SOCIETY ISLANDS INSECTS

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SOCIETY ISLANDS INSECTS

CONTENTS

TERMITES FROM THE SOCIETY ISLANDS *

By

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No termites have been so far reported from the Society Islands. The following species were collected by the Pacific Entomological Survey in 1928.

Genus **KALOTERMES** Hagen sensu latiore

Subgenus **NEOTERMES** Holmgren

Kalotermes (Neotermes) connexus Snyder.

Kalotermes connexus Snyder: U. S. Nat. Mus., Proc., vol. 61, art 20, pp. 9-11, figs. 3, 4, pl. 4, fig. 16, 1922.

Moorea: Faaroa Valley, altitude about 1,500 feet, November 28, 1928, 3 collections, A. M. Adamson.

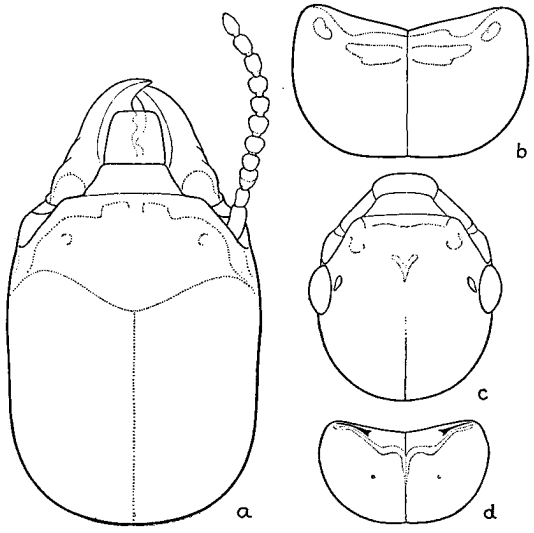


FIGURE 1. *Kalotermes (Glyptotermes) xantholabrum* Hill: *a,* head, soldier; *b,* pronotum, soldier; *c,* head, alate; *d,* pronotum, alate.

Snyder records this species for Hawaii, and it is the commonest termite in the Marquesas.[1] It is surprising that it was not collected by the Survey

[1] Light, S. F., Termites from the Marquesas: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. I, art. 6, 1932.

* Pacific Entomological Survey Publication 6, article 1. Issued December 23, 1932.

on Tahiti, also, where much more collecting was done than on the neighboring island of Moorea.

Subgenus GLYPTOTERMES

Kalotermes (Glyptotermes) xantholabrum Hill (pl. 1; fig. 1, *a-d*).

Kalotermes (Glyptotermes) xantholabrum Hill: Nat. Mus. Melbourne, Mem. no. 7, pp. 14-15, pl. 5, fig. 153, pl. 8, fig. 154; Insects of Samoa, pt. 7, fasc. 1, pp. 13-15, 1927.

Tahiti: Papenoo Valley, altitude 350 feet, October 25, 1928, in dead wood of *Inocarpus edulis;* Tipaerui Valley, altitude 750 feet, September 12, 1928; Fautaua Valley, September 11, 1928; Hitiaa, altitude 1,500 feet, November 16, 1928; Adamson. Papara Valley, altitude 750 feet, December 21, 1928, 2 collections, one in dead wood of *Hibiscus tiliaceus,* Mumford and Adamson.

Moorea: Faaroa Valley, altitude 1,500 feet, November 28, 1928, Adamson.

These collections agree in general with Hill's description. Both castes are larger in all dimensions and other small differences appear, but Hill has compared them with the types and reports that they agree perfectly. The finding of nest series confirms Hill's conclusions as to the conspecificity of the New Britain alates and the Samoa soldiers. The soldier is figured here for the first time (fig. 1, *a, b*). Alates were not taken swarming, but were present in colonies taken in September and November.

Kalotermes (Glyptotermes) species indeterminate.

Alate

Description incomplete since based on an alate probably incompletely pigmented, which is distorted due to drying.

Head, thorax, and two terminal abdominal tergites light yellow; remainder of body whitish-yellow; wings a light shining brown; costal veins darker.

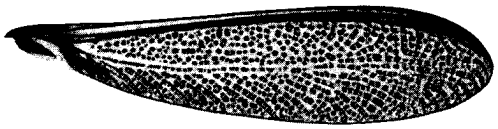
Head long and narrow; eye subcircular; separated from ventral margin by less than its diameter, and from posterior margin by nearly three times its diameter. Ocellus subcircular, close to eye. Pronotum at least half as long as wide; shallowly, broadly, and evenly concave in front, sides receding from near anterior end and rounding broadly into weakly convex posterior margin.

Wings narrow, with very large, coarse micrasters separated by about twice their own diameters on the average; fore wing with subcosta joining margin at base of membrane, radius joining margin at basal one-sixth, and radius sector and median running side by side to tip of wing without communicating branches; space between margin and radius sector same as that between radius sector and median, and less than diameter of veins, median running beyond radius sector, curving down to tip of wing and sending a branch to margin; cubitus running straight through center of wing and curving ventrally at tip to end of ventral margin; cubitus with 7 branches, the 4 distal ones widely spaced and curved; hind wing with radius joining margin within basal

one-sixth; radius sector and median united in basal one-third of wing; cubitus with 6 branches, widely spaced and curved.

Moorea: Faaroa Valley, altitude 1,500 feet, September, 1928, 1 alate with nymphs, A. M. Adamson.

This collection seems to represent a new species of *Glyptotermes,* but it seems better to await the finding of more extensive material before so designating it.



Kalotermes (Glyptotermes) xantholabrum HILL: FOREWING, × ABOUT 10; PHOTOMICROGRAPH TAKEN DRY ON SLIDE TO BRING OUT CHARACTERISTIC ORNAMENTATION.

MALLOPHAGA FROM TAHITI*

By

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INTRODUCTION

The three species here dealt with were collected in Tahiti by A. M. Adamson in 1928 and included in the collection from Polynesia submitted to me by E. P. Mumford, Director of the Pacific Entomological Survey. A report on the species from the Marquesas Islands has already been published.[1]

FAMILY MENOPONIDAE HARRISON

Genus ACTORNITHOPHILUS Ferris

The members of this genus constitute a very homogeneous group that is charactertistic of the bird families Laridae, Alcidae, and Charadriidae A single species is in the material at hand.

Actornithophilus milleri (Kellogg and Kuwana) (figs. 1, 2).

Colpocephalum milleri Kellogg and Kuwana: Washington Acad. Sci., Proc., vol. 4, pp. 483-484, pl. 30, fig. 6, 1902.—Kellogg: American Ent. Soc., Trans., vol. 32, p. 321, 1906.—Uchida: Annotationes Zoologicae Japonensis, vol. 9, p. 488, 1918.—Waterston: Ent. Soc. London, Trans., p. 288, 1923.

Actornithophilus milleri (Kellogg and Kuwana); Canadian Entomologist, vol. 48, p. 304, 1916.

Tahiti: Hitiaa, 5 females, 1 male from *Anous stolidus,* November 22, 1928, Adamson.

Previous records: Galapagos and Revillagigedo archipelagos and adjacent waters, from *Anous stolidus, Sula variegata, Sula nebouxii, Phaethon aethereus, Camarhynchus affinis, Butorides plumbeus* and *Geospiza* species, recorded by Kellogg and Kuwana, and by Kellogg. Ponape Islands, from *Anous stolidus* and *Sterna melanauchen,* recorded by Uchida. St. Paul's Rocks, South Atlantic, from *Sula leucogaster* and *Anous stolidus,* recorded by Waterston.

In the original description of this species, no type was designated. I

[1] Ferris, G. F., New species and other records of Mallophaga from the Marquesas Islands: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. 1, art. 5, 1932.

* Pacific Entomological Survey Publication 6, article 2. Issued December 23, 1932.

herewith designate a specimen from *Anous stolidus,* Clipperton Island, as the type. As Waterston has pointed out, the true host appears to be *Anous.*

Several species of a type very similar to this have been described and it stands in need of more precise and extended figures, which are here presented. The species is moderately dark and seems especially marked by the strongly fusiform abdomen in both male and female and the sexual dimorphism in the form of the fore-head. In the male (fig. 2, *g*) the lateral

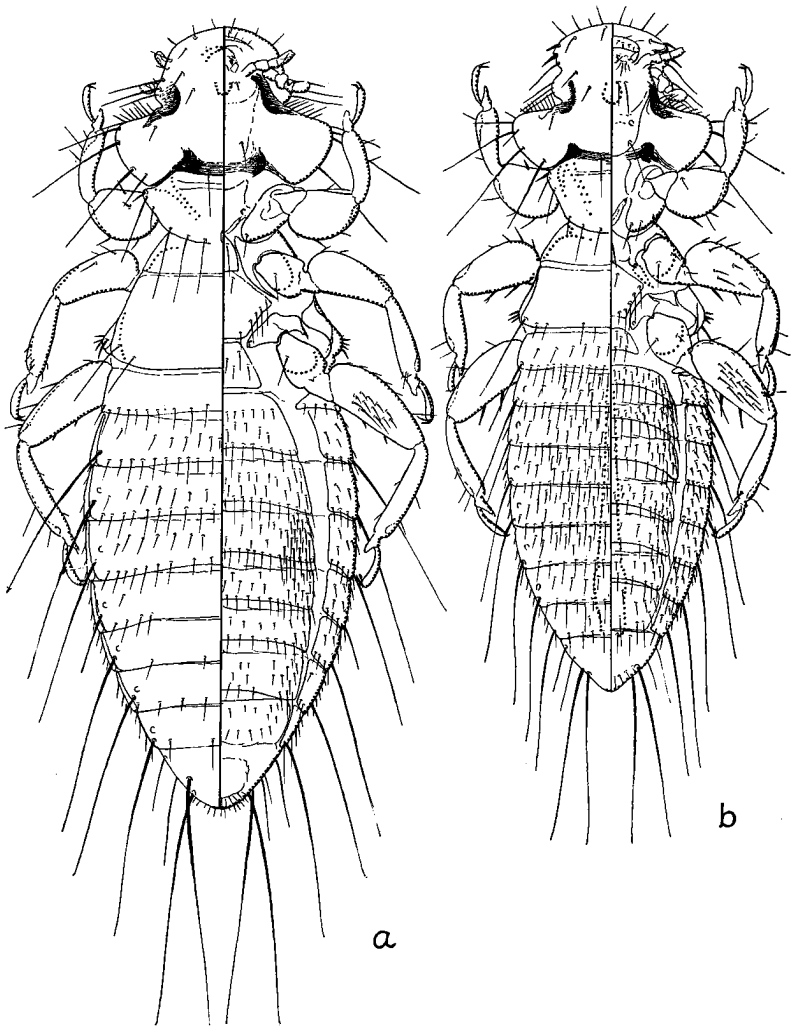

FIGURE 1. Tahitian *Actornithophilus milleri* (Kellogg and Kuwana) taken from *Anous stolidus: a,* female; *b,* male.

margin of the fore-head is distinctly emarginate and bears a pair of short, stout setae, while in the female (fig. 2, *f*) these features are lacking. There is also a sexual dimorphism in the setae of the posterior margin of the hind femora, the male (fig. 2, *c*) bearing here a pair of stout setae, while in the female (fig. 2, *d*) these are minute. The brush of setae on the fourth sternite of the abdomen is much more strongly developed in the female (fig. 2, *b*) than in the male. The genital region of the female (fig. 2, *a*) is very simple, the genital plate including only the sternite of the eighth segment and showing no special modifications. The genitalia of the male (fig. 2, *e*) have the parameres somewhat asymmetrical. The terminal portion of the preputial sac is strongly sclerotic, the sac is beset with small teeth and bears an irregular, sclerotic structure at the inner end.

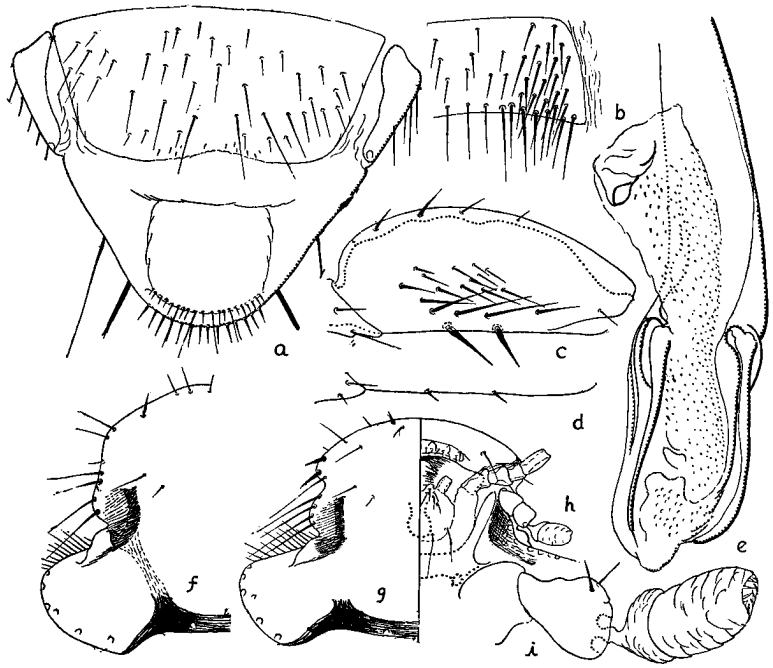

FIGURE 2. *Actornithophilus milleri* (Kellogg and Kuwana): *a*, genital region of female; *b*, brush of setae from fourth sternite of female; *c*, brush of setae on posterior femur of male; d, posterior margin of posterior femur of female; *e*, genitalia of male; *f*, dorsal aspect of portion of head of female; *g*, dorsal aspect of portion of head of male; *h*, ventral aspect of portion of head of male; *i*, antenna.

Genus MYRSIDEA Waterston

This genus, as at present understood, contains a considerable number of forms that were referred by earlier authors to *Menopon* and *Colpocephalum* and occur for the most part on passerine birds. Its species are to be found as very characteristic parasites of the family Corvidae, especially.

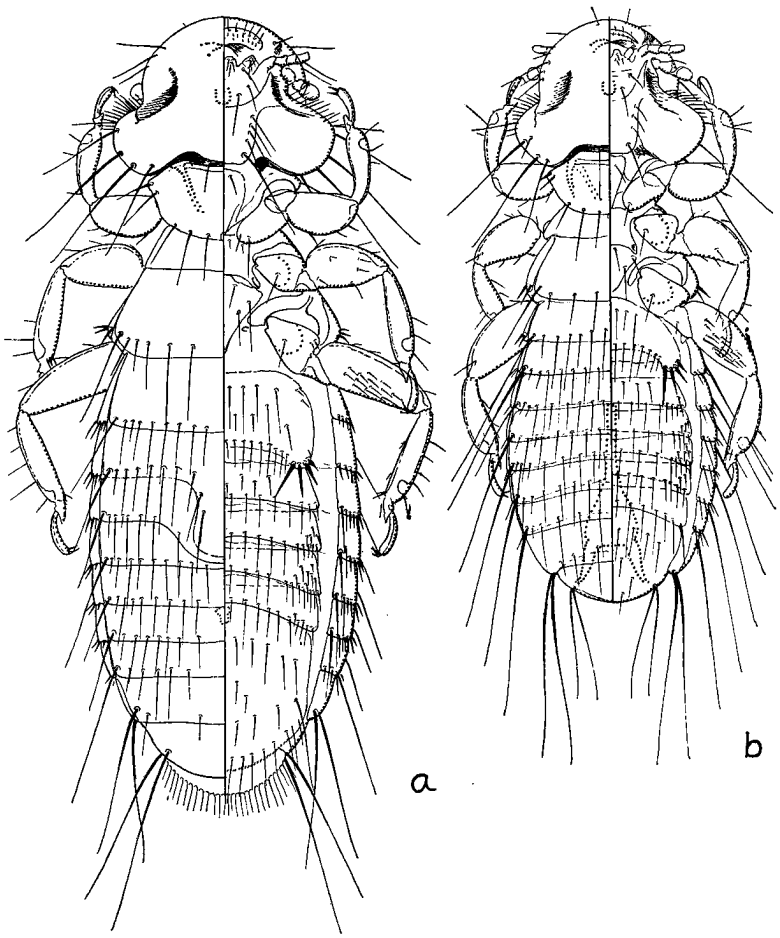

FIGURE 3. Tahitian *Myrsidea invadens* (Kellogg and Chapman) taken from *Acridotheres tristis: a,* female; *b,* male.

Myrsidea invadens Kellogg and Chapman (figs. 3, 4).

Menopon invadens Kellogg and Chapman: New York Ent. Soc., Jour., vol. 10, p. 167, pl. 15, fig. 5, 1902.

Myrsidea invadens (Kellogg and Chapman); Ferris: Canadian Entomologist, vol. 48, p. 308.

Tahiti: Hitiaa, from *Acridotheres tristis* (mynah), November 22, 1928, Adamson.

Previous record: Hawaii, from *Acridotheres tristis.*

The original description of this species is extremely deficient, the asters of setae and the modification of the abdomen of the female having gone unnoticed. In this species the modifications of abdominal tergites involve only the second and third segments, the second having its median third produced into a spatulate process that extends almost to the posterior margin of the fourth segment, while the third tergite is more broadly and less strongly produced, it also not quite attaining the posterior border of the fourth tergite. The fourth is but very slightly modified. The abdomen in this region is somewhat membranous and the modifications can only be seen in proper preparations. The ventral "asters" of setae are strongly developed (fig. 4, *c*) in both male and female.

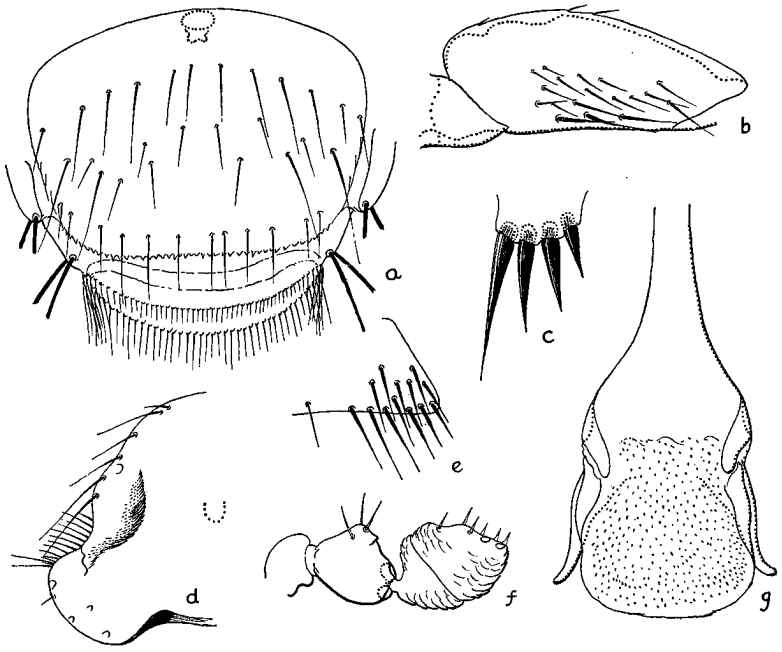

FIGURE 4. *Myrsidea invadens* (Kellogg and Chapman): *a,* genital region of female; *b,* ventral aspect of posterior femur; *c,* aster of setae of second abdominal segment; *d,* portion of dorsal aspect of head; *e,* brush of setae from fourth sternite of female; *f,* antenna; *g,* genitalia of male.

The genitalia of the male (fig. 4, *g*) are very simple, adhering closely to the type common to the genus and lacking any distinctive structures. The accompanying figures of other details may be of assistance in the further clarification of the species of this genus.

FAMILY PHILOPTERIDAE BURMEISTER

Genus **DEGEERIELLA** Neumann

Degeeriella separata (Kellogg and Kuwana).

Tahiti: Hitiaa, from *Anous stolidus,* November 22, 1928, Adamson.

This species is figured, together with notes, synonymy and previous records in my Marquesan paper.

ANTS FROM THE SOCIETY ISLANDS *

By

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INTRODUCTION

The ants collected by the Pacific Entomological Survey in the Marquesas Islands and Society Islands were submitted to me for study. A report on the collection from the Marquesas has already been published.[1]

Previous records of ants from Society Islands are limited to a few which I published in 1908,[2] to some scattered references in the myrmecological literature, and to the recent and much more extensive account [3] based on material collected by Cheesman in 1925.

Of 38 different forms of ants now know from Society Islands and the Marquesas, 19 are common to the two archipelagoes, 15 are recorded from Society Islands and not from the Marquesas, and 4 from the Marquesas and not from Society Islands. With the single exception of *Odontomachus haematoda* Linnaeus, all the forms cited in the following list are small or very small ants, capable of dispersal among the islands by natural agencies, such as violent winds or in native canoes.

Some of Miss Cheesman's observations [4] on the abundance of ants and their distribution on the islands which she visited are worth quoting:

> Ants were extremely abundant upon all the above islands, especially in the inhabited areas. One species would be usually preponderant, but not always the same species; in some cases the dominant species would differ in different localities of the same island. Upon all of those of the Society Islands *Pheidole oceanica nigriscapa* variety *tahitiana*, new species, and *Monomorium floricola* swarmed on the coasts, firmly established as house-ants in all the villages visited. *Pheidole megacephala* Fabricius held a like position on the Marquesas Islands. On the atoll Fakarava, *Solenopsis geminata* variety *rufa* Jerdon was the most abundant about the huts; *Paratrechina bourbonica* subspecies *bengalensis* Forel, although also abundant, was not seen near habitations. On the shores of Tahiti and Bora Bora very large and vigorous colonies of *Solenopsis geminata* variety *rufa* Jerdon, *Anoplolepis longipes* and *Pheidole oceanica nigriscapa* variety *tahitiana* Santschi, were in close proximity—the last always predominant. In other parts of the world the two former species have a name for displacing one another (Wheeler, "Ants," p. 155, 1910). Of those species occurring in the interior of the islands, *Cardiocondyla emeryi* Forel and *Plagiolepis augusti* Emery were taken only on the northern coast-hills

[1] Wheeler, W. M., Ants from the Marquesas Islands: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. I, art. 16, 1932.

[2] Wheeler, W. M., The ants of Moorea, Society Islands: Am. Mus. Nat. Hist., Bull. 24, pp. 165-167, 1908.

[3] Cheesman, L. E., and Crawley, W. C., A contribution towards the insect fauna of French Oceania: Ann. Mag. Nat. Hist., 10th ser., vol. 2, pt. 3—Formicoidea, pp. 514-525, 1928.

[4] Op. cit., pp. 514-515.

* Pacific Entomological Survey Publication 6, article 3. Issued December 23, 1932.

of Tahiti, about 2 to 3 miles inland. *Tetramorium pacificum* Mayr was taken only on the borders of Lake Vaihiria on the same islands 8 miles inland, and *Rogeria stigmatica* variety *sublaevinodis* Emery was taken only at the head of a valley in the center of northwest Raiatea. Although the coast-belts of Tahiti literally swarmed with predaceous species of ants, there was no evidence that they were destroying the local insect-fauna, as one might have supposed to be the case. One can only surmise that while ants can exploit human habitations, which yield unlimited supplies of concentrated food, they will systematically scour these in preference to hunting for insects.

I have included in this paper some records of ants which I took in Tahiti early in August, 1914, together with a few which have since found their way into my collection from other sources.

FAMILY FORMICIDAE

SUBFAMILY PONERINAE

Platythyrea pusilla Emery.

Recorded by Cheesman and Crawley from two localities, Patutua and Tautira, Tahiti.

Ponera perkinsi Forel.

Tahiti: Vallée de la Reine, altitude 450 feet, female, Mumford and Adamson.

Moorea: female, MacTavish.

I recorded this Hawaiian species many years ago from Moorea. It is cited also by Cheesman and Crawley from Tahiti.

Ponera trigona Mayr subspecies **convexiuscula** Forel variety.

Tahiti: Papara Valley, altitude 750 feet, 1 female, Mumford and Adamson.

This single specimen seems to belong to the variety *nautarum* described by Santschi from Samoa. However, some specimens from Apia which I refer to this variety have the pterostigma smaller and less conspicuously dark brown. Until the very difficult genus *Ponera* has been revised, I refrain from describing a new variety from a single female specimen.

Odontomachus haematoda (Linnaeus).

Tahiti: Fautaua Valley, altitude 75 feet, 1 worker, Adamson.

A single specimen.

SUBFAMILY MYRMICINAE

Pheidole megacephala (Fabricius).

Raiatea: H. E. Crampton.

This important tropicopolitan ant seems to be rare in Society Islands; it is not recorded by Cheesman and Crawley. It is, however, abundant and widely distributed in the Marquesas.

Pheidole species (near **umbonata** Mayr).

Recorded by Cheesman and Crawley from localities in Tahiti, but, as only workers were obtained, the form was not further identifiable.

Pheidole oceanica Mayr.

Tahiti: soldier, worker, H. M. Smith.

Morea: Opunohu Valley, altitude 500 feet, soldier, worker, Adamson.

Pheidole oceanica subspecies **nigriscapa** Santschi variety **tahitiana** Santschi.

Soldier

Length, about 3.3 mm. Sculpture of the head is finer and denser, with more distinctly punctate interrugal spaces, than variety *pattersoni* Mann from Solomon Islands, the rugae only feebly diverging on each side of the occipital groove and the occipital lobes also with large, sparse, oblique punctures. Castaneous brown; the mandibles, cheeks, and antennal funiculi yellowish red; femora slightly darker, scapes blackish, except at the tip; tarsi yellow.

Female

Length (deälated), 5 mm. Head decidedly broader than long, trapezoidal, with straight posterior border and anteriorly converging sides. Scrobes and antennal scapes reaching nearly to the posterior corners. Mesonotum as broad as long, flattened; epinotum short, concave, and sloping, without base and declivity, the spines stout and acute. Border of petiolar node blunt and transverse, postpetiole twice as broad as the petiole, with prolonged, blunt lateral conules. Gaster scarcely longer than broad. Sculpture and color much as in the soldier; mesonotum and scutellum smooth and shining, the former posteriorly with fine medially converging striae; epinotal declivity transversely striated, nodes of petiole and post-petiole finely and densely punctate, the latter also with a transverse row of coarse, elongate punctures above.

Tahiti: Fautaua Valley, soldier, worker, Adamson.

Moorea: soldier, worker, H. M. Smith.

Cheesman and Crawley record this ant from several Tahitian localities with notes on its behavior.

Santschi described a variety from Samoa, but recorded its occurrence also in Tahiti (W. C. Crawley). The soldiers collected by Adamson in Tahiti resemble the variety *pattersoni* Mann from Solomon Islands, but are smaller, and, as Santschi has noticed, have a shallow occipital excision.

Pheidole oceanica variety **boraborensis,** new variety.

Soldier

Length, 3.6 mm. Head with decidedly narrower and less pronounced scrobes than in the other forms of *oceanica,* with decidedly longer antennal scapes and broader and shallower occipital excision. Sculpture of head pronounced, much as in the variety *pattersoni* Mann, the rugae diverging on each side of the occipital groove and curving through a distinctly and rather coarsely reticulate area on the occipital lobes into the straight rugae on the sides of the head. Transverse rugosity on pronotum and base of epinotum less distinct than in typical *oceanica,* epinotal declivity striate; petiole and postpetiole smooth but subopaque. Color paler, the head, mandibles, and thorax being

yellowish ferruginous, the epinotum, petiole, and postpetiole paler, the clypeus, antennae, gaster, and legs pale yellow.

Worker

Length, 2.5 mm. Very similar in shape and structure to the worker of the typical *oceanica,* but the occipital border of the head slightly more rounded and the antennal scapes longer. Color paler, the head, thorax, femora, and tibiae reddish yellow, the pedicel, gaster, and legs whitish.

Described from three soldiers and a dozen workers taken by H. E. Crampton on Borabora Island, Society Islands. Cheesman and Crawley's citation of the variety *tahitiana* occurring on the reef-islet Motu Moute, off Borabora, may refer to the form here described.

Pheidole (Pheidolacanthinus) sexspinosa Mayr subspecies **adamsoni** Wheeler.

This subspecies was described[5] from specimens from Fatuhiva, Marquesas Islands. Several workers were taken by Adamson at Papeari, Tahiti.

Cardiocondyla nuda subspecies **nereis** Wheeler.

Tahiti: Vallée de la Reine, worker, female, Mumford and Adamson; Mataiea, on sugar cane, worker, female, Mumford and Adamson; Faa, sweeping on grass, worker, Adamson.

Cardiocondyla emeryi Forel.

Cited by Cheesman and Crawley as occurring in two localities near Papeete, Tahiti.

Monomorium pharaonis (Linnaeus).

Moorea: worker, female, G. A. MacTavish.

Monomorium minutum Mayr variety **liliuokalani** Forel.

Tahiti: Tuauru Valley, worker, Adamson; Vallée de la Reine, in dead banana leaves, worker, Mumford and Adamson; Mataiea, on sugar cane, worker, Mumford and Adamson; Papeari, male, Adamson.

Tapinoma (Micromyrmex) melanocephalum (Fabricius).

Moorea: Faaroa Valley, altitude 1,000 feet, female, Adamson.

Monomorium floricola (Jerdon).

Recorded by Cheesman and Crawley as "abundant near habitations on the coast; on food, sugar, etc.," in Tahiti and Raiatea.

Solenopsis geminata (Fabricius) subspecies **rufa** (Jerdon).

Tahiti: Vallée de la Reine, female, Mumford and Adamson; Hitiaa, altitude 1,000 feet, worker, Adamson; Faraura Valley, worker, Adamson; Fautaua Valley, worker, Adamson.

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[5] Wheeler, W. M., Ants from the Marquesas Islands: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey, Pub. I, art. 16, 1932.

Moorea: Faaroa Valley, altitude 1,000 feet, worker, Adamson.

Miss Cheesman gives a number of observations on the habits of this "fire ant," which she found to be abundant on Tahiti and Raiatea, Society Islands, and at Fakarava in the Tuamotus.

Rogeria stigmatica Emery subspecies **sublaevinodis** Emery.

Taken by Cheesman on Raiatea. It seems to be widely distributed among the islands in the Pacific, having been previously recorded from New Caledonia, Fiji, Loyalty Islands, and Samoa.

Tetramorium guineense (Fabricius).

Recorded by Cheesman and Crawley from Tahiti and Raiatea.

Tetramorium pacificum Mayr.

Tahiti: Vallée de la Reine, in dead leaves of banana, worker, Mumford and Adamson; Papeari, on *Pandanus,* male, Adamson; Papenoo Valley, altitude 150 and 350 feet, worker, Adamson; Faraura Valley, worker, Adamson; Hitiaa, on *Freycinetia,* worker, Adamson; Fautaua Valley, altitude 1,500 feet, worker, Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, worker, Adamson; Opunohu Valley, altitude 100 feet, worker, Adamson.

Recorded also by Cheesman and Crawley from Tahiti.

Tetramorium simillimum (F. Smith).

Tahiti: Teohu Valley, worker, female, Wheeler.

This tropicopolitan ant was taken by Cheesman on Tahiti and Borabora. She describes and figures the workers [6] as completely encircling their food,

> . . . and protecting it by discharging fluid at ants of other species, while workers of their own species were passing between them and fetching the food. *Pheidole* workers and *Paratrechina fijiensis* on their approach would receive a volley, at once turn and make off at full speed, stopping to cleanse their antennae, legs and face of the obnoxious fluid, which was presumably formic acid, although I could not detect any odour.

Tetramorium tonganum Mayr.

Moorea: Faaroa Valley, altitude 1,000 feet, worker, female, Adamson.

Strumigenys godeffroyi Mayr.

Tahiti: Papenoo Valley, altitude 350 and 1,000 feet, in dead leaves of *opue,* worker, female, Adamson.

SUBFAMILY DOLICHODERINAE

Tapinoma (Micromyrmex) melanocephalum (Fabricius).

The typical form of this species is cited by Cheesman and Crawley from Tahiti and Raiatea.

[6] Cheesman, L. E., loc. cit., pp. 519-521.

Tapinoma (Micromyrma) melanocephalum (Fabricius) variety **australe** Santschi.

