow behind eyes, lateral carinae not attaining hind margin, a transverse callus between frons and vertex ..... **Agandecca** White
14. Vertex with median carina prominent and apical transverse carina obsolete ..... **Akotropis** Matsumura
    Vertex distinctly transversely carinate at apex 15
15. Vertex with a single distinct carina across apex 16
    Vertex with two or more transverse carinae at apex, usually enclosing a more or less distinct triangular facet on each side at base of frons 21
16. Vertex elongate triangular or rounded at apex, produced before eyes for about half their length, median carina of frons not visible in dorsal view 17
    Vertex five- or six-sided, not produced before eyes for more than half their length, usually less, median carina of frons visible in dorsal view 19
17. Lateral carinae of frons foliate at their junction basally, forming a cornice above disk; frons not medially carinate at base; tegmina with a large round callus in costal cell near node ..... **Deferunda** Distant
    Lateral carinae of frons not as above; frons carinate at base: tegmina devoid of callus at stigma 18
18. Pronotum with supernumerary carinae and areolets outside disk ..... **Betatropis** Matsumura
    Pronotum devoid of such areolets, posterior margin of vertex truncate ..... **Callichlamys** Kirkaldy
19. Median carina of vertex at base as high as lateral margins or nearly so, tegulae curved, not carinate, vertex acutely angulate at apex ..... **Salemina** Kirkaldy
    Median carina of vertex, if present, weak; disk of vertex distinctly depressed, without an impression on each side of middle line; tegulae often carinate or strongly angulately bent 20
20. Vertex not deeply impressed in middle, median carina of pronotum one third as long as lateral carinae; anterior third of mesonotal disk separated by a transverse ridge of callus from posterior two-thirds and of different texture; tegmina with a broad precostal area in basal half ..... **Kempiana** Muir
    Vertex deeply impressed in middle, median carina of pronotum one half as long as lateral carinae of disk; mesonotal disk and tegmina not as above ..... **Francesca** Kirkaldy
21. Lateroapical areolets of vertex feebly demarcated on their frontal margin, each traversed horizontally by a more or less distinct carina arising from lateral margin ..... **Eurynomeus** Kirkaldy
    Lateroapical areolets, whether distinct or feebly developed, not traversed horizontally by a carina 22
22. Lateroapical facets of vertex obscure, a broad callus in position of each ..... **Agandecca** White
    Lateroapical facets of vertex not replaced by callus 23
23. Vertex distinctly medially carinate throughout, disk scarcely depressed if at all, lateral margins of vertex not subfoliate or raised higher than median carina 24

Vertex medially carinate only at base, apical margin transverse making outline of vertex subrectangular, lateral margins somewhat raised; head in profile subangulate at apex ..... **Callinesia** Kirkaldy

24. Pronotum not markedly narrow or constricted behind eyes, usually devoid of areolets outside disk, lateral discal carinae not concave, not twice as long as median pronotal carina 25

Pronotum much narrowed or constricted behind eyes, usually with areolets, lateral discal carinae concave, at least twice as long as median carina 26

25. Vertex curving downward anteriorly; lateral discal carinae of pronotum convex, median pronotal carina not half as long as vertex in middle line; tegmina with apical cells of M subequal to subapical cells or longer ..... **Cythna** Kirkaldy

Vertex with disk in one plane; lateral discal carinae of pronotum straight, oblique; tegmina with apical cells of M not nearly as long as subapical, Sc and R with about seven branches at apex ..... **Usana** Distant

26. Anterior half of vertex in profile straight, rectangulately meeting frons ..... **Phenelia** Kirkaldy

Anterior half of vertex in profile slightly decurved, almost rounding into frons at apex 27

27. Lateroapical facets of vertex as broad as long, anterior margin of pronotal disk transverse ..... **Nephelia** Kirkaldy

Lateroapical facets of vertex longer than broad; anterior margin of pronotal disk convex ..... **Argeleusa** Kirkaldy

Genus **Callichlamys** Kirkaldy

Callichlamys Kirkaldy, Hawaiian Sugar. Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 120, 1907. Logotype, *Callichlamys muiri* Kirkaldy, op. cit.

1. **Callichlamys undulata** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 120, 1907.

Two females from Viti Levu: Nandarivatu, at light, Aug. 31, Sept. 3, 1938, Zimmerman.

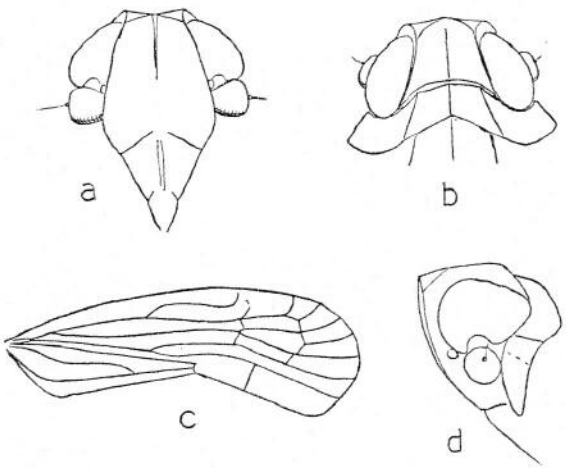


FIGURE 32.—*Nephelia tristis:* **a,** frons and clypeus; **b,** vertex and pronotum; **c,** tegmen; **d,** head.

Genus **Nephelia** Kirkaldy

Nephelia Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 117, 1907. Orthotype, *Nephelia bicuneata* Kirkaldy, op. cit.

1. **Nephelia tristis** Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 3 : 117, 1907 (fig. 32, *a-d*).

One female from Ovalau: Andubangda, 900-1,500 ft., July 18, 1938, Zimmerman.

Genus **Eurynomeus** Kirkaldy

Eurynomeus Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9) : 422, 1906. Haplotype, *E. australiae* Kirkaldy, op. cit.

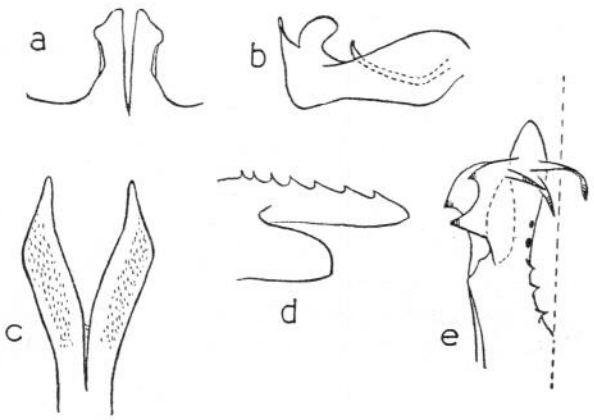


FIGURE 33.—*Eurynomeus argo:* **a,** medioventral process of pygofer; **b,** genital style; **c,** apex of penial appendages; **d,** one of paired serrate processes of periandrium; **e,** left side of periandrium, ventral view.

1. **Eurynomeus argo,** new species (fig. 33, *a-e*).

Apical margin of vertex acutely angular, median carina distinct, disk not depressed, with a small impression on each side of middle line, laterobasal transverse carinae of frons feeble.

Frons, underside of body and legs testaceous; vertex, basal two-thirds of mesonotal disk and a spot at middle of each posterior mesonotal margin fuscous, remainder of thorax ochraceous. Tegmina fuscous, lightly sprinkled pallid.

Anal segment short, apical margin transverse, medioventral process of pygofer completely bifid, each limb obliquely truncate apically. Periandrium with a pair of porrect lobes, rounded distally, bearing five short teeth on margin, penis with paired limbs each of subequal width to near apex then abruptly tapered into a short lobe rounded at tip. Genital styles narrow, apical process pointed dorsad, a broader lobe, curved cephalad, just basad of it on dorsal margin, a long curved spine on inner face near base.

Male: length, 4.0 mm., tegmen, 5.0 mm.

One male from Viti Levu, ridge west of Nandarivatu, alt. 2,800 ft., beating shrubs, Sept. 11, 1938, holotype, Zimmerman.

This species differs from the Samoan *E. granulatus* Muir in the shape of the anal segment, the genital styles, the tip of the medioventral process of the pygofer, the apex of the penial limbs, and the lower aedeagal processes.

Family TROPIDUCHIDAE Stål

Key to Pacific Tropiduchidae

1. Tegmina with a definite costal area traversed by veinlets 2
   Tegmina without a costal area 12
2. Vertex distinctly longer than pronotum and mesonotum combined 3
   Vertex not longer than pronotum and mesonotum combined 4
3. Frons with a pair of oblique carinae distally between median carina and lateral margins ..... **Rhinodictya** Kirkaldy
   Frons with only median carina on disk ..... **Peggioga** Kirkaldy
4. Frons with a pair of oblique carinae between median carina and lateral margins 5
   Frons without oblique carinae 8
5. Vertex longer than broad ..... **Macrovanua***
   Vertex not longer than broad 6
6. Tegmina greenish-translucent; apex of clavus distad of middle 7
   Tegmina hyaline, veins fuscous; apex of clavus not distad of middle ..... **Lavora** Muir
7. Vertex with a pair of facets, or small areas bounded by carinae lateroapically ..... **Vanua** Kirkaldy
   Vertex without such lateroapical facets ..... **Leptovanua** Melichar
8. Tegmina with many irregular anastomosing veins on corium ..... **Montrouzierana** Signoret
   Tegmina with only main sectors on corium 9
9. Vertex turbinate; tegmina with apical cells regular and only as long as width of costal area ..... **Daradacella** Fennah
   Vertex transverse; tegmina with apical cells not regular or longer than width of costal area 10
10. Tegmina with apical cells about as long as subapical; costal area with 26-32 veinlets ..... **Thaumantia** Melichar
    Tegmina with apical cells not equal to subapical; costal area with not more than 20 veinlets 11
11. Tegmina with Sc fork basad of union of claval veins; costal area with about 11 transverse veinlets; distance from apical margin to apical transverse line of cross veins 1.5 times that from apical transverse line to nodal line ..... **Peltodictya** Kirkaldy
    Tegmina with Sc fork distad of union of claval veins; costal area with about 20 veinlets; distance from apical margin to apical transverse line less than 1.5 times that from apical transverse veins to nodal line ..... **Ficarasa** Walker
12. Frons not twice as long as broad; anterior margin of pronotal disk transverse ..... **Tambinia** Stål
    Frons at least twice as long as broad; anterior margin of pronotal disk acutely convex ..... **Swezeyaria** Metcalf

Genus **Vanua** Kirkaldy

Vanua Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9): 415, 1906. Haplotype, *Vanua vitiensis* Kirkaldy, op. cit., p. 416 = *Cixius respiciendus* Walker, List Hom., Addenda, 322, 1858.

KEY TO SPECIES OF VANUA

1. Aedeagus with a long dorsal flagellum directed caudad. Ongea; Mango; Oneata ..... **paphia***
   Aedeagus not as above 2
2. Aedeagus with a long flagellum at apex directed cephalad. Viti Levu; Ovalau ..... **respicienda** (Walker)
   Aedeagus not as above 3
3. Anal segment of male symmetrical or practically so 4
   Anal segment of male asymmetrical, a spine on left distally 6
4. Anal segment of male distally tumid. Namuka; Komo ..... **deiopeia***
   Anal segment not distally tumid 5
5. Left process of lateral margin of pygofer foliate, a stout porrect flagellum at apex of aedeagus directed dorso-cephalad. Viti Levu ..... **sambucina***
   Aedeagus without a flagellum dorsally at apex. Matuku ..... **deidamia***
6. Anal segment of male not tumid ventrally at base, apex of aedeagal flagellum truncate with spine at one apical angle. Avea; Vanua Mbalavu ..... **pleone***
   Anal segment tumid ventrally at base, apex of aedeagal flagellum oblique, passing insensibly into apical spine. Ongea; Matuku; Oneata ..... **taygete***

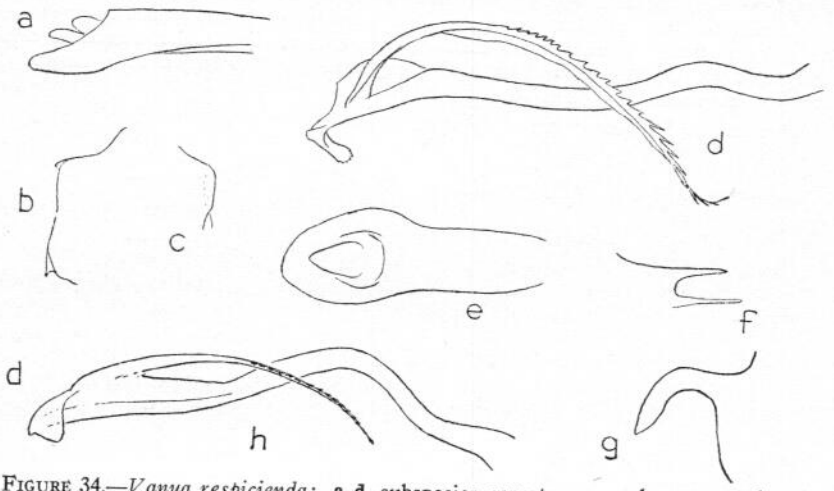


FIGURE 34.—*Vanua respicienda:* **a-d,** subspecies *serrata: a,* anal segment of male; *b,* right process of pygofer (Ovalau); *c,* left process of pygofer; *d,* aedeagus (Viti Levu). **e-h,** subspecies *vitiensis: e,* anal segment of male; *f,* left process of pygofer; *g,* right process of pygofer; *h,* aedeagus (Viti Levu).

1. Vanua respicienda (Walker) subspecies **vitiensis** Kirkaldy (fig. 34, *e-h*).
Cixius respiciendus Walker, List Hom., Addenda, 322, 1858.

Anal segment relatively short, not quite symmetrical, tapering from anal foramen to rounded apex on right of middle line, three times as long as greatest width. Pygofer asymmetrical, dorsolateral process of left side slightly longer than broad, with its distal angles produced in short tapering processes, the upper process membranous, the lower sclerotised and spinose. Process of right side a broad, stout, subcylindrical spine, directed caudad and deflexed through 90 degrees to point ventrad. Aedeagus tubular, in an elongate spiral, with a triangular lobe on ventral surface at apex, this lobe minutely

denticulate on basal margin. A slender flagellum, 0.75 times as long as aedeagus, arising dorsally at apex and directed anteriorly, curved and distally denticulate on left margin.

Male: length, 5.3 mm., tegmen, 7.0 mm.

Two males from Viti Levu: Nandarivatu, alt. 2,600-3,000 ft., Sept. 2, 9, 1938, Zimmerman.

Both the species and subspecies are distinguished by the male genitalia. Two other males from Viti Levu are added here, although the processes on the margins of the pygofer differ in shape. These processes seem to be relatively plastic.

Vanua respicienda (Walker) subspecies **serrata,** new subspecies (fig. 34, *a-d*).

Anal segment moderately long, 2.8 times as long as greatest width, not deflexed distad of anal foramen, tapering to pointed apex, which lies very slightly to right of middle line. Pygofer asymmetrical, upper margin of left side slightly produced in a broad tapering lobe inflected mesally, margin of right side produced in a quadrate lobe nearly three times as wide as long, each corner subrectangulate and with a very short spine. Aedeagus long, tubular, sinuate, a short membranous lobe ventrally at apex, its distal margin evenly rounded and minutely denticulate. A slender flagellum arising dorsally at apex, slightly curved, extending cephalad for 0.75 length of aedeagus, denticulate to subspinose along left side.

Male: length, 8.1 mm., tegmen, 8.7 mm.

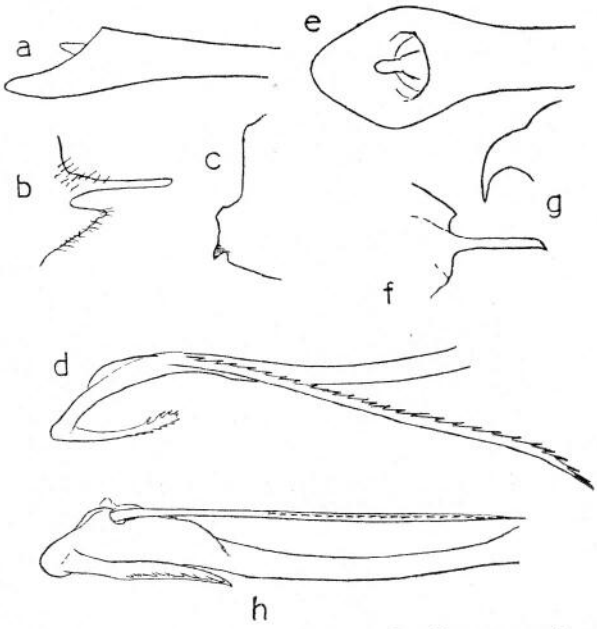


FIGURE 35.—*Vanua respicienda:* **a-d,** subspecies *flagellata: a,* anal segment of male; *b,* left process of pygofer (Ovalau); *c,* right process of pygofer; *d,* aedeagus (Ovalau). **e-h,** subspecies *hastata: e,* anal segment of male, dorsal view; *f,* left process of pygofer; *g,* right process of pygofer; *h,* aedeagus (Ovalau).

Two males from Viti Levu: Singatoka, Nov. 2, 1937, Valentine; Mt. Korobamba, alt. 1,300 ft., beating shrubs, Aug. 1, 1938, holotype male, Zimmerman.

This subspecies is distinguished by the male genitalia, and is the Viti Levu representative of the Ovalau type of *V. respicienda* (Walker).

Vanua respicienda subspecies **flagellata,** new subspecies (fig. 35, *a-d*).

Anal segment long, symmetrical, distal portion not deflexed, markedly shorter than basal, lateral margins tapering distad of anal foramen to rounded apex. Pygofer asymmetrical with two processes on left side, the lower triangular, the upper more than twice as long, slender and tapering to a point. Process of right side subquadrate, broader than long, distally truncate, lower angle terminating in a short deflexed spine. Aedeagus long, slender, tubular, sinuate in distal third, a short ensiform lobe arising at apex, distally serrate at margins, reflected anteriorly beneath aedeagus; a long flagellum arising dorsally near apex serrate, extending cephalad for whole length of aedeagus.

Ovalau: Andubangda, alt. 1,500-1,800 ft., July 15, 1938, holotype male, Zimmerman; Wainiloka, alt. 200 ft., beating, July 11, 1938, Zimmerman.

This subspecies is distinguished by the male genitalia.

Vanua respicienda subspecies **hastata,** new subspecies (fig. 35, *e-h*).

As preceding; left processes of pygofer unequal, the dorsal short, pointed, the ventral five times as long, tapering, curved downward, process of right side a stout decurved spine. Aedeagus as in preceding but sinuate near base and with a slightly larger ensiform lobe, in this subspecies slightly S-shaped.

One male from Ovalau, Draiba trail, alt. 800-1,000 ft., July 18, 1938, holotype, Zimmerman.

This subspecies is distinguished by the genitalia.

2. **Vanua paphia,** new species.

Anal segment long, narrow, almost symmetrical, not at all deflexed distad of anal foramen, distal portion subequal to basal, sides gradually converging distad of anal foramen to rounded apex. Pygofer asymmetrical, left and right margins bearing a process. Aedeagus long, distally acuminate, bearing dorsally an aciculate denticulate flagellum attached in its basal half, the anterior part spatulate, the posterior part acuminate.

Male: length 6.8 mm., tegmen 8.0 mm.; female: length 8.0 mm., tegmen 8.8 mm.

Vanua paphia subspecies **paphia,** new subspecies (fig. 36, *d-f*).

Pygofer with process of left side short, much broader than long, its upper angle produced in a shallow broad lobe, its lower angle subspinose, produced for the same distance; process of right side short and very broad in posterior view in form of a crescentic plate with a short spine on inner face at middle. Aedeagus long, basal pigmented portion 0.25 times longer than compound genital style; only slightly twisted; flagellum 0.66 length of basal portion of aedeagus; dorsal process of aedeagus attached at its basal third with posterior limb as long as lower flagellum and of same shape, anterior portion spatulate, margin serrulate except dorsally in part.

Three males, three females, and one mutilated specimen from Ongea, July 28, 1924, July 30, 1924, holotype male and two paratypes, Bryan.

Vanua paphia subspecies **bicuspidata,** new subspecies (fig. 36, *a-c, g*).

Left dorsolateral process of pygofer a long porrect spine 0.25 length of aedeagus. Process of right an auriculate plate, crescentic in posterior view. Aedeagus as above but with dorsal process attached 0.75 from base, caudal portion distinctly shorter than aedeagal flagellum, scarcely twice as long as anterior portion of process.

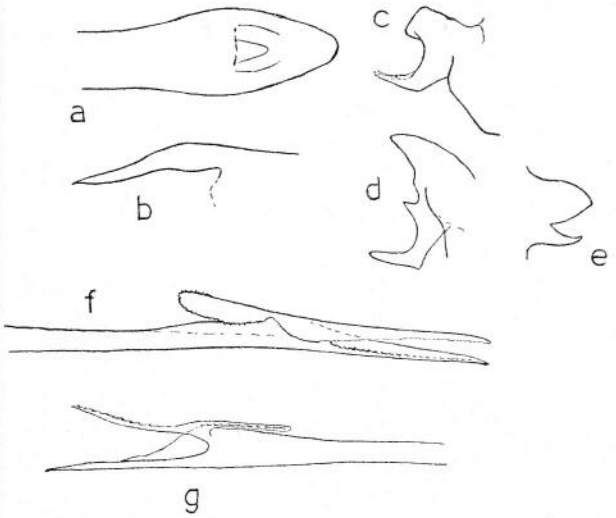


FIGURE 36.—*Vanua paphia:* **a-c,** subspecies *bicuspidata: a,* anal segment of male; *b,* left process of pygofer, from right side (Mango); *c,* right process of pygofer (Mango). **d-f,** subspecies *paphia: d,* right process of pygofer (Ongea); *e,* left process of pygofer (Ongea); *f,* aedeagus (Ongea). **g,** subspecies *bicuspidata:* aedeagus (Mango).

One male and nine females from Mango: Sept. 18, 1924, Bryan; one mile south of Marona, Aug. 14, 1938, holotype male, and one paratype, Zimmerman.

3. **Vanua deiopeia,** new species (fig. 37, *a-d*).

Anal segment rather long, symmetrical, deflexed in apical third through 45 degrees, apical portion slightly tumid, apical margin transverse, apical angles minutely pointed. Pygofer asymmetrical, dorsolateral process of left side short, broad, subtrapezoidal, its dorsal margin convex, apex bluntly pointed; process of right side subquadrate, about 1.25 times as long as broad, slightly bent ventrad, lower angle of apical margin produced in a short spine. Aedeagus long, tubular, not sinuate or twisted, flagellum 0.66 length of basal pigmented portion of aedeagus, longitudinally shallowly channelled above, minutely denticulate on lower margin. Dorsally at base of flagellum two processes forming a single limb attached to aedeagus at its middle, anterior portion subtubular, narrow, slightly curved ventrad, rounded distally, posterior portion lamelliform, about 2.5 times as long as wide, regularly toothed on upper margin.

Male: length, 6.0 mm., tegmen, 7.3 mm.; female: length, 6.5 mm., tegmen, 7.5 mm.

Two males from Namuka, Aug. 13, 1924, Bryan. One male, holotype, and one female from Komo, Aug. 20, 1924, Bryan.

4. Vanua sambucina, new species (fig. 37, *e-h*).

Anal segment symmetrical, not decurved, about 2.5 times as long as greatest breadth, tapering evenly from anal foramen to rounded apex. Pygofer asymmetrical, produced on left side in a short wide lobe not longer than broad, pointed and deflexed at apex, and on right side in a more slender tubular process, shagreen below, directed caudad and in distal half slightly upward. Aedeagus long slender, tubular, twisted along axis through 270 degrees, terminating distally in a minute hyaline lobe bearing five teeth on apical margin. An aciculate process arising subapically directed to right, and giving off a minute finger-like lobe one-third from its apex; a much shorter slender spinose process arising on left of aedeagus slightly basad of former, directed obliquely ventro-cephalad.

Male: length, 6.0 mm., tegmen, 8.5 mm.

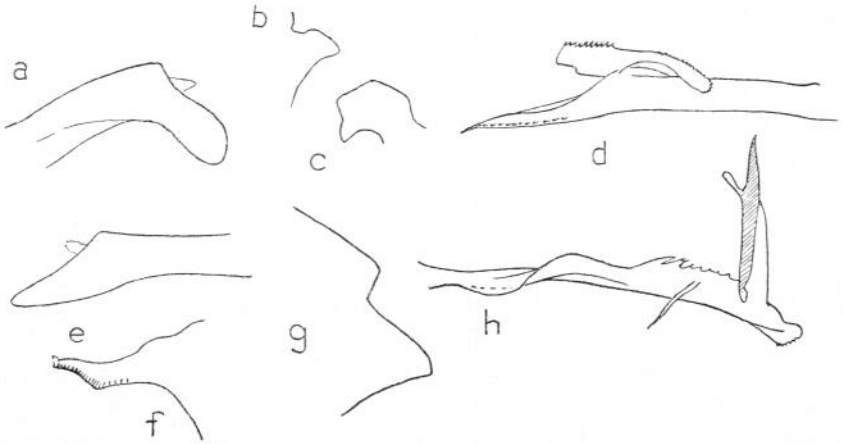


FIGURE 37.—**a-d,** *Vanua deiopeia: a,* anal segment of male; *b,* left process of pygofer; *c,* right process of pygofer; *d,* aedeagus. **e-h,** *V. sambucina: e,* anal segment of male; *f,* right process of pygofer; *g,* left process of pygofer; *h,* aedeagus.

Two males from Viti Levu: Nandarivatu, alt. 3,700 ft., Sept. 10, 1938, holotype, Zimmerman; Mt. Victoria, Mba (Tholo North), alt. 3,000 ft., Sept. 16, 1938, Zimmerman.

This species is distinguished by the male genitalia.

5. Vanua deidamia, new species (fig. 38, *a-d*).

Anal segment long, symmetrical or almost so, deflexed through 25 degrees distally, anal foramen at apical third, lateral margins distally converging to truncate apex. Pygofer asymmetrical, dorsolateral process of left side extending farther caudad than that of right, a little longer than broad, slightly deflexed, its apical margin rounded, with lower angle produced into a short point; process of right side broad, longer than broad, deflexed near base to point ventrad, margins slightly converging to bluntly rounded apex, which is distinctly shagreen. Aedeagus moderately long, not markedly slender, longitudinally channelled above, not membranous or twisted, terminating in a short spine which arises at apex of an elongate triangular plate lying adpressed to ventral surface of aedeagus at apex, the left margin of this plate minutely serrate. Aedeagal process attached to aedeagus three-fourths from base, anterior portion spatulate, serrate along most of margin, posterior portion of approximately similar shape and ornamentation, but only three-fourths as long and half as wide.

Male: length, 6.1 mm., tegmen, 7.1 mm.

One male from Matuku, July 4, 1924, holotype, Bryan. The Matuku series includes seven females and a nymph.

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

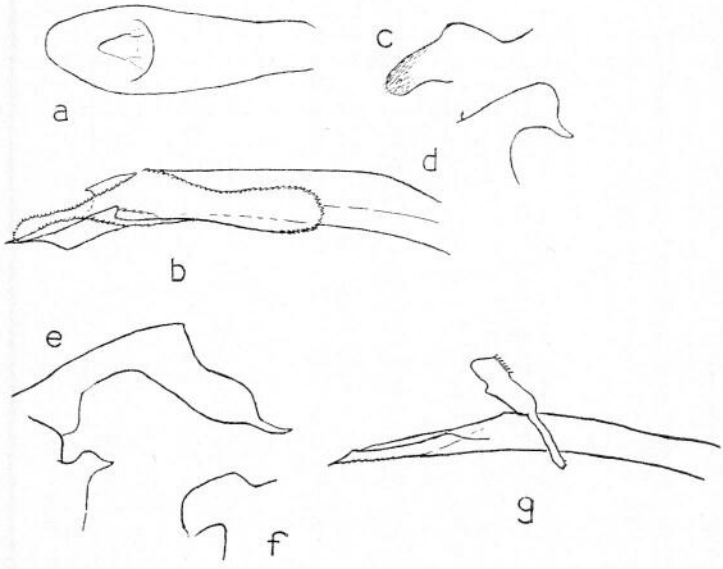


FIGURE 38.—**a-d,** *Vanua deidamia: a,* anal segment of male; *b,* aedeagus; *c,* right process of pygofer; *d,* left process of pygofer. **e-g,** *V. taygete: e,* anal segment of male and left process of pygofer; *f,* right process of pygofer; *g,* aedeagus.

6. Vanua pleone, new species (fig. 39, *a-g*).

Anal segment rather long, asymmetrical, lateroapical angles spinose, that of left side produced farther than that on right, slightly curved mesad. Pygofer asymmetrical, produced in a broad simple lobe dorsolaterally on left side, this lobe with dorsal margin convex, ventral margin concave, apex bluntly pointed, on right side at a slightly lower level a thin subquadrate lobe, broader than long with apical margin truncate-convex, slightly curved to lie against aedeagus. Aedeagus slender, tubular, tapering distally into an aciculate membranous minutely serrate flagellum. A sublaminate serrate process attached dorsally at mid-point, posteriorly directed caudad, tapering to a point distally, less than half length of flagellum which it overlies, anteriorly arcuate, directed cephalad, expanding distally to bluntly rounded apex.

Male: length, 5.7 mm., tegmen, 6.8 mm.; female: length, 6.2 mm., tegmen, 7.0 mm.

Two males from Avea, Sept. 22, 1924, holotype, Bryan.

Vanua pleone subspecies **obliqua,** new subspecies (fig. 39, *c, e, g*).

As in typical subspecies but distinguished by genitalic characters figured.

Nine males and 10 females from Vanua Mbalavu: Sept. 18, 1924, Bryan; Buthalevu, alt. 200-300 ft., Aug. 10, 1938, Zimmerman.

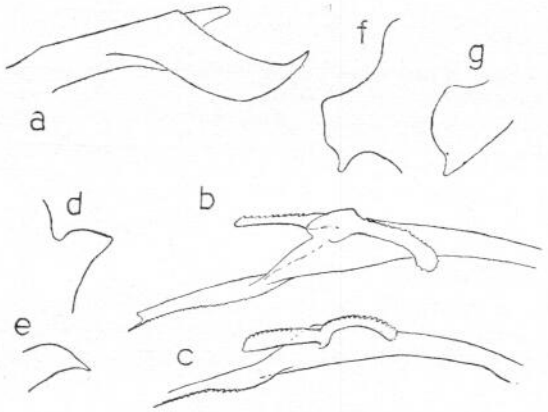


FIGURE 39.—*Vanua pleone:* a, anal segment of male; b, aedeagus (*pleone*); c, aedeagus (*obliqua*); d, left process of pygofer (*pleone*); e, left process of pygofer (*obliqua*); f, right process of pygofer (*pleone*); g, right process of pygofer (*obliqua*).

7. Vanua taygete, new species (fig. 38, *e-g*).

As in preceding, but anal segment very tumid below at base, distally with apical spine of right side obsolete, that of left prominent. Pygofer with left dorsolateral process triangular, acutely pointed distally, directed caudad, not oblique; process of right side distinctly longer than broad, slightly deflexed, distal margin sinuate. Aedeagus as in *pleone* but with apex of flagellum oblique, not truncate, dorsolateral process distinctly short, attached at middle, as in *pleone* but posterior lobe slightly longer than and three times as wide as anterior.

Male: length, 6.2 mm., tegmen, 7.3 mm.; female: length, 7.1 mm., tegmen, 8.1 mm.

One male from Matuku, July 8, 1924, holotype, Bryan. One male and one female from Oneata, July 19, 1924, Bryan. One male from Ongea, July 31, 1924, Bryan.

The species is close to *pleone* but distinguished by the genitalia.

Vanua species.

Undetermined female material from Katafanga, Sept. 9, 1924, Bryan; Vanua Vatu, Sept. 13, 1924, Bryan; Fulanga, Aug. 6, 1924, Bryan; Mothe, Aug. 14, 1924, Bryan; Lakemba, Sept. 3, 1924, Bryan; Toumbo, Aug. 20, 1938, Zimmerman; Moala, July 10, 1924, Bryan; Thikombia-i-Lau, Sept. 26, 1924, Bryan; Kandavu: Tavuki, April 25, 1941, Drue, April 29, 1941, Krauss; Munia, Aug. 3, 1938, Zimmerman; Waya, July 21, 1937, St. John.