Tahiti: Tuauru, worker, Adamson; Fautaua Valley, altitude 750 feet, under stones, worker, female, Adamson.

Moorea: worker, male, G. A. MacTavish.

Technomyrmex albipes (F. Smith).

Tahiti: Tuauru, altitude 20 feet, worker, Adamson; Fautaua Valley, worker, male, Adamson; Faraura Valley, Hitiaa, altitude 500 feet, worker, male, Adamson; Papeari, worker, Adamson.

Moorea: Faaroa, altitude 1,000 feet, in dead banana leaves, worker, Adamson.

Technomyrmex albipes variety **vitiensis** Mann.

Cheesman and Crawley identify some of their specimens from Tahiti and from the Marquesas as belonging to this Fijian and Samoan variety. All the specimens taken by Mumford and Adamson are very constant and seem to me to be referable to the typical form of the species.

SUBFAMILY FORMICINAE

Anoplolepis longipes (Jerdon).

Tahiti: Tuauru Valley, altitude 20 feet, worker, Adamson; Fautaua Valley, worker, female, male, Adamson.

Cheesman and Crawley mention this ant as abundant on all the islands visited in the Marquesas, the Tuamotus, and Society Islands.

Plagiolepis mactavishi Wheeler.

Tahiti: Papenoo Valley, altitude 350 feet, worker, female, Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, worker, female, Adamson.

This ant was originally described from Moorea; it occurs also in Hawaii and the Marquesas.

Plagiolepis augusti Emery.

Cheesman and Crawley record this Fijian species from the Vallée de Sainte Amélie in Tahiti.

Paratrechina longicornis (Latreille).

Tahiti: Teohu Valley, worker, Wheeler.

Moorea: MacTavish.

Recorded also by Cheesman and Crawley from Tahiti and Borabora.

Paratrechina (Nylanderia) vaga (Forel) variety **crassipilis** Santschi.

Tahiti: Tuauru, worker, Adamson; Vallée de la Reine, worker, male, Mumford and Adamson; Faraura Valley, worker, female, Adamson; Fautaua Valley, altitude 750 and 1,500 feet, under stone, worker, female, Adam-

son; Paea, on *Hibiscus tiliaceus,* worker, Adamson; Hitiaa, on *Freycinetia,* worker, Adamson; Papeari, worker, Adamson; Papenoo Valley, altitude 500 feet, worker, Adamson.

Paratrechina (Nylanderia) bourbonica (Forel) subspecies **bengalensis** (Forel).

Tahiti: Tuauru Valley, altitude 20 feet, worker, Adamson.

Cheesman and Crawley record this ant from Tahiti and Raiatea.

Paratrechina (Nylanderia) vitiensis Mann.

Worker specimens from Tahiti and Raiatea are referred to this Fijian species with some doubts by Cheesman and Crawley. They were perhaps specimens of *vaga* variety *crassipilis,* which is not mentioned in their paper.

Lasius (Acanthomyops) claviger Roger.

I recorded specimens of this common North American ant from Papeete, Tahiti, in 1911. They were in all probability introduced by commerce and have failed to establish themselves. At any rate, the species has not since been seen on the island.

ODONATA FROM TAHITI *

By

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Specimens of five species of adult dragonflies from Society Islands are included in the collection sent me for determination by the Pacific Entomological Survey. Nymphs of three of the species are represented. In a recent paper [1] I have described one of the new species collected by the Survey in the Marquesas.

L. E. Cheesman [2] collected in Society Islands one of the five species mentioned in this paper, namely, *Ischnura aurora,* as well as four others, *Anax gibbosulus* Rambur, *Diplacodes bipunctata* (Brauer), *Tholymis tillarga* (Fabricius), and *Pantala flavescens* (Fabricius), which were not collected by the Survey. Brauer in 1865 recorded *Anaciaeschna jaspidea* from Tahiti; in 1871 de Selys described *Hemicordulia oceanica* from Tahiti and in 1876 he recorded two species of *Ischnura,* as will be noted below. Recently, D. E. Kimmins [3] has described *Ischnura cardinalis* from Raiatea and Borabora.

Anax guttatus Burmeister.

Lake Vaihiria, altitude 1,400 feet, November 1, 1928, 3 adult males, 12 grown nymphs, Adamson.

This is a strong flying species that ranges widely over the shores of the South Pacific, Australia, India and the Indies, and the Chinese coast. It is the giant dragonfly of the collection. Doubtless the nymphs collected at the same time and place as the adults are of the same species. I described the nymph in 1904.[4]

Half a dozen young specimens (11 mm. long) in bad state of preservation seem to show a broad dark band across the abdomen similar to that in the young nymphs of *Anax junius.*

Anaciaeschna jaspidea (Burmeister) (fig. 1).

Tuauru River, September 3, 1928, 1 male, Adamson.

This species was previously recorded from Tahiti by Brauer [5] as *Aeschna*

[1] Needham, James G., Coenagrion interruptum, new species, from the Marquesas Islands and nymph of Hemicordulia assimilis Hagen: Pacific Ent. Survey Pub. 1, art. 10, B. P. Bishop Mus., Bull. 98, 1932.

[2] Cheesman, L. E., A contribution towards the insect fauna of French Oceania, pt. 1: Ent. Soc. London, Trans., vol. 75, pp. 153-154, 1927.

[3] Kimmins, D. E., Ischnura cardinalis, new species (family Agrionidae), an addition to the fauna of the Society Islands: Entomologist, vol. 62, p. 224, 1929.

[4] Needham, J. G., New dragonfly nymphs: U. S. Nat. Mus., Proc., vol. 27, p. 695, pl. 40, fig. 2, 1904.

[5] Brauer, Friedrich, Verh. Zool. Bot. Ges. Wien, vol. 15, p. 907, 1865.

* Pacific Entomological Survey Publication 6, article 4. Issued December 30, 1932.

tahitensis. It has a wide distribution; in the Pacific it has been reported from Fiji and Samoa as well as from Society Islands.

Tramea limbata (Desjardins).

Tramea samoensis Brauer, male; *Tramea transmarina* Brauer, female.

Lake Vaihiria, November 1, 1928, 4 adult males, 1 female, about a dozen grown nymphs probably of the same species, Adamson.

I described the nymph in 1904.[6]

This strong flying species ranges over the whole of the South Pacific and East Indies across continental Africa to Madagascar. It has many synonyms: only those applied to Polynesian specimens are quoted above. For all the others reference may be had to Ris.[7]

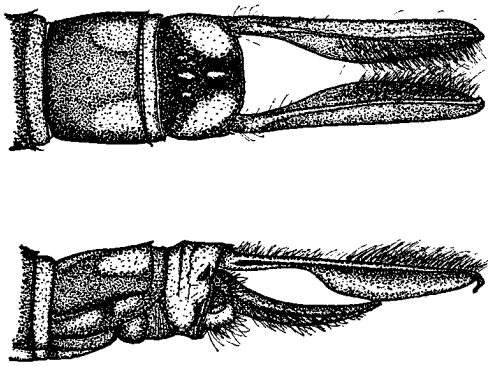

FIGURE 1. Appendages of male abdomen of *Anaciaeschna jaspidea* (Burmeister).

Diplacodes trivialis (Fabricius).

Tuauru River, September 5, 1928, 2 adult females, A. M. Adamson.

This dainty little drangonfly is another wide-ranging species; from Japan and India, through the East Indies, it ranges southward to the Seychelles Islands (though not found as yet on the African continent). Its easternmost record is Viti Levu.

A single female taken, apparently, with the preceding species (same date and locality), corresponds to the one known specimen of *Diplacodes remota* from Solomon Islands described in 1911 by Ris.[8] More material, especially an adult male, is very desirable.

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[6] Needham, J. G., New dragonfly nymphs: U. S. Nat. Mus., Proc., vol. 27, p. 712, pl. 40, fig. 4, 1904.

[7] Ris, F., Libellulinen in Cat. Coll. Zool. de Selys, fasc. 16, p. 980, 1913.

[8] Ris, F., in Cat. Coll. Zool. de Selys, fasc. 12, p. 470, fig. 295, 1910.

Ischnura aurora Brauer.

This species was recorded by de Selys from Tahiti in 1876 [9] together with another one, *I. taitensis,* that does not appear in the present collection nor in Cheesman's paper.

Thirteen adult males and sixteen females and many nymphs of this species were taken in Fautaua Valley, Tahiti, on August 23, September 11, and September 13, 1928. I cannot at present distinguish the nymphs from those of other species of *Ischnura* that have been described.

[9] Selys-Longchamps, E. de, Synopsis des Agrionines: Acad. Belg., Bull. (2), vol. 41, p. 281, 1876.

CHERMIDAE FROM THE SOCIETY ISLANDS *

By

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INTRODUCTION

This is the second report on the collection of Chermidae made in the South Pacific islands by the Pacific Entomological Survey. The first [1] dealt with new species from the Marquesas. In the material from Society Islands the following two species are represented.

CARSIDARINAE CRAWFORD

Genus MESOHOMOTOMA Kuwayama

Mesohomotoma hibisci (Froggatt) (fig. 1).

Tyora hibisci Froggatt, Proc. Linn. Soc. New South Wales for 1901, vol. 26, p. 287, 1902.

Length to tip of folded wing, 4.5 mm. to 5.5 mm.; length of body mounted on slide, 3.9 mm. to 4.5 mm.; length of fore wing, 3.5 mm. to 4.4 mm.; width of fore wing, 1.2 mm. to 1.6 mm.; width of head, 0.7 mm. to 0.8 mm. General color light greenish yellow to brown, in the latter case with the head, thorax, and legs rusty or chocolate brown and the abdomen darker brown. Tips of antennal segments 3, 4, 5, 6, 7, and 8 black, and segments 9 and 10 entirely black. Eyes darker than general color of head. Fore wings hyaline or tinged very faintly brownish, with noticeable dark-brown spots at the extremities of R_1, R_s, M, M_{1+2}, M_{3+4}, Cu_1 and Cu_2, and with a small and a large fumate area along the anal vein as illustrated (fig. 1, *c*). Characters of the genus well developed.[2]

Head slightly wider than prothorax; very nearly horizontal in position; shape and proportions as illustrated (fig. 1, *a, b*), the vertex markedly depressed on either side of and parallel to the median furrow, with the outer anterior angles of the vertex terminating in a cone-like process at each side of the head; the ventral side of the head sharply angular at the outer anterior margin on either side (fig. 1, *b*). Antennae 10-segmented (fig. 1, *g, h*); three times as long as width of head; the 2nd (fig. 1, *f*), 4th, 5th, 6th, 7th, and 8th antennal segments bearing sensoria.

Thorax scarcely arched, the posterior two-thirds of the pronotum horizontal, the anterior third sharply deflexed forward and downward, bearing a conical projection on either side of the median line where the deflection commences; the thoracic dorsum bearing relatively very few, fine hairlike setae. Posterior tibia with a single large and conspicuous claw at the base (fig. 1, *p*), with a single black tooth on the outer margin of the apex and four similar teeth on the inner margin, the posterior tooth set on a

[1] Klyver, F. D., Anomoterga tahuata, new genus and species, and other Chermidae from the Marquesas Islands: B. P. Bishop Mus., Bull. 98, Pac. Ent. Survey Pub. 1, art. 8, 1932.

[2] Boselli, F. B., Studii sugli Psyllidi, 6 (Homoptera: Psyllidae o Chermidae): Lab. Zool. Gen. Agr., Portici, Bull. 9, pp. 188-191, fig. 5, 1-13, 1930.

* Pacific Entomological Survey Publication 6, article 5. Issued December 30, 1932.

thumblike process, and, sometimes (fig. 1, *i*), with a small subapical toothlike seta on the outer aspect of the posterior tibia. First posterior tarsal segment with a single large claw on the outer aspect. Fore wings hyaline or tinged very faintly brownish; wing shape and venation as illustrated (fig. 1, *c*), with the pseudo-vein or callus joining the radial sector and media conspicuously developed, length of fore wing about three times its greatest width, the wing membrane punctate (fig. 1, *c, d*) in a sharply delimited area between C +Sc and R, and similarly in an area paralleling the anal vein for about half its length, two alar radulae present, one in the second marginal cell, the other between Cu_1 and M_{3+4}.

Abdomen, particularly that of the male, elongate, with the tergites and sternites moderately and uniformly chitinized. Genitalia of the male exceedingly complex (fig. 1, *j-n*), the proctiger consisting of four parts, a cylindrical and vertical process

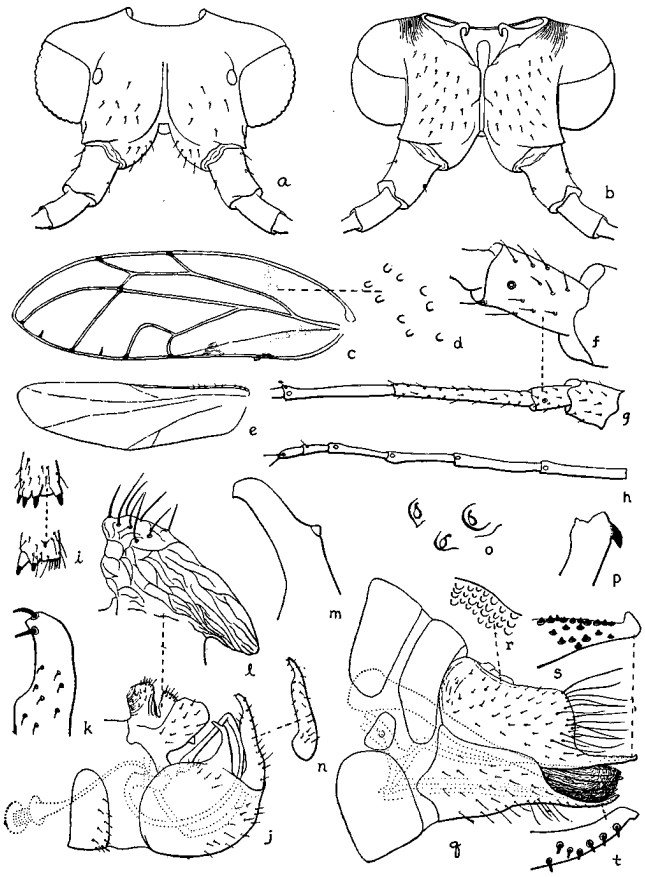

FIGURE 1. *Mesohomotoma hibisci* (Froggatt): *a*, dorsal aspect of head; *b*, ventral aspect of head; *c*, fore wing; *d*, detail of fore wing; *e*, hind wing; *f*, sensorium on second antennal segment; *g, h*, antenna; *i*, apex of posterior tibia; *j*, male genitalia; *k*, inner aspect of clasper, greatly enlarged; *l*, median lobe of proctiger; *m*, inner aspect of hook of ventral valve; *n*, inner aspect of clasper; *o*, detail of spermatheca wall; *p*, base of posterior tibia; *q*, female genitalia; *r*, detail of circum-anal ring; *s*, apex of dorsal valve; *t*, apex of ventral valve.

with the anus on the anterior side of the apex, two lateral lobes distended posteriorly, and a double-pointed median lobe (fig. 1, *l*) situated posterior to the anal process and between the two lateral lobes; the claspers of the male elongate and relatively simple in shape (fig. 1. *n*), but with two clawlike setae on the anterior mesal side of the apex (fig. 1, *k*); ventral valve of the male genital segment bearing two large anteriorly directed hooks on the dorsal margin (fig. 1, *j, m*). Female genitalia (fig. 1, *q*) robust in anterior two-thirds, then abruptly and exceedingly constricted in the apical third, the dorsal valve terminating in a blunt hook beset with short, knoblike setae (fig. 1, *s*) and the ventral valve in a slender point beset with short, stout setae, the dorsal valve bearing large setae as illustrated, and the pores of the circum-anal ring being strangely crescent shaped (fig. 1, *r*).

Tahiti: Paea, August 29, 1928, on *Hibiscus tiliaceus,* 5 males and 4 females (FK300.1-300.9), Adamson; Fautaua Valley, altitude 50 feet, September 7, 1928, on the same host, 6 males and 8 females (FK301.1-301.14), Adamson; Mataiea, December 19, 1928, on sugar cane, one male (FK302.1), Mumford and Adamson; Fautaua Valley, altitude 1,500 feet, September 11, 1928, host unrecorded, one male (FK303.1) Adamson; Tuauru Valley, altitude 50 feet, September 5, 1928, host unrecorded, one male (FK304.1), Adamson; Papenoo Valley, altitude 500 feet, October 22, 1928, host unrecorded, one male and one female (FK305.1-305.2), Adamson; Papenoo Valley, altitude 500 feet, October 25, 1928, host unrecorded, two males and one female (FK306.1-306.3), Adamson.

The specimens before me in this collection include the entire range of color variations on which Crawford based his key of the four known species of this genus.[3]

TRIOZINAE PUTON

Genus PHYLLOPECTA Zacher

Phyllopecta vitiensis (Kirkaldy).

Detailed description and figures of this species were published in my Marquesan paper. A single specimen was collected in the Society Islands.

Moorea: Opunohu Valley, altitude 100 feet, November 30, 1928, host unrecorded, 1 male (FK307.1), Adamson.

[3] Crawford, D. L., The Homopterous genus Mesohomotoma (Psyllidae or Chermidae): Hawn. Ent. Soc., Proc., vol. 6, p. 33, 1925.

THYSANOPTERA FROM THE SOCIETY ISLANDS*

By

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and

JOHN B. STEINWEDEN
AGRICULTURAL COMMISSIONER, CITY AND COUNTY OF SAN FRANCISCO

SUBORDER TEREBRANTIA HALIDAY

SUPERFAMILY THRIPOIDEA HOOD, 1915

FAMILY THRIPIDAE UZEL, 1895

SUBFAMILY THRIPINAE KARNEY, 1921

Genus **THRIPS** Linné, 1746

THRIPS Linné, Fauna Svecica, ed. 1, p. 220, 1746.

THRIPS Uzel, Mon. Ord. Thysanoptera, p. 173, 1895.

Thrips aleuritis, new species (fig. 1, *a-d*).

Female Holotype

Color: body light brown to dark brown with the head and thorax at most only slightly lighter than the abdomen. First and second antennal segments concolorous with head, third yellowish or light brown, other segments dark brown except extreme base of the fourth, which is light. Legs slightly lighter than body. Wings uniformly brown. Eyes dark purplish black, ocelli with orange red crescents. Body spines dark.

Total body length, 1.095 mm.; head length, 0.105 mm., width, 0.135 mm.; prothorax length, 0.112 mm., width, 0.157 mm.; pterothorax length, 0.195 mm., width, 0.225 mm.; greatest width of abdomen, 0.255 mm. Segments of antennae: length (width) in microns: I, 20 (23); II, 32 (23); III, 44 (20); IV, 44 (19); V, 36 (16); VI, 45 (16); VII, 16 (16); total length, 240 μ. Length of spines: interocellar, 28 μ.; on posterior angles of prothorax, outer, 44 to 48 μ, inner, 44 to 48 μ; inner pair on posterior margin 24 μ; on metanotum, outer pair, 24 μ, inner, 40 μ; on ninth abdominal segment, inner, 68 μ; on tenth abdominal segment, 80 μ.

Head broader than long, not rounded in front, cheeks arched, surface behind eyes cross-striated. Interocellar spines small, placed outside of ocellar triangle alongside of anterior ocellus, a row of six small spines behind each eye. Eyes large and prominent, only slightly protruding, occupying about half of head length. Ocelli small, posterior pair anterior to a line connecting posterior margins of eyes. Mouth cone short, narrowed

* Pacific Entomological Survey Publication 6, article 6. Issued January 12, 1933.

at tip, not reaching to posterior margin of prosternum. Antennae moderately stout, more than twice as long as head.

Prothorax broad and rounded at the sides. Pronotum with fine cross-striations and set with 50 to 60 small setae, spines on posterior angles rather short, equal in length, a series of three small spines on each side along the posterior margin. Median spines on metanotum placed close to anterior margin or only slightly behind it. Pterothorax with sides rounded, and metanotum reticulated. Legs strong, well-developed posterior tibiae with a series of about 12 closely spaced, stout spines on the inner side. Wings fully developed. Spines on fore wing as follows: costa 25, fore vein with 7 at the base, 3 in distal portion, hind vein with 12 to 14. Abdomen rather broad, not greatly narrowed at apex. Comb on eighth abdominal segment complete. Spines on ninth and tenth abdominal segments strong.

The spines on the posterior angles of the prothorax of the paratypes studied vary in length from 48 to 70 μ while the spines on the fore wings are as follows: costa 24 to 29, fore vein with 7 at base, 3 in distal portion, hind vein with 12 to 17, usually 14 to 16.

The uniformly brown wings and the color of the head and thorax, which is not distinctly lighter than that of the abdomen, distinguish this species from closely related forms. *Albipes* Bagnall has the head yellowish white, the prothorax yellow, the abdomen brown, legs yellow and the wings lighter in the basal fourth. *Pallipes* Bagnall has the wings light in the basal fourth, the legs yellow and the comb on the eighth abdominal segment irregular. *Oryzae* Williams is separated by the slender head and prothorax, the long mouth cone and the long ninth abdominal segment.

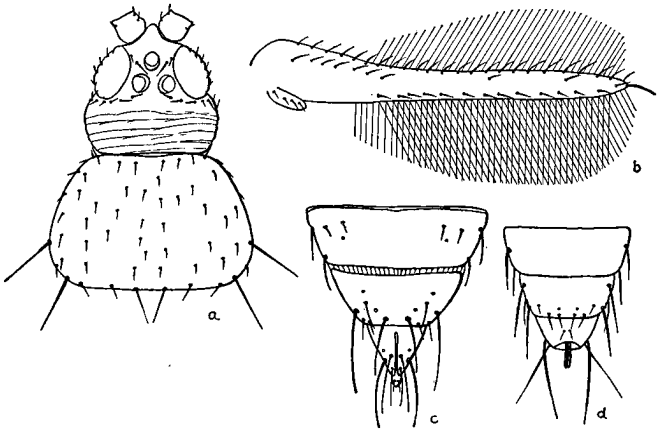

FIGURE 1. *Thrips aleuritis,* new species: *a,* female, head and prothorax; *b,* female, right fore wing; *c,* female, end of abdomen; *d,* male, end of abdomen.

Male Allotype

Body golden yellow in color, first three antennal segments concolorous with body, IV to VII brown with IV and V lighter at base.

Total body length, 0.765 mm.; head length, 0.083 mm.; width, 0.120 mm.; prothorax length, 0.105 mm.; width, 0.135 mm.; pterothorax length, 0.195 mm.; width, 0.180 mm.; greatest width of abdomen, 0.120 mm. Total length of antennae, 210 μ. Length of spines, interocellar, 20 μ; spines on posterior angles of prothorax, 38 to 42 μ; on ninth abdominal segment, outer, 40 to 44 μ; on tenth segment, 72 μ.

Similar to female in appearance, form, and chaetotaxy except for smaller size, narrower abdomen, lighter color of body and basal segments of antennae. Abdominal segments without clear areas on the sternites.

Type Material: female holotype, male allotype, and one male paratype collected on *Aleurites moluccana,* November 21, 1928, Moulton no. 3645. Types deposited in Bernice P. Bishop Museum.

Type locality: Faraura Valley, Hitiaa, Tahiti.

Seven female paratypes, three male paratypes and several larval paratypes were collected on *Lantana camara* at Faraura Valley, Hitiaa, Tahiti, November 17, 1928, Moulton no. 3642, and at Papetoai, Moorea, Moulton no. 3646, November 30, 1928. Specimens were also collected at Hitiaa from unrecorded host plants as follows: Moulton no. 3643, November 18, 1928, altitude 1,500 feet; no. 3644, November 19, 1928, altitude 1,500 feet; no. 3654, November 16, 1928, altitude 1,500 feet; A. M. Adamson.

Suborder TUBULIFERA Haliday

Superfamily PHLOEOTHRIPOIDEA Hood, 1915

Family PHLOEOTHRIPIDAE Uzel, 1895

Subfamily PHLOEOTHRIPINAE Karny

Tribe HAPLOTHRIPINI Priesner, 1927

Genus **HAPLOTHRIPS** Amyot and Serville, 1843

Priesner, Thysanoptera of Europe, p. 564, 1927.

Haplothrips gowdeyi Franklin.

Many specimens (male and female) of this species collected from the following hosts and localities:

Tahiti: Fautaua Valley, altitude 1,500 feet, December 12, 1928, on *Aleurites moluccana,* Moulton no. 3650; Papara Valley, altitude 750 feet, December 21, 1928, host unrecorded, Moulton no. 3652; Mumford and Adamson.

Moorea: Papetoai, sea level, November 30, 1928, on *Lantana camara,* Moulton no. 3646; A. M. Adamson.

This is one of the most common species of thrips in the South Sea islands, where it infests many plants. It has been reported from the Barbados, Cuba, Brazil, Hawaii, Fiji, Australia, Japan, Formosa, and Abyssinia.

Genus NEOHEEGERIA Schmutz

Schmutz, Ann. K. K. Nat. Hist. Hofmus., Band 23, p. 344, 1909.
Priesner, Thysanoptera of Europe, p. 628, 1927.

Neoheegeria hibisci, new species (fig. 2, *a-c*).

Female Holotype

Body color dark brown with a suggestion of red hypodermal pigmentation, pterothorax and first four abdominal segments somewhat lighter. Antennae dark brown except apical portion of segment two and segment three, which are yellow shaded with brown. Legs concolorous with body except all tarsi, fore tibiae, tips of fore femora and bases and tips of mid and hind femora, mid and hind tibiae, which are yellow. Wings lightly shaded with brown. Eyes dark purplish black in basal half, remainder clear white. Ocelli with dark purplish red crescents. Body spines light yellowish brown.

Total body length, 3.735 mm.; head length, 0.390 mm., width, 0.293 mm.; prothorax length, 0.330 mm., width, 0.465 mm.; pterothorax length, 0.525 mm., width, 0.600 mm. Abdomen: greatest width, 0.675 mm.; tube length, 0.405 mm.; width at base, 0.135 mm.; width at tip, 0.060 mm. Antennal segments, length (width) in microns: I, 44 (48); II, 84 (40); III, 120 (48); IV, 116 (42); V, 124 (44); VI, 112 (36); VII, 80 (32); VIII, 64 (28); IX, 56 (20); total length, 800 μ. Length of spines: postocular, 150 μ; on anterior angles of prothorax, 84 μ; sides, 104 μ; posterior angles, 152 μ; eighth abdominal segment, 120 μ; ninth abdominal segment, 375 μ; end of tube, longer, 260 to 315 μ. shorter, 72 μ.

Head one and one-third as long as wide, rounded in front and extended forward between bases of antennae, cheeks parallel, only slightly narrowed posteriorly, marked with very fine transverse, anastomosing lines. Postocular spines long and pointed, dorsal surface of head with a pair of very fine setae behind postoculars, sides of head with a pair of very fine setae behind postoculars, sides of head with four or five prominent bristles, 20 μ long, which are not borne on warts. Eyes occupying about one-third the side of the head. Ocelli large, well developed, posterior ones contiguous with eyes. Mouth cone long and pointed, reaching to posterior margin of prosternum. Maxillary palpi 3-segmented, the two basal segments very short, and the third about three times as long as the other two. Labial palpi 2-segmented, very short. Antennae 8-segmented, segment VII distinctly separated from VIII, which is narrowed at the base. Sense area on segment II near center of segment, two long slender sense cones on III, four on IV, two on V, and two on VI.

Prothorax shorter than head, distinctly narrower than pterothorax, all spines well developed with pointed tips, pair at the posterior angle longest. Mesonotum with fine transverse and metanotum with fine longitudinal anastomosing lines which form small cell-like areas. Legs moderately stout, fore femora slightly enlarged and unarmed, fore tibiae and fore tarsi unarmed. Wings well developed, broad, narrowed in the middle, each fore wing with 26 to 32 double fringe hairs along the posterior margin and with three pointed spines at the base, the first short and the other two long.

Abdomen elongate and ovate, tube about same length as head, spines pointed at tips, those on ninth segment longest.

Male unknown.

Moorea: Papetoai, sea level, November 30, 1928, on *Hibiscus tiliaceus,* female holotype, and one female paratype, Moulton no. 3647, A. M. Adamson. Type in Bernice P. Bishop Museum.

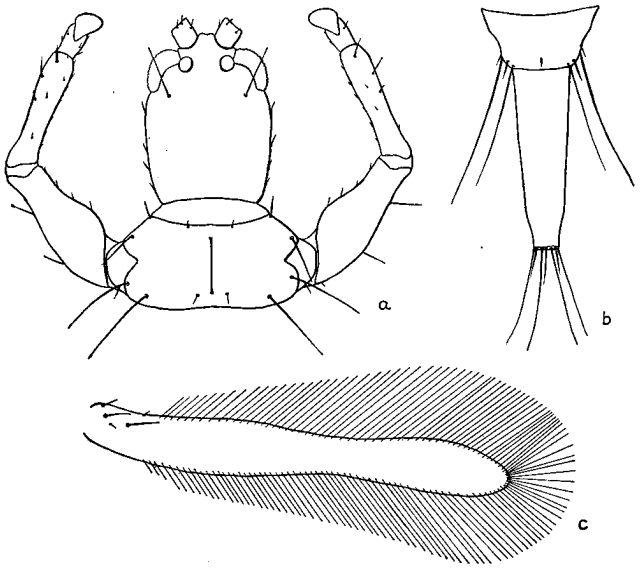

FIGURE 2. Female of *Neoheegeria hibisci,* new species: *a,* head and prothorax; *b,* end of abdomen; *c,* right fore wing, double-fringe hairs not shown.

The color, the shape of the head and the large number of double-fringe hairs on the fore wings separate this new species from most of the known forms and it can be distinguished from the closest of these as follows: *biroi* Priesner has the third to sixth antennal segment yellow and only 6 or 7 double-fringe hairs; *dalmatica* Schmutz has three sense cones on the third antennal segment, and 14 to 17 double-fringe hairs; *johni* Priesner has 7 or 8 double-fringe hairs; *lederi* Priesner has 10 or 12 double-fringe hairs.

TAHITIAN SIMULIIDAE *

By

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Entomology Department, British Museum (Natural History)

The Simuliidae collected in Polynesia by the Pacific Entomological Survey in 1928 and 1929 were submitted to me for study and a report on the Marquesan species has already been published.[1] In the collection from the Society Islands, the two species previously described by me [2]—*S. tahitiense* and *S. cheesmanae*—are represented, as well as a third—*S. oviceps,* new species, here described.

In addition to these, the Marquesan *S. buissoni* Roubaud has been reported from Society Islands. As I stated in the Marquesan paper, this was incorrect, the specimens referred to *S. buissoni* belonging to another species more nearly related to *S. tahitiense.*

The three Tahitian species, along with the three from the Marquesas, constitute a distinct group within the subgenus *Eusimulium;* the characters common to them are set forth in the Marquesan paper.

Simulium tahitiense Edwards (fig. 1, *a*; fig. 2, *a, c, e*).

Adult Female

Blackish species with little or no ornamentation, in many respects resembling *S. buissoni,* but larger, and differing very markedly in the development of the abdominal tergites of the female. In *S. tahitiense,* tergites 3 to 6 are all large, 3 to 5 being quite twice as broad as long, 6 somewhat broader, and 7 broader still, occupying the whole width of the abdomen. Further, all the tergites are dull (even 7 to 9), and there is a distinct sternite to the sixth segment; the front is somewhat broader above the antennae; the third hind tarsal segment is perhaps a little longer, as is the basal tooth of the claws; the yellowish pubescence of the whole body is perhaps finer and scantier, and there is little or none on the frons (most of the specimens examined are denuded). In the development of the abdominal tergites this species shows more affinity with *S. mumfordi* Edwards and *S. adamsoni* Edwards than with *S. buissoni* Roubaud (as described in my Marquesan paper, 1932), but in the first two of these species tergites 3 to 5 are not so large as in *S. tahitiense,* and there are also other differences.

Larva

Head mainly, sometimes almost entirely, blackish, in the lightest specimens with a large solid dark area posteriorly on the frontoclypeus. Fans large, with about 30 stout rays (fewer than in most species), with long, close and regular pectinations (no short hairs alternating with the longer pectinations as described by Puri for *S. nölleri* and other species). Labral appendages bearing in addition to the fans the usual two rows of simple setae. Antennae long, 4-segmented as in *S. buissoni.* Mandibles of the normal form, with sharp teeth apically (one of which is much longer and stouter than the others)

[1] Edwards, F. W., Marquesan Simuliidae: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. I, art. 9, 1932.

[2] Edwards, F. W., Diptera Nematocera from the South Pacific collected by the St. George Expedition, 1925: Ann. Mag. Nat. Hist., 9th ser., vol. 20, pp. 236-244, 1927.

* Pacific Entomological Survey Publication 6, article 7. Issued January 14, 1933.

and with a large subapical brush of hairs. Mentum with the middle tooth prominent, but the sublateral teeth scarcely prominent and scarcely larger than the five teeth which intervene between them and the median tooth. No ventral tubercles on last segment. Terminal circlet of hooks with about 140 rows of hooks and about 18 to 20 hooks in each row. Chitinous band below anus normal, its arms passing scarcely halfway round the body. Each of the three anal gills split almost to the base into from two to four branches.

Pupa

Respiratory organ not much more than half as long as the pupa itself, formed of 8 branches arranged in 4 pairs; an outer pair with a short common stalk, and 3 inner pairs arranged more or less vertically one above the other and provided with longer stalks; the two filaments of the uppermost pair are little if any shorter than the others; stalks of all 4 pairs rather variable in length individually. Abdominal armature much as in *S. buissoni* Roubaud, but 2nd tergite with an apical row of recurved hooks similar to those of the 3rd and 4th tergites, though rather smaller. Cocoon as in *S. buissoni.*

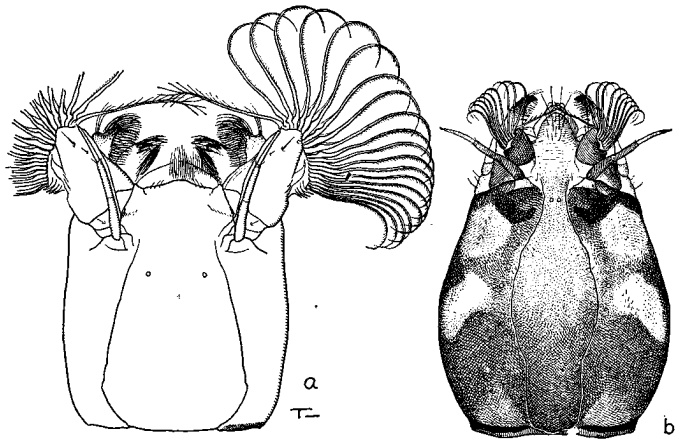

FIGURE 1. Heads of larvae: *a, Simulium tahitiense* Edwards; *b, Simulium oviceps,* new species (more enlarged).

Tahiti: Papeari, Vallée de la Reine, Faraura Valley, Fautaua Valley, Papara Valley, Papenoo Valley, Tipaerui Valley, and other localities, altitude 500 to 1,150 feet, adults, Mumford and Adamson; in the Papara and Papenoo Rivers, and Vallée de la Reine, numerous larvae and pupae.

Among the present series are some adults which agree with the types (collected by Cheesman at Tautira) in having a wing-length of about 2 mm. to 2.5 mm., dark brown legs, with the hind tibiae paler at base and in the middle, first hind tarsal segment pale on basal two-thirds, and halteres yellow. In other specimens, however, the legs and halteres are much darker, sometimes almost wholly black. Among the larvae and pupae collected in the Papara and Papenoo rivers and in the Vallée de la Reine, two species are represented, the larger of which (described above) is almost certainly *S. tahitiense.*

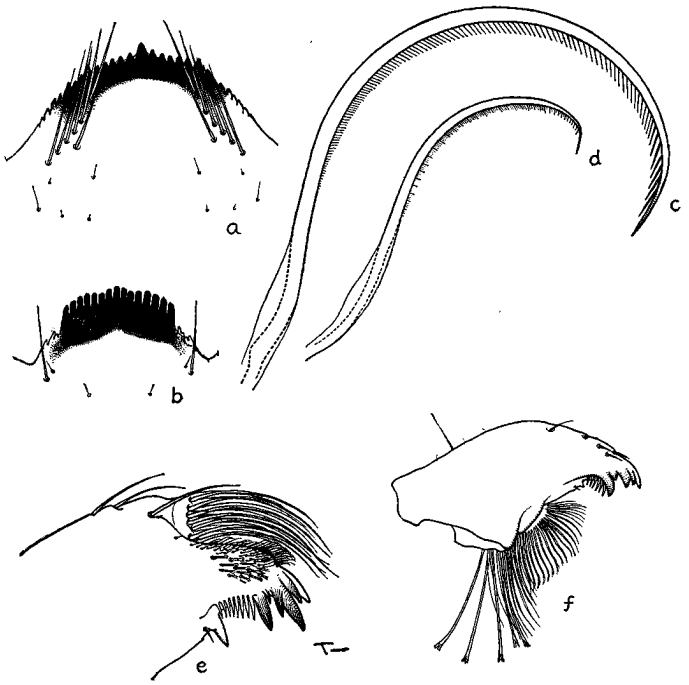

FIGURE 2. Mouth parts of larvae. *Simulium tahitiense: a,* mentum; *c,* single fan ray; *e,* tip of mandible. *Simulium oviceps: b,* mentum; *d,* single fan ray; *f,* mandible.

Simulium oviceps, new species (fig. 1, *b;* fig. 2, *b, d, f*).

Adult Female

Closely resembles *S. tahitiense,* but usually smaller and with darker halteres.

Larva

Head oval, much narrower than in other *Simulium,* the shape being largely due to the alteration in the form of the fronto-clypeus, which is broadest in the middle, narrowed in front and behind; this alteration in the fronto-clypeus is probably a result of the great reduction in size of the labral fans and therefore of the muscles which work them. Fans very small, with only about 12 short slender rays, which appear to have very short pectinations; there are no accessory rows of shorter setae on the labral appendages. Antennae much shorter than in *S. tahitiense.* Anterior edge of head-capsule thickened and blackened to an unusual extent around bases of fans and mandibles, remainder of head largely pale, but with some rather well-defined dark markings posteriorly both above and at the sides. Mandibles more conspicuous from above than usual, owing to the reduction of the fans, also different in form from other *Simulium,* having four equally large and strong blunt teeth (besides one smaller tooth) in a nearly vertical row at the tip, and the subapical brush rudimentary. Mentum small, with 13 rather blunt teeth which are subequal in size (the median tooth scarcely larger than the others) and form a regular and slightly arched row. Thoracic proleg shorter than usual, but otherwise similar. No ventral tubercles on last segment. Hook-rows in posterior circlet 80 to 100 in number, with about 15 teeth in each row. Anal gills and armature as in *S. tahitiense.*

Pupa

Respiratory organ formed of eight filaments, arranged in four pairs precisely as in *S. tahitiense,* but the filaments of the uppermost pair are much shorter than the others, the upper filament of this pair being again considerably shorter than the lower. (This condition was found in two specimens dissected from larvae and also in one whole pupa, but it may not be normal.)

In company with *S. tahitiense* in all the localities visited by Mumford and Adamson, large numbers of a small black *Simulium* were obtained, which evidently correspond with those collected by Cheesman and Tonnoir which I formerly took to be *S. buissoni.* As already noted, this determination was incorrect; the small specimens have large abdominal tergites as in *S. tahitiense,* and I have in fact been unable to discover any structural difference between these two species even in mounted specimens. Nor does there appear to be any constant difference in size or coloring, though the small specimens (with average wing-length, 1.5 mm. or less) tend to have the legs and halteres darker than the large ones. Nevertheless, it is certain that these small specimens represent a distinct species, if, as I believe, they have hatched from the larvae and pupae here described. Unfortunately, no males were obtained which can be associated with certainty with these small females rather than with the larger *S. tahitiense.*

In each collection of larvae made in Tahiti, among more numerous larger larvae of *S. tahitiense* were a few smaller larvae with a totally different head-structure. So little, in fact, do these larvae resemble any other *Simulium* in the form of the head and mouth-parts, that without the evidence of the adult, one would not hesitate to place them in a distinct genus. Fortunately, however, two or three of them were sufficiently advanced in development to show the pupal respiratory organs; on disecting these out, they were found to be so similar to those of *S. tahitiense* that the close relationship of the two cannot be doubted. These small larvae can hardly be regarded as merely a form of *S. tahitiense,* and I therefore name them *S. oviceps,* in reference to the peculiar shape of the head, which at first sight resembles a chironomid more than any other *Simulium.*

Simulium cheesmanae Edwards.

Tahiti: Papara, Papenoo, Fautaua, Tipaerui Valleys, Mumford and Adamson.

A few specimens which seem referable to *S. cheesmanae* were obtained in company with *S. tahitiense.* None of these are quite so pale as the type. As described by me (1927), *S. cheesmanae* differs from *S. tahitiense* in having the antennae and legs more or less completely orange or yellowish. There are no obvious structural differences, however, and as some specimens are intermediate both as regards size and coloring, the validity of the species is somewhat doubtful; until the early stages and the male sex are obtained, its status cannot be determined.

CERCOPIDAE OF THE SOCIETY ISLANDS *

By

W. E. China

British Museum (Natural History)

In 1924 Miss L. E. Cheesman, who had accompanied the *St. George* Expedition to the South Seas, left the expedition and spent five months in the Society Islands investigating the insect fauna.[1] She visited Tahiti, Raiatea, and Borabora. Thanks to her work, our knowledge of the Cercopidae of the Society Islands is already fairly wall advanced. Her material was worked out by the well-known Belgian Homopterist, Dr. V. Lallemand,[2] who described and recorded four species and one variety which he referred to the genus *Clovia* Stål. The excellent collection made by E. P. Mumford and A. M. Adamson during the present survey has enabled the exact relationships of these forms to be worked out and has at the same time added a new species to the list.

The genus *Clovia* was erected by Stål [3] to hold 16 species, none of which was fixed as a genotype. In 1907 Distant [4] fixed the genotype as *C. bigoti* Signoret, an African species, in which he was followed by Lallemand.[5]

Now the genus *Clovia* as at present understood is undoubtedly generically composite. The typical genus as restricted by the African *C. bigoti* Signoret does not occur in the Pacific islands, although it is well represented in the Philippine and Austro-Oriental subregions. I therefore propose to erect a new genus *Lallemandia* to hold those Pacific islands species which have previously been referred by Lallemand to *Clovia* Stål.

Genus LALLEMANDIA, new genus

Head as wide as pronotum, angularly rounded anteriorly, slightly shorter than wide between the eyes; ocelli about as far from one another as from eyes; eyes more transverse than in *Clovia;* vertex flattened; frons moderately convex, smooth and shining; clypeus not carinate medianly. Disc of pronotum moderately convex, distinctly more so than in *Clovia,* the surface moderately strongly rugosely striate; lateral margins relatively longer than in *Clovia.* Tegmina apically rounded, not subacute as in *Clovia* (fig. 1), five apical cells

[1] Cheesman, L. E., A contribution towards the insect fauna of French Oceania, pt. 1, Ent. Soc. London, Trans., pp. 147-161, pls. 14-16, 1927.
[2] Lallemand, V., Description de nouveaux Homoptères du Muséum de Londres: Ann. Mag. Nat. Hist., 10th ser., vol. 1, pt. 5, pp. 634-638, 1928.
[3] Stål, Carl, Hemiptera Africana, pt. 4, pp. 68, 75, 1866.
[4] Distant, W. L., The Fauna of British India, Rhynchota, pt. 4, p. 93, 1908.
[5] Lallemand, V., Wytsman, Gen. Ins., Cercopidae, p. 43, 1912.
* Pacific Entomological Survey Publication 6, article 8. Issued January 14, 1933.

instead of four; branching of outer sector invisible, making only one complete subapical cell instead of two as in *Clovia,* although a transverse fold of the surface tends to delimit two further subapical cells (fig. 1). Surface of tegmen shining, but much less finely punctate than in *Clovia,* the pubescence also coarser and more sparse. Venation of hind wings as in *Clovia.* Hind tibiae with two spurs. Male genitalia of different type; parameres not bifurcate apically, aedeagus directed anteriorly instead of vertically, its apex simple instead of complex (figs. 4, 5, 6; *Clovia bigoti* Signoret is figured for comparison). This genus resembles the Fijian *Nesaphrestes* Kirkaldy in general appearance, but differs in the noncarinate clypeus. Apart from the characters mentioned above, the species of this genus show a definite color pattern which is very distinct from that typical of true *Clovia* species which show longitudinal stripes on vertex and pronotum and subarcuate pale stripes on the tegmina. Genotype: *Cicada fenestrata* Fabricus.

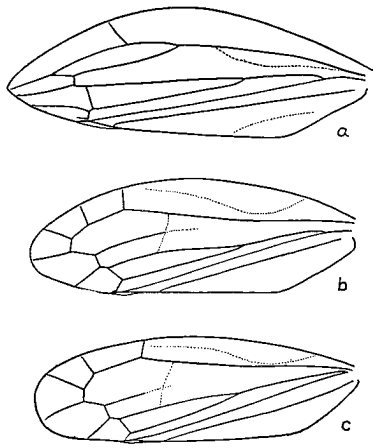

FIGURE 1. Diagrammatic figures of tegmina to show venation: *a, Clovia bigoti* Signoret; *b, Lallemandia cheesmani* (Lallemand); *c, Lallemandia fenestrata* (Fabricius).

Lallemandia fenestrata (Fabricius).

Cicada fenestrata Fabricius: Syst. Ent., p. 684, 1775; Syst. Rhyng., p. 67, 1803.

Clovia fenestrata, Stål: Hemipt. Fabriciana 2, p. 16, 1869; Lallemand: Wytsman Gen. Ins., fasc. 143, Cercopidae, p. 43, 1912.

This species was apparently overlooked by Lallemand when he was working out the Polynesian Cercopidae collected by the *St. George* Expedition. Fortunately the types are still preserved in the British Museum (Banks collection) although both specimens are females. A careful comparison of these specimens with all available material from the South Pacific revealed the fact that this species occurs in different color forms in many of the

Pacific islands. At first the inclination was to regard these forms as merely varieties, but a study of the genitalia revealed very distinct differences in the structure of the aedeagus and the parameres. As these forms are apparently restricted to definite islands, they have been regarded as subspecies and are here so treated. In order to demonstrate this subspecificity satisfactorily, it has been necessary to include a discussion of those forms which properly belong outside the territorial limit of the Society Islands.

Lallemandia fenestrata fenestrata (Fabricius) (figs. 1, *c;* 2, *b;* 3, *d;* 4, *g;* 5, *c;* 6, *c*).

Vertex yellow, posterior region between eyes and across ocelli entirely black. Pronotum entirely black; scutellum yellow. Tegmen with pale costal region crossed by a black transverse band to the costa, and with a short elongate fuscous spot at apex of clavus. Aedeagus more or less sinuate in lateral view, its apex simple, paramere obliquely truncate at apex.

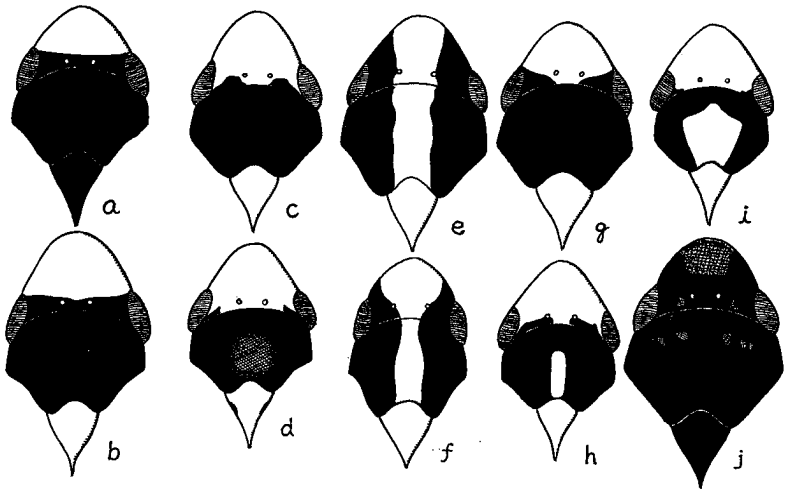

FIGURE 2. Diagrammatic figures of head, pronotum, and scutellum to show color pattern: *a, Lallemandia fenestrata rapana* (Lallemand); *b, L. fenestrata fenestrata* (Fabricius); *c, L. fenestrata mooreana,* new subspecies; *d, L. fenestrata insignis* (Distant); *e, L. fenestrata adamsoni,* new subspecies; *f, L. fenestrata sociabilis* (Lallemand); *g, L. fenestrata tahitiensis,* new subspecies; *h, L. fenestrata pallida* (Lallemand), normal form; *i, L. fenestrata interrupta* (Lallemand); *j, L. cheesmani* (Lallemand).

Tahiti: Vallée de la Reine, 2 miles from sea, altitude 460 feet, December 17, 1928, 1 female, Mumford and Adamson. This specimen agrees very well with the Fabrician type. The typical material was originally recorded rather vaguely by Fabricius "in maris pacifici Insulis."

Lallemandia fenestrata tahitiensis, new subspecies (figs. 2, *g;* 3, *g;* 4, *e;* 5, *b;* 6, *b*).

Vertex yellow, the posterior angles on each side broadly black. Pronotum black, scutellum yellow. Tegmen without the transverse black band across pale costal region to the costa, although exhibiting an acute projection of the black region into the white; a narrow white stripe at apex of clavus. Genitalia very similar to those of the typical subspecies but aedeagus rather shorter and more rounded at apex and paramere with a distinct tubercle at lower end of oblique apical truncation.

Tahiti: Anaroii Plateau, 8 miles from sea, altitude 1,600 feet, October 31, 1928, 7 males (including type), 3 females; Papenoo Valley, 6 miles from sea, altitude 500 feet, October 23, 1928, 3 males, 1 female; Papeari, November 9, 1928, 1 male; Adamson. Papara Valley, altitude 750 feet, December 21, 1928, 1 female, Mumford and Adamson.

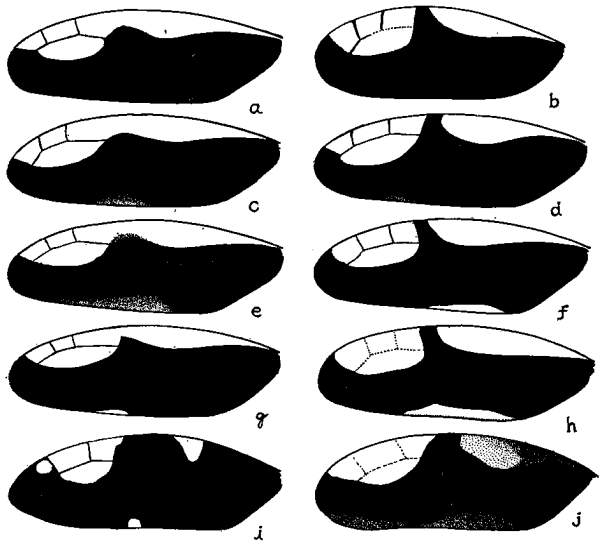

FIGURE 3. Diagrammatic figures of tegmina to show color pattern: *a, Lallemandia fenestrata rapana* (Lallemand); *b, L. fenestrata interrupta* (Lallemand); *c, L. fenestrata pallida* (Lallemand), normal form; *d, L. fenestrata fenestrata* (Fabricius); *e, L. fenestrata insignis* (Distant); *f, L. fenestrata mooreana,* new subspecies; *g, L. fenestrata tahitiensis,* new subspecies; *h, L. fenestrata sociabilis* (Lallemand); *i, L. cheesmani* (Lallemand); *j, L. fenestrata adamsoni,* new subspecies.

This is apparently the common form in Tahiti. The female specimen from Papara Valley has the posterior region of the vertex entirely black, as in *L. fenestrata fenestrata.* This subspecies shows a certain amount of variation with regard to the color pattern of the tegmen, which sometimes approaches that in the typical subspecies. The genitalia are also closely similar. It has been thought best, however, to regard this as a distinct subspecies rather than as an aberration.

Lallemandia fenestrata pallida (Lallemand) (figs. 2, *h;* 3, *c;* 4, *d, f;* 5, *e, f;* 6, *h, i*).

Clovia pallida Lallemand: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 635, 1928.

Clovia insignis Lallemand, not Distant: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 634, 1928.

This species was described from an immature adult or teneral specimen which had been killed before attaining its coloring. The mature form was incorrectly determined by Lallemand as *C. insignis* Distant. The very inappropriate name *pallida* must therefore be applied to the subspecies, the true coloring of which is similar to that of the rest of the group and is herewith described.

Vertex yellow, the posterior margin narrowly black except between the ocelli where the black band is broken. Pronotum black with a short median longitudinal yellow stripe on posterior two-thirds. Scutellum yellow. Tegmen without a black band across the pale costal region, a fuscous spot at apex of clavus. Aedeagus seen in lateral view dilated in middle, the apex widened obliquely with its anterior apical angle provided with two recurved bristles and its posterior apical angle toothed. Paramere seen in lateral view suddenly narrowed sub-apically and apically minutely bifid. In figures 4, 5, and 6 the genitalia of both the teneral form described by Lallemand and the mature form are shown for comparison. It will be seen that although there are varietal differences, the main sub-specific details are identical.

Tahiti: Hitiaa, July 9, 1925, 1 teneral female (type); no definite locality, March 6, 13, 1925, 2 males, 1 female, normal form; Tautira, Vaitepiha Valley, August 9, 1925, 1 teneral female; L. E. Cheesman. Hitiaa, 4 miles from sea, altitude 1,000 feet, November 20, 1928, 1 teneral male; Anaroii Plateau, 8 miles from sea, altitude 1,600 feet, October 31, 1928, 2 normal females; Adamson.

Lallemandia fenestrata sociabilis (Lallemand) (figs. 2, *f;* 3, *h;* 4, *k;* 5, *d;* 6, *a*).

Clovia sociabilis Lallemand: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 634, 1928.

Vertex and pronotum black with a broad median longitudinal percurrent yellow stripe, its margins more or less parallel from posterior margin of pronotum to middle of pronotum, thence narrowed to apical margin of pronotum from which the stripe gradually widens to and beyond the ocelli in the shape of a funnel. Scutellum yellow. Tegmen as in *fenestrata* Fabricius, but with a moderately broad white stripe along claval commissure. Aedeagus comparatively long, constricted and bent in the middle, the gonopore opening before and dorsad of the apex which is lobed; paramere bent almost at right angles apically, both apex and angle acute.

Tahiti: no detailed locality, March 6, 1925, 1 male (type), March 13, 1925, 1 female; Lake Vaihiria, July 17, 1925, 1 female; L. E. Cheesman. Vaipuarii Valley, altitude 600 feet, on *Freycinetia,* August 28, 1928, 1 male; Anaroii Plateau, 8 miles from sea, altitude 1,600 feet, October 31, 1928,

1 male and 1 female; Papenoo Valley, 6 miles from sea, altitude 500 feet, October 23, 1928, 1 male, October 25, 1928, 2 females; Adamson. Vallée de la Reine, 3 miles from sea, altitude 460 feet, December 17, 1928, 1 female; Papara Valley, altitude 750 feet, December 21, 1928, 1 male; Mumford and Adamson.

This subspecies is apparently less common in Tahiti than *tahitiensis* although the two occur together in some localities. In some specimens there is considerable variation in the coloration of the head and pronotum, which approaches that in *pallida* Lallemand (normal form).

Lallemandia fenestrata mooreana, new subspecies (figs. 2, *c;* 3, *f;* 4, *j;* 5, *h;* 6, *d*).

Vertex yellow with two small black marginal spots along basal margin on each side between eye and ocellus. Pronotum entirely black; scutellum yellow. Tegmen as in *sociabilis* Lallemand, but the white stripe along claval commissure shorter. Aedeagus moderately dilated in middle, apically simple and narrowly truncate. Paramere in profile similar in type to that of *pallida,* but apical angle not bifid and the lower angle distinctly toothed (fig. 4, *j*).

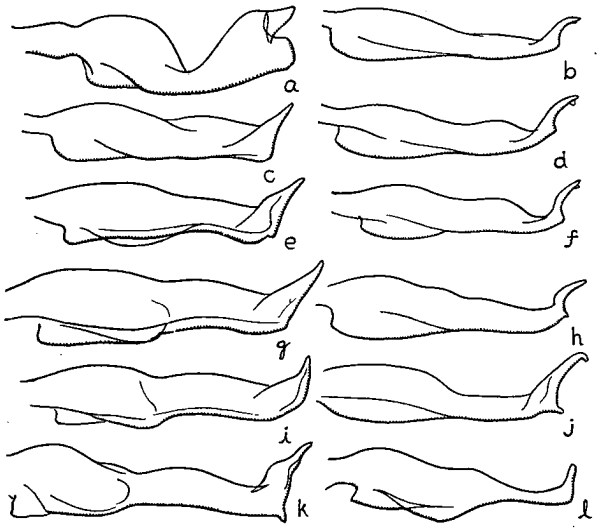

FIGURE 4. Left-hand male parameres: *a, Clovia bigoti* Signoret; *b, Lallemandia fenestrata rapana* (Lallemand); *c, L. fenestrata interrupta* (Lallemand); *d, L. fenestrata pallida* (Lallemand), teneral form; *e, L. fenestrata tahitiensis,* new subspecies; *f, L. fenestrata pallida* (Lallemand), normal form; *g, L. fenestrata fenestrata* (Fabricius); *h, L. fenestrata insignis* (Distant); *i, L. fenestrata adamsoni,* new subspecies; *j, L. fenestrata mooreana,* new subspecies; *k, L. fenestrata sociabilis* (Lallemand); *l, L. cheesmani* (Lallemand).

Moorea: Opunohu Valley, 2 miles from sea, altitude 100 feet, September 30, 1928, 1 male (type), Adamson.

This subspecies closely resembles *fenestrata* Fabricius in color pattern, differing only in the presence of the white marginal claval stripe and the noncontinuous black band along posterior margin of vertex. The aedeagus, although of the same type, is distinctly shorter. The parameres are of a quite different type.

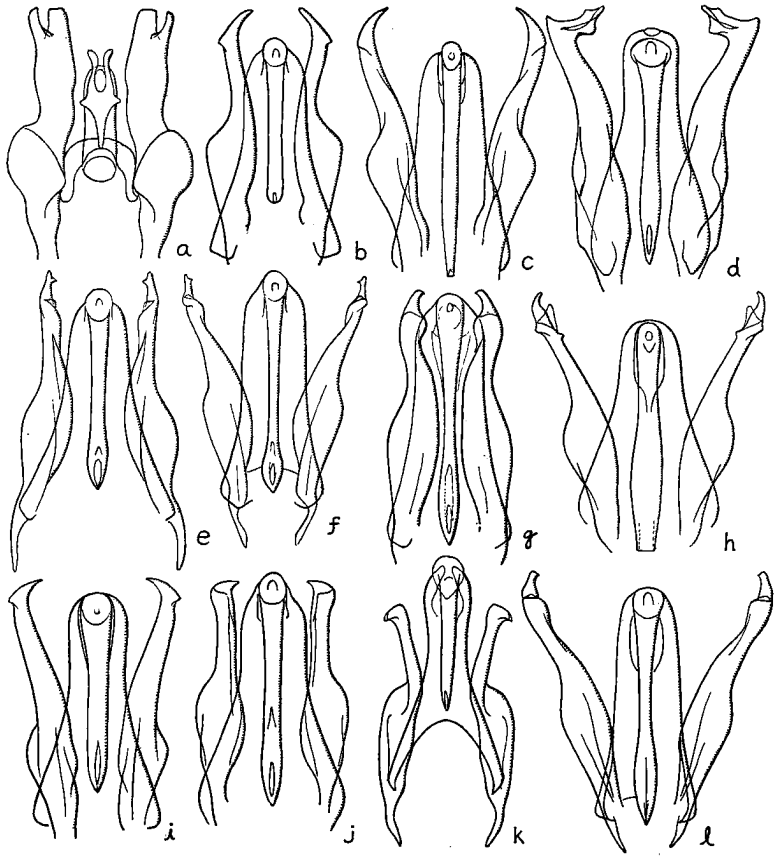

FIGURE 5. Diagrammatic figures of male aedeagus and parameres, dorsal view: *a, Clovia bigoti* Signoret; *b, Lallemandia fenestrata tahitiensis,* new subspecies; *c, L. fenestrata fenestrata* (Fabricius); *d, L. fenestrata sociabilis* (Lallemand); *e, L. fenestrata pallida* (Lallemand), teneral form; *f, L. fenestrata pallida* (Lallemand), normal form; *g, L. fenestrata insignis* (Distant); *h, L. fenestrata mooreana,* new subspecies; *i, L. fenestrata adamsoni,* new subspecies; *j, L. fenestrata interrupta* (Lallemand); *k, L. cheesmani* (Lallemand); *l, L. fenestrata rapana* (Lallemand).

Lallemandia fenestrata adamsoni, new subspecies (figs. 2, *e;* 3, *j;* 4, *i;* 5, *i;* 6, *f*).

Vertex and pronotum blackish brown with a broad percurrent yellow median stripe. Scutellum yellow. Tegmen blackish brown, the usual pale costal region divided by a very broad transverse brown fascia into two spots, the basal one yellowish and infuscate towards base of tegmen (fig. 3, *j*). Pilosity much denser and slightly longer than in all the other subspecies. Aedeagus of the *fenestrata* type similar to that of *mooreana* but much broader apically. Paramere of the *fenestrata* type but rounded towards apex and without the lower angle.

Tahiti: Papenoo Valley, 6 miles from sea, altitude 500 feet, October 23, 1928, 1 male (type), Adamson.

FIGURE 6. Diagrammatic figures of aedeagus, lateral view: *a, Lallemandia fenestrata sociabilis* (Lallemand); *b, L. fenestrata tahitiensis,* new subspecies; *c, L. fenestrata fenestrata* (Fabricius); *d, L. fenestrata mooreana,* new subspecies; *e, L. cheesmani* (Lallemand); *f, L. fenestrata adamsoni,* new subspecies; *g, L. fenestrata interrupta* (Lallemand); *h, L. fenestrata pallida* (Lallemand), normal form; *i, L. fenestrata pallida* (Lallemand), teneral form; j, *L. fenestrata rapana* (Lallemand); *k, Clovia bigoti* Signoret; *l, L. fenestrata insignis* (Distant).

This subspecies diverges much more from the typical than any of the others and might almost be regarded as specifically distinct.

Lallemandia fenestrata interrupta (Lallemand) (figs. 2, *i;* 3, *b;* 4, *c;* 5, *j;* 6, *g*).

Clovia insignis Distant variety *interrupta* Lallemand: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 634, 1928.

Vertex yellow with a small black spot in each posterior angle; pronotum black with a broad pentagonal yellow spot in middle touching posterior margin. Scutellum yellow. Tegmen similar to that of *fenestrata;* the two transverse veins in the apical pale costal spot more or less broadly infuscate; no pallid or infuscate claval markings. Aedeagus of the *pallida* type, but excessively broadened apically and without the two apical bristles. Paramere of the *fenestrata* type, but in profile with the apex truncate almost perpendicularly, the lower angle rounded.

Borabora: Fanui, June 20, 1925, 2 males; vanilla plantation, altitude 500 feet, June 19, 1925, 1 female; Cheesman.

This distinctive subspecies is the only one so far recorded from Borabora.

Although the two following subspecies occur outside the territorial limit of the Society Islands, they have been included to show the range of *L. fenestrata* and its subspecies in the South Pacific.

Lallemandia fenestrata insignis (Distant) (figs. 2, *d;* 3, *e;* 4, *h;* 5, *g;* 6, *l*).