Genus **Rhinodictya** Kirkaldy

Rhinodictya Kirkaldy, Hawaiian Sugar Plant. Assoc., Expt. Sta., Ent. Bull. 1(9): 416, 1906. Haplotype, *Rhinodictya quaesitrix* Kirkaldy, op. cit., p. 417.

KEY TO FIJIAN SPECIES OF RHINODICTYA

1. Vertex about twice as long in middle line as broad..... 2
   Vertex about three times as long as broad..... 3
2. Vertex in profile with dorsal margin curved slightly upward at apex. Viti Levu. ..... **paeminosa***
   Vertex in profile straight to apex. Moala..... **cuneolus***
3. Vertex 2.8 times as long in middle line as broad. Vanua Mbalavu..... **belone***
   Vertex three times as long as broad. Viti Levu..... **granulata** Muir

1. **Rhinodictya paeminosa,** new species.

Vertex slightly more than 2.1 times as long in middle line as wide at anterior margin of eyes in profile with dorsal margin curved upward distally. Tegmina with intervenal granules prominent, 14 in subcostal cell and as many in cell R, nine in cell Cu in corium.

Female: length, 9.0 mm., tegmen, 7.0 mm.

One female from Viti Levu: Tailevu, Aug. 1937, holotype, Valentine.

This species is distinguished by the shape of the vertex and by the density of the tegminal granulation, which is distinctly more marked than in the following species.

2. **Rhinodictya cuneolus,** new species (fig. 40, *a-c*).

Vertex twice as long in middle line as wide at anterior margin of eyes, in profile with dorsal margin straight.

Anal segment moderately short, slightly deflexed distally, slightly asymmetrical, anal foramen at apical third, apical margin rounded. Pygofer asymmetrical, left dorsolateral process a pigmented spine half as long as aedeagus, twisted near apex, right dorsolateral process a stout spatulate lobe, curved laterad distally. Aedeagus rather long, slender, tubular, membranous along one side, apex furnished with a minute subcircular hyaline lobe with five teeth along margin; a long flagellum arising dorsally near apex extending anteriorly in a curve for two-thirds length of aedeagus, much expanded in a membrane in basal half, less so distally, apex rounded, margin serrulate.

Male: length, 7.0 mm., tegmen, 6.5 mm.; female: length, 8.0 mm., tegmen, 6.8 mm.

One male and one female from Moala: Vunuka, Aug. 23, 1938; Naroi, alt. 1,000 ft., beating shrubs, Aug. 24, 1938, holotype male; both by Zimmerman.

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

3. **Rhinodictya belone,** new species (fig. 40, *d-g*).

Vertex 2.8 times as long in middle line as wide at anterior margin of eyes; in profile with dorsal margin straight.

Anal segment moderately short, not deflexed distally, nearly three times as long as broad, anal foramen at apical third, distal margin truncate, apical angles rounded. Pygofer asymmetrical, left dorsolateral process spinose, porrect caudad, three times as long as broad at base, right dorsolateral process lobate, strongly tapering distally, twisted in apical portion. Aedeagus slender, tubular, a flagellum arising dorsally at apex, extending cephalad for nearly 0.75 length of aedeagus, expanded on each side laterally in a broad membrane coarsely serrate at margins.

Male: length, 7.8 mm., tegmen, 6.0 mm.

Two males from Vanua Mbalavu: Mvana, beating shrubs, Aug. 9, 1938, holotype, Zimmerman.

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

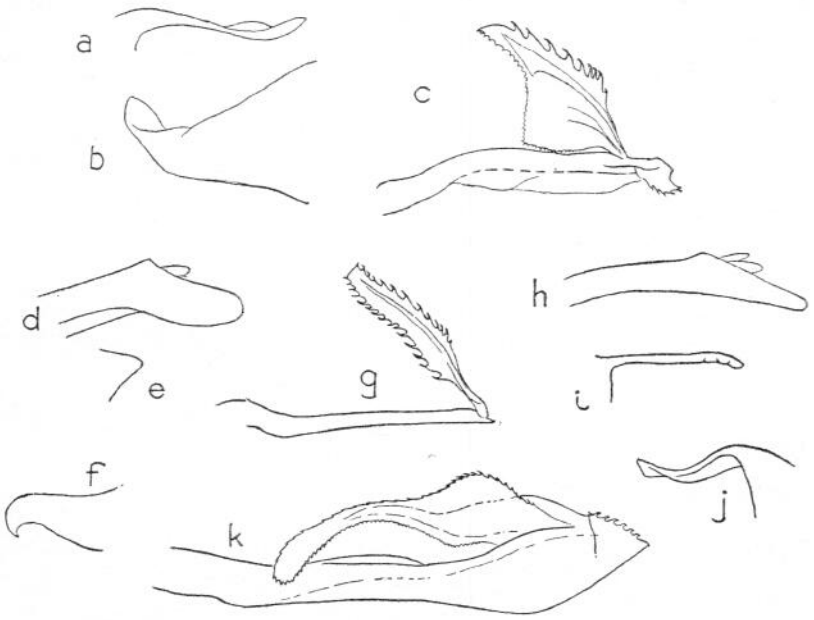


FIGURE 40.—**a-c,** *Rhinodictya cuneolus: a,* left process of pygofer; *b,* right process of pygofer; *c,* aedeagus. **d-g,** *R. belone: d,* anal segment of male; *e,* left process of pygofer; *f,* right process of pygofer; *g,* aedeagus. **h-k,** *R. granulata: h,* anal segment of male; *i,* left process of pygofer; *j,* right process of pygofer; *k,* aedeagus.

4. Rhinodictya granulata Muir, Australian Mus., Rec. **18**: 73, 1931 (fig. 40, *h-k*).

Vertex three times as long in middle line as wide at anterior margin of eyes; in profile with dorsal margin straight. Anal segment symmetrical, slightly decurved, anal foramen scarcely distad of middle, lateral margins tapering to acutely pointed apex. Pygofer with left dorsolateral process a pigmented spine more than half as long as aedeagus, expanded and slightly sinuate distally, right dorsolateral process narrow, pigmented, markedly sinuate, curved mesad at apex, apex rounded. Aedeagus moderately long, tubular, partly membranous, furnished with a minute hyaline lobe apically with nine teeth on its margin; a flagellum arising dorsally at apex and extending in a curve cephalad for 0.75 length of aedeagus, expanded basally in a membrane coarsely serrate at margin, distally narrower and finely serrulate, apical margin rounded.

Male: length, 8.0 mm., tegmen, 6.7 mm.; female: length, 8.5 mm., tegmen, 6.9 mm.

One male and one female redescribed from Viti Levu: Tailevu, Korovou, July 1937, Valentine.

Genus **Macrovanua,** new genus

Vertex conical, about a fifth longer in middle line than broad across base, strongly medially carinate throughout, lateral margins straight, tapering to apex which is acutely rounded, posterior margin acutely excavate, apex of emargination distad of anterior margin of eyes; frons with lateral carinae diverging strongly on basal third, then gradually to below level of antennae, thence incurved to suture, median carina strongly developed throughout, two oblique carinae beginning on disk at level of middle of eyes converging to meet in middle at apex; clypeus laterally and medially carinate, the median carina broader than that on frons. Post-tibiae trispinose.

Tegmina with apical margin strongly oblique, acutely rounded in M, costal area present with 24 oblique veinlets, Sc+R forked at basal third, intervenal areas of corium strongly granulate, about 26 apical cells distad of Sc, seven to eight irregular ranks of transverse veinlets in membrane.

Type species, *Vanua angusta* Muir, Hawaiian Ent. Soc., Proc. **4** (3) : 579, 1921.

Macrovanua differs from *Vanua* Kirkaldy in the shape of the head, the position of the fork of Sc+R, and in the number of costal veinlets, transverse veinlets, and apical cells.

1. **Macrovanua demissa** (Fennah).

Vanua demissa Fennah, Ann. Mag. Nat. Hist. XII, **2** : 165, 1949.

One female from Tuvutha, Sept. 11, 1924, Bryan, and one female from Vanua Mbalavu, Loma Loma, alt. 200-500 ft., Aug. 5, 1938, Zimmerman must be referred to this Taveuni species in the absence of males.

Family ISSIDAE Spinola

Key to Issidae of the Pacific

1. Tegmina usually strongly convex, thickened, smooth, with venation obscure and clavus not marked off from corium by a suture.....**Hemisphaerius** Schaum
   Tegmina not as above, and with clavus separated from corium by a suture..... 2
2. Frons as broad as long, Sc uniting with R to form a loop.....**Sarima** Melichar
   Frons longer than broad, venation not as above..... 3
3. Vertex hexagonal with posterior median shallowly re-entrant.....**Lollius** Stål
   Vertex quadrate 4
4. Vertex square; disk of frons tricarinate.....**Atylana** Melichar
   Vertex broader than long; frons with only two carinae, these enclosing an oval disk .....**Capelopterum** Melichar

Genus **Capelopterum** Melichar

Capelopterum Melichar, Zool.-Bot. Ges Wien, Abh. **3** (4) : 210, 1906. Logotype, *Capelopterum dohrni* Melichar, op. cit.; Schmidt, Stett. Ent. Zeitung **71** : 167, 1910.

The Fijian species have the frons 1.7 times longer than broad.

1. Capelopterum phormio, new species (fig. 41, *a-c*).

Fuscous. Tegmina ochraceous with large fuscous areas.

Anal segment short, apical margin shallowly concave, latero-apical angles decurved and pointed, in profile dorsal margin distad of inner end of anal foramen very obtusely angled (130°) to basal portion, ventral margin relatively straight, shallowly convex in basal half, shallowly concave in distal half. Pygofer with lateral margin slightly convex.

Aedeagus U-shaped in profile, tubular; dorsal margin raised on each side at base in a broad sinuate lobe. Periandrium bifid laterally at apex, ventral distal margin produced in two parallel slightly curved slender spines, each subtended by a narrow lamina three-fifths as long; laterodorsally a pair of spines similar to preceding but rather stouter, more pigmented and sclerotised, dorsally a pair of very delicate broad foliate lobes each with its apical margin broadly rounded; overlying these at their base a horseshoe-shaped sclerite with a single porrect spine at its middle, this spine slightly more than one-third length of the paired spines. Penis tubular, terminating in a pair of thin subchelate lobes with the tips crossed, a pair of stout spines ventrally near apex, strongly curved mesad in distal half.

Genital styles broad, strongly curved, sharply tapering distally, constricted subapically, apical lobe triangular, with narrowest angle directed cephalad.

Male: length, 3.5 mm., tegmen, 4.0 mm.; female: length, 3.9 mm., tegmen, 5.0 mm.

One male and three females from Viti Levu: Tailevu, August 1937, Sept. 2, 1937, holotype male, Valentine.

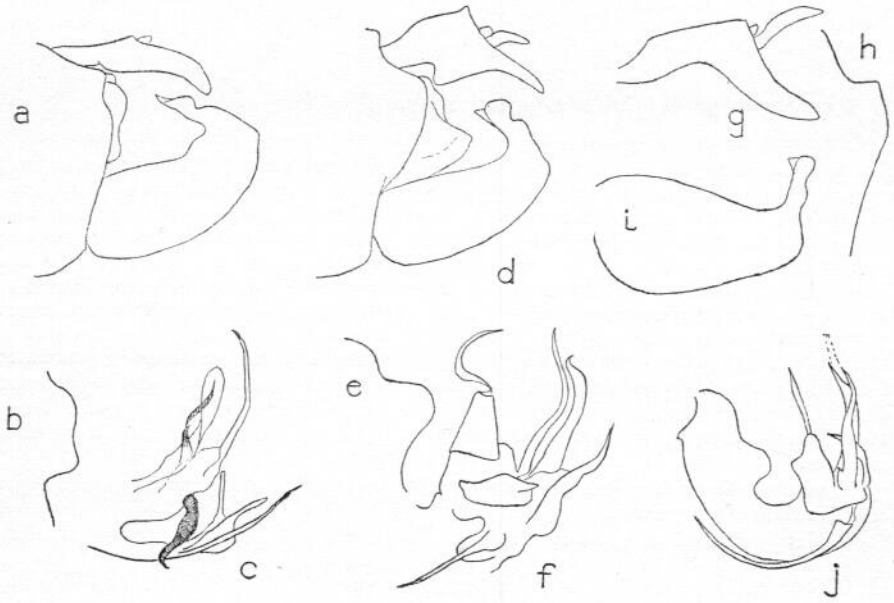


FIGURE 41.—**a-c,** *Capelopterum phormio: a,* male genitalia with side of aedeagus visible; *b,* dorsolateral margin of aedeagus near base; *c,* aedeagus in distal half. **d-f,** *C. lyco: d,* male genitalia, with basidorsal margin of aedeagus near base; *e,* dorsolateral margin of aedeagus near base; *f,* aedeagus in distal half. **g-j,** *C. dolabra: g,* anal segment of male; *h,* dorsolateral angle of pygofer; *i,* genital style; *j,* aedeagus.

This species is more prominently marked with yellow on the veins and parts of the corium than the other species, but the male genitalia afford the most reliable criteria for distinguishing them.

2. Capelopterum lyco, new species (fig. 41, *d-f*).

Testaceous; tegmina translucent, green.

Anal segment short, margins of anal foramen tapering distally to acutely rounded apex; in profile dorsal margin distad of inner end of anal foramen inclined to basal portion (130°), ventral margin deeply excavate near base and produced in a blunt lobe near middle. Pygofer with lateral margin slightly convex. Aedeagus U-shaped in profile, tubular; dorsal margin greatly produced laterally in basal half in a pair of large triangular lobes, directed obliquely laterad distally and broadly rounded at distal angle. Periandrium bifid distally, ventral apical margin bearing a pair of stout sinuate spines directed dorsad; laterodorsally two pairs of vertical spines, those of each side closely approximated at base, the inner pair curved mesad in distal third, the outer pair curved cephalad in distal half, dorsal margin terminating in a pair of stout triangular lobes bluntly pointed at apex, with a long S-shaped spine arising at middle between them, directed caudad. Penis with a pair of slender spines ventrolaterally in apical third, slightly curved, directed anteriorly below aedeagus. Genital styles as in preceding but with apex of distal process in profile knobbed, a triangular lamina on its inner face directed anteromesad.

Male: length, 4.0 mm., tegmen, 4.5 mm.; female: length, 4.8 mm., tegmen, 5.0 mm.

Four males and two females from Mango: one mile south of Marona, alt. 200 ft., Aug. 14, 1938, Zimmerman.

This species is distinguished by shape of male genitalia.

3. Capelopterum dolabra, new species (fig. 41, *g-j*).

Of same general appearance as *lyco*. Male generally green; female pitch brown.

Anal segment short with distal portion inclined to basal at 105 degrees, lateral margins distad of foramen tapering to broadly rounded apex. Pygofer with lateral margins weakly sinuate. Aedeagus tubular, U-shaped in profile, dorsolateral margin at base produced on each side in a large lobe, boldly sinuate and semicircularly rounded at apex; periandrium cleft laterally distally, ventral margin with a pair of stout vertical spines curved anteriorly at apex; laterodorsally on each side a pair of spines approximated at base, the outer pair porrect, vertical, the inner pair slightly longer, extending dorsad and curving mesad to cross one another near middle, dorsal margin terminating in a pair of broad lobes, each with distal margin cleft medially and with surface minutely pustulate; a median spinose process arising between them from a semicircular sclerite, directed dorsad, hinged at base, a membranous vesica in middle line basad of this spine. Penis with a pair of long spinose processes ventrolaterally, curved, extending anteriorly below aedeagus.

Genital styles with apical process in profile knobbed, a triangular lamina on inner face directed obliquely mesad.

Male: length, 4.0 mm., tegmen, 4.5 mm.; female: length, 4.7 mm., tegmen, 5.0 mm.

Three males and two females from Ovalau: Thawathi, alt. 600-700 ft., beating dead branches, July 12, 16 (holotype male), 1938; Andubangda, alt. 1,200-1,800 ft., beating dead branches, July 15, 1938; Draiba, July 7, 1938; all by Zimmerman.

This species is distinguished by shape of male genitalia.

4. Capelopterum tanaquil, new species (fig. 42, *a-e*).

Pale brown. Tegmina translucent, green, those of female lightly speckled fuscous.

Anal segment short, distal portion inclined to basal at 110 degrees, lateral margins distad of foramen parallel, apical margin transverse, ventral margins not produced, ventral surface markedly tumid at base. Pygofer with lateral margins weakly sinuate. Aedeagus tubular, U-shaped in profile, distally broad in relation to length, dorsolateral margins in basal half produced in a broad lobe with most of margin apparently beveled, sharply rectangulate at its apical point; periandrium bifid distally, ventral margin terminating in a pair of porrect spines directed dorsad, a pair of elongate membranous tongues between them in middle line, dorsolaterally on each side at apex a pair of spines approximated basally, the outer pair a fifth shorter than the inner, porrect dorsad; the inner very slightly curved, directed dorsally and mesad, dorsal margin terminating in a broad lobe on each side of middle line, beset with minute pustules in marginal area, apical margin of each lobe cleft, a short straight spine medially arising from a broad sclerotised arch, with a middle flange below spine; basad of spine a membranous process more than half as long as spine, lateral sclerites bearing apical spine produced anteriorly to form a blunt tooth at middle of dorsal margin.

Penis with a pair of long spines ventrolaterally curving cephalad below aedeagus. Genital styles as in previous species.

Male: length, 4.0 mm., tegmen, 4.5 mm.; female: length, 4.1 mm., tegmen, 4.7 mm.

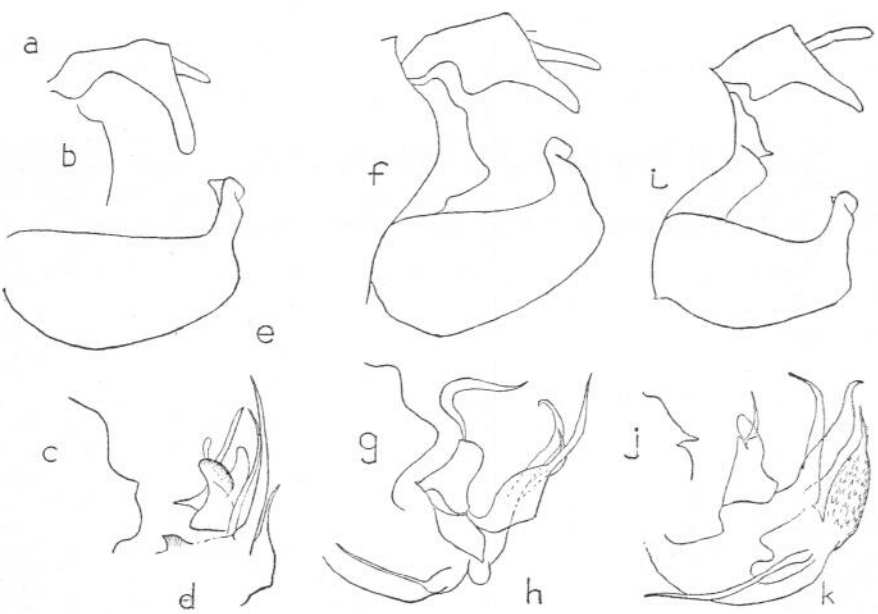


FIGURE 42.—**a-e,** *Capelopterum tanaquil: a,* anal segment of male; *b,* dorsolateral angle of pygofer; *c,* dorsolateral margin of aedeagus near base; *d,* distal portion of aedeagus; *e,* genital style of male. **f-h,** *C. vacuna: f,* male genitalia with dorsolateral margin of aedeagus visible; *g,* dorsolateral margin of aedeagus near base; *h,* distal portion of aedeagus. **i-k,** *C. zetes: i,* male genitalia with dorsolateral margin of aedeagus visible; *j,* dorsolateral margin of aedeagus near base; *k,* distal portion of aedeagus.

Seven males and one female from Moala, Naroi, alt. 500-800 ft., beating shrubs, Aug. 24, 1938, holotype male, Zimmerman.

This species is distinguished by the shape of the male genitalia and differs from *dolabra* in the relative length of the median dorsal spine, and in the shape of the vesica, which is compressed, not bladderlike.

5. Capelopterum vacuna, new species (fig. 42, *f-h*).

Fuscous-piceous. Tegmina piceous with greenish-brown areas.

Anal segment short with distal portion inclined to basal at 110 degrees, deflexed margin shorter than basal, lateral margins distad of anal foramen convergent, meeting acutely at apex, ventral margins shallowly concave in distal two-thirds, deeply roundly excavate in basal third. Pygofer with lateral margins distinctly convex in upper half, straight or slightly concave ventrolaterally. Aedeagus tubular, U-shaped in profile, dorsal margins in basal half strongly expanded in a rectangular lobe with upper margin sinuate; periandrium sinuately cleft distally, ventral margin terminating in a pair of sinuate spines directed dorso-caudad and laterad each with a bulbous protuberance externally at base, a pair of narrow membranous tongues midway between them, dorsolaterally on each side a pair of spines of subequal length, the outer sinuate, directed dorso-cephalad, the inner strongly curved mesad in distal quarter, dorsal margin membranous, deeply cleft on each side of middle, a broad transverse saddle-shaped sclerite subapically giving off caudad in middle line a spinose process slender at base, much swollen and bent rectangularly at middle and sinuate near pointed apex; penis with a pair of slender curved spines ventrolaterally, extending cephalad close below periandrium. Genital styles broad, tapering in a vertical process with a thin triangular flange directed mesad on its inner face.

Male: length, 4.1 mm., tegmen, 4.8 mm.; female: length, 4.7 mm., tegmen, 5.8 mm.

One male and two females from Tuvutha, Sept. 11, 1924, holotype male, Bryan.

This species is distinguished by shape of male genitalia.

6. Capelopterum zetes, new species (fig. 42, *i-k*).

Pale brown. Tegmina translucent, green.

Anal segment short with distal portion inclined to basal at 105 degrees, deflexed lateral margins distad of anal foramen longer than basal, converging to meet at rounded-acute apex. Pygofer as in preceding species. Aedeagus tubular, U-shaped, dorsolateral margins in basal half expanded in a broad sinuate lobe with two eminences, the upper pointed, the lower rounded; periandrium cleft on each side apically, ventral margin terminating in a pair of greatly swollen spines narrowing rather abruptly to pointed apex, two median membranous lobes between them narrow and short; dorsolaterally on each side near apex a pair of subequal spines, the outer slightly swollen in basal half, curved mesad distally, the inner more swollen in basal two-thirds, curved mesad distally; dorsal margin terminating in a broad sinuate membranous lobe reflected ventrally mesad near lateral margins, subapically a transverse stout saddle-shaped sclerite giving off medially a short porrect spine. Penis with a slender sinuate spine ventrolaterally on each side directed cephalad.

Male: length, 3.7 mm., tegmen, 4.3 mm.; female: length 4.0 mm., tegmen, 5.0 mm.

Four males and one female from Vanua Mbalavu: Mvana, Aug. 9, 1938; Buthalevu, alt. 200-300 ft., Aug. 10, 1938, holotype male; Bavatu, Aug. 16, 1938; all by Zimmerman.

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

7. Capelopterum ranula, new species (fig. 43, *a, b*).

Testaceous. Tegmina testaceous with veins tinged red.

Anal segment short with distal portion inclined to basal at 145 degrees, distal inclined portion longer than basal, lateral margins distad of anal foramen strongly convex, converging to narrow excavate apical margin, ventral margin in profile sinuate rounding into dorsal margin apically. Pygofer with lateral margins oblique, shallowly convex in dorsal half. Aedeagus tubular, U-shaped in profile, dorsal margin at base expanded in a convex lobe rectangulately emarginate at middle; periandrium deeply cleft laterally at apex, ventral margin terminating in two pairs of spines, a slender outer pair and a swollen, though distally slender, inner pair; a slender spine on each side dorsoapically, dorsal margin membranous, cleft medially, supported basad by an arched sclerite giving off a minute spine caudad at middle; penis with a pair of stout spines ventrolaterally directed mesad in distal third. Genital styles generally similar to those of the preceding species, but inner flange at apex more oblique cephalad.

Male: length, 3.5 mm., tegmen, 4.1 mm.

Two males from Thikombia, Sept. 26, 1924, holotype, Bryan.
This species is distinguished by the shape of the genitalia.

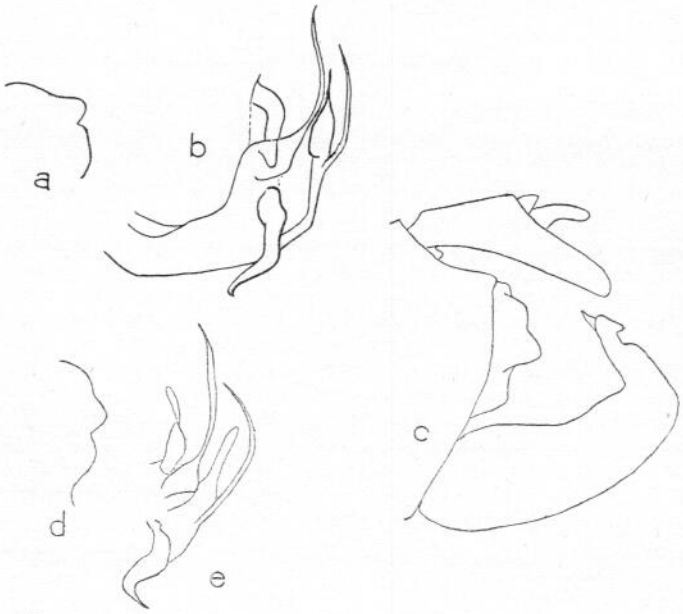


FIGURE 43.—**a, b,** *Capelopterum ranula: a,* dorsal margin of periandrium at base; *b,* distal portion of aedeagus. **c-e,** *C. betulus: c,* male genitalia with dorsolateral margin of aedeagus visible; *d,* dorsolateral margin of aedeagus near base; *e,* distal portion of aedeagus.

8. Capelopterum betulus, new species (fig. 43, *c-e*).

Fuscous, speckled testaceous. Tegmina fuscous, veins testaceous.

Anal segment short, with distal portion inclined to ventral at 130 degrees; deflexed lateral margin distad of anal foramen longer than basal, convex, incurved distally, apical margin short, semicircularly excavate. Pygofer with lateral margin weakly sinuate, very

shallowly convex in dorsal half. Aedeagus tubular, U-shaped in profile, dorsolateral margin at base expanded in a broad convex lobe with two indentations, the upper shallowly, the lower more deeply excavate; periandrium deeply cleft laterally at apex; ventral margin terminating in a pair of slender spines, directed dorsad and curved anteriorly in distal fourth, and a pair of narrow membranous lobes two-thirds as long; a slightly curved spine arising on each side laterodorsally, directed upward, dorsal margin membranous, cleft medially and toward sides; subapically a rather narrow semicircular sclerite devoid of median process; penis with a pair of short stout spines arising ventrolaterally near apex, swollen and directed anteriorly in their basal half, slender and directed mesad in distal half. Genital styles as in preceding species but with flange on inner face at apex acutely pointed at tip.

Male: length, 3.0 mm., tegmen, 3.5 mm.; female: length, 3.8 mm., tegmen, 4.3 mm.

One male and one female from Fulanga, Aug. 5, 1924, holotype male, Bryan. The collection also includes a single nymph taken on Kandavu: Solo Tavine, April 23, 1941, Krauss.

This species is distinguished by shape of male genitalia.

Genus **Tylana** Stål

Subgenus **Atylana** Melichar

Atylana Melichar, Zool.-Bot. Ges. Wien, Abh. 3(4): 198, 1906. Logotype of subgenus, *Tylana intrusa* Melichar, op. cit., p. 207, by present designation.

1. **Tylana (Atylana) intrusa** Melichar, Zool.-Bot. Ges. Wien, Abh. 3(4): 207, 1906 (fig. 44, *a-c*).

Anal segment short, basal portion scarcely longer than depth of anal foramen, distal part slightly deflexed; lateral margins distad of anal foramen converging sharply to rounded apex, ventral margins in profile deeply rectangularly excavate at middle. Pygofer with lateral margins oblique, straight. Aedeagus tubular, U-shaped in profile, periandrium with a short vertical fingerlike lobe in middle of dorsal margin and cleft laterally at apex for two-thirds of its length, ventral margin produced distally in a pair of straight spines; dorsal margin membranous, deeply cleft on each side of middle line, dorsal surface sclerotised and produced on each side in a narrow lobe acutely elbowed at middle. Penis terminating in four acute submembranous lobes, a pair on each side of middle line; laterally a pair of sickle-shaped spines directed dorso-caudad, a boomerang-shaped process, sinuate and spinose at inner tip, attached laterally near base. Genital styles rather broad, slightly tapering distally with a constriction below apex.

Two males and two females from Moala: Naroi, seashore, sweeping, Aug. 25, 1938, Zimmerman and one female from Kandavu: Tiliva, April 30, 1941, Krauss, agree with the description. The genitalia are described to enable a comparison to be made with the type.

2. **Tylana (Atylana) carcinias,** new species.

Anterior margin of vertex subtruncate, not forming a sharper angle than 155 degrees at apex, with an impression on disk on each side of middle line. Frons longer than broad (1.2:1), lateral margin near clypeus at an angle of 51 degrees to lateral margins in basal half, median carina indistinct. Tegmina with Sc and R simple to apex, M with 4 branches at margin, Cu_1 with 2 branches; claval veins united basad of middle of clavus, so that their common stalk equals or exceeds length of separate limb of postcubital (first claval) vein. Characters otherwise as in *T. intrusa* Melichar.

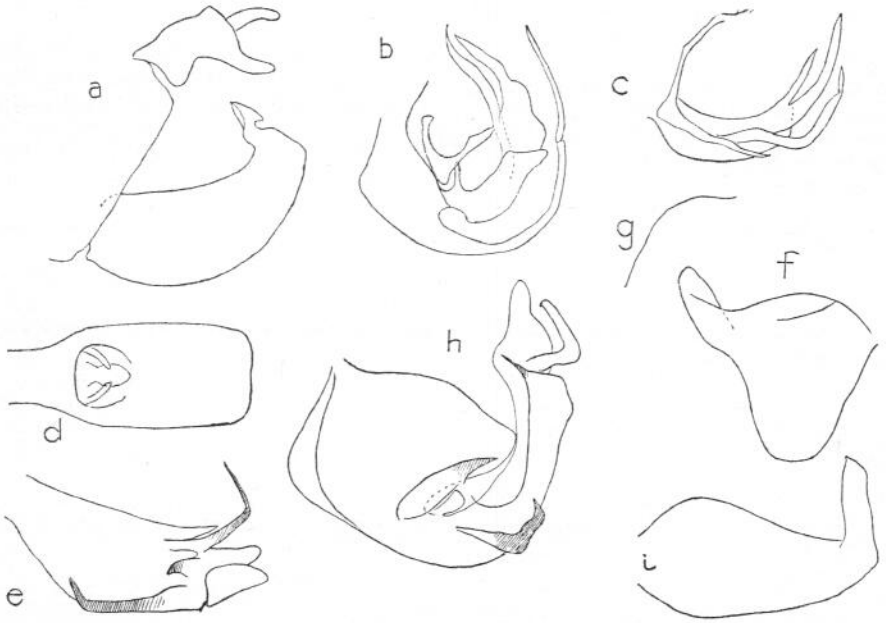


FIGURE 44.—**a-c,** *Tylana intrusa: a,* anal segment, pygofer, and genital style; *b,* periandrium; *c,* penis. **d-g,** *Sarima erythrocyclos: d,* anal segment of male; *e,* aedeagus, left side; *f,* genital style; *g,* posterior margin of pygofer. **h, i,** *Lollius pyrrhoceras: h,* aedeagus, left side; *i,* genital style.

Light testaceous with stramineous mottling; fore and middle legs testaceous, vertex, pronotum, mesonotum, and abdomen stramineous. Tegmina yellowish hyaline, minute flecks in costal area and submarginal cells of apex, an indistinct, much broken line from humeral elevation to claval suture and thence to sutural angle, a few flecks on a line between middle of costa and apex of clavus piceous brown; veins concolorous. Wings hyaline, veins concolorous.