Clovia insignis Distant: Ann. Mag. Nat. Hist., 8th ser., vol. 11, p. 557, 1913.

Vertex sordid white with a small transverse black spot in each posterior angle at base of eyes. Pronotum black, with a large obscure whitish grey spot on disc. Scutellum sordid white with a small black stripe in middle of each lateral margin. Tegmen similar to that of *pallida,* but the apical half of the clavus and surrounding part of the corium indefinitely whitish. Aedeagus of the same type as in *pallida,* but less dilated in the middle and more widened apically. Paramere also similar to that of *pallida* but not bifid apically, the lower angle dentate.

Tuamotus: Henderson (Elizabeth) Island, 1,200 miles southeast of Tahiti (128° W., 24° S.) 1 male, 1913, D. R. Tait.

This subspecies was wrongly recorded by Lallemand from Tahiti, the subspecies referred to being actually *L. fenestrata pallida* Lallemand, normal form. Henderson Island is probably near the eastern limit of *Lallemandia.*

Lallemandia fenestrata rapana (Lallemand) (figs. 2, *a;* 3, *a;* 4, *b;* 5, *l;* 6, *j*).

Clovia rapana Lallemand: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 634, 1928.

Vertex yellow with a broad black band across posterior margin between the eyes and across the ocelli. Pronotum and scutellum entirely black. Tegmen as in *pallida* but without the obscure pallid spot at apex of clavus. Aedeagus of the *pallida* type but not dilated in the middle and with the apical funnel-shaped dilation much compressed

antero-posteriorly. Paramere also similar to that in *pallida* but apical process shorter and not bifid.

Rapa: 27° 36′ S., 144° 77′ W. (nearly 800 miles south-southeast of Tahiti) April, 1925, 2 males (including type) and 2 females on herbage, C. L. Collenette.

This is probably the southern limit of *Lallemandia.*

Lallemandia fenestrata oceanica (Jacobi).

Clovia oceanica Jacobi: Arch. f. Naturges. Jahrg. 87, Abt. A., Heft 12, p. 14, 1921.

Vertex yellow with posterior half black. Pronotum and scutellum black. Tegmen as in *interrupta* Lallemand but with a transverse pale spot extending from apex of clavus into middle of corium. Unfortunately this form was described from two females so that the male genitalia are unknown.

Tonga: 2 females (Godeffroy Museum, Hamburg).

Jacobi's species is known to me only from the description, which leaves little doubt that it is a subspecies of the widely distributed *L. fenestrata* Fabricius. The above description is taken from that of Jacobi.

Lallemandia fenestrata samoensis, new subspecies.

Clovia oceanica variety, Jacobi: Arch. f. Naturges. Jahrg. 87, Abt. A., Heft 12, p. 14, 1921; Lallemand: Insects of Samoa, pt. 2, fasc. 2, p. 49, 1928.

Judging by Jacobi's description this variety is a distinct Samoan subspecies, differing from the Tongan *oceanica* in the yellow scutellum and in absence of the pale costal border to the black tegmen. Genitalia unfortunately not described.

Samoa: 1 male (Godeffroy Museum, Hamburg).

It will be seen from the above that *Lallemandia* offers a striking example of species in the making. The incidence of the subspecies *tahitiensis, sociabilis, pallida,* and *adamsoni* in Tahiti has yet to be studied from ecological and geological points of view. From the data at hand it would appear that these subspecies sometimes occur together in the same locality, but this may not actually be the case. It is significant that in each of the smaller islands only a single distinct and unvariable form has been found. The idea of regarding the various forms as mere aberrations is discountenanced by the striking differences in genitalia. Two distinct types of aedeagus and two distinct types of paramere are found within the species, but these cannot be correlated. Thus, although *pallida, insignis,* and *rapana* all have the funnel-shaped aedeagus (lateral view) combined with the apically narrowed and curved paramere, *interrupta* with the same type of aedeagus has the apically

dilated and obliquely truncate type of paramere. Similarly, although *tahitiensis, sociabilis, fenestrata,* and *adamsoni* all have the tubular nondilated type of aedeagus, combined with the apically dilated and obliquely truncate type of paramere, *mooreana,* with the same type of aedeagus, has the apically narrowed and curved paramere. Neither can the color pattern of the vertex, pronotum, scutellum, and tegmina be correlated with these genital differences. It seems fairly probable, however, that in course of time *L. fenestrata,* instead of being composed of several subspecies, will have split into two distinct species, each with one of the two above-mentioned types of genitalia and each comprising several subspecies. There seems little doubt that this specific evolution has resulted primarily from geographical isolation, with geological (lava flows) and ecological isolation within a given island as secondary causes. It is interesting in this connection to speculate on the origin of the genus *Lallemandia* and whence it has spread. *Clovia flavipes* Fabricius [type in Banks Collection, British Museum (Natural History)], which was described from Rotterdam Island in the Macassar Straits, halfway between Borneo and Celebes, undoubtedly belongs to the genus *Lallemandia* and is closely related to *fenestrata* Fabricius. Unfortunately both the cotypes are females. It is not unreasonable to suppose that *Lallemandia* originated at the eastern limit of distribution of the genus *Clovia* and that *flavipes* Fabricius propably represents the type of ancestor. *Clovia eugeniae* Stål and possibly also *C. phaleratus* Stål from Guam (Marianas Islands) and Pouynipet (Caroline Islands), respectively, belong to the genus *Lallemandia* and demonstrate the distribution of the genus in the Western Pacific.

Strangely enough, in Fiji the genus has not yet been recorded, although Kirkaldy described the closely allied *Nesaphrestes.* In Samoa the following species of *Clovia* recorded by Lallemand [6] may be referred to the genus *Lallemandia: C. juddi* Lallemand, *C. biformis,* Lallemand, *C. bryani* Lallemand, *C. armstrongi* Lallemand, *C. buxtoni* Lallemand, *C. navigans* Jacobi, and also probably *C. swezeyi* Lallemand. In all these species the frons is rather more convex than in *L. fenestrata* (Fabricius), and the apex of the tegmen is more narrowed and less broadly rounded. In this respect, these species might almost be regarded as representing a distinct subgenus. To this last group also belong the remaining two Society Islands species.

Lallemandia cheesmani (Lallemand) (figs. 1, *b;* 2, *j*).

Clovia cheesmani Lallemand: Ann. Mag. Nat. Hist., 10th ser., vol. 1, p. 635, 1928.

Tahiti: Anaroii Plateau, 8 miles from sea, altitude 1,600 feet, October 31, 1928, 2 males, 1 female, A. M. Adamson.

Described from a single female specimen taken by L. E. Cheesman at Lake Vaihiria, Tahiti, July 19, 1925.

[6] Lallemand, V., Cercopidae: Insects of Samoa, pt. 2, pp. 47-54, 1928.

Lallemandia mumfordi, new species.

Yellowish brown (rust brown), mid-anterior region of vertex, disc of pronotum and scutellum rather paler brownish yellow; lateral margin of head in front of each eye, lateral margin of pronotum and costal margin of tegmen, except apical fourth, dark brown. Eyes blackish. Entire underside rust brown, the hind coxae and basal region of venter pale brownish yellow. Frons with a row of eight yellow transverse striae on each side. Legs and ovipositor sheath dark rust brown; claws, tips of tibial and tarsal spurs and apical segment of rostum black. Pubescence golden yellow, moderately sparse and short.

Tahiti: Te Aroa Pass, 7 miles from sea, altitude 2,900 feet, October 31, 1928, 2 females (including type), Adamson.

So far as is known the cercopid fauna of the Society Islands is thus composed of three species. Two of these are endemic in the island of Tahiti. The third, although widely distributed in the South Pacific islands, is represented in Tahiti by five endemic subspecies and in Borabora and Moorea, respectively, by two additional endemic subspecies. We therefore have the extraordinary phenomenon of 100 per cent specific or subspecific endemism in the cercopids of Society Islands, although further collecting may reveal the existence of nonendemic species. In spite of this extreme degree of endemism, there is little doubt that the fauna originated from the Austro-Oriental subregion.

RHYNCOGONUS SUBMETALLICUS, NEW SPECIES, FROM TAHITI*

By

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Only one member of the genus *Rhyncogonus* has heretofore been reported from the Society Islands. This species, *R.* (*Elytrurus*) *coquereli* (Fairmaire),[1] much smaller and less convex than the present species and very similar in fact to the Hawaiian *R. koebelei* Perkins, is a true *Rhyncogonus*. Another *Rhyncogonus*, here described, was included in the collection made by the Pacific Entomological Survey in the Marquesas and Society Islands, and referred to me for study. In a previous paper [2] I have recorded from the Marquesas 22 species of the same genus, of which 18 were described as new, as well as an allied genus, *Microgonus*.

Rhyncogonus submetallicus, new species (fig. 1).

Length, 13 mm.; breadth, 6 mm. Moderately elongate, robust; black, shining, elytra a greenish bronze; and sparsely yet rather uniformly clothed with gray or very light fulvous hair, denser on the epipleurae. Head moderately flattened above, sparsely punctate on front, a deep fovea between the eyes; eyes large but slightly prominent, projecting to but a slight degree beyond side margin of head; rostrum a bit longer than broad; antennae with scape reaching back to about middle of prothorax, the second funicular segment about a sixth longer than first, the following slender and at least twice as long as broad. Prothorax slightly broader than long, the apex a little narrower than base, the sides arcuate but to a slight degree, the disk evenly convex and finely, sparsely punctured. Elytra one-third longer than broad and three and a half times as long as prothorax; sides rather broadly and evenly arcuate almost to apex, thence slightly sinuate, the apex but little produced, the sides also sharply and narrowly margined from base to apex; the disk evenly and decidedly convex, the striae evidently impressed only near apex, elsewhere defined only by the series of rather large and shallow punctures, the intervening areas finely irregularly punctured and somewhat rugose, the pubescence of usual double type, some hairs decumbent, others semierect. Beneath rather smooth, very finely sparsely punctured and pilose, the first and fifth abdominal segments and pleurae more evidently punctured, the first abdominal segment slightly convex. Legs of moderate length; all tibiae very finely serrate on inner margin.

Tahiti: Te Aroa Pass, 11 kilometers from the sea, altitude 884 meters, October 31, 1928, holotype, a unique specimen, presumably a female, Adamson.

This beetle stands well apart from all other members of the genus *Rhyncogonus* because of the pronounced metallic appearance and narrow,

[1] Fairmaire, L., Rev. et Mag. Zool., pp. 61-62, 1849.

[2] Van Dyke, E. C., Microgonus, new genus, and Rhyncogonus from the Marquesas Islands: B. P. Bishop Mus., Bull. 98, Pacific Ent. Survey Pub. 1, art. 4, 1932.

* Pacific Entomological Survey Publication 6, article 9. Issued February 27, 1933.

very sharply defined side margin of elytra. It shows a remote relationship to the entire group of Marquesan species because of its long, second funicular antennal segment. A somewhat closer affiliation with *plumbeus* from Eiao, Marquesas Islands, is based on its rather evenly rounded contour and sparse and evenly distributed pubescence.

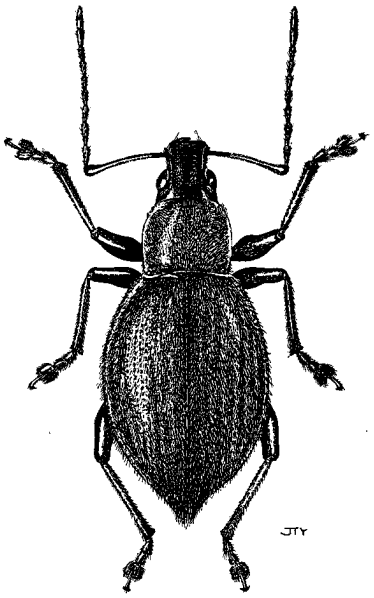

FIGURE 1. *Rhyncogonus submetallicus,* new species, presumably a female, from Tahiti, × 7.

NEW TIPULIDAE FROM THE SOCIETY ISLANDS *

By

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INTRODUCTION

The material on which this paper is based was collected by A. M. Adamson, of the Pacific Entomological Survey, and Dr. André L. Tonnoir. I wish to extend my deepest thanks to them, as well as to E. P. Mumford, Director of the Pacific Entomological Survey, for the opportunity to study this material. The Tonnoir material is preserved in my collection through the kindness of the collector.

TRIBE ERIOPTERINI

Five species of *Gonomyia,* subgenus *Lipophleps,* are now known from Tahiti, all endemic. These species may be separated by means of the following key:

1. Wings whitish, with a restricted brown pattern, including spots at arculus, origin of *Rs,* end of anterior branch of *Rs* and the cord; no macrotrichia on vein *1st A* ..... **punctigera**
   Wings either unicolorous, except for the stigmal darkening, or dark-colored with a restricted whitish and yellow pattern; a series of from thirty to fifty macrotrichia on vein *1st A* 2
2. Wings dark, with whitish discal spots and a lunate yellow apex; legs yellow and black, the tibiae black with a broad yellow subbasal ring; size very large (wing, female, over 7 mm.) ..... **flavidapex** Edwards
   Wings subhyaline or with a brownish tinge, unvariegated except for the stigma when this is present; legs yellowish brown to brown, the tibiae uniform in color; size small (wing not exceeding 4 mm.) 3
3. General coloration of mesonotum light brown, the pleura only indistinctly striped with pale; cell *1st* M_2 of wings small, the lower face not exceeding one-half of veins M_4 beyond it ..... **tahitiensis**
   General coloration of mesonotum dark brown, the pleura distinctly striped longitudinally with yellow; cell *1st* M_2 of wings relatively large, its lower face subequal to vein M_4 beyond it 4
4. Scutellum conspicuously light yellow ..... **tonnoirella**
   Scutellum dark, concolorous with remainder of notum ..... **fuscoscutellata**

Gonomyia (Lipophleps) punctigera, new species (fig. 1).

General coloration of mesonotum brownish gray; pseudosutural foveae black, scutellum brown; knobs of halteres dark brown; wings whitish with a very restricted dark-brown pattern, including clouds at arculus, origin of *Rs,* cord, outer end of cell *1st* M_2 and end of anterior branch of *Rs;* vein *1st A* without macrotrichia; abdomen

* Pacific Entomological Survey Publication 6, article 10. Issued March 8, 1933.

dark brown, the caudal margins of the segments conspicuously yellow, broadest on the tergites.

Female

Length, excluding head, about 4.5 mm.; wing, 4.2 mm. Head broken. Mesonotum brownish gray, the anterior lateral sclerites more silvery; pseudosutural foveae large, blackened; scutal lobes slightly pruinose, especially medially; scutellum brown; postnotal mediotergite blue-gray pruinose. Pleura very dark colored, pruinose, with a restricted paler longitudinal streak, crossing the dorsal sternopleurite. Halteres yellow, the knobs infuscated. Legs with the coxae reddish brown, pruinose; trochanters brownish yellow; remainder of legs broken. Wings (fig. 1) whitish, including the broad wing tip, the cells before the cord somewhat more grayish; stigma pale brown; a restricted dark-brown pattern, distributed as follows: arculus; end of *Sc* and origin of *Rs;* cord; outer end of cell *1st* M_2; tip of anterior branch of *Rs;* veins pale, much darker in the infuscated areas. No macrotrichia on vein *1st A.* Venation: *Sc* short, Sc_1 ending opposite the origin of *Rs,* Sc_2 at its tip; veins beyond cell *1st* M_2 long, the distal section of M_{1+2} longer than *Rs; m-cu* about two-thirds its length before the fork of *M.*

Abdominal tergites brown, the caudal margins of the segments broadly yellow; sternites similarly colored, but the pale margins narrower and less conspicuous.

Tahiti: Fautaua Valley, altitude 50 feet, 1 mile from sea, November 8, 1928, holotype female, Adamson.

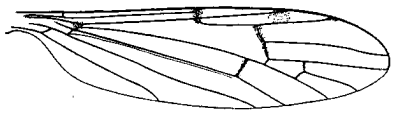

FIGURE 1. Wing of *Gonomyia* (*Lipophleps*) *punctigera,* new species.

The closest ally of the present species is *Gonomyia* (*Lipophleps*) *digitifera* Alexander (Fiji) which differs in the body-coloration, as the color of the scutellum and postnotal mediotergite, and in slight details of venation, as the shorter veins issuing from cell *1st* M_2, which are here subequal in length to, or shorter than *Rs,* whereas in *punctigera* the outer section of M_{1+2} is longer than *Rs.* The present group of flies, with a restricted darkened wing-pattern, may be called the *cairnensis* group, from the earliest described species, *G.* (*L.*) *cairnensis* Alexander (North Queensland). One of the most evident characters for the separation of this group from related regional aggregations of the subgenus lies in the entire lack of macrotrichia on vein *1st A.*

Gonomyia (Lipophleps) tahitiensis, new species.

General coloration of mesonotum light brown, the scutellum only vaguely brightened; pleura very indistinctly striped with pale; knobs of halteres light yellow; wings nearly hyaline, the veins darker.

Male

Length, about 2.6 mm.; wing, 3.5 mm. Rostrum and palpi dark brown. Antennae entirely dark brown. Head obscure orange, the center of the vertex slightly darkened.

Mesonotum almost uniformly light brown, the scutellum only vaguely brightened, the postnotum slightly pruinose. Pleura brownish testaceous, very indistinctly striped longitudinally with paler. Halteres with the knobs light yellow. Legs chiefly yellowish brown, the outer tarsal segments darkened. Wings nearly hyaline, the costal region not brightened; stigma lacking; veins a little darker than the ground-color. Venation: Sc_1 ending just before the origin of *Rs*, the latter relatively long and only gently arcuated; veins R_4 and R_5 strongly divergent; cell *1st* M_2 unusually small, the lower face less than one-half of vein M_4 beyond it; *m-cu* just before the fork of *M*.

Abdomen brown, the hypopygium somewhat brightened. Male hypopygium constructed much as in *G.* (*L.*) *tonnoirella,* new species, but the phallosomic rods differently formed, two of the elements being heavily chitinized and blackened at tips.

Tahiti: Mataiea, August, 1928, holotype male, Tonnoir.

Gonomyia (Lipophleps) tonnoirella, new species.

General coloration of mesonotum dark brown, the scutellum conspicuously light yellow, pleura yellow, striped longitudinally with dark brown; scapal segments orange; knobs of halteres light yellow; legs chiefly dark brown; wings broad, dusky, the base and costal margin more yellowish; male hypopygium with the outer dististyle a simple gently curved rod.

Male

Length, about 2.8 mm.; wing, 3.3 mm. Rostrum and palpi dark brown. Antennae with the scapal segments orange; flagellum dark brown, the segments with very elongate verticils. Head light yellow, the center of the vertex slightly darkened. Pronotum and anterior lateral pretergites light sulphur-yellow. Mesonotal praescutum and scutum dark brown, the lateral portions of the former and posterolateral angles of the scutal lobes light yellow, scutellum light yellow, infuscated medially at base, postnotal mediotergite dark brown, more or less pruinose. Pleura light yellow, striped longitudinally with brown, the dorsal stripe more interrupted on the pteropleurite; ventral stripe including the sternopleurite and meron. Halteres dusky, the knobs light sulphur yellow. Legs with the coxae yellow; trochanters brownish yellow; femora brown to light brown, the tips darkened; tibiae and tarsi dark brown. Wings relatively broad, tinged with dusky, the prearcular and costal regions more yellowish; stigma lacking; veins pale brown, those in the yellowish areas brighter. Venation: *Sc* relatively short, Sc_1 ending just before the origin of *Rs*, Sc_2 apparently lacking; *Rs* strongly arcuated at origin; cell *1st* M_2 strongly widened outwardly, longer than vein M_4 beyond it; *m-cu* at fork of *M*. Abdominal tergites dark brown, the posterior lateral angles of the segments light yellow; hypopygium chiefly yellow. Male hypopygium with the outer dististyle a simple, long, gently curved rod; inner dististyle entirely pale and fleshy, the base enlarged and conspicuously hairy, the outer end narrowed and terminating in a powerful fasciculate seta. Gonapophyses appearing as long, slender, chitinized rods that terminate in acute points.

Tahiti: Mataiea, August, 1928, holotype male, Tonnoir.

This interesting *Gonomyia* is named in honor of the collector, my friend and colleague, Dr. André L. Tonnoir.

Gonomyia (Lipophleps) fuscoscutellata, new species.

General coloration of mesonotum dark brown, including the scutellum, the surface pruinose; basal segment of antennal scape obscure orange; knobs of halteres light yellow; wings strongly suffused with brown, the small stigma a little darker; costal region narrowly light yellow; cell *1st* M_2 relatively large.

Female

Length, about 3.8 mm.; wing, 3.6 mm. Rostrum and palpi dark brown. Antennae with the first scapal segment obscure orange, the remainder of the organ black. Head orange, the center of the vertex restrictedly darkened. Pronotum, anterior lateral pretergites, lateral margins of praescutum and dorsopleural region light yellow; entire mesonotum dark brown, pruinose, including the scutellum; pseudosutural foveae black, conspicuous; lateral margins of postnotal mediotergite obscure yellow. Pleura dark brown, with a yellow longitudinal stripe across the ventral sclerites. Halteres with the knobs conspicuously light yellow. Legs chiefly dark brown. Wings with a strong brown tinge, the small oval stigma a little darker; base and costal region narrowly light yellow, a vague darkening in the axillary region; veins dark brown. Venation: *Sc* short, Sc_1 ending some distance before the origin of *Rs*, the distance being about equal to *m-cu*; Sc_2 faint, close to tip of Sc_1; *Rs* angulated at origin; veins R_4 and R_5 strongly divergent; cell *1st* M_2 relatively large, its lower face subequal to vein M_4 beyond it; *m-cu* just before the fork of *M*. Abdomen blackened, the genital segment and valves of the ovipositor yellowish horn-colored.

Tahiti: Mataiea, August, 1928, holotype female, Tonnoir.

Styringomyia didyma Grimshaw.

Styringomyia didyma Grimshaw: Fauna Hawaiiensis, Diptera, p. 10, 1901; Edwards: Ent. Soc. London, Trans., pp. 222-223, figs. 38, 39, 76, 1914.

Idiophlebia pallida Grünberg: Zool. Anzeig., 26, pp. 524-528, 5 figs., 1903.

Tahiti: Mataiea, August, 1928, Tonnoir; Fautaua Valley, altitude 50 feet, 1 mile from sea, September 6, 1928, 1 male, Adamson.

Widely distributed in the Pacific islands: Hawaii, Fanning, Marquesas, Tahiti, Samoa, Tonga, Fiji, New Hebrides, the Carolines and New Guinea.

DERMAPTERA AND ORTHOPTERA FROM THE SOCIETY ISLANDS*

By

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In September to December, 1928, a valuable collection of 148 specimens in the orders Dermaptera and Orthoptera was made by E. P. Mumford and A. M. Adamson, most of it on the island of Tahiti and a few specimens on the island of Moorea. Twenty-one species, including a very remarkable new cricket, were secured. Of these species, 2 grouse-locusts (grasshoppers) and 1 cricket are endemic, 5 are peculiar to Oceania, 9 are found not only in Oceania, but also in Melanesia, Malaysia, or Australia, and 4 are cosmopolitan. A number of species which have previously been recorded from Tahiti are not represented in the present collection, and it is evident that the Society Islands are probably richer than the Marquesas Islands, though intensive collecting in the Marquesas now shows that 40 species are there present. Until further work is done in the Society Islands, therefore, we do not feel justified in making any detailed comparisons with the dermapteran and orthopteran fauna of other Oceanic island groups. We can say, however, that quite as their geographic position would suggest the Society Islands show nearest affinity in this fauna to the Marquesas Islands and probably have a larger number of species, the majority are probably of Melanesian, Malayan, or Australian origin. Even greater numbers of such species probably inhabit the island groups to the east.

ORDER DERMAPTERA

FAMILY LABIDURIDAE

Euborellia annulipes (Lucas).

Tahiti: Fautaua Valley, September 6-11, 1928, 2 females, 1 young female; Tuauru River, 1 mile from sea, September 5, 1928, 1 small young female.

This circumtropical species has been reported as common in Tahiti.

FAMILY LABIIDAE

Sphingolabis hawaiiensis Bormans.

Tahiti: Fautaua Valley, September 11, 1928, 1 male, 1 female, 2 young; Papenoo Valley, October 28, 1928, from dead petiole of *Angiopteris* species. 1 male.

* Pacific Entomological Survey Publication 6, article 11. Issued March 13, 1933.

Widespread in Oceania, this species is also known from Papuan and Malayan localities.

Labia pilicornis (Motschulsky).

Tahiti: Tiperui Valley, 3 miles from sea, September 12, 1928, in rotting banana stalk, 2 males, 1 female; Fautaua Valley, 2 miles from sea, September 13, 1928, in rotting banana stalk, 2 females.

These specimens agree fully with Hawaiian material before us, which is apparently typical. The insect was previously known in Oceania also from Samoa, and Caudell's record of *Labia* species from Fiji is probably referable to *pilicornis*. It was originally described from Ceylon.

Labia curvicauda (Motschulsky).

Moorea: Faaroa Valley, 3 miles from sea, altitude 1000 feet, December 4, 1928, in dead banana leaves, 3 males, 1 female.

Tahiti: Hitiaa, 3 miles from sea, altitude 1500 feet, December 20, 1928, 2 males, 2 females, 1 young; Fautaua Valley, 2 miles from sea, September 13, 1928, in decaying banana stalk, 3 males; Tipaerui Valley, 3 miles from sea, altitude 750 feet, September 12, 1928, in decaying banana stalk, 1 female.

These specimens of this circumtropical species all represent a very striking color phase, peculiar to Oceania, which was described as *flavicollis* by Bormans in Burr, but later synonymized by Burr.

Subfamily Chelisochinae

Hamaxas nigrorufus (Burr).

Tahiti: Vallée de la Reine, 3 miles from sea, altitude 460 feet, December 17, 1928, 1 male, 1 female.

Assigned correctly to *Hamaxas* by Burr in 1915, this species was originally placed in *Spongiphora* and incorrectly referred by us to *Sparattina* in 1922, we having corrected that error in 1927.[1] It is apparently not a common species, but is known from Hawaii, Samoa, New Guinea, and the Kei Islands.

Chelisoches morio (Fabricius).

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, from *Freycinetia* species, 13 males, 5 females, 11 young; Hitiaa, 3 miles from sea, altitude 1500 feet, November 20, 1928, from *Freycinetia* species, 1 male, 1 female, 3 young; Papenoo Valley, October 23, 1928, 1 female, 5 young; Vaipuarii Valley, altitude 600 feet, from *Freycinetia* species, 2 males; Papeari, November 9, 1928, altitude 900 feet, from *Pandanus* species, 3 young; Faraura Valley, 2 miles from sea, altitude 200 feet, 1928, 1 young.

[1] Acad. Nat. Sci., Phil., Proc., vol. 79, p. 37, 1927.

Moorea: Faaroa Valley, 3 miles from sea, altitude 1000 feet, December 4, 1928, in dead banana leaves, 1 female, 2 young.

In several immature instars the caudal margin of the pronotum and inner margins of the tegminal and wing pads are usually whitish.

Very common in Oceania, this species is also found in Papua and Malaysia and has been introduced on the coast of California.

Order ORTHOPTERA

Family BLATTIDAE

Subfamily ECTOBIINAE

Graptoblatta notulata (Stål).

Tahiti: Hitiaa, Faraura Valley, 1 to 4 miles from sea, altitude 150 to 1500 feet, 1 on *Freycinetia* species, 3 males; Te Aroa Pass, 7 miles from sea, altitude 3480 feet, October 31, 1928, 1 male; Papenoo Valley, 6 miles from sea, altitude 500 feet, October 23, November 9, 1928, 2 males, 1 large young female.

Though *Phyllodromia hieroglyphica,* also originally described from Tahiti, was correctly placed as a synonym by Kirby in 1904, that name was again used for the species by Holdhaus in reporting Samoan material in 1908. Moreover, the description and figures of Chopard's *Margattea scripta,* described in 1924 from New Caledonia, shows that name to be also a synonym.

Subfamily PSEUDOMOPINAE

Kuchinga remota Hebard.

Moorea: Faaroa Valley, altitude 1000 feet, December 4, 1928, in dead banana leaves, 1 female allotype, A. M. Adamson.

Tahiti: Hitiaa, 3 miles from sea, altitude 1500 feet, 1928, 3 male types and paratypes, Adamson; Papeari, altitude 900 feet, November 9, 1928, in *Freycinetia* species, 1 male paratype, A. M. Adamson.

We have very recently described this diminutive buffy cockroach in a study of the Orthoptera of the Marquesas Islands, where it also occurs. The Society Islands material was there reported.

Subfamily BLATTINAE

Periplaneta australasiae (Fabricius).

Moorea: Faaroa Valley, 3 miles from sea, 1000 feet, December 4, 1928, 1 female.

This insect is a pest throughout the tropical and subtropical regions of the world.

Cutilia soror (Brunner).

Tahiti: Papenoo Valley, 3.5 miles from sea, altitude 500 feet, October 28, 1928, 1 young.

Widespread through Oceania, this species is found also in the Papuan and Malayan regions.

Subfamily Panchlorinae

Pycnoscelus surinamensis (Linnaeus).

Tahiti: Fautaua Valley, 2 miles from sea, September 3, 1928, 1 large young female; Papenoo Valley, 6 miles from sea, altitude 500 feet, October 25, 1928, 1 large young female.

This is another circumtropical species, often found in subtropical regions as well.

Family Acrididae

Subfamily Acrydiinae

Hydrotetrix aspera Uvarov.

Moorea: Faaroa Valley, altitude 1000 feet, December 4, 1928, 4 males, 7 females.

These specimens agree closely with the original description except that they are even smoother than the examples of *H. cheesmanae*. Rugosity in grouse locusts is often subject to great individual variation and separation of the present series from *aspera* on such grounds would be ill advised. The lateral margins of the pronotal process round broadly to the truncate or very broadly convex apex (the median carina there faintly projecting in two males only). Length: males, 6.3 to 7.8 mm.; females, 9 to 10 mm.

Hydrotetrix cheesmanae Uvarov.

Tahiti: Papenoo Valley, altitude 550 feet, October 25, 1928, 2 males, 4 females, 2 young.

The males are smaller (male, 9 mm.; female, 12 mm.), agreeing otherwise closely with the female, which sex alone was previously known. In the present series the pronotum is not as strongly elevated between the shoulders as in the figure of the type, and the lateral margins of the caudal process round broadly to a sharp apical angle (rectangulate in one, but moderately acute in the others). The species is readily separated from *aspera* by the remarkably long caudal tarsi.

Both of these species are endemic and apparently are peculiar to the Society Islands.

Family TETTIGONIIDAE

Subfamily COPIPHORINAE

Euconocephalus roberti (LeGuillou).

Tahiti: Papenoo Valley, altitude 1000 feet, October 26, 1928, 1 young male (green); Mataiea, sea level, December 25, 1928, 1 female (brown).

Widespread in Oceania, this species is known from the Malayan regions and probably occurs also in Papua.

Subfamily LISTROSCELINAE

Xiphidiopsis lita Hebard.

Tahiti: Papenoo Valley, 6 miles from sea, October 23 to 26, 1928, 5 females, 4 young females; Fautaua Valley, 1 mile from sea, altitude 50 feet, September 6-11, 1928, 2 females, 2 young females.

Widespread in Oceania, this is almost certainly the species recorded from Papeete, Tahiti, and Raiatea by Uvarov and Cheesman as *Xiphidiopsis* species in 1927. A large series from the Marquesas and Hawaii is also before us.

Phisis species.

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, 1 small young male.

Cheesman and Uvarov in 1927 recorded *pectinata* from the Society Islands and Tuamotus. Holdhaus was, however, correct in 1908 in considering material from Tahiti and Samoa as distinct from *pectinata* and recognizing *pallida* as distinct from that species and properly applicable to the Samoan insect. Chopard's figures for these species, published in 1929, when he recorded a Samoan series of *pallida,* show how very distinct they are.