Female: length, 5.2 mm., tegmen, 5.0 mm.

One female from Rotuma: Oinata, Aug. 23, 1938, holotype, St. John.

This species is distinguished by the coloration and by the proportions given. It differs from *T. intrusa* Melichar, which it generally resembles, in its much paler hue, in having the anterior margin of the vertex markedly less angulate, the frons relatively broader in relation to its length, in the stronger degree of curvature of its lateral margins distally, in the apparently greater simplicity in the apical venation of the tegmina near Cu owing to the lesser prominence of transverse veinlets, and in the position of the junction of the claval veins.

Genus **Sarima** Melichar

Sarima Melichar, Hom. Ceylon, 78, 1903. Logotype, *Sarima illibata* Melichar, op. cit., p. 79.

1. Sarima erythrocyclos, new species (fig. 44, *d-g*).

Frons with median carina absent or obsolete in basal half. Testaceous; vertex with anterior margin finely piceous, frons testaceous or green, area between basal carina of frons and apical margin of vertex, and a more or less complete oval band on distal half of frons, basal ring of antennae, and suffusions on pleurites, red, less commonly brown, clypeus, base of femora and middle area of abdominal sternites castaneous piceous. Tegmina translucent brown or red, except in basal half of costal and subcostal cells, margin yellowish or green, veins yellowish or green. Wings smoky, veins concolorous.

Anal segment of male narrow, distal margin transverse. Aedeagus tubular, only slightly curved, a pair of slender spines arising at apex directed dorso-caudad then bent upward through 90 degrees, a very short stout triangular process on each side in apical third, a pair of spines arising just below these, tapering distally, extending cephalad lateroventrally, abruptly curved dorsad in apical fifth. Genital styles subequilaterally triangular, produced distally in a broad subtruncate lobe.

Male: length, 4.6 mm., tegmen, 4.8 mm.; female: length, 4.8 mm., tegmen, 5.0 mm.

One male and one female from Ovalau: Andubangda, alt. 1,500-2,000 ft., July 15, 1938, holotype male, Zimmerman. Four females from Viti Levu: Mt. Korombamba, Aug. 1, 1938; Nandarivatu, Sept. 9, 1938; Vatuthere, alt. 2,600 ft., Sept. 8, 1938; Belt Road, 18 miles west of Suva, July 22, 1938; all by Zimmerman.

This species is distinguished by the genitalia and the coloration.

Genus **Lollius** Stål

Lollius Stål, Hemiptera Africana **4**: 209, 1866. Orthotype, *Lollius australicus* Stål, Öfv. K. Sven. Vet.-Akad., Förh. **27**: 762, 1870.

1. Lollius pyrrhoceras, new species (fig. 44, *h, i*).

Head with anterior angles of vertex rectangulate in profile, frons medially produced in an obtuse point at base, median carina present in basal half. Pronotum carinate between eyes and tegulae, two subcrescentic callosities in each lateral field and a minute callosity near each lateral angle of mesonotum. Post tibiae bispinose.

Testaceous, heavily sprinkled brown, antennae reddish brown, a band across apex of frons, across genae below antennae, and the callosities in the lateral pronotal fields pallid, abdomen testaceous, tarsi and inner face of postfemora fuscous. Tegmina translucent-testaceous, sprinkled with pallid spots, C and Sc pale yellowish; costal and apical margin sparsely and minutely interrupted with fuscous, remaining veins yellow sprinkled with orange. Wings pale anteriorly, fuscous posteriorly, veins reddish.

Anal segment of male subelongate, widest at basal third, tapering distally to pointed apex. Aedeagus curved through 90 degrees, greatly expanded dorsad in apical half in a lobe forming the quadrant of a circle; a small spine at each side at base; a pair of spines on each side distad of middle, the upper short and slightly curved, the lower longer and angularly bent twice near apex; penis tubular, laterally excavate at apex, lower lip greatly produced, upcurved, distally forming a delicate membrane supported on two parallel arms. Genital styles broadest near base, sinuately tapering distally, rectangulately curved dorsad distally in a stout process minutely beaked at tip.

Male: length, 7.2 mm., tegmen, 7.7 mm.

Two males from Viti Levu: Belt Road, west of Suva, July 26, 1938; 16 miles west of Suva, beating shrubs, July 29, 1938, holotype male; both by Zimmerman.

Family RICANIIDAE Stål

Key to Genera of Pacific Ricaniidae

1. Claval veins united at middle of clavus 2
   Claval veins united basad of middle 3
2. Sc and R arising from same point on margin of basal cell, veinlets of costal area comparatively widely separated ..... **Ricania** subgenus **Ricanula** Melichar
   Sc and R united in a stalk, costal area with veinlets comparatively close ..... **Euricania** Melichar
3. Three sectors arising from basal cell, radius forked ..... **Armacia** Stål
   Four sectors arising from basal cell, radius simple ..... **Plestia** Stål

Genus **Plestia** Stål

Plestia Stål, Öfv. K. Sven. Vet.-Akad., Förh. **27**: 768, 1870. Orthotype, *Ricania marginata* Montrouzier and Signoret.

Key to Fijian Species of Plestia

1. Membrane of subcostal cell distinct, as wide as a vein or wider 2
   Membrane of subcostal cell not distinct or at most very narrow, veins contiguous or nearly so 9
2. Costal and subcostal cells with pallid spots, lateral carinae of head prominent, subfoliate to base 3
   Costal and subcostal cells without pallid spots, lateral carinae of frons not subfoliate to base 5
3. Shortest vein to margin from first subapical cell shorter than narrowest width of costal area; apical veins infuscate at margin. Viti Levu ..... **circe***
   Shortest vein to margin from first subapical cell longer than narrowest width of costal area; apical veins, except Sc and R, not infuscate at margin 4
4. Shortest width of first subapical cell twice narrowest width of costal area. Costal cell nine times as long as maximum combined width of costal area and costal cell. Ovalau ..... **cassiopeia***
   Shortest width of first subapical cell not twice narrowest width of costal area. Costal cell ten times as long as maximum combined width of costal area and costal cell. Vanua Mbalavu ..... **artemis***
5. Costal margin and veins of stigmal area fuscous, pallid markings in costal area sublinear, confined to veinlets. Pregenital sternite of female devoid of medioventral process. Kambara ..... **naias***
   Costal margin, veins of node and stigmal area pallid, markings in costal area not narrowly linear 6
6. Shortest marginal vein from first subapical cell not exceeding narrowest width of costal area. Medioventral process of pregenital sternite of female about 1.6 times as long as broad at base 7
   Shortest marginal vein from first subapical cell exceeding narrowest width of costal area 8
7. Shortest width between first subapical cell and anterior margin less than a third of that of first subapical cell. Ongea ..... **thetis***
   Shortest width to margin nearly half that of first subapical cell. Tuvutha ..... **io***
8. Costal area with six or seven pallid marks; aedeagus with a long spine on left side. Oneata ..... **medusa***
   Costal area with four or five such marks; aedeagus with spines of left side both short. Tavunasithi ..... **nereis***

9. Length of costal cell 7.5 times greatest width of costal area plus costal cell. Mothe ..... **danae***
Costal cell relatively longer 10
10. Costal cell 9.5 to 10.5 times as long as greatest combined width of costal area and costal cell 11
Costal area relatively longer, 11 to 15 times as long 12
11. Costal area and cell with round hyaline spots. Mango ..... **deianira***
Costal area and cell yellowish translucent, not spotted; first subapical cell nearly touching apical margin. Yangasa ..... **arethusa***
12. Costal cell with hyaline spots 13
Costal cell yellowish hyaline, not spotted 17
13. Pallid spots in costal cell bold and distinct; veins of M not distinctly infuscate at margin. Namuka ..... **iphigeneia***
Spots in costal cell brownish yellow or indistinct 14
14. Costal cell, measured to its distal bend, 10 or 11 times as long as greatest width of costal area plus costal cell 16
Costal cell 12 times as long as maximum combined width of costal area and cell, or if shorter, species with a transverse dark band on frons 15
15. Antennae small, concealed in anterior view by frons, frons not banded. Vatu Vara ..... **antigone***
Antennae of moderate size, not wholly concealed in anterior view; frons with a transverse fuscous band. Ovalau ..... **calypso***
16. Subcostal cell distinctly widened in basal fifth. Kandavu ..... **cassandra***
Subcostal cell not widened in basal fifth, sides parallel. Thikombia, Katafanga ..... **andromeda***
17. Shortest vein from first subapical cell at least as long as narrowest width of costal area; costal cell 12 to 13 times as long as maximum combined width of costal area and costal cell 18
Shortest vein from first subapical cell shorter than narrowest width of costal area; costal cell not 12 times as long as maximum combined width of costal area and costal cell, usually 10 or 11 times as long. Moala, Navutu, Aiwa ..... **eurydice***
18. Aedeagus with two spinose processes. Viti Levu ..... **niobe***
Aedeagus with four spinose processes 19
19. Both spines of right side subparallel to lateral margin, not crossing over middle line. Viti Levu, Matuku ..... **galatea***
One spine of right side of aedeagus curved mesad and extending beyond left lateral margin. Ovalau ..... **scylla***

1. Plestia circe, new species (fig. 45, *a-d*).

Frons broader than long (1.7:1). Tegmina with costal cell (measured in a straight line from base to anterior end of distal transverse vein) 6.8 to 9 times as long as maximum width of costal area plus costal cell; subcostal cell with membrane distinct, at its base as wide as length of vertex in middle line, distally half this width. Shortest width between first sub-apical cell and margin not exceeding narrowest width of costal area (including anterior margin and costal vein).

Pygofer with dorsolateral angles subrectangular, evenly rounded. Anal segment as broad as long, distally convex. Aedeagus with two pairs of spines arising dorsally and ventrally respectively, lateroapically directed anteriorly; the upper and lower spines of left side twice as long as their counterparts on the right. Shorter spine on right curved mesally, longer spine on left distinctly sinuate. Genital styles with angle between dorsal margin and apical margin 55 degrees.

Anal segment of female longer than broad (1.3:1), apical margin transverse or excavate, anal style not exceeding margin. Medioventral process on seventh sternite triangular, bluntly pointed, twice as broad across base as long in middle line. Third valvulae with 23 or 24 strongly pigmented pointed teeth on apical margin in two more or less alternated series, nine small teeth in distal row, 14-15 large teeth in proximal.

Testaceous, ochraceous, or green marked with fuscous, variable. Head and pronotum usually pale, slightly sprinkled fuscous, or pronotum pale with lateral lobes fuscous piceous, mesonotum darker with two pallid spots in each lateral field and a feeble U-shaped pale band on posterior third of disk. Abdominal tergites usually fuscous with four pale creamy or green areas sublaterally. Tegmina hyaline, costal area, costal and subcostal cells and their veins, apical cells of Sc and R, a suffusion along both sets of transverse veins, a bar across middle of clavus and a spot at its apex, distal portion of posterior claval cell strongly infuscate or sepia brown. Seven spots in costal area, smaller round spots in costal and subcostal cells, and veins at margin hyaline or pallid.

Male: length, 5.0 mm., tegmen, 7.5 mm.; female: length, 6.0 mm., tegmen, 9.0 mm.

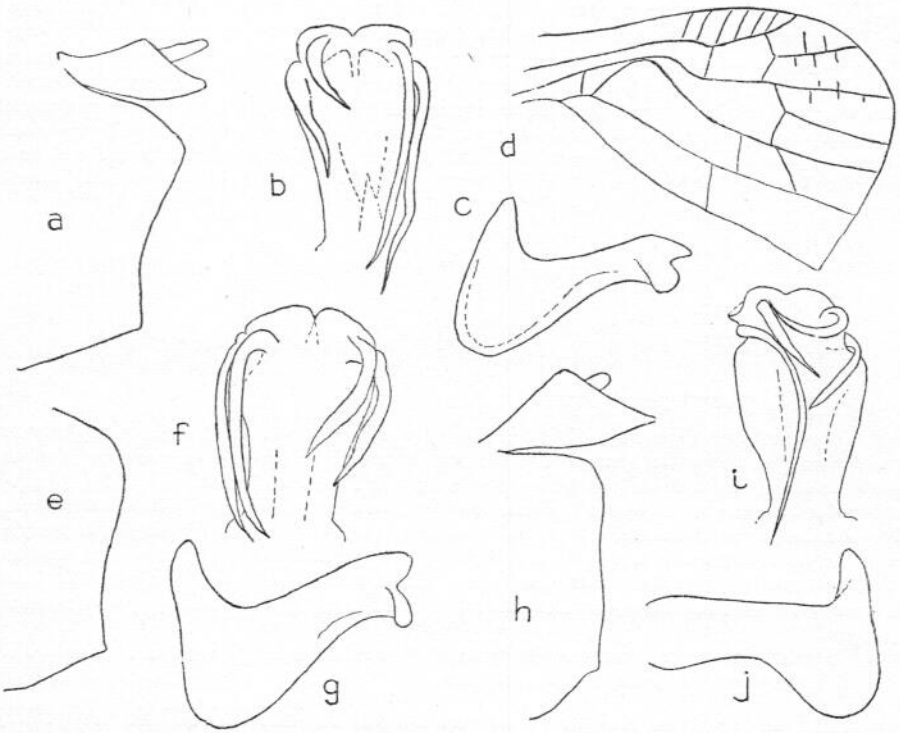


FIGURE 45.—**a-d,** *Plestia circe: a,* anal segment and pygofer; *b,* aedeagus, dorsal view; *c,* genital style; *d,* apical portion of tegmen of abnormal specimen. **e-g,** *P. cassiopeia: e,* posterior margin of pygofer; *f,* aedeagus, dorsal view; *g,* genital style. **h-j,** *P. medusa: h,* anal segment and posterior margin of pygofer; *i,* aedeagus, dorsal view; *j,* genital style.

Redescribed from four males and four females taken on Viti Levu: Bulu near Sovi, April 21, 1941, Krauss; Belt Road, 42-44 miles west of Suva, alt. 300 ft., July 23, 1938, Zimmerman; Tailevu, Korovou, August 1937, Valentine.

Among the material is a somewhat aberrant female specimen with intense infuscation and brilliantly distinct pallid spots; the lateral areas of the pronotum are infuscate, and the mesonotal disk with its transverse band very dis-

tinct. The tegmina distad of the stigmal area and in the apical veins of Sc and R have supernumerary incomplete transverse veins. The variation is of no taxonomic significance. The male aedeagal characters are entirely concordant in three mounts.

2. **Plestia cassiopeia,** new species (fig. 45, *e-g*).

Frons broader than long (1.5 : 1). Tegmina with costal cell 9.2 times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, at its base as wide as length of vertex in middle line, distally about half this width, shortest width between first subapical cell and margin exceeding narrowest width of costal area.

Pygofer with dorsolateral angles obtuse, very broadly and evenly rounded. Anal segment as broad as long, distal margin truncate. Aedeagus with dorsal and ventral pairs of spines, those on right as long as aedeagus, incurved slightly distally, those left shorter, the upper spine shorter and directed anteromesad. Genital styles with 110 degree angle between dorsal margin and apical margin. Green to testaceous, marked with fuscous. Tegmina hyaline, costal area, costal cell and subcostal cell, base of first apical cell and apical cells of Sc+R fuscous, with paler spots on costal area, cell and subcostal cell. Transverse veins and veins at margin not infuscate.

Male: length, 5.0 mm., tegmen, 7.0 mm.

One male from Ovalau: Draiba trail, alt. 800-1,000 ft., July 8, 1938, holotype, Zimmerman.

This species is near *circe* but is definitely separated by the genitalia.

3. **Plestia artemis,** new species.

Frons broader than long (1.6 : 1). Tegmina with costal cell 10.8 times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane narrow but distinct, basally as wide as length of vertex in middle line, distally half this width. Shortest width between first subapical cell and margin exceeding narrowest width of costal area.

Anal segment of female as broad as long, excavate slightly on distal margin, anal style slightly exceeding margin. Medioventral process on seventh sternite 1.2 times as long as broad, narrowing distally, rounded at apex. Third valvulae of ovipositor with 10 short spines in a double row on dorsal margin and 11 or 12 stout spines in a single row on apical margin.

Greenish testaceous, marked with fuscous. Tegminal coloration as in *P. cassiopeia.*

Female: length, 7.0 mm., tegmen, 10.0 mm.