Males from Tahiti must, however, be studied to determine whether *pallida* or an allied species we are describing from the Marquesas occurs there.

Family GRYLLIDAE

Subfamily GRYLLINAE

Gryllus oceanicus LeGuillou.

Tahiti: Fautaua Valley, 2 miles from sea, September 13, 1928, 1 female; Papenoo Valley, 6 miles from sea, altitude 500 feet, October 23 and 27, 1928, 2 young.

Widespread through Oceania, this common species is known also from Japan and Malaysia.

SUBFAMILY NEMOBIINAE

Genus **TAHITINA**, new genus

Head strongly vertical, occiput elevated and convex, eyes little projecting, ocelli absent, palpi very elongate with last joint very little enlarged. Pronotum in dorsal aspect about as long as wide. Apterous. Ovipositor moderately elongate, very slender, apex unarmed but slightly widened only ventrad so that in dorsal aspect no widening is shown. Cephalic tibiae without foramina, these and median tibiae armed at apex with a minute pair of ventral spines. Caudal femora moderately robust. Caudal tibiae with three pairs of spines and three pairs of apical spurs, the ventral pair of the latter very minute and of unequal size. Caudal metatarsus elongate dorsad with three external and two internal and a distal pair of extremely small spinulae, and with a pair of distal spurs.

This genus is erected to include the single species, *mumfordi,* which presents such an array of varied characters that it could almost as well be placed as a nemobioid pentacentrid as a pentacentroid nemobiid. The form of the head is certainly pentacentroid, but the armament of the caudal tibiae and tarsi is nemobiid. The extremely elongate and slender palpi, complete lack of ocelli, auditory foramina and organs of flight, and very unusual specialization of the apex of the ovipositor present wide differences from any other gryllid known to us.

A female in the author's collection of *Speonemobius tigrinus* (Saussure)[2] from Tahiti shows that species to be a much more typical nemobiid. From the figures of the genotype, *S. decoloratus* Chopard, that insect is seen to have the fourth palpal joint much shorter, the fifth more enlarged distad, the caudal tarsi with shorter spines and spurs and only five of the former and five of the latter and caudal metatarsus much shorter and without spinulae.[3]

It is evident that this genus agrees closely with the Samoan *Cophonemobius* Chopard in many respects, but the shape of the head, presence of ocelli and normal palpi show *C. buxtoni* to be easily separable and clearly a true nemobiid.

Tahitina mumfordi, new species (fig. 1).

Size small, form medium. Apterous. Head almost twice as deep as broad. Occiput glabrous but exceedingly finely and thickly impresso-punctulate. Interantennal protuberance low, convex and about one and one-half times as broad as proximal antennal joint. Palpi very elongate, with fifth joint longer than third and very weakly enlarging to its suddenly slightly obliquely truncate apex, fourth joint considerably longer than fifth. Pronotum and abdomen very heavily hirsute, the former with lateral lobes having the

[2] Ann. Mag. Nat. Hist., 10th ser., vol. 6, p. 381, 1930.
[3] Indian Mus., Rec., vol. 26, pl. 4, figs. 15-17, 1924.

ventro-cephalic angle broadly rounded rectangulate, the ventro-caudal angle very broadly rounded obtuse-angulate and there with surface moderately and narrowly impressed within the margin. Ovipositor distinctly shorter than caudal femur, feebly and evenly curved dorsad, dorsal surface finely sulcate medio-longitudinally throughout, ventrad slightly enlarged thence gradually tapering to the acute apex. Cerci elongate, hirsute, considerably surpassing ovipositor. Femora moderately stout. Caudal metatarsus slender, nearly twice as long as the combined length of the succeeding joints.

General appearance blackish brown. Face, palpi, limbs and underparts slightly paler, deep chestnut brown. Caudal femora inconspicuously darkest in a large pregenicular area. Abdominal tergites with chestnut weakly showing through the dark hairs under magnification.

Length of body, 6.5 mm.; length of pronotum, 1.8 mm.; length of caudal femur, 5 mm.; greatest width of caudal femur, 1.6 mm.; length of ovipositor, 4 mm.

Tahiti: Anaroii Plateau, altitude 1600 feet, October 31, 1928, type female (B. P. Bishop Museum), A. M. Adamson.

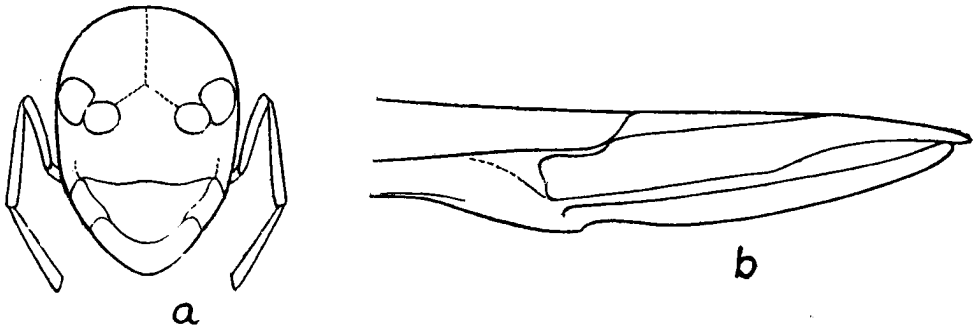


FIGURE 1.—*Tahitina mumfordi,* new genus and new species, type female, Tahiti, Anaroii Plateau: *a,* cephalic outline of head and palpi ×8; *b,* lateral view of apex of ovipositor, greatly enlarged.

This insignificant dark brown apterous cricket shows a most unusual array of important characters and is one of the most distinctive species we have encountered.

Named in honor of the Director of the Pacific Entomological Survey, Mr. E. P. Mumford, who has placed these collections and a representative collection of the Dermaptera and Orthoptera of the Marquesas Islands in our hands for study.

SUBFAMILY TRIGONIDIINAE

Metioche tahitensis (Saussure).

Specimens larger than any of *M. flavipes* before us, with longer and less decidedly curved ovipositors. The tegmina are slightly more coriaceous and convex with dorsal veins heavier than in the typical condition of that insect. Thus definite convergence toward *Rhicnogryllus* Chopard is shown, the present insect distinguishable by the less prominent eyes and presence of tegminal cross-veinlets.

Four specimens testaceous, the face with two narrow vertical lines convergent ventrad and clypeal suture heavily embrowned, the latter marking spreading dorsolaterad. The fifth specimen darker with occiput and pronotal disk marked with brown. the pronotal lateral lobes dark brown and tegmina dark brown particularly laterad with dorsal veins alone testaceous.

Length of body: male, 4.7 mm.; female, 5.1 to 5.8 mm. Length of ovipositor, 2.75 to 2.8 mm. The female of the species was previously unknown.

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, 1 male, 2 females; Papara Valley, altitude 750 feet, December 21, 1928, 1 female; Anaroii Valley, 5 miles from sea, altitude 1500 feet, October 31, 1928, 1 female.

In our paper on the Orthoptera of the Marquesas [4] we are placing our *Litogryllus,* to which genus we referred the present species in 1926, as a synonym of *Metioche.* Chopard [5] placed *tahitensis* in his *Rhicnogryllus* in 1930, but though we believe that genus to be valid we consider *tahitensis* referable to *Metioche.* Moreover, we believe that it was ill advised on Chopard's part to name as a variety *decorus,* as there is strong evidence to indicate that merely one of the many color phases developed in the present species is represented. We therefore place *decorus* in the present synonymy.

Subfamily MOGOPLISTINAE

Cycloptilum novarae (Saussure).

Tahiti: Hitiaa, Faraura Valley, 2 miles from sea, altitude 200 feet, 1929, 1 female; Fautaua Valley, 1 mile from sea, altitude 100 feet, September 4-11, 1928, 1 female, 1 young female, 2 very small young; Paea, August 29, 1928, on *Hibiscus tiliaceus,* 1 female; Faa, altitude 900 feet, November 7, 1928, on *Inocarpus edulis,* 1 large young male; Papeari, November 29, 1928, 1 young male, 1 very small young; Tuauru River, 1 mile from sea, altitude 50 feet, September 5, 1928, 1 very small young.

Moorea: Opunohu Valley, 3 miles from sea, altitude 500 feet, December 3, 1928, 1 young male, 1 young female.

In our paper on the Orthoptera of the Marquesas Islands we will explain the present generic assignment. This species has the two processes projecting from beneath the male supra-anal plate erect, adjacent fingers diverging and very slightly enlarging to their rounded apices, each armed there cephalad with a very minute tooth. They are very different from the processes present in the Japanese and Philippine species before us.

This insect is apparently peculiar to Oceania, where it has been recorded from Samoa, Tonga, and Fiji. It was described from Tahiti.

[4] Manuscript to be published by Bernice P. Bishop Museum.

[5] Ann. Mag. Nat. Hist., 10th ser., vol. 6, p. 381, 1930.

SUBFAMILY MYRMECOPHILINAE

Myrmecophila hebardi W. M. Mann.

Tahiti: Tuauru River, 1 mile from sea, altitude 50 feet, September 5, 1928, 4 females.

Compared with four Fijian paratypes in the author's collection these individuals agree fully. All are as intensive as the maximum shown by that series, with pronotum yellowish buff (given as lemon yellow by Mann) with the large suffused pair of generic spots (given as an interrupted fuscous band by Mann) much darker, Prout's brown.

In the Hawaiian *quadrispina* Perkins the structure is very similar, though that insect is larger and easily recognized by the uniform dark brown head and the entire dorsal surface dark brown except that the generic spots are occasionally indicated in a slightly paler shade than the ground coloration.

It appears probable that Chopard missed Mann's description [6] and so recorded imperfect material of *hebardi* as *quadrispina*[7] from Samoa in 1929.[8]

We believe that *quadrispina* has as yet been correctly recorded only from Hawaii, whereas *hebardi* is known from Fiji, Tahiti, Samoa (probably), the Santa Cruz Archipelago, and the Solomon Islands.

[6] Ent. Soc. America, Ann., vol. 13, p. 60, 1920. The sole ant host known was given as *Plagiolepis longipes* Jerd.

[7] Hebard, Morgan, Dermaptera and Orthoptera of Hawaii: B. P. Bishop Mus., Occ. Papers, vol. 7, p. 351, 1922.

[8] Insects of Samoa, Orthoptera, pt. 1, fasc. 2, p. 35, 1929.

ANTHRIBIDAE FROM THE SOCIETY ISLANDS*

By

KARL JORDAN

ZOOLOGICAL MUSEUM, TRING

In the collection made by the Pacific Entomological Survey in the South Seas, 31 specimens, belonging to four species, are from the Society Islands. A new species, represented by 13 specimens, belongs to the genus *Notioxenus,* which is well represented on St. Helena, but also occurs, in some non-typical forms, in Japan and Central America; *Araecerus vieillardi,* of which 13 specimens were collected in the Society Islands, is essentially Pacific, but known also from New Guinea and the Philippines; *Mauia subnotatus* has a wide range, including a large portion of the Oriental region; *Araecerus fasciculatus* has become practically cosmopolitan.

Mauia subnotatus (Boheman).

Araecerus subnotatus Boheman: Eugenie's Resa, p. 116, 1859 (Keeling Is.).

Mauia satelles Blackburn: Roy. Soc. Dublin, Trans., vol. 3, p. 195, 1885 (Maui).

Contexta murina Jordan: Deutsche Ent. Zeitschr., p. 78, 1902 (Ceylon).

Moorea: Faaroa Valley, altitude 1000 feet, December 4, 1928, 3 miles from sea, 1 male, 1 female, on dead leaves of banana, Adamson.

Widely distributed in the tropics of the Old World.

Notioxenus cylindricus, new species (fig. 1).

Male and Female

Cylindrical, more than twice as long as broad; sexes practically alike. Rufous brown, paler in places, pubescence scattered, consisting of narrow flat hairs resembling grass blades, not quite adpressed to the derm, greyish white, not concealing the structure of the derm. Mandible with acute tooth near apex. Proboscis quite short, apical margin nearly straight, very feebly incurved medianly, upper surface reticulate like the head, tuberculiform anterior corner of antennal groove slightly more dorsal than inner margin of eye. Eye small, coarsely granulate, contiguous with antennal groove and feebly sinuate. Antenna pale, reaching to base of elytra, somewhat rough with bristles, I and II short, asymmetrical, pyriform (apart from basal hook of I), I longer than II, II longer than III, III to VIII nearly alike, IX about as long as II, conical, as is X, XI ovate, somewhat pointed.

Pronotum a little broader than long (23:21), strongly reticulate, the meshes rather strongly impressed, across middle three brown spots, often confluent, the median one the largest; dorsal carina remote from base, strongly concave, almost obtusely angulate in middle, laterally slightly convex, feebly curved forward at side.

* Pacific Entomological Survey Publication 6, article 12. Issued March 15, 1933.

Elytra truncate-emarginate at base, not depressed at suture, without distinct subbasal callosity, one-half longer than broad, coarsely punctate-striate to apex, the punctures of posterior third smaller; a broad brown area occupies half or two-thirds of side, narrowing dorsally and usually being continued across suture, another large brown patch occupies apex of both elytra, suture more or less brownish from base to apex. Pygidium vertical, smooth, glossy, rounded, nearly as long in middle as broad at base.

Underside strongly convex, glossy, coarsely punctate, posterior two-thirds of middle of metasternum impunctate, forecoxae well separate, abdominal segments I to IV with a basal and an apical transverse row of coarse punctures, on IV the apical punctures small. Legs pale, knees brown, tarsal segment I about as long as the tibia is broad at apex, hind tibia with short oblique comb of small bristles at apex.

Length, 1.4 to 1.6 mm.; width, 0.6 to 0.7 mm.

Tahiti: Papeari, altitude 900 feet, November 9, 1928, 9 specimens, type male, on *Pandanus* species; Hitiaa, 3 miles from sea, altitude 1500 feet, November 20, 1928, on *Freycinetia* species, 4 specimens, Adamson.

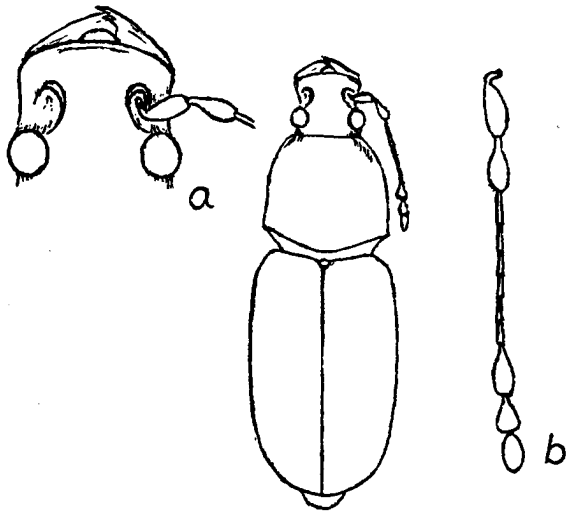


FIGURE 1.—*Notioxenus cylindricus,* male × 28; *a,* head × 65; *b,* antenna × 88.

Araecerus vieillardi (Montrouzier).

Urodon vieillardi Montrouzier, Ent. Soc. France, Ann., p. 873, 1860 (New Caledonia).

Tahiti: Paea, near sea, August 29, 1928, on *Hibiscus tiliaceus,* 1 male; Fautaua Valley, altitude 50 feet, 1 mile from sea, 6 females; Tuauru River, altitude 25 feet, September 3, 1928, 1 male, Adamson.

Moorea: Faaroa Valley, altitude 1000 feet, December 4, 1928, 3 males, 1 female, in dead leaves of banana; Opunohu Valley, altitude 100 feet, 2 miles from sea, November 30, 1928, 1 female, Adamson.

Araecerus fasciculatus (De Geer).

Curculio fasciculatus De Geer, Mém. Ins., vol. 5, p. 276, tab. 16, fig. 2. 1775 (Surinam).

Tahiti: Fautaua Valley, altitude 50 feet, 1 mile from sea, September 7, 1928, 1 male, 1 female, Adamson; Mataiea, December 19, 1928, 1 male, on sugar cane, Mumford and Adamson.

DOLICHOPODIDS FROM THE SOCIETY ISLANDS*

By

C. G. LAMB

UNIVERSITY OF CAMBRIDGE

INTRODUCTION

In a previous paper[1] the writer described *Chrysotus denticornis* new species, from the Marquesas and Society Islands. This second report on collections made in the South Pacific islands by the Pacific Entomological Survey deals with the remaining species from the Society Islands. Unfortunately many of the species are represented by single specimens only.

The author is indebted to the Rev. O. Parent for advice about doubtful species, and to J. F. Marshall, Director of the British Mosquito Control Institute, Hayling Island, for photographs.

CHRYSOMATINAE

Genus **CHRYSOSOMA** Guérin

1. **Chrysosoma pallidicorne** Grimshaw.

Tahiti: Fautaua Valley, altitude 50 feet, 1 mile from sea, November 6, 1928, 1 male, A. M. Adamson.

2. **Chrysosoma** species.

A mutilated male of the *patellifer* section.

Tahiti: Papenoo Valley, altitude 500 feet, 6 miles from sea, October 23, 1928, A. M. Adamson.

3. **Chrysosoma** species.

An indeterminable female of another species.

Tahiti: Papenoo, altitude 500 feet, 6 miles from sea, October 25, 1928, A. M. Adamson.

Genus **SCIAPUS** Zeller

4. **Sciapus pachygyna** Macquart.

Six specimens of this typical Pacific species.

Tahiti: Paea, August 29, 1928, on *Hibiscus tiliaceus,* 1 specimen; Tuauru

[1] Lamb, C. G., A new species of Dolichopodid from the Marquesas: B. P. Bishop Mus., Bull. 98, pp. 233-234, 1932.

* Pacific Entomological Survey, Publication 6, article 13. Issued May 22, 1933.

River, altitude 50 feet, 1 mile from sea, September 5, 1928, 1 specimen; Fautaua Valley, altitude 50 feet, 1 mile from sea, September 6, 1928, 4 specimens; A. M. Adamson.

DIAPHORINAE

Genus **CHRYSOTUS** Meigen

5. Chrysotus denticornis Lamb.

Tahiti: Papenoo Valley, altitude 500 and 1000 feet, 6 and 4 miles respectively from sea, October 23 and October 26, 1928, 6 males and 3 females; Papeari, altitude 600 feet, November 9, 1928, 2 males, 1 female, and altitude 50 feet, 1 male; Faraua Valley, Hitiaa, altitude 500 feet, 5 miles from sea, November 17, 1928, 1 male, 2 females (1 at light); Fautaua Valley, altitude 50 feet, 1 mile from sea, and altitude 1500 feet, November 6 and 11, 1928, 2 males; Hitiaa, altitude 1000 feet, 4 miles from sea, November 20, 1 male; A. M. Adamson. Vallée de la Reine, altitude 460 feet, 3 miles from sea, December 17, 1928, 1 male, 2 females (1 over river), Mumford and Adamson.

6. Chrysotus species.

A few imperfect specimens of a species near *degener* Frey.

Tahiti: Papenoo Valley, altitude 1000 feet, 6 miles from sea, October 26, 1928, 4 specimens (2 sweeping over *Andropogon halepensis*); altitude 500 feet, October 23, 1928, 6 miles from sea, 3 specimens; Papeari, altitude 600 feet, November 9, 1928, 1 specimen; Faraura Valley, Hitiaa, altitude 500 feet, 5 miles from sea, November 17, 1928, at light, 2 specimens; A. M. Adamson.

7. Chrysotus species.

A single male of a species near *excretus* Becker.

Tahiti: Faraura Valley, Hitiaa, altitude 500 feet, November 17, 1928.

Genus **ACRODOCERA** Becker

There are a few male specimens of an interesting form which appear to be referable to this Chilean genus.[2] The prominent character of the genus is the remarkably long third antennal joint which has a rounded basal part with an elongate almost cylindrical distal part, the arista being quite terminal. The present species has a less striking antennal structure, but it appears to fall within the limits of Becker's genus; the Rev. O. Parent agrees in this view.

[2] Becker, Th., Dipterologische Studien: Abh. Zool. Bot. Ges. Wien, Band 13, Heft 1, p. 207, 1921.

8. Acrodocera insularis, new species (pl. 1, *A-C*).

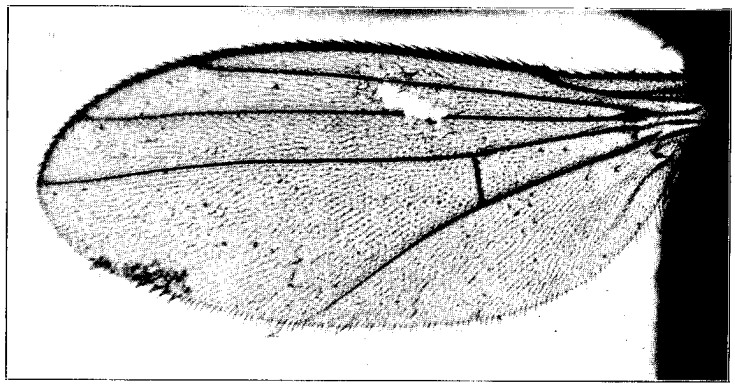
Head: vertex all dark aeneous green, rest of head, including antennae and bristles, black. Eyes touching for a long space. The antennae are strongly haired as is the terminal arista (pl. 1, *B-C*). Palpi black, somewhat pollinated.

Thorax: dorsum dark aeneous green: 5 dorso-central pairs including the pre-scutellars; the acrostichals short and very regular, pleura black. Halteres orange: the alular fringes consist of a few stout black bristles. Wings as in pl. 1, A. All the legs with black coxae and femora, the rest being suffused orange. No outstanding bristles, but two small anterior ones on the middle tibia, and one posterior one on the hind tibia.

Abdomen black with fairly prominent genitalia.

Size, 1¾ mm.

Tahiti: Papenoo Valley, altitude 500 feet, 6 miles from sea, October 23 and 25, 1928, type and 3 paratypes; Fautaua Valley, altitude 1500 feet, September 11, 1928, 1 male; Hitiaa, altitude 1000 feet, 4 miles from sea, November 20, 1928, 1 male; A. M. Adamson.



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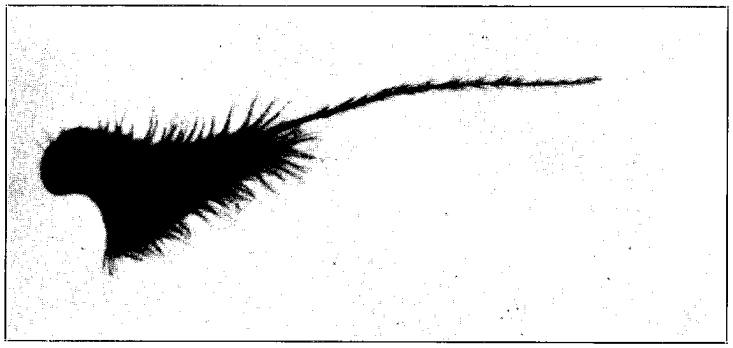
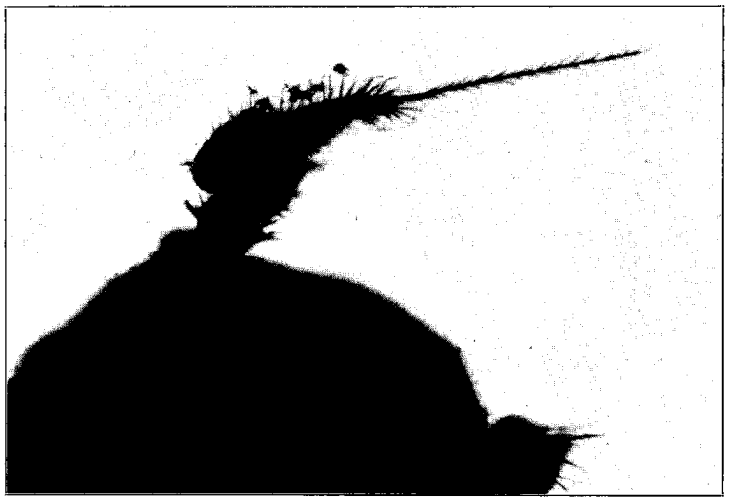


B



C

ACRODOCERA INSULARIS, NEW SPECIES: *A*, WING; *B*, DETAIL OF THIRD SEGMENT OF ANTENNA; *C*, GENERAL VIEW OF ANTENNA.

CERATOPOGONIDAE FROM THE SOCIETY ISLANDS*

By

J. W. S. Macfie

In a previous paper [1] I reported on the Pacific Entomological Survey collection of Ceratopogonidae from the Marquesas Islands. The Survey collection from the Society Islands consists of 202 specimens from 9 species—4 of which are new and 3 of which were described in the Marquesan paper, representing 6 genera.

Forcipomyia inornatipennis (Austen).

Tahiti: Hitiaa, November 20, 1928, 3 miles from sea, 17 males, 1 female, A. M. Adamson.

A very common and somewhat variable African species. The specimens from the Society Islands do not differ from those found in West Africa in any material respect, and since they have banded legs should be referred to *F. inornatipennis* variety *ornaticrus* Carter, Ingram, and Macfie. Probably in other parts of the world the species has received other names. *Forcipomyia excellens,* a species from Java and Sumatra recently described by Johannsen, may be this insect, but unfortunately the form of the harpes of the male is not described.

Lasiohelea pacifica, new species.

Female

Length of wing, about 1.1 mm.; greatest breadth of wing, about 0.4 mm.

Head very dark brown. Eyes bare. Proboscis short. Palpi (fig. 1, *b*) dark brown: third segment inflated, with a large sensory pit; lengths of last four segments in one specimen 9, 18, 8, and 8 units respectively. Antennae (fig. 1, *c*) dark brown: segments 4-9 gradually changing from broader than long to subspherical, measuring in one specimen from 6 by 8 to 6 by 7 units, armed with rather short spines; 10 unusually long, in the same specimen 10 by 7 units; 11-15 elongate, 11-14 subequal, 18-20 by 7 units, the last longer, about 28 units, slightly waisted, and ending in a nipple-like process. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen approximately 108, 48, and 57 units respectively.

Thorax very dark brown, well clothed with narrow scales as well as bristles. Scutellum and postscutellum almost black, the former bearing fairly numerous bristles and hairs.

Wings unadorned. Macrotrichia rather numerous, 6-7 rows between *M*[1] and *Cu* at the level of the cross-vein. Narrow scales abundant on the radial areas. Costa extending about two-thirds of the length of the wing. First radial cell narrow, slit-like; second long and narrow (fig. 1, *a*). Fork of *M* slightly beyond the cross-vein, bases of both

[1] Macfie, J. W. S., Ceratopogonidae from the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1933.

* Pacific Entomological Survey Publication 6, article 14. Issued August 15, 1933.

branches deficient. Fork of *Cu* at about the level of the middle of the second radial cell. Halteres with brownish knobs.

Legs uniformly dark brown; well clothed with shortish bristles, and bearing also numerous narrow scales which are especially conspicuous on the terminal tarsal segments. Tarsal ratio about 2.5. Fourth tarsal segment cylindrical, about the same length as the fifth. Claws (fig. 1, *d* and *e*) strong, each with a large barb on the inner aspect. Empodium not exceptionally developed, as usual.

Abdomen very dark brown, densely clothed with short, dark brown hairs, and narrow scales. Spermathecae two, highly chitinized, subspherical, subequal, diameter about 40 μ; the commencement of the duct hardly at all chitinized.

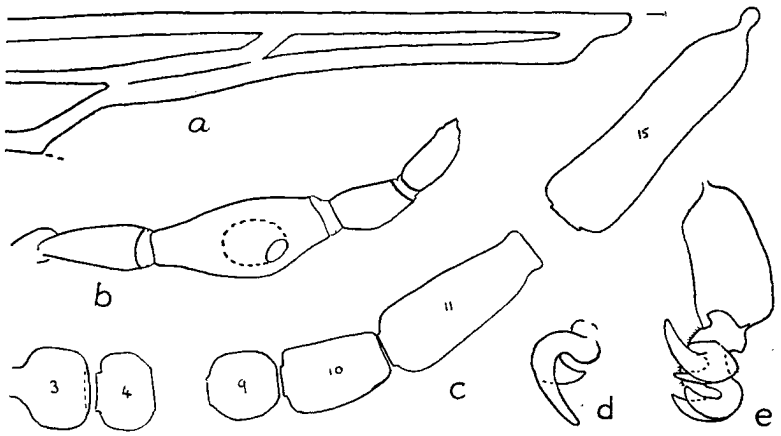


FIGURE 1.—*Lasiohelea pacifica,* new species: *a,* radial cells; *b,* palp; *c,* segments of antenna; *d, e,* claws.

Tahiti: Papenoo Valley, 6 miles from sea, October 25, 1928, 2 females; Papeari, November 9, 1928, 1 female, A. M. Adamson; Papara Valley, December 21, 1928, 1 female, Mumford and Adamson.

The specimen from Papeari is not so dark as the other two, dull rather than very dark brown, but appears to be otherwise indistinguishable.

This species appears to differ from all the other species of the genus which have been described in having the 10th segment of the antenna of the female unusually long, so that the abrupt change in the shape of the segments occurs between the 9th and 10th segments, and not between the 10th and the 11th as is usual.

A dark brown species, bearing narrow scales as well as bristles, with the basal segments of the antenna only slightly flattened and the tenth unusually long, and with the T. R. about 2.5.

Atrichopogon jacobsoni (de Meijere).

Tahiti: Tuauru River, September 3, 1928, 1 mile from sea, 26 males, 71 females; Fautaua Valley, September 6, 1928, 1 mile from sea, 1 female; Papeete, September 9, 1928, at light, 1 female; A. M. Adamson.

Atrichopogon obscuripes, new species.

Length of wing about 1 mm.; greatest breadth of wing slightly more than 0.3 mm.

Head almost black. Eyes hairy. Palpi dark brown: in female lengths of last three segments in one specimen 12, 9 and 7 units respectively, third inflated moderately and with a deep pit in distal half. Antennae dark brown. In male, plume blackish: last three segments elongate, subequal; measurements of last five segments in one specimen 7, 9, 27, 26, and 33 (with stylet) by about 5 units respectively. In female, segments 4-10, subspherical, subequal, in one specimen about 7 by 7 units; 11-14 elongate, subequal, 18-21 by 5 units; 15 longer, 25 (with stylet) units. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen 105, 49, and 56 units respectively.

Thorax almost black. Scutellum and postscutellum almost black; the former bearing 4 bristles, and (in female only) one or two small hairs.

Wings unadorned. Macrotrichia in male very scanty, three or four at tip only; in female more numerous, a fair number in cells R_5 (30-40) and M (about 10), and a few scattered along posterior border including anal cell. Costa extending about two-thirds length of wing. Venation as usual. First radial cell narrow, slit-like; second larger, fully three times as long as first. Petiole of M about same length as cross-vein. Fork of Cu distal to that of M, at about level of base of second radial cell. Angle formed by branches of Cu less than right-angle. Tip of Cu_1 slightly beyond level of end of costa. Halteres dark brown, knobs with ends rather paler than bases.

Legs uniformly dark or darkish brown, but not so dark as the scutum. Segments, claws, and empodium normal. Tarsal ratio in both sexes 3 or slightly more.

Abdomen almost black in the dried insect. Spermatheca single, highly chitinized, not pitted, oval, about 40 μ by 30 μ; the duct hardly at all chitinized. Hypopygium without distinctive features, very similar to that of the African *A. homoius* Carter, Ingram, and Macfie.

Tahiti: Vallée de la Reine, December 17, 1928, 3 miles from sea and most also labeled "over river," 26 males, 16 females; Papara Valley, December 21, 1928, 2 males (1, altitude 750 feet), Mumford and Adamson.

A small, very dark brown, almost black species, with almost black scutellum, dark brown halteres, uniformly dark brown legs, and with a few macrotrichia on the wings in both sexes.

This species resembles in some respects *A. atroscutellatus* Edwards, a Samoan species, which is also small and blackish, but differs, among other things, in having the macrotrichia on the wings of the female fewer and limited to cells R_5 and M_1, the halteres orange, and the legs brownish-yellow.