One female from Vanua Mbalavu: Buthalevu, alt. 200-300 ft., Aug. 10, 1938, holotype, Zimmerman.

This species is distinguished by the proportions given and by the relatively long process on the seventh sternite.

4. **Plestia naias,** new species.

Frons broader than long (1.6 : 1). Tegmina with costal cell nine times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, at its base as wide as length of vertex in middle line, distally about half this width. Shortest width between first subapical cell and margin not exceeding narrowest width of costal area.

Anal segment of female longer than broad (1.1 : 1), distal margin slightly convex, anal style attaining margin. No medioventral process on seventh sternite. Third valvulae of ovipositor not strongly sclerotised, with 12 or 13 peglike teeth in a single row along apical margin.

Testaceous, marked with fuscous. Frons, vertex, lateral lobes of pronotum, and abdominal tergites infuscate. Tegmina hyaline, costal area, cell and subcostal cell, apical cells of Sc+R, middle and apical portion of clavus fuscous, transverse veins and veins at margin clouded, slightly infuscate; six to eight wedge-shaped spots in costal area pallid, faint pale-brown spots in costal cell.

Female: length, 5.0 mm., tegmen, 8.5 mm.

One female from Kambara, Aug. 13, 1924, holotype, Bryan.

This species is well-distinguished by the combination of characters given.

5. Plestia thetis, new species.

Frons broader than long (1.7: 1). Tegmina with costal cell nine times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, at its base wider than length of vertex in middle line, distally about equal to length of vertex at middle. Shortest width between first subapical cell and margin not exceeding narrowest width of costal area, this width three-elevenths maximum width of first subapical cell.

Anal segment of female as long as broad, distal margin slightly convex. Medioventral process on seventh sternite 1.7 times as long as broad, sides slightly converging distally, apex broadly rounded. Third valvulae of ovipositor with 14 small teeth in a double row on dorsal margin, 24 pointed, heavily pigmented teeth on apical margin, 11 of them stout, the remainder minute and not quite lying in the same row, but very slightly distad.

Testaceous to ochraceous, marked with fuscous. Frons in distal two-thirds, mesonotum except for a transverse band, and abdominal tergites fuscous. Tegmina with costal area and cell and subcostal cell, apical veins of Sc and R, middle and apex of clavus fuscous, transverse veins and veins at apical margin clouded fuscous; seven spots in costal area and apices of veins pallid, some pale brown spots in costal cell.

Female: length, 5.0 mm., tegmen, 7.6 mm.

Three females from Ongea, July 28 (holotype), 31, Aug. 2, 1924, Bryan.

6. Plestia io, new species (fig. 47, *d*).

Frons broader than long (1.7: 1). Tegmina with costal cell nine times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, width at its base 1.5 times length of vertex in middle, distally about half this width. Shortest width between first subapical cell and anterior margin shorter than narrowest width of costal area, this width five-elevenths maximum width of first subapical cell.

Pygofer with dorsolateral angles obtuse, moderately curved. Anal segment as broad as long, distal margin convex. Aedeagus with four spinose processes distally, the inner pair short and directed mesally, that on right side curved through 180 degrees, that on left oblique, outer spine of right side curved, directed cephalad, scarcely extending for half length of aedeagus, outer spine of left side slender, curved mesad then cephalad, almost as long as aedeagus. Genital styles with 115 degree angle between dorsal and apical margin.

Pallid greenish yellow to testaceous; a band across middle of frons, vertex, mesonotum except for two transverse bands brown, a narrow band near frontoclypeal suture and lateral lobes of pronotum fuscous-piceous. Tegmina hyaline, costal area, cell and subcostal cell, apical cells of Sc and R, and transverse veins, middle and apex of clavus dark brown; about six spots in costal area, veins at apex and a few transverse veins in clavus pallid.

Male: length, 5.5 mm., tegmen, 7.5 mm.

One male from Tuvutha, Sept. 10, 1924, holotype, Bryan.

This species is readily separated from *P. thetis,* which it most closely resembles, in the degree of separation of the first subapical cell from the anterior margin of the tegmen.

7. Plestia medusa, new species (fig. 45, *h-j*).

Frons broader than long (1.5:1). Tegmina with costal cell about eight times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, as wide at base as long as vertex in middle line, distally half this width. Shortest width between first subapical cell and anterior margin exceeding narrowest width of costal area.

Pygofer with dorsolateral angles obtuse, broadly and evenly rounded. Anal segment as broad as long, distal margin truncate. Aedeagus with dorsal and ventral pairs of spines, all curved mesad, upper left curved at right angles to axial line of aedeagus and posteriorly at apex, upper right of about same length directed antero-mesad, lower left slightly longer directed anteromesad, attaining middle line, lower right as long as aedeagus, distally sinuate, incurved to middle line then overlying it distally. Genital styles with 110 degree angle between dorsal and apical margins.

Anal segment of female slightly longer than broad, shallowly convex at apex, anal style attaining margin, medioventral process of seventh sternite 2.4 times as long as wide at middle, sides very slightly tapering to rounded apex. Third valvulae of ovipositor with 24 spines on apical margin with the inner row of 13 teeth stout and larger than the outer.

Testaceous, marked with brown. A band across frons, and on genae between ocelli and antennae, lateral fields of pronotum, mesonotum, and abdominal tergites brown. Tegmina hyaline; costal area, cell, subcostal cell, apical cells of Sc and R, apex and posterior margin of clavus brown; about five spots in costal area pallid; transverse veins not clouded with fuscous.

Male: length, 4.2 mm., tegmen, 6.3 mm.; female: length, 5.0 mm., tegmen, 7.0 mm.

Six males, two females, and three specimens with abdomens missing, from Oneata, Aug. 18 and 19 (holotype male), 1924, Bryan.

This species is distinguished by the body proportions, and by the male and female genitalia. The long medioventral process in the pregenital sternite of the abdomen of the female is not equaled in any other of the Fijian species.

8. Plestia nereis, new species (fig. 46, *a-c*).

Frons broader than long (1.6:1). Tegmina with costal cell 8.5 times as long as maximum width of costal area plus costal cell. Subcostal cell with membrane distinct, at base longer than vertex in middle line (1.2:1), distally rather less than half this width; shortest width between first subapical cell equal to or scarcely less than narrowest width of costal area.

Pygofer with dorsolateral angles obtuse, subangulately rounded through 115 degrees. Anal segment about as broad as long, distal margin convex. Aedeagus with dorsal and ventral pairs of spinose processes, dorsal rather short, curved strongly mesad to meet in middle line, lower spine of left side half length of aedeagus, lying close against it laterally, lower spine of right side distinctly longer than aedeagus, slender, directed cephalad then curved obliquely ventrocaudad apically. Genital styles with 110 degree angle between dorsal margin and apical margin.

Testaceous marked brown or fuscous. A band across frons, vertex, mesonotum and abdominal tergites fuscous. Tegmina hyaline; costal area, cell and subcostal cell, apical cells of Sc and R, transverse veins and veins at apical margin, a band across middle of clavus and a few spots near apex brown.

Male: length, 5.0 mm., tegmen, 7.0 mm.

One male from Tavunasithi, Aug. 28, 1924, holotype, Bryan.

This species is distinguished by the proportions given and the genitalia.

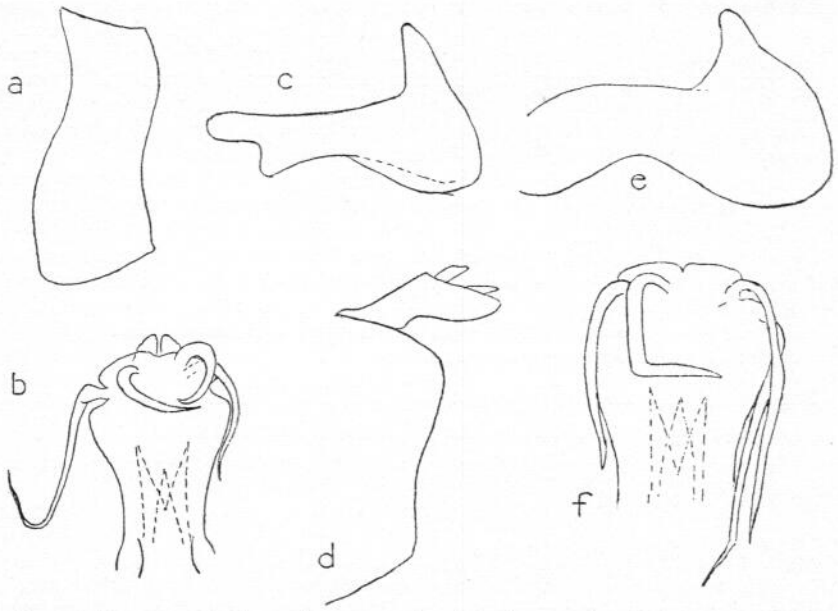


FIGURE 46.—**a-c,** *Plestia nereis: a,* pygofer; *b,* aedeagus, dorsal view; *c,* genital style. **d-f,** *P. antigone: d,* anal segment and posterior margin of pygofer; *e,* genital style; *f,* aedeagus, dorsal view.

9. **Plestia danae,** new species (fig. 47, *e*).

Frons broader than long (1.7 : 1). Tegmina with costal cell 7.6 times as long as maximum width of costal area and costal cell combined. Subcostal cell with membrane narrow but distinct, width at base four-fifths of length of vertex in middle, distally half this width; shortest width between first subapical cell and margin equal to or slightly greater than narrowest width of costal area.

Pygofer with dorsolateral angles broadly and evenly rounded. Anal segment about as broad as long, distal margin convex. Aedeagus with dorsal and ventral pairs of spinose processes, dorsal pair rather short, both curved anteromesad but that on left curved again obliquely caudad, lower spine of right side one-third longer than upper spine, directed anteromesad and attaining middle line, lower spine of left side directed cephalad, three-fourths as long as aedeagus, slightly curved ventrad distally, lying parallel to lateral margin. Genital styles with 110 degree angle between dorsal margin and apical margin.

Testaceous, marked brown or fuscous; a band across frons, vertex, mesonotum except for a transverse band, and tergites of abdomen fuscous. Tegmina hyaline, costal area, costal and subcostal cells, apical cells of Sc and R, apical veins at margin, a band across middle of clavus and five or six spots in distal portion of posterior cell of clavus brown. Costal area with seven pallid spots.

Male: length, 4.5 mm., tegmen, 6.0 mm.

One male from Mothe, Aug. 16, 1924, holotype, Bryan.

This species is distinguished by the proportions given and the genitalia.

10. **Plestia deianira,** new species.

Frons broader than long (1.6 : 1). Tegmina with costal cell 10.5 times as long as maximum width of costal area plus costal cell; subcostal cell developed only at extreme base,

where it is about half length of vertex in middle line, and at apex; shortest width between first subapical cell and margin very slightly exceeding narrowest width of costal area.

Anal segment of female longer than broad, distal margin slightly excavate; medioventral process on posterior margin of seventh sternite about as long as broad across base, sides slightly converging distally, apex rounded. Third valvulae with nine obsolete teeth on dorsal margin, 16 teeth on apical margin, comprising a basal row of 11 stouter teeth and an alternating short row of five small teeth; teeth not pigmented.

Testaceous or ochraceous-fuscous. Frons, except at basal angles, and vertex dark testaceous, mesonotum except for a transverse bar in each lateral field outside disk at middle, and a U-shaped bar across disk in basal third, and tergites of abdomen fuscous. Tegmina hyaline; costal area, costal and subcostal cells, apical cells of Sc and R, transverse veins, apical veins at margin, a bar across middle of clavus and at its apex fuscous or light brown; a row of about six round spots in costal area and about 12 smaller spots in costal cell, veins in stigmal area and on margin pallid, membrane adjoining hyaline.

Female: length, 5.0 mm., tegmen, 8.0 mm.

Three females taken on Mango: Sept. 17, 1924, holotype, Bryan; one mile south of Marona, alt. 200-300 ft., Aug. 14, 1938, Zimmerman.

This species is distinguished by the proportions given, the very clear spots on the tegmina, and the genitalia.

11. **Plestia arethusa,** new species.

Median carina of frons very distinct on basal three-fourths, lateral carinae near base as high as lateral margins at same level. Frons broader than long (1.6: 1). Tegmina with costal cell 10 times as long as maximum width of costal area plus costal cell; subcostal cell not developed, Sc+R and M contiguous; shortest width between first subapical cell and margin shorter than narrowest width of costal area.

Stramineous; frons minutely pitted, the pits infuscate; basal angles, vertex, two spots in each lateral field of mesonotum, a longitudinal stripe on each side of middle line of mesonotum fuscous. Tegmina hyaline, costal area and costal cell transparent yellow, clavus slightly suffused yellowish near base. Costal margin, costal vein and Sc+R stramineous, remaining veins fuscous.

Length, 4.5 mm., tegmen, 7.0 mm.

A specimen with abdomen missing taken on Yuvutha in the Yangasa Cluster, Aug. 11, 1924, holotype, Bryan.

The length given above is approximate, being the distance from the vertex to the apex of the clavus when the tegmina are in repose; the possible error, to judge by other species, is unlikely to exceed 0.5 mm. The species is distinguished from *P. deianira* by the color of the tegmina, and from the following *P. iphigeneia* by the proportions of the costal cell. It is obviously closely related to the other species which have the same tegminal coloration.

12. **Plestia iphigeneia,** new species.

Frons broader than long (1.6: 1); tegmina with costal cell 11 times as long as maximum width of costal area plus costal cell; subcostal cell not developed, or obsoletely so at extreme base, Sc+R and M contiguous, shortest width between first subapical cell and margin subequal to or slightly shorter than narrowest width of costal area.

Medioventral process of seventh sternite of female slightly broader across base than long in middle line (1.1: 1), lateral margins irregular, converging distally to rounded apex. Third valvulae of ovipositor with nine teeth in an irregular double row on dorsal margin and eight or nine stout heavily pigmented teeth in a single row on apical margin.

Testaceous; lateral and apical submargins of frons, vertex, mesonotum, except for two spots in each lateral field, and tergites of abdomen fuscous. Tegmina hyaline, costal area, costal cell, apical cells of Sc and R, a few spots in distal portion of posterior claval cell brown to fuscous, about six transverse veins in costal area and Sc and R at apex pallid, the membrane adjoining hyaline; stigmal area opaque, ochraceous, about 14 paler brown spots in costal cell.

Female: length, 6.5 mm., tegmen, 9.0 mm.

One female from Namuka, Aug. 12, 1924, holotype, Bryan.

This species is distinguished by the proportions given, the coloration, and the genitalia.

13. **Plestia antigone,** new species (fig. 46, *d-f*).

Frons broader than long (1.5 : 1); antennae entirely concealed by lateral margins of frons in anterior view, eyes almost entire, with only a small dark spot above antennae. Tegmina with costal cell 12 times as long as maximum width of costal area plus costal cell; subcostal cell not developed or obsoletely so at extreme base, Sc+R and M contiguous; shortest width between first subapical cell and margin longer than narrowest width of costal area. Pygofer with dorsolateral angles obtuse, rounded but not broadly so. Anal segment about as broad as long. Aedeagus with dorsal and ventral pairs of spinose processes, spines of left side longer than those of right, subequal, the longer incurved at apex, as long as aedeagus, lower spine of right side two-thirds length of aedeagus, upper spine of about same length, rectangulately bent mesad at its middle. Genital styles with 135 degree angle between dorsal and apical margins.

Testaceous, marked with fuscous; some speckling on margins of frons, vertex, and mesonotum fuscous. Tegmina hyaline, costal area, cell and subcostal cell, apical cells of Sc and R, veins at apex, a few spots in distal portion of posterior cell of clavus brown; about seven spots in costal area, 12 in costal cell, Sc and R at apical margin hyaline.

Male: length, 6.5 mm., tegmen, 9.0 mm.

One male from Vatu Vara, Oct. 2, 1924, holotype, Bryan.

This species is distinguished by proportions and genitalia.

14. **Plestia calypso,** new species (fig. 47, *a, b*).

Frons broader than long (about 1.6 : 1); median carina distinct on basal three-fourths, antennae of moderate size, not concealed by lateral margins of frons in anterior view, eyes very slightly emarginate below. Tegmina with costal cell 9.5-10 times as long as maximum width of costal area plus cell. Subcostal cell not developed or only obsoletely so at extreme base, Sc+R and M contiguous; shortest width between first subapical cell and margin longer than narrowest width of costal area.

Pygofer with dorsoapical angles obtuse, rounded. Anal segment about as broad as long, apical margin transverse, slightly excavate medially. Aedeagus with dorsal and ventral pairs of spinose processes, the lower spines of each side equal, extending cephalad for three-fourths length of aedeagus, left upper spine moderately short, strongly curved mesad then rectangularly bent to point to base of upper spine of right side, the latter being straight, extending anteromesally for four-fifths of length of aedeagus. Genital styles with 130 degree angle between dorsal and apical margins.

Testaceous-greenish; a band across frons on genae below eyes, lateral lobes of pronotum, mesonotum except for two transverse bands, and tergites of abdomen dark fuscous. Tegmina hyaline; costal area, cell, and subcostal cell brown; apical cells of Sc and R, two bars across clavus and spots in posterior cell of clavus, a suffusion over transverse veins and veins at apical margin fuscous; six spots in costal area, veins of Sc and R at apical margin hyaline.

Male: length, 6.0 mm., tegmen, 7.0 mm.

One male from Ovalau: Draiba trail, alt. 600-800 ft., beating, July 9, 1938, holotype, Zimmerman.

This species is distinguished by its proportions, coloration, and genitalia.

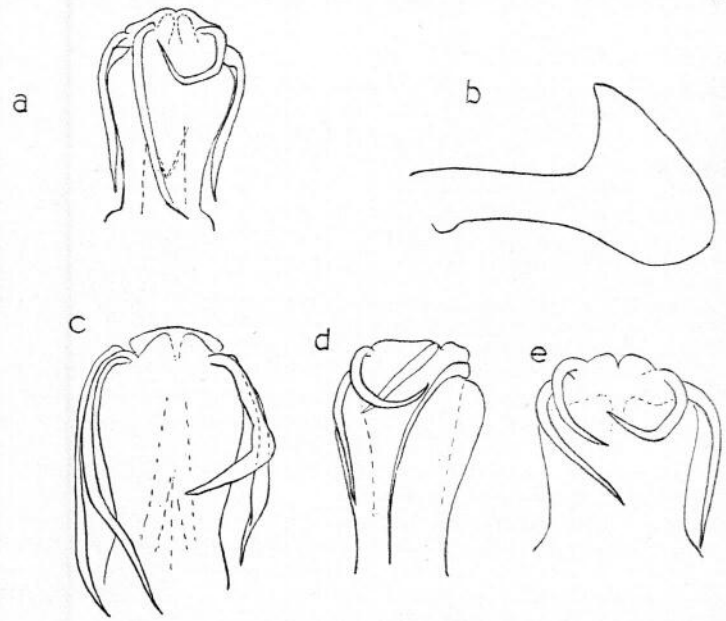


FIGURE 47.—**a-b**, *Plestia calypso: a*, aedeagus, dorsal view; *b*, genital style. **c**, *Plestia galatea:* aedeagus. **d**, *P. io:* aedeagus. **e**, *P. danae:* aedeagus.

15. Plestia cassandra, new species.

Frons broader than long (1.4: 1), median carina present on basal three-fourths. Tegmina with costal cell 11 times as long as maximum width of costal area plus cell. Subcostal cell obsoletely present throughout length, extremely narrow, slightly widened in basal fifth, but Sc+R and M not contiguous. Shortest width between first subapical cell and margin equal to or slightly exceeding narrowest width of costal area.

Anal segment as long as broad, apical margin excavate, style surpassing apical margin. Medioventral process of seventh sternite slightly longer than broad at base, lateral margins converging distally, apex more or less acute. Third valvulae of ovipositor with about nine small teeth in two rows on dorsal margin, apical margin with nine stout, acute, heavily pigmented teeth widely spaced in a single row.

Testaceous; some speckling on margins of frons, lateral lobes of pronotum, vertex, and mesonotum fuscous, abdominal tergites fuscous piceous. Tegmina hyaline, costal area and cell brown, apical cells of Sc and R and a spot at apex of claval suture fuscous, claval veins overlain with yellowish suffusion; about seven spots in costal area and veins of Sc and R at apex hyaline.

Female: length, 5.5 mm., tegmen, 8.0 mm.

Two females from Kandavu: Ndavingeile, April 27, 1941, holotype, Krauss.

This species is distinguished by the proportions, coloration, and genitalia.

16. Plestia andromeda, new species.

Frons broader than long (1.5:1), median carina finely present on basal three-fourths. Tegmina with costal cell 11 times as long as maximum width of costal area plus costal cell. Subcostal cell obsolete, not widened in basal fifth, Sc+R and M closely parallel throughout length, not quite contiguous. Shortest width between first subapical cell and margin longer than narrowest width of costal area.

Anal segment of female as broad as long, apical margin truncate or very slightly excavate. Medioventral process of pygofer about as long in middle line as broad across base, lateral margins converging distally to rounded apex. Third valvulae of ovipositor with eight or nine small teeth in a double row on dorsal margin, 10 or 11 stout heavily pigmented spines in a single row on apical margin.

Testaceous; apical margin of frons, lateral lobes of pronotum, mesonotum, except for two spots laterally, infuscate. Tegmina hyaline, costal area and cell translucent brown, Sc and R, including their apical cells, a spot adjoining apex of clavus and a few spots in distal portion of posterior claval cell fuscous; veinlets of costal area and stigma ochraceous, a series of spots in costal cell and veins of Sc and R at apex yellowish translucent.

Female: length, 7.0 mm., tegmen, 10.0 mm.

One female from Thikombia, Sept. 26, 1924, holotype, Bryan. One female from Katafanga, Sept. 9, 1924, Bryan.

This species is distinguished by the proportions, coloration, and genitalia.

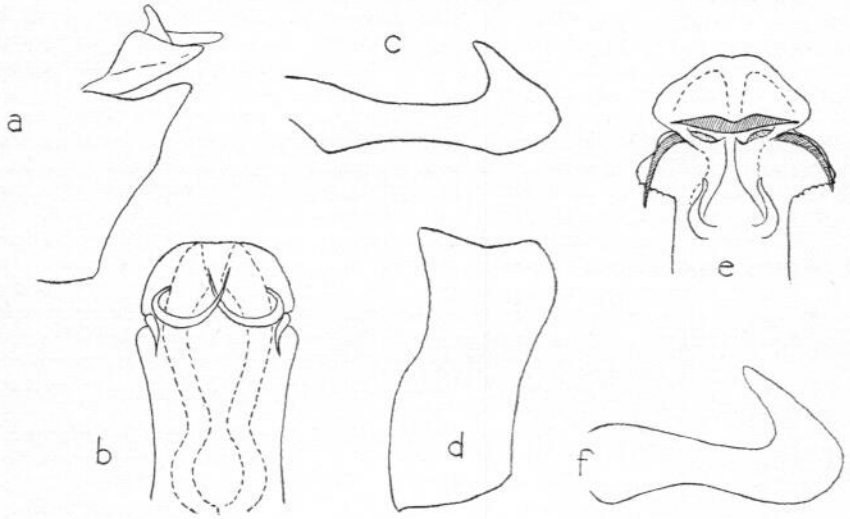


FIGURE 48.—**a-c,** *Plestia eurydice: a,* anal segment and posterior margin of pygofer; *b,* aedeagus, dorsal view; *c,* genital style. **d-f,** *P. niobe: d,* pygofer; *e,* apical portion of aedeagus, dorsal view; *f,* genital style.

17. Plestia eurydice, new species (fig. 48, *a-c*).

Frons broader than long (1.5:1), median carina distinct on basal three-fourths. Tegmina with costal cell 9-11.6 times as long as maximum width of costal area plus cell. Subcostal cell absent, Sc+R and M contiguous. Shortest width between first subapical cell and margin slightly less than narrowest width of costal area.

Anal segment slightly longer than broad, distal margin convex. Pygofer with dorsolateral angles acute, produced, rounded at apex. Aedeagus with dorsal and ventral pairs of spines, lower spines of each side very short, less than a fourth length of aedeagus, extending cephalad parallel to lateral margins, dorsal spines subequal, evenly curved through 270 degrees to cross in middle line and point caudad, distinctly narrowed in apical fourth. Genital styles with 135 degree angle between dorsal and apical margins.

Anal segment of female longer than broad, apical margin convex. Medioventral process on seventh sternite obsolete. Third valvulae with 12 small teeth in a double row on dorsal margin, 27 larger teeth in a close double row on apical margin.

Pale green to testaceous; tegmina hyaline, costal area and cell translucent yellow, their veins, including veinlets, pallid yellow; remaining veins of tegmina fuscous.

Male: length, 5.0 mm., tegmen, 7.0 mm.; female: length, 5.5 mm., tegmen, 7.5 mm.

Two males and one female taken on Aiwa, Aug. 31 (holotype male), Sept. 1, 1924, Bryan. One female on Navutu-i-loma, Aug. 8, 1924, Bryan. One female from Moala: Naroi, alt. 400-500 ft., Aug. 25, 1938, Zimmerman.

This species is distinguished by the proportions, tegminal coloration, and genitalia.

18. Plestia galatea, new species (fig. 47, *c*).

Frons broader than long (1.5:1); antennae not concealed by margins of frons in anterior view; median carina distinct on basal three-fourths. Tegmina with costal cell 12.3 times as long as maximum width of costal area plus cell. Subcostal cell obsoletely present, its margins parallel at base, Sc+R not quite contiguous. Shortest width between first subapical cell and margin equal to narrowest width of costal area.

Anal segment of female as broad as long, broadest about middle, apical margin markedly concave, style surpassing margin. Medioventral process on seventh sternite scarcely as long as broad across base, lateral margins converging to rounded apex. Third valvulae with eight rather small teeth in a double row on dorsal margin and eight large heavily pigmented teeth in a single line on apical margin.

Anal segment as broad as long, apical margin sinuate-truncate. Pygofer with dorsolateral angles subrectangularly rounded, very slightly produced, with dorsal margin just basad slightly concave. Aedeagus with dorsal and ventral pairs of spines, those of right side as long as aedeagus; the lower spine longer than the upper, sinuate near apex, the upper directed anteromesad and attaining middle line only at its apex; spines of left side two-thirds length of aedeagus, the lower subparallel to lateral margin, the upper angulately bent through 70 degrees to reach middle line. Genital styles with 125 degree angle between dorsal and apical margins.

Testaceous; apical submargin of frons and slight speckling laterobasally, inner portion of lateral lobes of pronotum, three bands across mesonotum and postfemora fuscous. Tegmina hyaline, costal area and cell brown, subcostal cell and apical cells of Sc and R and a few spots near apex of posterior cell of clavus fuscous; about eight transverse veinlets in costal area, stigmal area and veins of Sc and R at apex ochraceous.

Male: length, 5.0 mm., tegmen, 7.0 mm.; female: length, 6.0 mm., tegmen, 9.0 mm.

One male and one female from Matuku, July 7 (holotype male) and 8, 1924, Bryan.

This species is distinguished by the proportions, the tegminal coloration, and the genitalia. It is perhaps nearest to *P. andromeda*. Two females taken on Moala, one on July 13, 1924, by Bryan and one at Vunuku, Aug. 23, 1938, by Zimmerman, are placed here.

Plestia galatea subspecies **levuana,** new subspecies.

As in typical subspecies, but distinguished by median carina of frons being very distinct in its basal two-thirds and lateral margins of frons a little less produced at level of antennae.

One female from Viti Levu: Tailevu, August 1937, holotype, Valentine.

It is possible that the males of the Tailevu form will prove quite distinct from the Matuku type.

19. Plestia scylla, new species.

Proportions and coloration as in *P. galatea.* Genitalia differing in aedeagus.

Aedeagus with dorsal and ventral pairs of spines, lower spine of right side stout, distally sinuate, as long as aedeagus, lying parallel to lateral margin, upper spine of right side slender, directed cephalad in basal third then markedly and evenly curved mesad, crossing middle line and left margin until at apex it crosses tip of lower spine of left side, lower spine of left side two-thirds length of aedeagus, incurved at apex, upper spine angulately bent at middle to point to right, but not attaining right lateral margin.

Male: length, 5.5 mm., tegmen, 8.0 mm.; female: length, 6.0 mm., tegmen, 9.0 mm.

One male and one female from Ovalau: near Levuka, alt. 10 ft., July 10, 1938, holotype male, Zimmerman; Wainiloka, alt. 100-200 ft., July 11, 1938, Kondo.

This species is distinguished by shape of processes of aedeagus from *P. galatea* which it closely resembles.

20. Plestia niobe, new species (fig. 48, *d-f*).

Frons broader than long (scarcely 1.5:1), median carina distinct on basal three-fourths. Tegmina with costal cell 13 times as long as maximum width of costal area plus cell. Subcostal cell absent, Sc+R and M contiguous. Shortest width between first subapical cell and margin slightly exceeding narrowest width of costal area.

Anal segment of male as broad as long, apical margin convex. Pygofer with dorsolateral angles broadly rounded, dorsal margin slightly concave basad of angles.

Aedeagus relatively broad and short, with a more or less symmetrical ventral pair of spinose processes arising ventrally and curved almost through 180 degrees caudolaterad then straight obliquely cephalad, a transverse sclerotised bar with distal margin strongly sinuate across ventral surface distad of spines. Genital styles with apical processes rather long, 145 degree angle between dorsal and apical margins.

Testaceous-orange; clypeus, inner portion of lateral lobes of pronotum, femora, and tergites of abdomen deep fuscous; mesonotum slightly clouded fuscous. Tegmina hyaline, costal area and cell and basal portions of apical cells of Sc and R translucent yellow, stigmal area opaque, ochraceous, distal portion of apical cells of Sc and R fuscous, costal margin, vein and Sc+R translucent yellow, all other veins deep fuscous.

Male: length, 4.5 mm., tegmen, 7.5 mm.

One male from Viti Levu, Mt. Korombamba, alt. 1,300 ft., Aug. 1, 1938, holotype, Zimmerman.

This species is distinguished by the proportions, coloration, and genitalia. It is very distinct from the other species described from Viti Levu and appears to be rather isolated.

Genus **Euricania** Melichar

Euricania Melichar, Ann. Nat. Mus. Wien **13**: 258 (1898). Logotype, *Pochazia ocellus* Walker, List. Hom. 2: 429, 1851.

Key to Fijian Species of Euricania

1. Tegmina with posterior portion of apical margin not straight, sutural angle rounded, not rather subangulate; genital styles of male longer than postfemora.... 2
   Tegmina with posterior portion of apical margin straight, not or scarcely convex, sutural angle subangulate, not rounded, genital styles shorter than postfemora 3
2. Genital styles in posterior view enclosing a broad oval. Avea, Aiwa, Thikombia, Vanua Mbalavu ..... **laetoria***
   Genital styles parallel in their middle portion in posterior view, Mango..... **licinia***
3. Ovipositor with 30-44 spines on apical margin..... 4
   Ovipositor with 45-55 spines on apical margin..... 8
4. Pygofer with a vertical shallow sulcus laterally, dorsolateral margins of pygofer strongly oblique, inclined caudad and laterad, styles markedly decurved at tip, Moala, Vanua Vatu..... **procilla***
   Pygofer without such a sulcus..... 5
5. Pygofer with a slight but definite obliquity or groove across dorso-lateral angle..... 6
   Pygofer with dorso-lateral angles without such a groove across their base..... 7
6. Genital styles in posterior view enclosing a fusiform opening with both ends symmetrical. Ongea ..... **cyane***
   Genital styles enclosing an opening with ends not symmetrical. Wakaya.... **sterope***
7. Genital styles not closely approximated distally, space between more or less U-shaped. Fulanga ..... **furina***
   Genital styles less widely separated at base, approximated distally, enclosing a drop-shaped space. Ovalau..... **dinon***
8. Length of genital styles 2.6 times maximum width between them in posterior view 9
   Proportions not as above..... 10
9. Length of genital styles 6.5 times their narrowest width. Totoya..... **cliduchus***
   Length of styles 5.6 times narrowest width. Matuku..... **progne***
10. Length of styles more than 3.0 times the maximum width of the space between them 11
    Length of styles exactly or less than 3 times this width..... 13
11. Styles less than 3.3 times maximum width separating them..... 12
    Styles more than 3.6 times this width. Tuvutha..... **moneta***
12. Styles with length of apical process, measured from level of dorsal margin, much exceeding narrowest width of limb of style, basal ventral eminence fully as long as half width of limb. Namuka, Kandavu..... 14
    Styles with length of apical process not exceeding narrowest width of limb of style, basal ventral eminence small, not as long as half width of limb. Wakaya ..... **sterope***
13. Styles five times as long as narrowest width, basiposterior portion of tegmina with many transverse tawny stripes. Viti Levu..... **tristicula** Stål
    Styles more than six times as long as narrowest width, tegmina with at most a single tawny stripe, this crossing fork of Cu_1. Mothe..... **sirenia***
14. Genital style 7.3 times as long as its narrowest width. Oneata..... **opora***
    Genital style 5.6 times as long as its narrowest width. Namuka, Kandavu..... **camilla***

1. Euricania tristicula (Stål), Öfv. K. Sven. Vet.-Akad., Förh. **20**: 163, 1865 (fig. 49, *a*).

Tegmina with the basiposterior area abundantly barred with yellowish brown.