Culicoides insulanus, new species.

Female

Length of wing, about 0.8 mm.; greatest breadth of wing, about 0.4 mm.

Head dark brown. Eyes bare. Palpi darkish brown, short: third segment about 8 by 6 units, with a small pit; fourth and fifth subequal in length, about 4 units. Antennae almost colorless: segments 4-10 subspherical to oval, ranging in one specimen from about 6 by 5-6 units to 7 by 5 units; 11-14 subequal, about 13 by 4-5 units; 15 longer, about 21 units, without stylet. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen about 74, 46, and 55 units respectively.

Thorax yellowish-brown with scutum adorned with broad dark brown markings. Scutellum dark brown, bearing three bristles and 2-3 small hairs. Postscutellum dark brown.

Wings adorned with pale areas. Arrangement of pale spots and venation as shown in diagram (fig. 2). Macrotrichia scanty, restricted to distal quarter of wing, numerous in cell R_5, but practically none between the branches of *Cu*. Costa extending nearly two-thirds of wing length, radial cells infuscated, about equal in length. Fork of *Cu* distal to that of *M*. Halteres with almost colorless knobs.

Legs with basal segments entirely, and femora and tibiae partially dark brown, and tarsal segments pale, yellowish. Femora and tibiae of hind legs almost entirely dark brown, only the bases of tibiae paler; those of four anterior legs paler, the knees and the adjoining halves (fore legs) or thirds (middle legs) of femora and tibiae pale, yellowish. Tarsal ratio about 2.

Abdomen dark brown. Spermathecae two, not very highly chitinized, subequal, oval, about 40 μ by 25 μ; the duct chitinized rather feebly for about 15 μ.

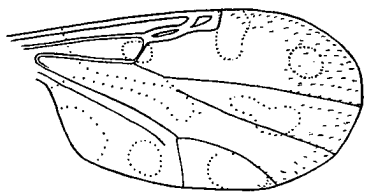


FIGURE 2.—Diagram to show adornment and venation of wing, *Culicoides insulanus*, new species.

Tahiti: Papenoo Valley, altitude 350 feet, 7 miles from sea, October 27, 1928, 1 female, on dead leaves of *Zingiber* species; Hitiaa, 4 miles from sea, November 20, 1928, on *Metrosideros* species, 1 female; A. M. Adamson.

A small brown species, with wings adorned as shown in figure 2.

The adornment of the wings of this species is distinctive, and so far as can be ascertained, different from that of any species hitherto described. The most notable characters are as follows: the pale spot covering the cross-vein small and not reaching the costa, the pale spot in cell R_5 round and reaching neither M_1 nor the wing margin, and the absence of pale spots in the peripheral areas between the branches of M, and between M_2 and Cu_1.

Dasyhelea pacifica Macfie.

Tahiti: Papenoo Valley, 7 miles from sea, October 25, 1928, 3 females; altitude 1000 feet, 6 miles from sea, October 26, 1928, sweeping over grass (*Andropogon halepensis* ?), 2 females; Fautaua Valley, 1 mile from sea, September 6, 1928, 1 female; A. M. Adamson. Vallée de la Reine, 3 miles from sea, December 17, 1928, 1 male, 2 females; Mataiea, December 19, 1928, on sugar cane, 2 females; Papara Valley, December 21, 1928, 1 male; Mumford and Adamson.

This species was described from the Marquesas Islands, where it was also collected by the Pacific Entomological Survey.

Dasyhelea fulvicauda Macfie.

Tahiti: Mataiea, December 19, 1928, on sugar cane, 1 female, Mumford and Adamson.

This species was also described from the Marquesas, where it was collected by the Survey.

Dasyhelea russa, new species.

Length of wing, about 1 mm.; greatest breadth of wing, about 0.3-0.4 mm.

Head dark brown. Eyes hairy. Palpi pale brown, segments subcylindrical, third without pit, lengths of last three in male and female about 10, 7, and 9 units respectively. Antennae of male dark brown, plumes large and dark, segments sculptured: segments 4-11 in the single specimen ranging from about 10 by 11 to 10 by 8 units; 12-14 binodose, 15 with a stylet, lengths 22, 20, 18, and 30 (with stylet) units respectively. Antennae of female missing.

Thorax dull reddish-brown, with traces of the usual scutal adornment. Scutellum rather paler than scutum, more yellow, especially in middle; bearing about 11 bristles and hairs. Postscutellum darkish brown.

Wings with veins bordering second radial cell somewhat infuscated. Distribution of macrotrichia and venation as in *D. pacifica,* but fork of *Cu* in male at level of end of costa, in female well proximal to this level. Halteres with pale, brownish knobs which contain a white substance.

Legs almost uniformly yellowish-brown, but proximal segments of tarsi a little paler than rest, and actual knee joints blackish. Tarsal ratio in both sexes about 2.5.

Abdomen dark brown in dried insect. Spermatheca single, poorly chitinized, collapsed in the single female examined, but probably subspherical, about 40 μ in diameter; duct rather broad at base, chitinized for about 15μ. Hypopygium (fig. 3, *a, b*) dark brown. Ninth tergite with finger-like processes on posterior border rather short, hairy at base; ninth sternite without bristles, produced posteriorly in the middle line. Sidepieces short and broad with a small bristly lobe on inner side apically; claspers unbranched, narrow, dark colored. Harpes with a long posterior blade arising from right side, with a pointed extremity which is twisted ventrally. Chitinized portions of aedeagus forming a dense transverse bar and two rods projecting posteriorly from it.

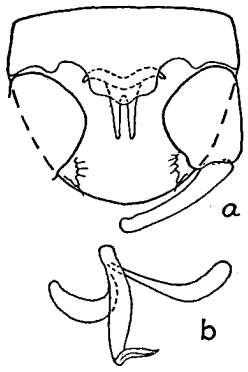


FIGURE 3.—*Dasyhelea russa,* new species: *a* and *b,* parts of hypopygium.

Tahiti: Vallée de la Reine, 2 miles from sea, November 17, 1928, 1 male, 1 female, A. M. Adamson.

This insect is perhaps akin to the Java species *D. perfida* Johannsen, but is darker brown or more reddish in color. The hypopygium of the male, although similar in type, differs in the forms of the ninth sternite and harpes.

A dull reddish-brown species, with a rather paler scutellum and almost uniformly yellowish-brown legs.

Stilobezzia tenebrosa Macfie.

Tahiti: Papenoo Valley, 4 to 6 miles from sea, October 23 to 26, 1928, some labeled also "beaten from *Melastoma denticulata,*" "sweeping over *Andropogon halepensis,*" and "*Hibiscus tiliaceus,* dead wood," 6 males, 11 females; Papeari, November 9, 1928, 2 males, A. M. Adamson; Papara Valley, December 21, 1928, 1 male, Mumford and Adamson.

This species was described from the Marquesas Islands, where it was collected by the Survey.

STAPHYLINIDAE FROM THE SOCIETY ISLANDS *

By

MALCOLM CAMERON

INTRODUCTION

Eleven species of Staphylinidae are here recorded from the Society Islands; no less than ten genera are represented, of which one is undescribed. Two of the species are new, and a third is among those recently described in a report on a collection from the Marquesas Islands.[1] As in the Marquesan collection, all of the specimens were taken by the Pacific Entomological Survey.

SUBFAMILY OXYTELINAE

Tribe OXYTELINI

Trogophloeus mumfordi Cameron.

Tahiti: Papenoo Valley, altitude about 500 feet, 6 miles from sea, October 23, 1928, 1 specimen, A. M. Adamson.

Collected also in the Marquesas Islands, from which the species was described.[1]

SUBFAMILY EUAESTHETINAE

Tribe EUAESTHETINI

New genus, near **Edaphus.**

Tahiti: Papenoo Valley, altitude 650 feet, October 29, 1928, unique.

SUBFAMILY PAEDERINAE

Tribe PAEDERINI

Medon pacifica, new species (fig. 1).

Moderately shining, rufo-ferruginous, the elytra except the extreme base and the posterior third, blackish. Antennae and legs reddish-yellow. Length, 4 mm.

In size and build resembling *adamsoni*[1] but differs in the color and longer antennae. The head is coriaceous as in *adamsoni* but the punctures are less superficial, the thorax has a fine granular sculpture, less close than in *adamsoni,* and the elytra are more finely punctured.

[1] Cameron, M., The Staphylinidae of the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1933.

* Pacific Entomological Survey Publication 6, article 15. Issued August 15, 1933.

Tahiti: Hitiaa, altitude 1500 feet, 3 miles from sea, November 20, 1928, in dead *Pandanus* stem, type, A. M. Adamson.

Moorea: Faaroa Valley, altitude 1000 feet, December 4, 1928, paratype, Adamson.

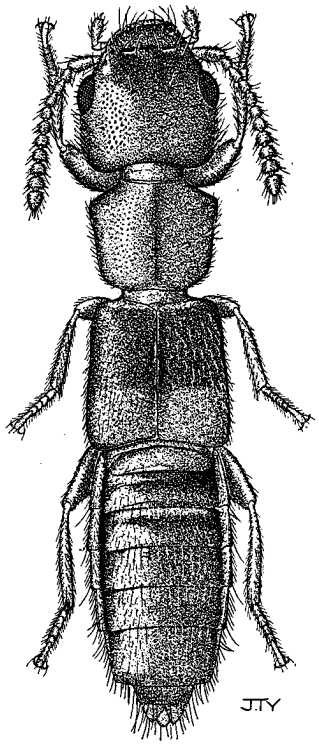


FIGURE 1.—*Medon pacifica,* new species.

Scopaeus limbatus Kraatz.

Tahiti: Papeete, September 9, 1928, at light, 1 specimen, A. M. Adamson.

Also in Ceylon, India, Malay Peninsula, Sumatra.

SUBFAMILY STAPHYLININAE

Tribe STAPHYLININI

Philonthus longicornis Stephens.

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, 10 specimens, A. M. Adamson.

Cosmopolitan species.

Creophilus erythrocephalus Fabricius.

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, 1 specimen, A. M. Adamson.

Also in Australia, Tasmania, and Chile.

Tribe QUEDIINI

Ctenandropus nigriceps Cameron.

Tahiti: Hitiaa, altitude 1500 feet, 3 miles from sea, November 20, 1928, 1 specimen in dead stem *Pandanus* species, A. M. Adamson.

Also in India, Andamans, Malay Peninsula, Sumatra, and the Philippines.

SUBFAMILY ALEOCHARINAE

Tribe MYRMEDONIINI

Gnypeta variegata Bernhauer.

Tahiti: Faa, altitude about 1000 feet, 4 miles from sea, November 7, 1928, in dead leaves on ground, 5 specimens; Hitiaa, altitude 1500 feet, 3 miles from sea, November 20, 1928, on *Freycinetia* species, 3 specimens; A. M. Adamson.

Also in Samoa, Fiji, and the Marquesas Islands.

Probably the *Bolitochara insulana* of Fairmaire, originally described from Tahiti, and subsequently placed in the genus *Tachyusa*.

Atheta bicincta Cameron.

Tahiti: Hitiaa, altitude 1500 feet (2 specimens labeled 3 miles from sea), November 20, 1928, 18 specimens (3 on *Freycinetia* species); Papenoo Valley, altitude about 1000 feet, 6 miles from sea, November 26, 1928, 2 specimens from female inflorescence of *Freycinetia* species; A. M. Adamson.

Also in Fiji and the Marquesas Islands.

Atheta peregrina Kraatz.

Tahiti: Fautaua Valley, September 11, 1928, altitude 1500 feet, 1 specimen; Papenoo Valley, altitude about 500 feet, 6 miles from sea, October 23, 1928, 3 specimens, altitude 350 feet, 7 miles from sea, October 25, 1928, 2 specimens; A. M. Adamson.

Also in Ceylon and India.

Thamiaraea insigniventris Fauvel.

Atheta miriventris Cameron.

Tahiti: Vallée de la Reine, altitude 460 feet, 3 miles from sea, December 17, 1928, 1 specimen, Mumford and Adamson.

Also in Ceylon, Singapore, Sumatra, Philippines, Celebes and New Guinea.

SOME TAHITIAN MYCETOPHILIDAE AND CHIRONOMIDAE*

By

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FAMILY MYCETOPHILIDAE

No species of this family have been reported from Tahiti hitherto. The collection made by Mr. A. M. Adamson of the Pacific Entomological Survey contains four specimens of *Sciara,* belonging to as many distinct species; only one of these is determinable.

Genus SCIARA Meigen

Sciara radicum Brunetti (?)

Tahiti: Papeete, September 9, 1928, 1 male at light, Adamson.

A second male taken at the same time and place apparently represents a distinct species, differing from *S. radicum* in having the tips of the first few flagellar segments yellowish.

FAMILY CHIRONOMIDAE

Two species of this family were found by L. E. Cheesman on Tahiti and recorded in my report on the Nematocera of the St. George Expedition: *Chironomus* species and *Orthocladius brachidicranus* Edwards. The former is a typical *Chironomus* closely related to *C. samoensis* Edwards; the latter belongs, according to my present classification, to the subgenus *Smittia* of *Spaniotoma,* and is closely related to some Marquesan species.

Genus CHIRONOMUS Linnaeus

Mr. Adamson's collection includes two tubes of larvae of a species of *Chironomus* from Lake Vaihiria. The species is presumably the same as the one found by Miss Cheesman.

Genus TANYTARSUS van der Wulp

The collection contains damaged examples of two species of this genus, both of which have most of the characters of the subgenus *Stempellina,* the wings being almost cuneiform, without distinct anal angle, and the hind tibiae with two unequal and narrowly separated combs, the smaller comb bearing

* Pacific Entomological Survey Publication 6, article 16. Issued September 15, 1933.

a rather long spur, the larger comb unarmed. Both appear to have (or to have had) several marginal scutellar hairs, instead of two only as in the European species of *Stempellina.*

Tanytarsus (Stempellina ?) species 1.

Tahiti: Vallée de la Reine, 2 miles from sea, 1 male, 1 female, Adamson.

A small yellowish species without dark markings.

Tanytarsus (Stempellina ?) species 2.

Tahiti: Faraura Valley, Hitiaa, altitude 500 feet, 5 miles from sea, 1 male, 3 females; Fautaua Valley, altitude 1000 feet, 1 female, Adamson; Vallée de la Reine, altitude 460 feet, 3 miles from sea, 1 male over river, Mumford and Adamson.

Smaller, more hairy, and much darker than the last.

PORCELLIO (HEMINAGARA) TAHITIENSIS, NEW SUBGENUS AND SPECIES, AND OTHER TAHITIAN TERRESTRIAL ISOPODS *

By

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In the introductory section to my report on the terrestrial and freshwater isopods collected by the Pacific Entomological Survey in the Marquesas Islands,[1] some mention was made also of the species taken in the Society Islands, from which no woodlice had been previously recorded. In this paper are given a description of a new subgenus from Tahiti, and records of four other species which were collected by the Survey in the Marquesas as well as in Tahiti. The Tahitian collection was made by Mr. A. M. Adamson in 1928.

In my Marquesan paper I have already expressed my thanks to Mr. E. P. Mumford of the Pacific Entomological Survey for allowing me to study the collection, and to Mr. R. B. Brook-Greaves for his most able assistance in the preparation of illustrations.

FAMILY ONISCIDAE

SUBFAMILY ONISCINAE

Genus PHILOSCIA

1. Philoscia (Setaphora ?) fasciata Jackson.

Tahiti: Papenoo Valley, altitude 350 feet, October 25, 1928; Hitiaa, altitude about 1500 feet, November 20, 1928; Vaipuarii, August 28, 1928, altitude 1800 feet; Adamson.

This species, which I assigned with hesitation to the subgenus *Setaphora* was described from specimens collected on several of the Marquesas islands.

SUBFAMILY PORCELLIONIINAE

Genus PORCELLIO

Subgenus HEMINAGARA, new subgenus

Nagaroides was constituted a subgenus of *Porcellio* by Wahrberg (1922) to lie by the side of *Nagara* Budde-Lund on the sufficient grounds of the differences in the mandible, the hind margins of the thoracic tergites, and

[1] *Philoscia (Setaphora?) fasciata* Jackson: B. P. Bishop Mus., Bull. 114, 1933.

* Pacific Entomological Survey Publication 6, Article 17.

the maxilla. (In the summary given by Herold [2] of the differences between the two genera, the characters of the maxilla are placed in the wrong columns and should be transposed.) This single specimen has characters intermediate between the two genera and some of its own. In the following diagnosis the characters common to either genus are noted in brackets.

Mandibles: R. penicilli 1 + 1, L. 1 + 2. (*Nagara*).

Maxillula: outer endite 4 + 6 (1, 4, 6 large, 2, 3 very slender, 5 very slender and small, 1? and 4 bifurcate); on face below 1 a minute spine; on inner border small bunches of setae.

Outer endite of maxilla sharply curved on inner side (*Nagaroides*).

Maxillipede: endite with three teeth on distal edge, two thorn-like on outer side, one smaller and blunt on inner corner. On face one long spine, greatly exceeding margin and to its inner side one triangular tooth scarcely exceeding margin; one minute spine in inner edge; not setose.

Posterior edge of thoracic tergites sinuate (*Nagaroides*).

2. Porcellio (Heminagara) tahitiensis, new species (fig. 1).

Length, 5 mm.; breadth, 2.5 mm.; shape, oblong-oval.

Surface smooth and minutely scaly.

Head. Eyes small, compact, convex, each 20 ocelli; median lobe of frontal line not sharply separated from vertex, but well marked; in center of crest a shallow depression; lateral lobes prominent, rounded narrow; marginal line appears to join lateral edge of lateral lobes; profrons convex, covered roughly with scales, postfrons smooth; clypeus, rounded, setose and scaly, lateral processes small; genae deeply excavated.

Thorax: tergites I to IV distinctly sinuate at sides, V and VI curved, VII sinuate; posterolateral angles little produced; angles of VII reaching to hind border of third abdominal segment.

Abdomen: I and II broad, remainder with well-developed posterolateral angles; telson triangular, sides deeply emarginate, apex somewhat rounded.

Appendages: Antenna absent. Mandibles: R. penicilli 1 + 1; L. penicilli 1 + 2; inferior seta, composed of a large group of penicilli. Maxillula: outer endite as described above; inner endite with long sharp spine on outer edge and two long slender penicilli. Maxilla: lobes nearly equal and provided with three stout setae in cleft. Outer lobe retreating and weakly setose, inner lobe composed of outer membranous weakly setose portion and inner more strongly developed bristly portion; inner margin curved. Maxillipede: endite as described above, endopod with two bristle groups composed of few very long setae. Pleopoda: distal border of first exopod of male with sinuate hind border produced to small point on inner side. Uropod: protopod half length of telson, nearly as broad as long, triangular excavation on outer side; exopod lanceolate, stout, setose; endopod originates far back at base of protopod, which it only exceeds by about one-third of its length, actual length nearly that of exopod, scarcely exceeding tip of telson, setose.

Color, uniform dark purple inclined to leaden.

Tahiti: Fautaua Valley, altitude 750 feet, September 10, 1928, 1 male, Adamson.

Type in Bernice P. Bishop Museum, Honolulu.

[2] Herold, Werner, Land-Isopoden von den Sunda-Inseln: Arch. für Hydrobiologie, p. 359, Suppl. Bd. ix, Bd. 2, 1931.

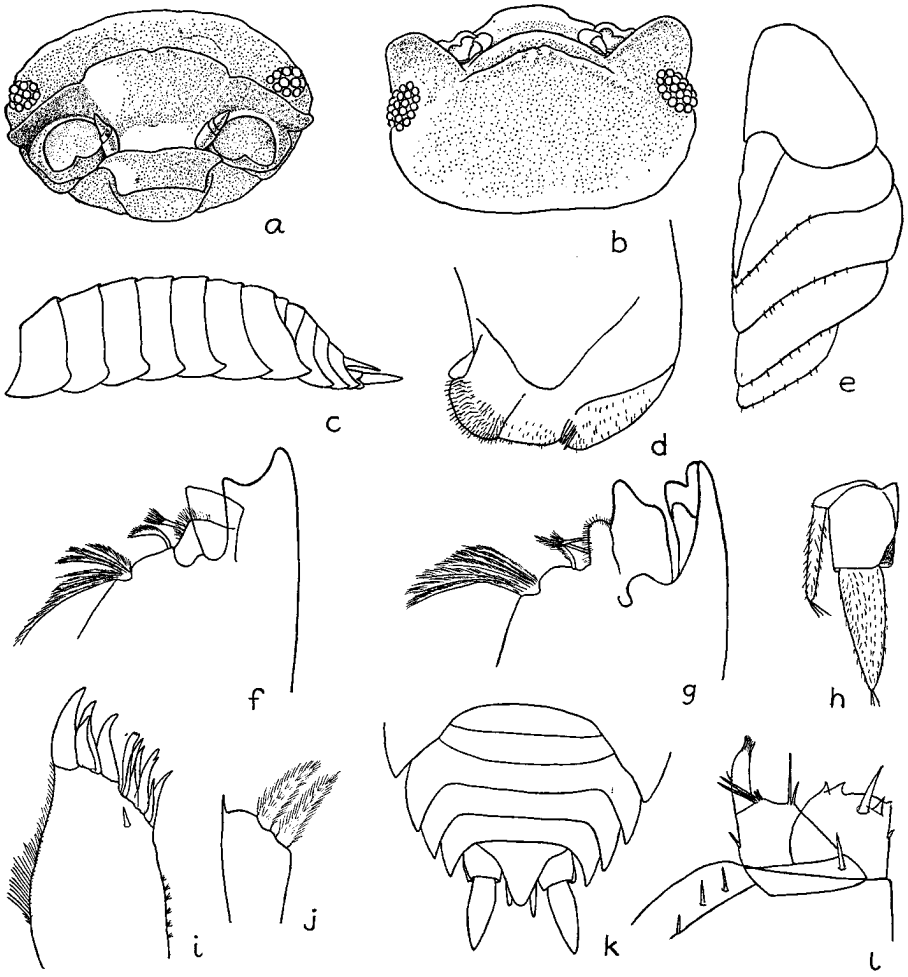

FIGURE 1.—*Porcellio* (*Heminagara*) *tahitiensis* new species: *a*, head, from front; *b*, head, from above; *c*, thorax and abdomen, from side; *d*, maxilla; *e*, pleopoda, male; *f*, right mandible; *g*, left mandible; *h*, uropod, from below; *i*, maxillula, outer endite; *j*, maxillula, inner endite; *k*, abdomen and uropoda; *l*, maxillipede.

SUBFAMILY ARMADILLINAE

Genus **SPHERILLO**

3. **Spherillo (Spherillo) montivagus** Budde-Lund.
   Tahiti: Fautaua Valley, altitude 750 feet, September 10, 1928, Adamson. Recorded also from the Marquesas, Samoa, and Tonga.

4. **Spherillo (Xestodillo?) marquesarum** Jackson.
   Spherillo (Xestodillo?) marquesarum Jackson: B. P. Bishop Mus., Bull. 114, 1933.
   Tahiti: Vaipuarii Valley, altitude 1800 feet, August 28, 1928, Adamson. This species was collected also on Uapou, Marquesas Islands.

Genus **CUBARIS**

5. **Cubaris murinus** Verhoeff.
   Nesodillo medius Verhoeff: Fritz Sarasin und J. Roux, Nova Caledonia, Zoologie, vol. 4, L. 2 (München).
   Cubaris murinus, Jackson: B. P. Bishop Mus., Bull. 114, 1933.
   Tahiti: Papeete, August 28, 1928.
   This species has been found on many of the Pacific islands. Its synonymy is discussed in my Marquesan paper.

ASTEIA SOCIETAS NEW SPECIES FROM TAHITI (DIPTERA, ASTEIDAE)*

By

JOHN R. MALLOCH

BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE

I am describing below the only species of the genus *Asteia* which I have seen from the Society Islands. The separation of the glossy frontal triangle by a dull dark brown line on each side very readily distinguishes this Tahitian species from the three dark species occurring in the Marquesas.[1] Though I have not seen any other Tahitian *Asteia,* I have described a species of *Sigaloessa* Loew from Papeete.

Asteia societas, new species.

Male

Very similar to *A. tarsalis* in general habits and coloration, differing mainly in the yellow pleura, the differently colored frons and legs, and the more slender tarsi.

Head testaceous yellow, epistome with a broad white transverse band, center of face fuscous, upper two thirds of back of head black, frons dark brown above, the anterior margin brownish yellow, upper part of orbits and the triangle glossy, separated from each other by a dull dark brown line; antennae largely brownish yellow; palpi yellow. Frons a little longer than wide, narrowed slightly in front, with very slight indication of the typical lateral pale lines of the other species, the chaetotaxy as in *A. tarsalis.* Profile as in *A. dimorpha.* Arista with 6 or 7 free extremities.

Thorax glossy black, pleura yellow, apex of scutellum slightly brown. Chaetotaxy as in *A. dimorpha,* the two sternopleural bristles black. Legs, including the coxae, yellow. Tarsi not much thickened. Wings hyaline, venation as in the other species. Abdomen black, hypopygium yellowish. Halteres dark brown.

Female

Differs from the male in having the sclerites of the pleura mostly darkened in center, and the abdomen more elongate. Length 2-2.5 mm.

Society Islands: Tahiti, Fautaua Valley, September 11, 23, 1928, A. M. Adamson.

[1] Malloch, J. R., Additional new species and other records of Acalyptrate Diptera (Sapromyzidae, Drosophilidae, Ephydridae and Trypetidae) from the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1933.

* Pacific Entomological Survey Publication 6, article 18. Issued November 15, 1933.

SPECIES OF ARNOMYIA FROM THE SOCIETY ISLANDS (DIPTERA, SAPROMYZIDAE)*

By

JOHN R. MALLOCH

BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE.

Genus ARNOMYIA Malloch

This genus was erected for the reception of a single species from these islands and was distinguished from *Homoneura* van der Wulp by the uniformly fine-haired frons, which in the male is almost flat, and the presence of two or more pairs of postsutural acrostichal bristles. Until now only the genotype was known, but before me are several specimens of a species closely allied thereto that appears to call for description.

Arnomyia immaculipennis, new species.

Very similar to *A. nubeculosa* Malloch, differing mainly in the lack of any distinct brown clouding of the apical third of the wing, except a very faint suffusion of the outer cross vein, and the entirely yellow fore tarsi. In *A. nubeculosa* the apical two segments of the fore tarsi are fuscous, and in the male the fifth one is slightly widened. Length, 5-6 mm.

Tahiti: Te Aroa Pass, 7 miles from sea, altitude about 3000 feet, October 31, 1928, holotype male; Anaroii Plateau, 7.5 miles from sea, altitude about 2000 feet, October 31, 1928, allotype; Fautaua Valley, altitude 1500 feet, September 11, 1928, 2 paratypes; Tipaerui Valley, altitude 750 feet, September 12, 1928; Adamson.

Moorea: Opunohu Valley, 2 miles from sea, November 30, 1928, 2 paratypes, Adamson.

Arnomyia nubeculosa Malloch.

A long series of specimens of both sexes taken by A. M. Adamson on Tahiti at elevations up to 1500 feet, from September to November 1928.

* Pacific Entomological Survey Publication 6, article 19. Issued November 15, 1933.

AN ABERRANT SCAPTOMYZA FROM THE SOCIETY ISLANDS (DIPTERA, DROSOPHILIDAE)*

By

JOHN R. MALLOCH

BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE.

The genus *Scaptomyza* Hardy shows a greater development in the Marquesas in comparison with that of any other genus of wide distribution in this family. In the collection before me now I find a Society Islands species that differs from any in the Marquesan material, though in some respects it resembles *S. mumfordi* Malloch.

Scaptomyza femoralis, new species.

A glossy black species, with antennae and palpi fuscous, the mesonotum without dusting, the legs black, tibiae hardly paler than femora, and the tarsi testaceous, wings hyaline, and halteres yellow.

Frons deep black, the interfrontalia velvety, the orbits and triangle slightly shining and with grayish dust, the latter continued faintly as a mere line to anterior margin. Width of frons at vertex slightly greater than its length in center, narrowed to anterior margin, the orbits distinct on entire extent, all the vertical, the postvertical, and ocellar bristles quite long, anterior reclinate orbital not more than half as long as the proclinate bristle, behind level of latter and slightly nearer to eye. Face with a narrow central vertical carina that is separated from the epistome by a depression. Eyes stiff-haired, more than 10 times as high as gena. Antennae normal, the arista with 6 or 7 rays above, and 1 or 2 below on apical third.

Thorax shining black, without trace of dorsal dusting or vittae. Mesonotum with 2 strong posterior pairs of dorsocentrals and 2 rather shorter pairs in front of them, the anterior pair slightly presutural, also 2 or 3 pairs of distinct acrostichal bristles, the posterior and longest pair close to the suture; humeral 1; scutellars 4, subequal; sternopleurals 2; the intradorsocentral hairs biseriate.

Legs glossy black, tibiae slightly brownish, more distinctly paler at bases, the tarsi varying from testaceous yellow to brownish yellow, slightly darker at apices. Legs stronger than usual, the femora most distinctly so, those of the male stronger than the female, the fore pair in that sex distinctly stouter than the mid and hind pairs, the usual outstanding posterodorsal bristle beyond middle of the fore pair quite well developed.

Wings hyaline, the veins brown. Section of the costa between second and third veins nearly twice as long as that between third and fourth, the third vein ending in wing tip; outer cross vein at more than its own length from apex of fifth vein; penultimate section of fourth vein not more than three-fourths as long as ultimate one.

Abdomen glossy black, rather stout. Knobs of halteres yellow. Length, 2.5 mm.

Tahiti: Papeari, male and female, November 9, 1928, altitude 600 feet, Adamson.

This species is immediately distinguishable from any other known to me by the glossy black color of the thorax and abdomen, and from all but

* Pacific Entomological Survey Publication 6, article 20. Issued November 15, 1933.

S. mumfordi by the presence of well-developed acrostichal bristles near the suture. In the Marquesan species, however, the mesonotum has three distinct dark brown vittae, there is at most one pair of dorsocentrals in front of the two strong postsutural pairs, and there are in no specimen available to me more than one pair of distinct acrostichals near suture. In having the femora thicker than other species, and especially in the stout fore pair in the male, this species is distinguishable from all others in the genus.

LES ARAIGNEES DE TAHITI*

Par

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MUSÉUM NATIONAL D'HISTOIRE NATURELLE, PARIS

Bien qu'elle soit l'une des îles les plus anciennement et les mieux connues du Pacifique, Tahiti en est restée l'une des moins etudiées, tout au moins en ce qui concerne les Araignées.

En effet, jusqu'a présent, s'est à peine si on pouvait en dénombrer une quinzaine d'espèces, signalées principalement par L. Koch et par Strand. Et encore ces espèces étaient-elles ou cosmotropicales, ou largement polynésiennes, de sorte qu'on ne pouvait déceler aucun endémisme dans les îles de la Société, contrairement à ce qui est la règle dans le Pacifique, où le pourcentage des espèces spéciales à chaque archipel atteint, et même dépasse souvent, 50 pour-cent du chiffre total.

Les récoltes faites par M. Adamson, du Pacific Entomological Survey, améliorent sensiblement nos connaissances, puisqu'il y ajoute 13 espèces, dont 4 nouvelles, ce qui porte à pres de 30 le nombre d'espèces d'Araignées actuellement connues de Tahiti.

C'est certes un résultat fort intéressant en soi, parce qu'il montre que Tahiti n'est pas une exception, et que sa faune doit être comparable à celle des archipels voisins. Mais ces derniers ont une population aranéenne généralement plus considérable: aux Marquises on compte environ 40 espèces; aux Samoa environ 80; aux Hawaii plus de 100. Il n'est donc pas douteux que, pour Tahiti, nous n'avons qu'une approximation; le nombre d'espèces doit certainement être plus élevé, et le coéfficient d'endémisme, qui atteint à peine 20 pour-cent sera à coup sûr augmenté. C'est dire qu'il doit y avoir encore nombre d'espèces à trouver, principalement dans le massif montagneux de l'intérieur de l'île, d'un accès trés difficile, et jusqu'ici peu exploré au point de vue entomologique.