Anal segment of male with ventral margin strongly convex, apical angles subacutely rounded. Pygofer with dorsal margin sloping obliquely ventrocaudad, broadly rounding into lateral margin and without a submarginal groove. Genital styles five times as long as narrowest width, in profile narrowly produced ventrad at base.

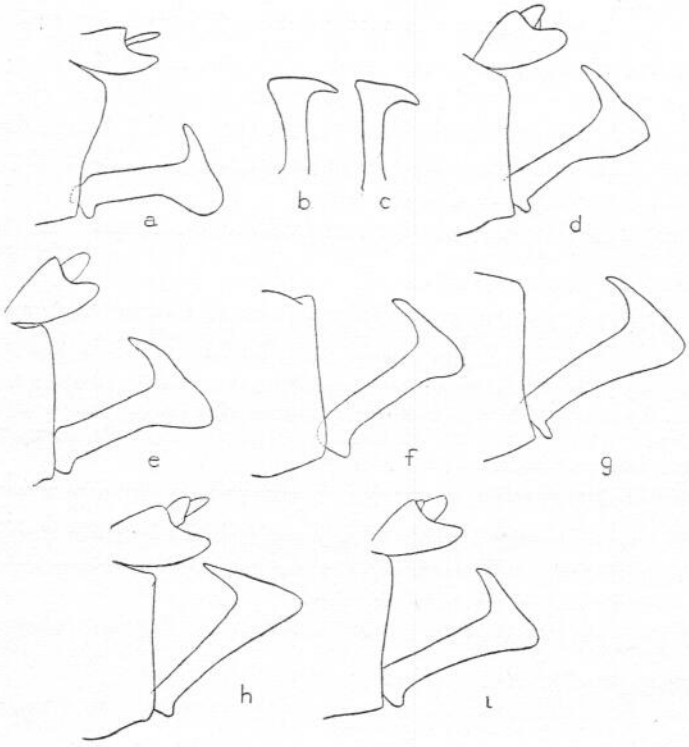


FIGURE 49.—**a,** *Euricania tristicula:* anal segment, posterior margin of pygofer, and genital style. **b,** *E. dinon:* genital style. **c,** *E. furina:* genital style. **d,** *E. cliduchus:* anal segment, posterior margin of pygofer, and genital style. **e,** *E. progne:* anal segment, posterior margin of pygofer and genital style. **f,** *E. camilla:* posterior margin of pygofer and genital style. **g,** *E. moneta:* posterior margin of pygofer and genital style. **h,** *E. opora:* anal segment, posterior margin of pygofer, and genital style. **i,** *E. sirenia:* anal segment, posterior margin of pygofer and genital style.

Six males and nine females from Viti Levu: Suva Bay, June 22, 1924, Bryan; Nandarivatu, October 1937, Valentine; Sept. 3, 1938, Zimmerman; Tailevu, August 1937, Valentine; Belt Road, 42-44 miles west of Suva, July 23, 1938, Zimmerman; Natubakula near Singatoka, April 19, 1941, Krauss; Bulu near Sovi, April 21, 1941, Krauss.

2. Euricania laetoria, new species.

Tegmina with posterior portion of apical margin rounded; sutural angle rounded, not distinctly angulate.

Fuscous-piceous; legs fuscous. Tegmina uniformly fuscous except tawny costal margin and hyaline stigma.

Anal segment of male with ventral margin very shallowly convex, apical angles produced and rounded. Pygofer with dorsal margin straight, meeting lateral margin at 90 degrees. Genital styles slender, longer than postfemora, in posterior view enclosing a broadly oval space.

Male: length, 3.7 mm., tegmen, 5.8 mm.; female: length, 6.0 mm., tegmen, 7.0 mm.

Six males and two females from Thikombia, Sept. 26, 1924, holotype male, Bryan. Four males and two females from Avea, Sept. 22, 1924, one paratype, Bryan. One male and one female from Aiwa, Sept. 1, 1924, Bryan. Two males and four females from Vanua Mbalavu: Buthalevu, alt. 200-400 ft., Aug. 10, 1938, Zimmerman; Sept. 24, 1924, Bryan.

This species is distinguished by the coloration and the genitalia.

3. Euricania licinia, new species.

Tegmina with posterior portion of apical margin rounded, sutural angle rounded.

Fuscous-piceous. Tegmina uniformly fuscous; costal margin interrupted tawny, stigmal area hyaline.

Anal segment of male with ventral margins shallowly convex, apical angles produced and rounded. Pygofer with dorsal margin straight, meeting lateral margin at 90 degrees. Genital styles slender, longer than postfemora, in posterior view parallel for most of length, enclosing an elongate-fusiform space.

Male: length, 4.2 mm., tegmen, 6.0 mm.; female: length, 6.0 mm., tegmen, 7.5 mm.

Six males, four females, and one mutilated specimen from Mango: Sept. 8, 1924, holotype male, Bryan; one mile south of Marona, alt. 200-300 ft., Aug. 14, 1938, one paratype male, Zimmerman.

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

4. Euricania procilla, new species.

Tegmina with posterior portion of apical margin straight, sutural angle distinctly subangulate.

Fuscous-piceous, legs paler; tegmina fuscous, costal margin slightly interrupted yellow, stigma and sometimes one or two small spots hyaline.

Anal segment as in preceding species. Pygofer with dorsal margin straight or slightly concave, meeting lateral margins at 90 degrees or subacutely, an oblique groove from its base to lateral margin, sides with a shallow submarginal sulcus. Genital styles shorter than postfemora, tip of apical process decurved distally.

Ovipositor with 35-40 spines on apical margin of third valvulae.

Male: length, 5.0 mm., tegmen, 6.0 mm.; female: length, 6.2 mm., tegmen, 8.0 mm.

Four males and three females from Moala: July 10 and 13 (holotype male), 1924, Bryan; one mile west of Naroi, alt. 0-500 ft., Aug. 25, 1938, Zimmerman. Four males and two females from Vanua Vatu, Sept. 13, 1924, Bryan.

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

5. Euricania cyane, new species.

Tegmina with posterior portion of apical margin straight, sutural angle distinctly subangulate.

Fuscous-piceous, legs paler; tegmina fuscous-piceous, occasionally broadly hyaline along nodal line, stigma hyaline.

Anal segment as in preceding species. Pygofer with dorsal margin straight or nearly so, a slight oblique groove across dorsolateral angle, a shallow submarginal sulcus laterally. Genital styles shorter than postfemora.

Ovipositor with 43 spines on apical margin of third valvulae.

Male: length, 4.2 mm., tegmen, 6.0 mm.; female: length, 4.5 mm., tegmen, 7.0 mm.

Four males, including holotype, and two females from Ongea, July 30, 1924, Bryan.

This species is distinguished by coloration and shape of genitalia.

6. Euricania dinon, new species (fig. 49, *b*).

Tegmina with posterior portion of apical margin straight, sutural angle distinctly subangulate.

Fuscous-piceous, legs paler. Tegmina fuscous-piceous, occasionally with two hyaline areas, one large and one small, stigma hyaline.

Anal segment as in preceding species. Pygofer with dorsal margin somewhat oblique, subangulately rounding into lateral margin. Genital styles shorter than postfemora, in profile with a prominent projection ventrally at base.

Ovipositor with 32 spines on posterior margin of third valvulae.

Male: length, 4.5 mm., tegmen, 5.6 mm.; female: length, 5.0 mm., tegmen, 6.5 mm.

Three males and six females from Ovalau: Oct. 20, 1924, Bryan; Draiba trail, alt. 600-800 ft., sweeping grasses, July 8, 1938, holotype male, Zimmerman.

This species is distinguished by coloration and shape of genitalia.

7. Euricania furina, new species (fig. 49, *c*).

Tegmina with posterior portion of apical margin straight, sutural angle not rounded, subangulate.

Fuscous-piceous, legs paler. Tegmina dark fuscous, stigma and two small spots hyaline.

Anal segment as in preceding species. Pygofer with dorsal margin markedly oblique, subangulately meeting lateral margins. Genital styles shorter than postfemora, in profile with a slight projection ventrally at base.

Ovipositor with 40 teeth on hind margin of third valvulae.

Male: length, 4.5 mm., tegmen, 5.8 mm.; female: length, 5.0 mm., tegmen, 7.0 mm.

Three males and one female from Fulanga, Aug. 6, 1924, holotype male, Bryan.

8. Euricania cliduchus, new species (fig. 49, *d*).

Tegmina with posterior portion of apical margin straight, sutural angle not rounded, subangulate.

Fuscous-piceous; legs paler. Tegmina fuscous, stigma and sometimes two spots in distal half hyaline.

Anal segment as in preceding species. Dorsolateral margins of pygofer slightly oblique, meeting lateral margins angulately, a shallow submarginal sulcus present. Genital styles shorter than postfemora, 2.6 times as long on ventral margin as the maximum width between them in ventral view, length of styles 6.5 times narrowest width.

Ovipositor with 50 teeth on hind margin of third valvulae.
Male: length, 4.0 mm., tegmen, 5.7 mm.; female: length, 6.0 mm., tegmen, 7.8 mm.

Five males and five females from Totoya, July 15, 1924, holotype male, one paratype, Bryan.

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

9. Euricania progne, new species (fig. 49, *e*).

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subangulate.

Fuscous-piceous; tegmina fuscous, stigma and sometimes two areas in distal half hyaline.

Anal segment as in preceding species. Pygofer with dorsal margin straight, meeting lateral margin in a slightly obtuse angle, a submarginal sulcus present laterally. Genital styles shorter than postfemora, length along ventral margin 2.6 times maximum width of space between them in posterior view, each 5.6 times as long as its narrowest width.

Ovipositor with 49 spines on posterior margin of third valvulae.
Male: length, 4.5 mm., tegmen, 5.8 mm.; female: length, 5.0 mm., tegmen, 7.0 mm.

Ten males and eight females from Matuku, July 4, 1924, holotype male and two paratypes, Bryan.

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

10. Euricania camilla, new species (fig. 49, *f*).

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subangulate.

Fuscous-piceous; tegmina fuscous, stigma hyaline, a few paler bars in basiposterior area.

Anal segment as in preceding species. Pygofer with dorsal margin straight, oblique, meeting lateral margin at slightly obtuse angle, a submarginal sulcus present laterally. Genital styles shorter than postfemora, measured along ventral margin 3.1 times as long as the maximum width of space between them in posterior view; each 5.6 times as long as its narrowest width.

Ovipositor with 45 spines on posterior margin of third valvulae.
Male: length, 4.4 mm., tegmen, 5.5 mm.; female: length, 5.5 mm., tegmen, 7.0 mm.

Six males and two females from Namuka, Aug. 12, 1924, Bryan.

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

Euricania camilla subspecies **kandavuana,** new subspecies.

As in typical subspecies from Namuka, but distinguished by tegmina being fuscous-piceous and bearing four hyaline spots, well-developed or small.

Six males from Kandavu: Ndavingeila, April 27, 1942, Krauss; Yawi, April 28, 1941, Krauss.

11. Euricania moneta, new species (fig. 49, *g*).

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subangulate.

Fuscous-piceous. Tegmina fuscous, stigma hyaline.

Pygofer with dorsal margin straight, meeting lateral margin in a slightly obtuse angle, an obsolete oblique groove from base of dorsal margin to lateral margin across dorso-apical angle, lateral submarginal sulcus feebly present. Genital styles shorter than postfemora, a little more than 3.6 times as long as maximum width of space between them in posterior view; each 5.5 times as long as its narrowest width.

Ovipositor with 50 spines on posterior margin of third valvulae.

Male: length, 5.0 mm., tegmen, 6.0 mm.; female: length, 5.5 mm., tegmen, 7.3 mm.

Eight males and three females from Tuvutha, Sept. 11, 1924, holotype male and one paratype, Bryan.

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

12. Euricania opora, new species (fig. 49, *h*).

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subrectangulate.

Fuscous-piceous. Tegmina fuscous; stigma and two spots in distal half, the posterior often large, hyaline, a few interruptions near base of costal margin and transverse veins in clavus tawny.

Pygofer with dorsal margin straight, oblique, meeting lateral margin in a slightly obtuse angle, an obsolete diagonal groove cutting off dorsolateral angle, submarginal sulcus feebly present laterally. Genital styles shorter than postfemora, 3.1 times as long as maximum width of space between them in posterior view; each 7.3 times as long as its narrowest width, in profile with a prominent projection at base.

Ovipositor with about 49 spines on posterior margin of third valvulae.

Male: length, 4.8 mm., tegmen, 5.8 mm.; female: length, 6.2 mm., tegmen, 7.1 mm.

Twenty-three males and 12 females from Oneata, Aug. 18, 1924, holotype male and two paratypes, Bryan.

13. Euricania sirenia, new species (fig. 49, *i*).

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subangulate.

Fuscous-piceous, legs a little paler. Tegmina fuscous; stigma hyaline, sometimes a few transverse veins in basiposterior area tawny.

Anal segment as in preceding species. Pygofer with dorsal margin concave, meeting lateral margin subrectangulately in a slight eminence, oblique groove across dorsolateral angle obsolete, lateral submarginal sulcus feebly present.

Genital styles shorter than postfemora, three times as long as maximum width of space between them, each 6.5 times as long as its narrowest width.

Ovipositor with 50 spines on posterior margin of third valvulae.

Male: length, 4.0 mm., tegmen, 5.2 mm.; female: length, 6.3 mm., tegmen, 7.2 mm.

One male and one female from Mothe, Aug. 14, 1924, holotype male, Bryan.

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

14. Euricania sterope, new species.

Tegmina with posterior portion of apical margin straight, sutural angle obtusely subangulate.

Fuscous-piceous, legs paler. Tegmina fuscous; stigma and two small spots distally, hyaline, an interrupted transverse band on basal third tawny yellow.

Anal segment as in preceding species. Pygofer with dorsal margin slightly oblique, meeting apical margin rectangulately in a slight eminence, partly marked off by a slight vertical groove, no oblique groove diagonally from base of dorsal margin to lateral margin, lateral sulcus obsolete. Genital styles shorter than postfemora, 3.1 times as long as maximum width of space between them; each five times as long as its narrowest width.

Male: length, 4.3 mm., tegmen, 5.5 mm.

Two males from Wakaya, Oct. 17, 1924, holotype male, Bryan. This species is distinguished by coloration and genitalia.

Family FLATIDAE Spinola

Key to Genera of Pacific Flatidae

1. Vertex very short; ocelli well-separated from eyes; apical cells of tegmina alternately twice or three times as long as broad.....**Sephena** Melichar
   Vertex not very short; ocelli only narrowly separated from eyes; apical cells of tegmina not as above..... 2
2. Vertex as long as broad, disk convex distad of eyes.....**Colgar** Kirkaldy
   Vertex broader than long, disk flattened distad of eyes..... 3
3. Vertex pointed at apex, frons carinate throughout; transverse veinlets on corium rectangulate with main sectors, apical cells three to five times as long as broad .....**Euphanta** Stål
   Vertex rounded at apex, frons carinate only basally; tegmina with transverse veinlets on corium irregular in direction, apical cells varying between 1.5 and 5 times as long as broad.....**Siphanta** Stål

A single member of this family, *Euphanta acuminata* Melichar, has been recorded from Ovalau, Fiji.

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