Sans pouvoir tirer actuellement des conclusions définitives de renseignements trop incomplets, je pense qu'on peut faire les remarques suivantes, au point de vue de la zoogéographie, basées sur les espèces connues, dont je donne plus loin la liste, avec leurs affinités.

1. Tahiti rentre bien dans le groupe polynésien, par la présence d'un bon nombre d'espèces qui se retrouvent dans les archipels voisins, notamment aux Marquises et à Samoa; c'est le cas en particulier de *Scytodes striatipes, Heteropoda nobilis, Pholcus ancoralis,* et de plusieurs Salticidae (voir la liste).

2. Le phénomène bien connu d'un appauvrissement de la faune à mesure

* Pacific Entomological Survey Publication 6, article 21. Issued January 30, 1934.

qu'on va vers l'est, y est manifeste; c'est ainsi que les grands genres *Gasteracantha* et *Argiope* atteignent les Fidji mais ne les dépassent pas; *Nephila* se trouve aux Fidji et aussi à Samoa mais pas plus loin; le genre *Cyrtophora* passe dans les précédents archipels et pousse jusqu'a Tahiti, ou il atteint son extrême limite vers l'est. Ces faits paraissent bien en accord avec la conception de l'origine malaisienne de la faune du Pacifique central.

Il faut souhaiter que d'autres recherches viennent nous fournir de nouveaux documents.

FAMILLE SICARIIDAE

Genre SCYTODES Latreille, 1804

Scytodes marmorata L. Koch.

Tahiti: Hitiaa, 500 m alt., 16 novembre, 1928, Adamson, 1 ♀.

Espèce répandue dans tout le Pacifique et une partie de l'Asie tropicale.

Scytodes striatipes L. Koch.

Tahiti: vallée Vaiparii, Adamson, 28 août, 1928, 2 ♀.

Cette espèce a une répartition plus réduite que la précédente, elle est en réalité ā peu près strictement polynésienne, mais se rencontre toutefois aussi en Nouvelle-Caledonie et aux Loyalty.

FAMILLE THOMISIDAE

Genre MISUMENOPS F. Cambridge, 1900

Misumenops pallida, species nova (figs. 1-5).

Couleur: céphalothorax uniformément rougeâtre clair, sans bandes claires; chélicères, pièces buccales, sternum et pattes de même couleur, concolores; abdomen gris, avec sur la face dorsale quelques petites taches brunes, et sur les côté des traces blanches.

Yeux: première ligne procurvée, ses yeux équidistants, les latéraux plus gros que les médians et que les autres yeux, mais pas tout à fait doubles en diamètre, les médians séparés l'un de l'autre par environ deux fois leur diamètre; deuxième ligne procurvée, ses yeux égaux et équidistants, les médians séparés entre eux par environ trois diamètres; groupe des médians aussi large que long et plus étroit en avant.

Pattes: femurs I avec sur la face dorsale 1 tres petite épine près de la base et 1 autre vers le milieu, aux autres femurs 1 seule épine mediane; tibias I: face ventrale portant 3 et 1 épines, tibias 2 et 1 épines (fig. 3, 4); métatarses I et II avec 5-4 épines; les épines des tibias et métatarses sont plus courtes que le diamètre des articles et presque égales entre elles.

Chétotaxie: sur le bord frontal 6 épines, les deux médianes plus petites; 1 épine médiane entre les yeux médians antérieurs et un peu en avant, et 1 derrière chaque oeil latéral postérieur; quelques très courtes épines sur le céphalothorax, et notamment deux lignes obliques à la partie postérieure, partant de la fossette.

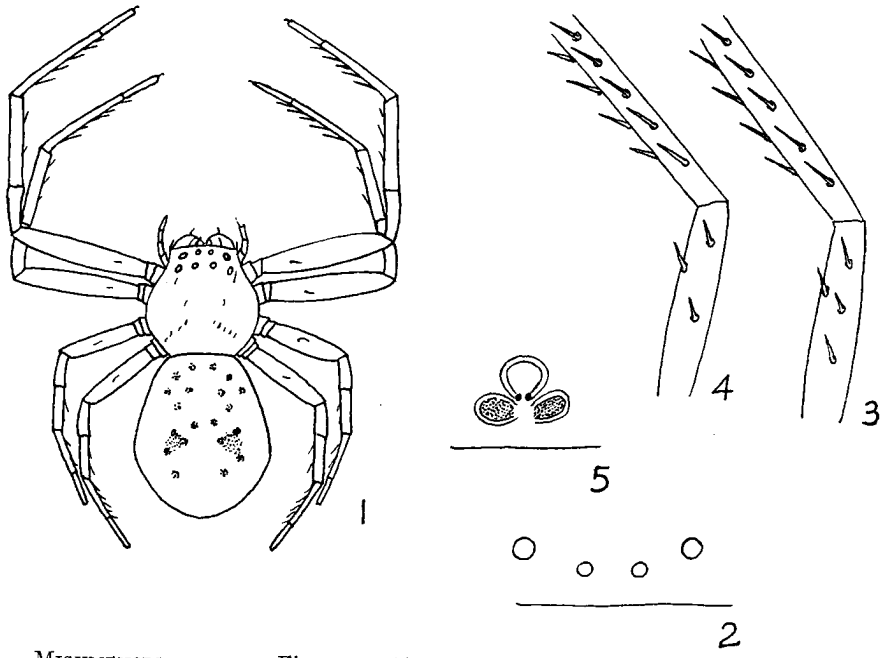
Abdomen subpentagonal, un peu allongé et convexe.

Épigyne (fig. 5), très peu visible.

Longueur totale, 5 mm.; céphalothorax, long. 2.5 mm., larg. 2.5.

Tahiti: vallée Vaipuarii, 1 ♀ (type).

Variation: une femelle de même localité a la même taille et présente la même disposition oculaire, mais elle est plus colorée: le céphalothorax porte deux bandes brunes latérales, et les pattes sont plus ou moins tachées de brun; de plus la formule épineuse des pattes semble un peu différente; mais cet exemplaire n'est pas adulte, et se trouve en outre en assez mauvais état. Il reste très probable que l'espèce présente des variations de couleur.



MISUMENOPS PALLIDA. Figure 1.—Femelle, × 7. Figure 2.—Ligne antérieure des yeux, vue de l'avant. Figure 3.—Tibia et métatarse I, vus en dessous. Figure 4.—Tibia et métatarse II, vus en dessous. Figure 5.—Épigyne.

Le genre *Misumenops* semble assez répandu en Polynésie, comme il l'est d'ailleurs dans la plupart des régions, mais il y présente des espèces qui ont une tendance marquée à l'endémisme et, autant qu'on en puisse juger d'après les documents actuels, sont localisées dans chaque île ou archipel, ce qui indique un peuplement assez ancien. Jusqu'à présent il n'était pas signalé de Tahiti. Les affinités des espèces polynésiennes du genre sont difficiles à préciser pour le moment, faute de documents suffisants; si le genre a été décrit de l'Amérique centrale par F. Cambridge, c'est uniquement l'effet du hasard, et rien n'indique qu'il en soit originaire, car il est tout aussi bien représenté en Asie, et notamment en Malaisie.

FAMILLE SALTICIDAE

Genre **THORELLIA** Keyserling, 1882

Thorellia ensifera (Thorell).

Tahiti: toutes les localités.

Cette Araignée est très commune dans le Pacifique.

Genre **ATHAMAS** Cambridge, 1877

Athamas whitmeei Cambridge.

Tahiti: toutes les localités.

Décrite de Samoa, cette espèce se trouve dans tous les autres archipels du Pacifique; elle est connue aussi des Loyalty.

Genre **BAVIA** Simon, 1877

Bavia aericeps Simon.

Tahiti: vallée Vaipuarii, 1 trés jeune individu, 28 août, 1928.

Espèce également répandue dans tout le Pacifique.

Genre **SANDALODES** Keyserling, 1883

Tahiti: Hitiaa, 500 m alt., novembre, 1928, 1 ♀, 3 jeunes.

Je signale, dans une étude sur les Araignées des îles Marquises, tout l'intérêt que présente le genre *Sandalodes*. Connu d'Indo-Malaisie, puis d'Australie, on l'a trouvé ensuite aux Hawaii,[1] et aux Marquises[2]; une de ses espèces, *S. calvus,* décrite du Queensland, se retrouve aux Marquises où elle est extrêmement abondante, mais on voit qu'elle existe aussi dans le Pacifique central puisque la voilà tahitienne, et je sais qu'elle existe aussi sur quelques autres archipels voisins. Sans doute pourrait-on penser pour elle a un transport passif, bien que cela soit assez difficile à expliquer, car pourquoi resterait-elle limitée au Pacifique, et pourquoi n'aurait-elle pas abordé les Hawaii? Mais un fait encore plus curieux, c'est que le genre *Sandalodes* s'est multiplié en espèces bien différentes, autant aux Hawaii qu'aux Marquises, ce qui soulève des problèmes fort intéressants, tant au point de vue de la zoogéographie que de l'évolution et de la différenciation des espèces. En effet, le même genre nous présente une espèce à large répartition, toutefois dans un sens déterminé, et sans modifications appréciables, et d'autre part deux groupes d'espèces, l'un aux Hawaii, l'autre aux Marquises, qui s'y sont différenciés en nombreuses formes distinctes (respectivement 8 et 6), sans d'ailleurs qu'il y ait isolement pour chacune de ces espèces.

[1] Simon, Eugène, Arachnida: Fauna Hawaiiensis, vol. 2, pp. 443-530, 1900.

[2] Berland, Lucien, Araignées des Iles Marquises: B. P. Bishop Mus., Bull 114, pp. 39-70, 1933.

FAMILLE CLUBIONIDAE

Genre **CLUBIONA** Latreille, 1804

Clubiona samoensis Berland.

Tahiti: Hitiaa, 500 m alt., novembre, 1928, 1 ♀, 3 jeunes.

Aucune espèce de ce genre n'était connue de Tahiti. Malgré l'absence de mâles, qui permettraient une détermination plus précise, je crois pouvoir affirmer qu'il s'agit bien de l'espèce que j'ai décrite récemment de Samoa;[3] il y a une bien nette ressemblance par la taille, l'écartement des yeux et leur diamètre, cette espèce étant caractérisée par ses yeux médians antérieurs plus petits que les latéraux et ses médians postérieurs beaucoup plus écartés entre eux que des latéraux; l'épigyne est aussi le mème.

FAMILLE SPARASSIDAE

Genre **HETEROPODA** Latreille, 1804

Heteropoda nobilis (L. Kock).

(= *H. nobilis* (♂) + *H. suspiciosa* (♀) L. Koch)

Tahiti: vallée Vaipuarii, 28 aout 1928, 1 individu trés jeune, mais que je crois pouvoir attribuer à cette espèce, par suite du dessin en demi-cercle clair à la partie postérieure du céphalothorax, caractère que ne présente pas *Heteropoda regia.* Il y a en Polynésie deux *Heteropoda,* qui se ressemblent beaucoup et que certainement les auteurs ont du parfois confondre; l'une est *H. regia,* cosmopolite, extrêmement commune dans tous les pays tropicaux; l'autre, *H. nobilis,* décrite de Samoa, et qui existe dans presque tous les archipels polynésiens: Fidji, Tonga, Marquises, Rapa. Si les espèces se ressemblent superficiellement, les caractères des organes d'accouplement les distinguent d'une facon très nette, ainsi en général que la bande en demi-cercle de couleur claire qui orne la partie postérieure du céphalothorax.

FAMILLE PHOLCIDAE

Genre **PHOLCUS** Walckenaer, 1805

Pholcus ancoralis L. Koch.

Tahiti: Hitiaa, 1 ♂.

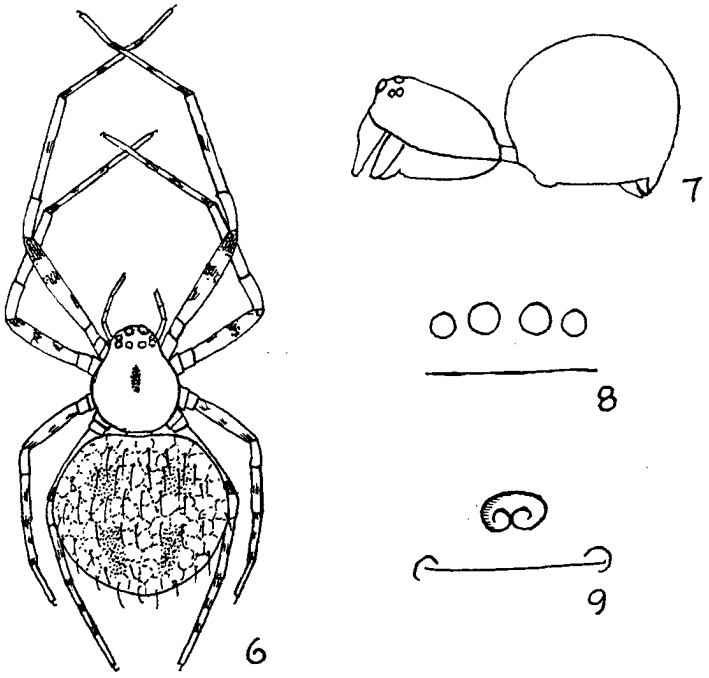
Espèce de Samoa et quelques autres archipels polynésiens, déja singnalée de Tahiti par Strand.

[3] Berland, Lucien, Araignées: Insects of Samoa, pt. 8, fasc. 2, p. 65, 1929.

FAMILLE THERIDIIDAE

Genre **THERIDION** Walckenaer, 1805

Aucun *Theridion* n'avait encore été signalé de Tahiti; les récoltes faites par M. Adamson viennent combler cette lacune. Comme partout où il s'installe, ce genre, extrêmement abondant en espèces, se développe en nombreuses formes distinctes, et j'en trouve immédiatement trois qui sont nouvelles. Les *Theridion* cosmopolites ne semblent pas avoir encore abordé à Tahiti.



THÉRIDION ADAMSONI. Figure 6.—Femelle, × 10. Figure 7.—Femelle, vue de profil. Figure 8.—Ligne antérieure des yeux. Figure 9.—Épigyne.

Theridion adamsoni, species nova (figs. 6-9).

Femelle

Couleur, céphalothorax fauve clair, avec une tache brune allongée en avant de la fossette thoracique (et parfois une trace de bordure sur les côtés, en avant); chélicères fauve plus foncé, surtout a l'apex; pièces buccales de même couleur que les chélicères; sternum fauve clair, teinte de gris sur les côtés et en arrière, mais d'une facon à peine perceptible; pattes jaune clair annelées de brun: aux fémurs 1 anneau sub-basilare et 2 sub-apicaux rapprochées l'un de l'autre; aux tibias 1 anneau près de la base et 1 apical; aux métatarses 1 à la base, 1 au milieu et 1 à l'apex; la patella peut avoir une tache basale; ces anneaux souvent interrompus sur la face superieure; abdomen gris, mosaique de taches blanches, avec en plus sur la face dorsale deux taches suivies de deux bandes

brunes très peu nettes (fig. 6) les bandes longitudinales atteignant les filières qu'elles entourent; sur la face ventrale les plaques blanches sont plus rares.

Yeux: 1ere ligne droite par le bord antérieur des yeux, les médians un peu plus gros que latéraux, séparés entre eux, et des latéraux, par moins que leur diamètre; 2e ligne droite, les médians un peu plus gros que les latéraux et un peu plus rapprochés entre eux que des latéraux.

Chélicères longues, diminues vers l'apex, un peu projetées en avant.

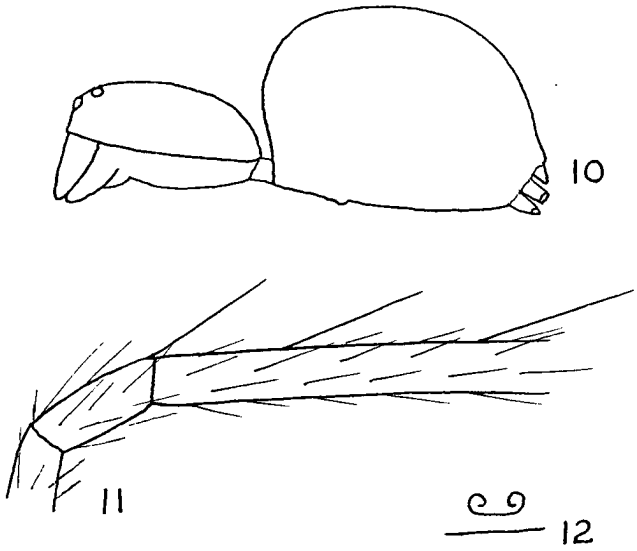
Sternum subtriangulaire, prolongé en coin entre les hanches IV qui sont séparées entre elles d'au moins leur largeur.

Abdomen transversal, vu de dessus aussi large que long, et vu de profil globuleux (fig. 6 et 7).

Épigyne (fig. 9) à contours bien nets, son bord antérieur saillant et tranchant.

Longueur totale, 3.5 mm.

Tahiti: Hitiaa, 500 m alt., 28 novembre, 1928, Adamson, 2 ♀ (type et cotype).



THERIDION TAHITIAE. Figure 10.—Vue de profil. Figure 11.—Pilosité des pattes. Figure 12.—Épigyne.

Theridion tahitiae, species nova (figs. 10-12).

Femelle

Couleur: corps et pattes entièrement blanc crémeux, le céphalothorax vaguement teinté de jaune, portant en outre une très petite tache brune sur la fossette thoracique; abdomen avec, sur la face dorsale, une bande médiane et une de chaque côté, ces bandes formées d'une trainée mal définie de taches blanc de lait, en plus en avant 2 vagues taches brunes de chaque côté, entre la bande médiane et les latérales.

Yeux: 1ere ligne faiblement procurvée, ses médians très légèrement plus petits que les autres yeux, et un peu plus écartés entre eux (moins d'un diamètre) que des latéraux (environ ½ diamètre); 2e ligne droite, ses yeux égaux et équidistants (écartement d'environ un diamétre); groupe des médians aussi long que large, carré.

Bandeau un peu incliné en avant, non creusé en avant des yeux antérieurs, environ deux fois plus large que les médians antérieurs.

Pièce labiale subtriangulaire, plus large que longue.

Pattes longues: fémur 1 a peu près égal à la longeur du corps; les poils des pattes sont longs (plus que le diamètre des articles), fins et peu serrés; la patella porte à l'apex de sa face supérieure un poil plus long et plus fort que les autres (spiniforme), et les tibias deux poils de ce genre sur la face supérieure.

Abdomen ovale allongé, peu élevé (fig. 10).

Épigyne (fig. 12) petit, mais a contours bien nets, tranchants, et faisant saillie sur le tégument.

Longueur totale, 3 mm.

Tahiti: vallée Vaipuarii, 600 m alt., 28 aout, 1928, Adamson, 1 ♀ (type).

Theridion societatis, species nova (figs. 13-16).

Femelle

Couleur: céphalothorax fauve rougeâtre fortement veiné de brun; chélicères fauve rougeâtre; pièces buccales et sternum jaune paille, le sternum portant une tache brune en face de chaque espace intercoxal, et une longue tache même couleur, lancéolée, à l'angle postérieur (fig. 15); pattes jaunes, presque concolores, mais cependant rembrunies à la face inférieure des patellas, à l'apex des tibias du côté infêrieur, et à l'apex des métatarses (très faiblement); abdomen gris portant sur la face dorsale deux bandes brunes sinueuses se rejoignant en avant et en arrière; flancs tachés de brun; face ventrale avec une large bande brune médiane, s'élargissant brusquement en avant des filières; ces dernières fauve rougeâtre tachées de brun.

Céphalothorax très étroit en avant.

Yeux: ligne antérieure droite, ses yeux à peu près égaux, les médians un peu plus écartés l'un de l'autre (environ ½ diamètre) que des latéraux (moins d' ½ diamètre); 2e ligne droite, ses yeux égaux, un peu plus petits que les antérieurs, les médians plus écartés entre eux (1 diamètre) que des latéraux; groupe des médians aussi long que large et un peu plus large en avant.

Bandeau à peine plus large que les médians antérieurs, creusé en dessous de ceux-ci.

Pièce labiale transversale, plus large que longue, son bord antérieur droit et même légèrement incisé au milieu.

Pattes relativement courtes et trapues.

Abdomen ovoide, plus long que large (fig. 13 et 14).

Épigyne (fig. 16) peu saillant, son bord postérieur seul bien net, ayant la forme d'un accent circonflexe renversé.

Longueur totale, 4 mm.

Tahiti: vallée Vaipuarii, 28 aout, 1928, 600 m alt., Adamson, 2 ♀ (type et cotype).

FAMILLE ARGIOPIDAE

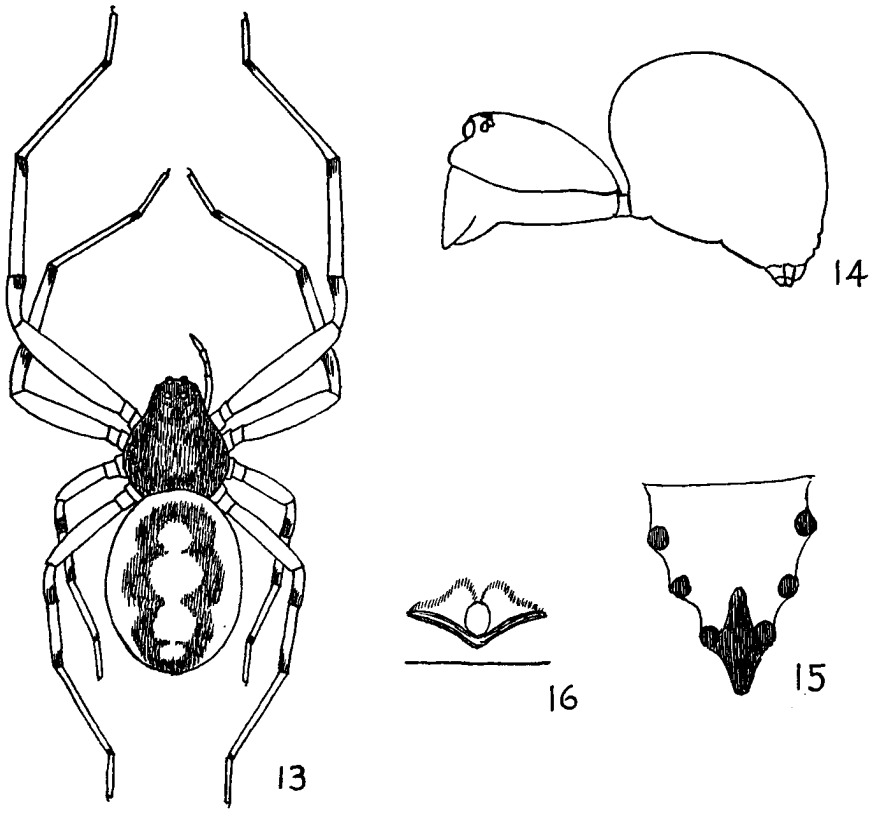
Genre TETRAGNATHA Latreille, 1804

Tetragnatha mandibulata Walckenaer.

Tahiti: vallée Vaipuarii, 600 m alt., 28 août, 1928, Adamson, 2 ♂, 1 ♀.

L. Koch a donné ce nom à une Tetragnathe polynésienne, très mal définie par la description de Walckenaer, et qui paraît assez répandue en Océanie, puisqu'on la connait des Fidji, de Samoa, de Tonga et de Tahiti.

Pour les exemplaires que j'ai sous les yeux, la denture des chélicères concorde bien aux indications de Walckenaer, mais il y a quelques variations dans la couleur, mes exemplaires ayant au céphalothorax une bande médiane longitudinale brune, et sur l'abdomen deux séries de taches en lignes longitudinales, qui rappellent le dessin de *T. macilenta* L. Koch, de Samoa.



THERIDION SOCIETATIS. Figure 13.—Femelle, × 10. Figure 14.—Femelle, vue de profil. Figure 15.—Sternum. Figure 16.—Épigyne.

Genre LEUCAUGE White, 1841

Leucauge granulata Walckenaer.

Tahiti: vallée de la Reine, 12 décembre, 1928, Adamson.

Genre ARANEUS Clerck, 1757

Araneus theisi Walckenaer.

Plusieurs localités. Espèce cosmopolite.

Genre **CYCLOSA** Menge, 1866

Cyclosa littoralis L. Koch.

Tahiti: vallée Vaipuarii, Adamson, 28 août, 1928, 1 ♀.

La détermination n'est pas absolument certaine, car l'exemplaire n'est pas en excellent état; mais de toute façon il est intéressant de singnaler de Tahiti le genre *Cyclosa,* qui n'en était pas encore connu.

FAMILLE LYCOSIDAE

Genre **LYCOSA** Latreille, 1804

Lycosa tongatabuensis Strand.

Tahiti: vallée Fautaua, 8 novembre, 1928, Adamson, 1 ♀ avec son cocon.

La description et les dessins donnes par Strand [4] permettent de donner ce nom avec assez de certitude à une Lycose qui paraît répandue en Polynesie. Il est possible que l'espèce soit synonyme d'une autre précédemment décrite, car plusieurs espèces sont signalées du Pacifique, mais aucune des descriptions antérieures ne permet une identification sûre.

FAMILLE ULOBORIDAE

Genre **ULOBORUS** Latreille, 1808

Uloborus tahitensis Berland.[5]

Tahiti: vallée Vaipuarii, 28 août, 1928, Adamson, 1 ♀; Hitiaa. Connue aussi de Moorea, et de l'île Rapa.

LES ESPÈCES CONNUES DES ÎLES DE LA SOCIÉTÉ [6]

SICARIIDAE		
*Scytodes marmorata L. Koch	Tahiti	(Samoa, Marquises, Hawaii, Nouvelle-Calédonie, Loyalty)
*Scytodes striatipes L. Koch	Tahiti	(Samoa, Marquises, Funafuti, Loyalty)
THOMISIDAE		
*Misumenops pallida, sp. n.	Tahiti	
SALTICIDAE		
Ascyltus ptergodes (L. Koch)	Tahiti	(Samoa, Tonga, Tongatabu, Fidji, Marquises, Funafuti, Loyalty)
Thorellia ensifera (Thorell)	Huahine	(Samoa, Marquises, Marshall, Malaisie)

[4] Strand, Abh. Sencken. Nat. Gess., Bd. 36, p. 267, 1915.

[5] Cette espèce est décrite dans un travail en cours de publication.

[6] L'astérisque indique les espèces qui n'étaient pas connues avant les recherches de M. Adamson; entre crochets sont les autres localités des espèces.

Athamas whitmeei Cambridge	Tahiti	(Samoa, Marquises, Loyalty)
Bavia aericeps Simon	Huahne, Raiatea	(Samoa, Marquises, Hawaii, Funafuti, Mariannes, Philippines)
Plexippus paykulli (Audouin)	Cosmopolite	
Mollica microphthalma L. Koch	Tahiti	(Marquises, Hawaii, Loyalty, Nouvelle-Calédonie)
Mollica pusilla Strand	Tahiti	
Hasarius albocircumdatus L. Koch	Tahiti	
Hasarius garetti Keyserling	Raiatea	
Lauharulla insulana Simon	Tahiti	
*Sandalodes calvus Simon	Tahiti	(Marquises, Australie)

CLUBIONIDAE

*Clubiona samoensis Berland	Tahiti	(Samoa)
Corinna cetrata (Simon) (= C. tahitica Strand)	Tahiti	(Marquises, Rapa-Nui, Nouvelle-Calédonie)

SPARASSIDAE

Heteropoda regia Fabricius	Tahiti	(Cosmopolite)
*Heteropoda nobilis (L. Koch)	Tahiti	(Samoa, Marquises, Rapa)

PHOLCIDAE

*Pholcus ancoralis L. Koch	Tahiti	(Samoa, Marquises, Tonga, Santa Cruz)

THERIDIIDAE

*Theridion adamsoni, sp. n.	Tahiti	
*Theridion tahitiae, sp. n.	Tahiti	
*Theridion societatis, sp. n.	Tahiti	

ARGIOPIDAE

*Tetragnatha mandibulata Walckenaer	Tahiti	(Samoa, Fidji, Hawaii, Mariannes, Philippines)
Leucauge granulata Walckenaer	Tahiti	(Nouvelle-Calédonie, Loyalty, Nouvelles Hébrides, Nouvelle Guinée)
Araneus theisi Walckenaer	Tahiti	(Cosmopolite)
*Cyclosa littoralis L. Koch	Tahiti	(Samoa, Fidji)
Cyrtophora viridipes (Doleschall) (Probablement moluccensis?)		(De Malaisie à Tahiti)

(Guerin a signalé jadis Gasteracantha lepeletieri de Taiti (sic), mais c'est certainement une erreur.)

LYCOSIDAE

*Lycosa tongatabuensis (Strand)	Tahiti	(Tongatabou)

ULOBORIDAE

*Uloborus tahitensis Berland	Tahiti	(Rapa)

PYRALES AND MICROLEPIDOPTERA OF THE SOCIETY ISLANDS *

By

EDWARD MEYRICK

PYRAUSTIDAE

Diplopseustis hemiophthalma Meyrick.

Tahiti: Hitina, altitude 1500 feet, 2 specimens, Adamson.

EUCOSMIDAE

Crocidosema plebeiana Zeller.

Tahiti: Faaa, 1 specimen, Adamson.

Argyroploce aprobola Meyrick.

Tahiti: Papeari, 1 scaleless specimen, Adamson.

COSMOPTERYGIDAE

Asymphorodes chalcozona, new species.

Length, 8 mm. Head denuded, palpi whitish. Thorax dark purple-fuscous. Forewings very dark iridescent purplish-bronze; a rather broad straight shining pale brassy-yellowish antemedian fascia; cilia dark gray. Hindwings dark fuscous; cilia bronzy gray.

Tahiti: Papeari, November 9, 1928, 1 male, Adamson.

TINEIDAE

Genus **CARYOLESTIS,** new genus

Head (crown and face) densely tufted with rough hairs, longest on forehead; ocelli posterior; tongue absent. Antennae nearly 1, joints closely set, filiform, simple, scape elongate, scaled. Labial palpi very long, recurved, second joint with long rough hairscales above and beneath, diminishing to apex above and increasing to a short tuft at apex beneath, terminal joint almost as long as second, slender, acute. Maxillary palpi rather long, slender, filiform, porrect or folded. Fore tibiae extremely short; hind tibiae clothed with long dense hairs above and rough-scaled beneath. Forewings 1b simple, 2 from angle, 2b equidistant, 7 to costa, 7 and 8 in male short-stalked, in female parallel, 8-10 from near end of cell, 11 from towards base. Hindwings 1, elongate ovate, cilia ¼; in male 2 from near angle, 2 and 3 closely approxi-

* Pacific Entomological Survey Publication 6, article 22. Issued January 30, 1934.

mated towards base, in female 2 from 5/6, 3 from angle, not approximated; 4 absent in both sexes; 5 and 6 in male short-stalked, in female nearly parallel, 5-7 more crowded together in male than in female.

An abnormal form of the family, but belonging to the *Tinea* group.

Caryolestis praedatrix, new species.

Length, 18-20 mm. Head, thorax ochreous-whitish, shoulder brownish. Palpi whitish, second joint sprinkled fuscous, in male tinged yellow towards apex. Forewings very elongate, costa moderately arched, apex obtuse, termen very obliquely rounded; fuscous-whitish, gradually more infuscated towards base; costal edge blackish-fuscous towards base; cilia whitish. Hindwings and cilia ochreous-whitish.

Tahiti: Tatiaroa, bred from coconut, emerged January 10, 1929, 1 male, 1 female, Mumford.

TWO TYROGLYPHINA (SARCOPTIFORMES) OF TAHITI*

By

ARTHUR PAUL JACOT

One of the species belongs to the Tyroglyphinae and the other to the Phthiracarinae.

TRIBE TYROGLYPHINI

Characters: dorsum of tarsi I without stout thornlike bristles, at least none immediately distad of the scent club.

Genus CALOGLYPHUS Berlese

Caloglyphus Berlese: Redia, vol. 15, p. 262, 1923.

Characters: prothorax bearing but 2 pairs of bristles, the vertex bristles much shorter than the lateral; tarsi I with a stout thornlike bristle dorso-distally; post-thorax with long and short bristles, abdomen with long bristles; ventral face of tarsi with at least 1 thornlike bristle.

Type, *Tyroglyphus mycophagus* Berlese: Acari, Myriapoda et Scorpiones hucusque in Italia reperta, p. 235, pls. 7, 8.

The type is erroneously stated in the Tierwelt Mitteleuropas.[1] I cannot consider *Cosmoglyphus,*[2] as no adult characters are given.

Caloglyphus introitus, new species (fig. 1, *a-f*).

Diagnostic characters: long bristles of body longer than width of abdomen; dorsum of post-thorax with 2 pairs of short bristles; a pair of long, erect bristles near anterior edge of dorsum of abdomen, other 5 pairs of abdominal bristles long; female with 3 medium long, stiff bristles each side of anus (whence the specific name); males with a minute bristle anterior to anal suckers (fig. 1, *e*), and 2 each side of genital opening; tarsi I with only 1 thornlike bristle on dorsal face and 1 on ventral face (besides the rudimentary distal); tarsus IV of male with two suckers.

Description: size of females 0.68-0.85 by 0.34-0.47 mm., males averaging smaller; length of tarsi I, 90 μ; body ovate, fairly broad, depressed; mouth parts prominent, mandibular chelae slender; cephalon broad, widening rapidly into sides of prothorax; bearing 2 pairs of bristles: rostral almost as long as mouth parts, stout, tapering suddenly. ribbed, finely burred; camerostomal bristles stout, strongly curved mesad, burred; prothorax sinuous between leg insertions; with 3 pairs of bristles: nuchal bristles inserted over coxae I at foot of posterior curve of cephalon, extending to anterior edge of prothorax; lateral bristles unusually long, extending to distal end of mouth parts when depressed, inserted near sides of prothorax; vertex bristles longer than nuchal, inserted between lateral on a "suture" which joins the lateral bristles (fig. 1, *b*); post-thorax delimited posteriorly by a fine "suture," crossed by two others, anterior to anterior suture is inserted a pair of fine bristles, nearly as remote as lateral of prothorax; on second suture is inserted a pair of fine bristles, slightly longer than preceding pair and more approximate; sides of post-thorax with 2 pairs of bristles, a major pair long and outstanding, a short pair

[1] Vitzthum, Hermann, Ordnung Milben, Acari: Tierwelt Mitteleuropas, vol. 3, Lief. 3, pt. 7, p. 74, 1923.

[2] Oudemans, A. C., Acarologische Aanteekeningen. 112: Ent. Ber., vol. 8. p. 358, 1932.

* Pacific Entomological Survey Publication 6, article 23. Issued May 16, 1934.

inserted anterodorsad of major pair; a third pair of short bristles similar to the minor pair inserted ventrodorsad of major; abdomen with a pair of short bristles inserted at sides close to anterior edge, and 6 pairs of long bristles disposed as in figure 1, *b*; posterior end of abdomen somewhat transversely wrinkled; of the long bristles the posteroventral are the shortest and straightest, while the middle lateral are only slightly longer but more flexile; all these bristles are smooth, quite stout at base, and flexuous along distal fifth.

Ventral face of prothorax with but one pair of bristles (on parasterna I); trochanters (coxae) I to III with a fine bristle; parasterna III with a bristle, none distinguished about parasterna IV; female genital aperture slightly posteriad of coxae III, with a medium-long bristle inserted "above" genital suckers; copulatory orifice large, transverse, conspicuous, close behind anal opening; the three bristles each side of anal opening are ribbed, burred, stiff and erect, recalling Hobbema's Avenue (and whence the specific name), middle anal bristles closer to posterior than to anterior, anterior bristle shortest, posterior longest; male genital aperture between trochanters (coxae) IV; a pair of short, erect bristles posterior to paranal suckers, another pair posterolaterad of suckers (fig. 1, *e*).

Legs I (fig. 1, *a*) with long, slender tarsi, scent club with two minute, stout, erect bristles and a similar, slightly longer, obliquely inserted bristle; distal end of tarsi with a short thornlike bristle on dorsal face and a long, fine bristle inserted close to it, ventral face with a rudimentary bristle at distal end, a short thornlike bristle inserted two fifths length of segment from distal end of segment; lateral face with a long bristle inserted on transverse plane just proximad of dorsal thorn, mesal face with a medium-long, sharply pointed, stiff bristle inserted on transverse plane anterior to dorsal thorn, lateral and a long bristle corresponding to long bristle of lateral face (see fig. 1, *f*, showing beneath tarsus in fig. 1, *a*), these two long bristles slightly lanceolate at distal end (fig. 1, *f*). Tibiae as long as broad; with a long, stout bristle curving strongly mesad and ventrad, inserted a short distance from dorsodistal edge; a short, somewhat stout bristle inserted its length from ventrodistal edge; a long bristle inserted nearly on same transverse plane on ventromesal side. Genuals slightly shorter than high, with two unequal, medium-long bristles inserted a short distance from dorsodistal edge of segment; a similar lateral bristle inserted one third length of segment from proximal end of segment; a short, somewhat stout bristle inserted on dorsomesal face close to proximal edge of segment. Femora at least twice as long as broad, with a single, fairly long, slender bristle inserted a short distance from distal end of segment on ventrolateral face.

Legs II quite similar but genuals with but one dorsodistal bristle, the lateral bristle slightly shorter.

Legs III similar to II but all thornlike bristles more slender; proximal quartette lacking; tarsi with long bristle of dorsal face shortly proximad of thornlike bristle, ventrodistal bristle more proximad, more conspicuous; stiff bristle of mesal face lacking. Tibiae with only one ventral bristle. Genuals with no dorsoproximal bristle. Femora without bristles.

Legs IV of females similar to legs III but tarsi without long mesal face bristle (fig. 1, *d*). Genuals without bristles! Femora with a bristle nearly as long as the segment inserted near distal end of segment.

Legs IV of males (fig. 1, *c*) as females, but tarsi without the two dorsal bristles, two suckers instead, but more widely spaced. Tibiae with long, curved dorsodistal bristle reduced to a short, stout, spurlike structure.

Tahiti: Hitiaa, southwest of Hitiaa Village, altitude 1500 feet, November 20, 1928, 4 males, 23 mostly ovigerous females, A. M. Adamson, slide 33M5 (cotypes).

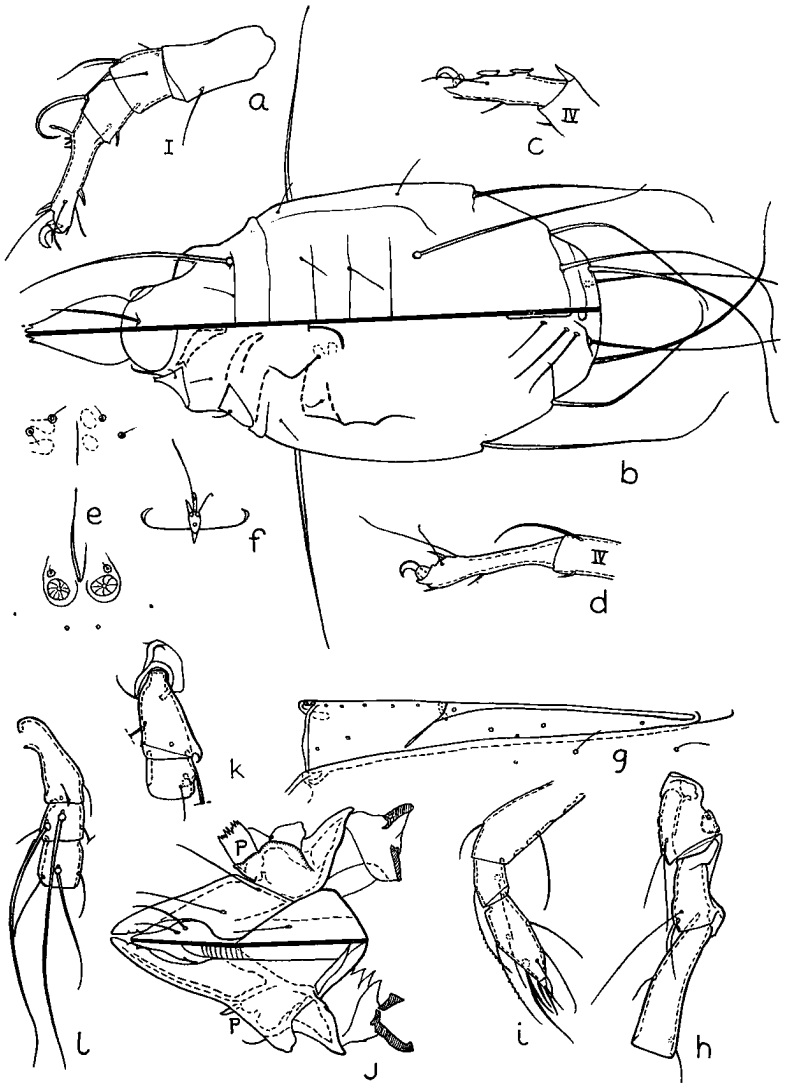


FIGURE 1.—*Caloglyphus introitus,* new species, adult: *a,* legs I, ratio × 200; *b,* dorsoventral aspects, mouth parts indicated, legs omitted, ratio × 100; *c,* tarsi IV of male, ratio × 200; *d,* tarsi IV of female, ratio × 200; *e,* anogenital region of male, ratio × 150; *f,* tarsi I end view, ratio × 200. *Indotritia lebronneci tahitiana,* new subspecies, adult: *g,* anogenital area, ratio × 100; *h,* femora IV to coxae IV, ratio × 150; *i,* palp, ratio × 200, *j,* labium, maxillae, and palpigers, with adjacent connectives, ratio × 150; *k,* femur and genual I, ratio × 120; *l,* femur, genual and tibia I, ratio × 120.

Resembles *Tyroglyphus krameri* [3] in reduced tarsal armature, but differs in the much longer abdomen bristles, much shorter vertex bristles, and small bristle of tarsus IV of males. Differs from *Tyroglyphus sumatrensis* [4] in the short bristle of tarsus IV of males, the short humeral bristle, and different cephaloprothoracic bristles; from *Rhyzoglyphus grossipes* of Tahiti [5] in its slender tarsi and single midtarsal bristle, from *Rhyzoglyphus longipes* of Tahiti [5] in its single midtarsal bristle; from the genotype in its much longer body bristles and much reduced pedal armature.

This very much reduced pedal armature and peculiar anal armature might warrant placing this species in a new genus. Due to my lack of familiarity with this group, I am unable to determine this point at present. As it most closely resembles, in its pedal armature, the genotype of *Cosmoglyphus,*[6] it would belong in that genus.

TRIBE EUPHTHIRACARINI

Indotritia lebronneci tahitiana, new subspecies (fig. 1, *g-l*).

Differs from the species in that the anterior adanal bristles are more posteriad; the pseudoforamen more anteriad, so that it is nearly midway between the anterior and middle bristles; posterior bristles quite near edge of plate; pseudoforamen of notogaster on transverse plane about midway between anterior and middle adanal bristles and slightly anteriad of adanal pseudoforamen; pseudostigmatic organs similar to the species, 117 μ long, but lid with much more diagonal lateral edge so that anterior corner is nil; genital cover bristle as the species; distal segment of palp (fig. 1, *i*) with bristle close to stout, curved bristle also stout and curved, not fine and straight as in the species.

Tahiti: Papenoo Valley, 5 miles from sea, altitude 650 feet, October 29, 1928, 1 cotype, A. M. Adamson, slide 33M11; Papenoo Valley, 7 miles from sea, altitude 350 feet, October 25, 1928, 1 cotype, A. M. Adamson, slide 33M7; Hitiaa, altitude 1500 feet, November 20, 1928, southwest of Hitiaa village, 1 specimen, A. M. Adamson, slide 33M12.

Legs I of this species are much stouter than legs II to IV; the femur bears a hooked carina on dorsal face (fig. 1, *k, l,* shows the carina in edge view). The genuals bear two very long, stout bristles which reach beyond distal end of ungual hooks (fig. 1, *l*). Trochanters III (fig. 1, *h*) and IV bear a long, fine bristle and a closely spaced pair of shorter, finer bristles. Coxae III (fig. 1, *h*) and IV bear two fairly long, fine bristles.

Figure 1, *j,* illustrates the palpiger as being quite distinct from the mandibles though fused to them; posterolaterad of the palpiger is a triangular process to which is attached a hyaline membrane connecting these mouth parts to the abdomen by means of slender ribs (cross-hatched in fig. 1, *j*). The ligula appears transversely grooved on ventral face.

[3] Berlese, Antonio, Indagini sulle metamorphosi di alcuni acari insetticoli: Atti Reale Ist. Ven. Sci., Let. Art., ser. 5, vol. 8, p. 49, 1882; Acari, Myriapoda et Scorpiones hucusque in Italia reperta, fasc. 49:10.

[4] Oudemans, A. C., Acari, in Arthur Wichmann, Résultats de l'expédition scientifique Néerlandaise à la Nouvelle Guinée en 1903, vol. 5, Zool., p. 138, 1906.

[5] Berlese, Antonio, Centuria quinta di Acari nuovi: Redia, vol. 14, p. 144, 1920.

[6] Oudemans, A. C., Acarologische Aanteekeningen 112: Ent. Ber., vol. 8, p. 358, 1932.

CICADELLIDAE FROM THE SOCIETY ISLANDS*

By

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In another paper [1] I have described the Cicadellidae collected by the Pacific Entomological Survey in the Marquesas. This paper deals with the same family collected by the Survey in the Society Islands.

It is indicative of the restricted distribution of the cicadellid fauna of the south Pacific islands that the species noted for the Society Islands were not taken in the Marquesas. Although too few to give any basis for generalization, it is of interest to note that they show closer relationship to the Samoan fauna than to the Marquesan, and to this extent might be considered as favoring the view that the original derivation of the stock forms was from the East Indian region.

Comparisons of these few species with the forms described from Samoa [2] to the west and the Marquesas to the east will no doubt stimulate speculation in this matter. More extended exploration of the region must certainly yield some very interesting results.

Some remarks on the known distribution as compared with other islands given for the Marquesas may be referred to for further consideration. Most striking perhaps is the occurrence of *Jassus* and *Nephotettix* in the Society Islands but not in the Marquesas. Of course later collections may alter this situation.

Genus NEPHOTETTIX Matsumura

Nephotettix Matsumura, Termeszfusetek, vol. 25, pp. 356, 378, 1902.

An Old World genus closely related to *Thamnotettix* and to be separated from that genus by the character of the face and venation of the elytra. Genotype *Nephotettix apicalis*.

Nephotettix plebeius Kirkaldy.

Nephotettix plebeius Kirkaldy, Haw. Sugar Plant. Asso., Div. of Ent., Bull. 1, p. 331, 1906.

Head slightly broader than pronotum; vertex broad, one-fourth longer at the middle than next to eye, rounded to front; front about as wide as long, tapering from antennae to clypeus; clypeus broad, narrowing gradually to rounded apex, lorae large, nearly touching border of cheek; cheek margin sinuate; pronotum one-half longer than vertex, scarcely concave behind; elytra with distinct veins. Female, last ventral segment as long as preceding, with broad, shallow notch. Color light fuscous; vertex with a

[1] Osborn, H., Cicadellidae of the Marquesas Islands: B. P. Bishop Mus., Bull. 114, art. 18, 1934.
[2] Osborn, H., Cicadellidae of Samoa: Insects of Samoa, pt. 2, fasc. 4, pp. 163-194, 1934.
* Pacific Entomological Survey Publication 6, article 24. Issued April 24, 1934.

transverse dark band between the ocelli; front with about seven faint transverse bars at the sides; elytra hyaline, veins pale brown, those near the costa almost colorless; beneath pale gray, the median notch of the female segment narrowly bordered with fuscous. Length, female, 5.25 mm.

Tahiti: Papenoo Valley, altitude about 1000 feet, 6 miles from sea, October 26, 1928, sweeping over *Andropogon halepensis,* 3 females, Adamson.

One nymph with the same data as above evidently belongs to this species. It has the anterior border of vertex with six black dots and the vertex, pronotum, scutellum, and tergum with longitudinal brown lines, the two median ones more conspicuous.

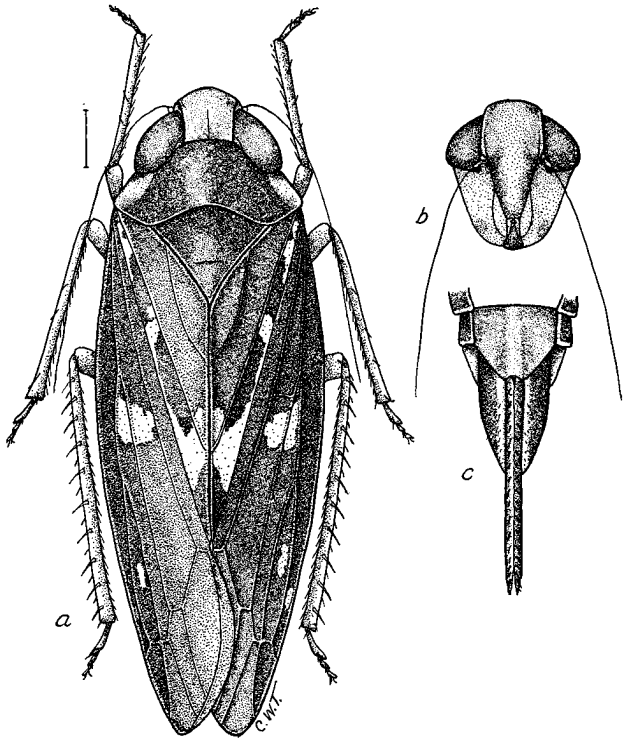

FIGURE 1. *Jassus tahitiensis,* new species: *a,* dorsal view; *b,* face; *c,* female genitalia.

Genus JASSUS Fabricius

Jassus Fabricius, Systema Rhyngotorum, p. 85, 1803. Genotype *J. nervosus* Fabricius.

Jassus tahitiensis, new species (fig. 1).

Head narrow, much narrower than pronotum. Vertex scarcely as wide as long, margins faintly diverging anteriorly, anterior border obliquely angulate, produced, a depressed line on the center, a distinct median line; ocelli on the margin scarcely half-

way from eye to center. Front narrow, elongate; clypeus long, narrow at base, distinctly widened at apex, truncate; lorae elongate, acutely angled above and below; cheek narrow, slightly sinuate; pronotum short, scarcely longer than vertex, arched anteriorly, concave posteriorly, distinctly granulate; scutellum minutely punctate; elytra long; costa nearly straight; veins prominent, not punctate, apical cells long, veins nearly parallel.

Last ventral segment elongate, one and one-half times as long as penultimate, rounded behind, faintly notched at the middle; ovipositor elongate, nearly twice as long as pygofer, extending beyond the elytra. Color black, vertex and face whitish, frons margined with fuscous, ocelli black, the border at base yellowish, cheeks and lorae yellow, pronotum black on the disc, yellow laterally; propleurae with two fuscous maculations; scutellum black, margin yellow; elytra black with four yellow spots on the clavus, a yellow spot on the disc of the corium, a yellowish white spot on the base of anteapical and first apical cells; costa testaceous, tergum black; venter mostly yellow; pygofer, black, margin yellow; ovipositor black. Length, to tip of elytra, 7 mm., to tip of ovipositor, 7.5 mm.

Tahiti: Papeari, September 9, 1929, holotype female, Adamson.

This species seems to agree pretty closely with *philipinensis* Stål but differs sufficiently in detail to warrant description.

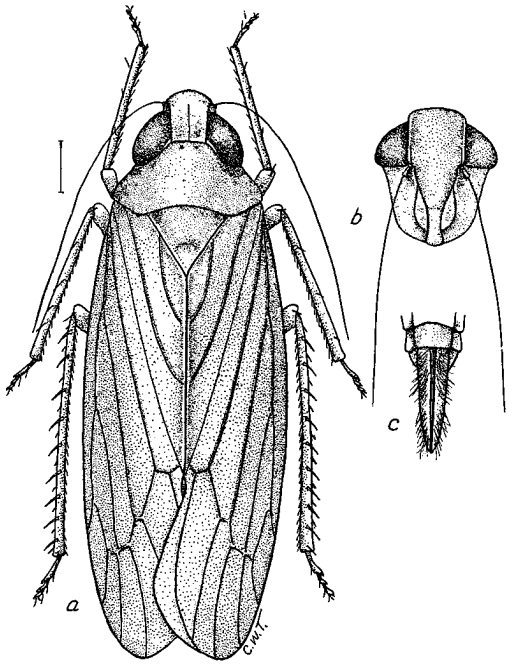

FIGURE 2. *Jassus insularis,* new species: *a,* dorsal view; *b,* face; *c,* female genitalia.

Jassus insularis, new species (fig. 2).

Head narrow, vertex scarcely as wide as length at middle, broadening at apex, rounding to the front; ocelli minute, near ocular margin; front narrow; clypeus elongate, narrow on basal two-thirds, widening at tip; lorae elongate, with inner carina and slightly elevated outer margin; cheek tumid below the antennae, margin sinuate; pronotum as long as vertex, arched in front, broadly concave behind, lateral angles rounded,

disc faintly rugose and minutely granulate; scutellum deeply indented at the middle, apical part tumid; elytra elongate, rounded at apex; veins distinct, apical cells with veins nearly parallel. Last ventral segment of female about as long as preceding; pygofer short, scarcely exceeded by ovipositor, densely hairy.

Color dull ochreous; vertex, pronotum and scutellum tinged with rufous; elytra pale brown with dark brown veins; wings smoky toward the tip with blackish veins; tergum blackish, margins of segments at the sides tinged with reddish; center ochreous, last ventral segment and margin of pygofer infuscate. Length, female, 6.5 mm.

Two specimens (one teneral) (holotype and paratype).

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, Papara, altitude 750 feet, December 21, 1928, 1 female (paratype), Adamson.

The latter specimen differs slightly in having a more pellucid area on the elytra with an ochreous powdery formation on the clavus and membrane, but without any structural difference to be noted.

SOME SOCIETY ISLANDS SIPHONAPTERA *

By

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In a previous paper,[1] I pointed out that since so little is known of the siphonapterous fauna of the South Sea islands, all records are of interest even though no new species are included. The present collection, made by A. M. Adamson of the Pacific Entomological Survey, includes one family, two genera, and two species.

FAMILY PULICIDAE

Genus PULEX Linnaeus

Pulex irritans Linnaeus.

Tahiti: Hitiaa, November 22, 1928, off *Canis familiaris* Linnaeus, 2 specimens; November 22, 1928, off *Homo sapiens* Linnaeus, 1 specimen, Moorea: Papetoai, November 30, 1928, off *Homo sapiens* Linnaeus, 1 specimen.

Genus CTENOCEPHALIDES Stiles and Collins

Ctenocephalides felis Bouché.

Tahiti: Hitiaa, November 22, 1928, off *Canis familiaris* Linnaeus, 15 specimens, off *Felis domestica* Brisson 8 specimens; Papeete, September 13, 1928, off *Canis familiaris* Linnaeus, 1 specimen; Papenoo Valley, altitude 350 feet, October 27, 1928, host unrecorded, 1 specimen.

[1] Stewart, M. A., Marquesan Siphonaptera: B. P. Bishop Mus., Bull. 114, art. 16, 1934.

* Pacific Entomological Survey Publication 6, article 25. Issued April 14, 1934.

AQUATIC AND SEMIAQUATIC HETEROPTERA OF TAHITI*

By

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Very little has been recorded hitherto concerning the waterbug fauna of the Society Islands. The first species was recorded from Tahiti many years ago by Stål[1] as *Gerris discolor* Stål. Stål described his species from material received from Tahiti, China, and Manila. The types (male and female), which are still in the possession of the Swedish State Museum of Natural History at Stockholm, are from Manila and are identical with *Limnogonus fossarum* (Fabricius). Unfortunately the Tahitian specimens are lost, but they probably belonged to another species, *L. luctuosus* (Montrousier),[2] the only species known to me from Tahiti that has the general appearance of *L. fossarum*. It was originally described from New Caledonia.

The second species to be recorded from Tahiti was *Microvelia prompta* Cheesman,[3] which is not known elsewhere and may be endemic.

Mr. E. P. Mumford, Director of the Pacific Entomological Survey, has sent me for study a small collection of waterbugs taken on Tahiti by his associate, Mr. A. M. Adamson. This includes but one species, *Limnogonus luctuosus* (Montrousier). From Mr. W. E. China of the British Museum (Natural History) I have received a further collection from the Society Islands, and this includes four species taken on Tahiti and Raiatea by Miss L. E. Cheesman of the St. George Expedition. In addition to *L. luctuosus,* mentioned above, Miss Cheesman's collection includes the previously described *Microvelia prompta* Cheesman, and *L. cheesmani* and *Anisops tahitiensis,* both of which are here described as new.

FAMILY NOTONECTIDAE

SUBFAMILY ANISOPINAE

Anisops tahitiensis, new species (fig. 1, *a-c*).

Male

Length of body about 6.0 mm. Head large, as wide as greatest width of prothorax. Eyes large. The relative measurements for synthlipsis, widest part and narrowest part

[1] Stål, C., Hemiptera, species novas descripsit: Kongliga Svenska Fregatten Eugenies resa omkring jorden under befal af C. A. Virgin aren 1851-1853, Zoologi, vol. 4, p. 265, Stockholm, 1859.
[2] Montrousier, P. (and Perroud, B. P.), Essai sur la faune entomologique de Kanala (Nouvelle-Caledonie): Annales de la Soc. Linnéenne de Lyon, nouv. sér., vol. 11, p. 242, 1864.
[3] Cheesman, L. E., Two new species of Veliidae from the southeast Pacific: Ann. Mag. Nat. Hist., 9th ser., vol. 18, p. 364, 1926.

* Pacific Entomological Survey Publication 6, article 26. Issued May 16, 1934.

of notocephalon are 2.5, 6.0, and 4.2 respectively. The lower part of the notocephalon is provided with a sharp, simple, longitudinal keel. The keel extends from the end of the clypeus up to about 1/3 of the length of the notocephalon. The prongs of the beak are long, their upper ends being sharply pointed and curved backward. Antennae of usual shape, last segment dorsally in the second fourth carrying a number of short and thick peglike spines. Second segment ventrally with some four very long, distally distended and truncated, spadelike bristles. The last segment has shorter bristles of the same shape.

Pronotum, seen from above, much shorter than length of eyes (2:3) when the two parts are compared in their maximum extension. Its posterior margin is roundedly incised in the middle.

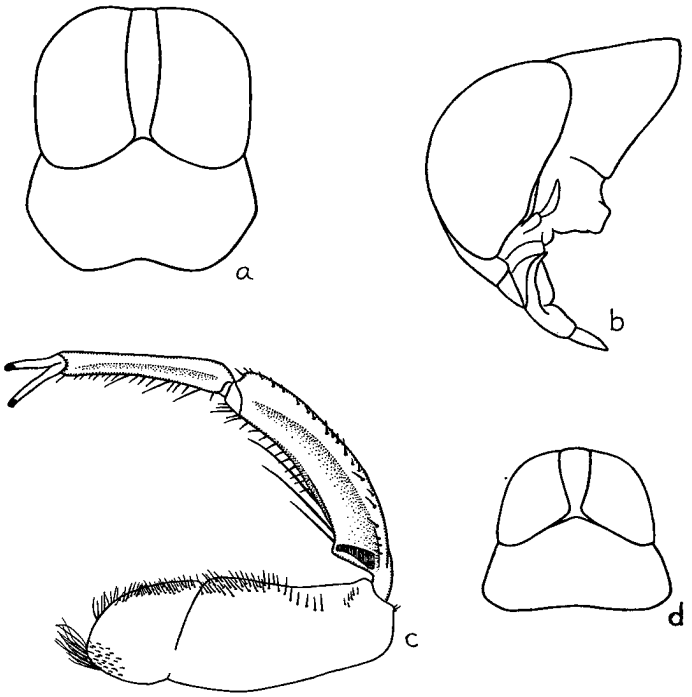

FIGURE 1.—*Anisops tahitiensis,* new species, male: *a,* head and pronotum from above; *b,* same in side view; *c,* anterior leg. *Anisops cleopatra* Distant, male: *d,* head and pronotum, from above (for comparison).

The anterior legs resemble those of *Anisops cleopatra* Distant and thus are not very characteristic. The femur ends broadly rounded. The tibial comb consists of about 32 pegs, of which those near the extensor (dorsal) side of the tibia are thicker than the other, which taper in thickness and length gradually toward the flexor side. There are very few more conspicuous, larger bristles at the inner side of the tibia; near and above the comb at the extensor side there are two or three longer bristles only, and then follows a row of very small, insignificant spines. There are no spines or pegs at the apex of the tibia, but the dorsal half of the inside of the tibia has, as usual, a fell of crowded bristles, increasing in length toward distal end of tibia. The tibia is fairly wide, with the extensor side evenly curved. The tarsus has no remarkable spines.

Female

Length of body about 6.7 mm. Head not so wide as in the male, a little narrower than pronotum. Eyes smaller. Synthlipsis and notocephalon wider and ventral part of notocephalon convexly swollen but without distinct keel. Pronotum as long as eyes, seen from above. Anterior femora more slender than in the other sex.

Tahiti: July 20, 1925, without accompanying field data, L. E. Cheesman.

The species described above is closely allied to *Anisops cleopatra* Distant (fig. 1, *d*), but is decidedely larger and has a much wider head. The foreleg is very much the same in both species. In the male *A. cleopatra,* the ventral part of the notocephalon has no keel.

Family Veliidae

Microvelia prompta Cheesman.

Microvelia prompta Cheesman, Ann. Mag. Nat. Hist., 9th ser., vol. 18, p. 364, 1926; Lundblad, Arch. Hydrobiol., Suppl.-Bd. 12, p. 345, 1933.

Tahiti: Two specimens without accompanying field data; a third from Lake Vaihiria, July 17, 1925, L. E. Cheesman.

This species is so far known only from Tahiti, where it is said to occur commonly in many places.

Family Gerridae

Subfamily Gerrinae

Limnogonus luctuosus (Montrousier) (fig. 2, *b, c;* 3, *a*).

?Gerris discolor Stål, Freg. Eugenies resa, Zool., vol. 4, p. 265, 1859.

Gerris luctuosa Montrousier, Ann. Soc. Linn. Lyon. nov. ser., vol. 11, p. 242, 1864; Distant, Sarasin and Roux, Nova Caled. Zool., vol. 1, pt. 4, p. 384, 1914.

?Limnometra lineata Carpenter, Royal Dubl. Soc., Scient. Proc., new ser., vol. 7, p. 141, 1891.

Limnogonus luctuosus (Montrousier), Esaki, Insects of Samoa, part 2, p. 70, 1928; Lundblad, Arch. Hydrobiol., Suppl.-Bd. 12, p. 380, 1933.

Limnogonus discolor (Stål) Esaki, Insects of Samoa, part 2, p. 70, 1928.

Tahiti: Papenoo Valley, altitude 300 meters, 10 kilometers from sea, October 26-30 and December 4, A. M. Adamson; without accompanying field data, 1925, L. E. Cheesman.

Raiatea: May, 1925, L. E. Cheesman.

The present species was discussed in my paper on the Hemiptera of the Sunda Islands, cited above, and will not therefore be described again here. It closely resembles *L. fossarum* (Fabricius); the characters in which the

two species differ from each other are mentioned in that paper. Some drawings, however, are included here to demonstrate the coloring of the sides of the mesothorax. The coloring is, of course, not quite constant, but in spite of this highly important. In *L. fossarum* the yellow lateral line tapers posteriorly, whereas in *L. luctuosus* it increases in width and ends truncated

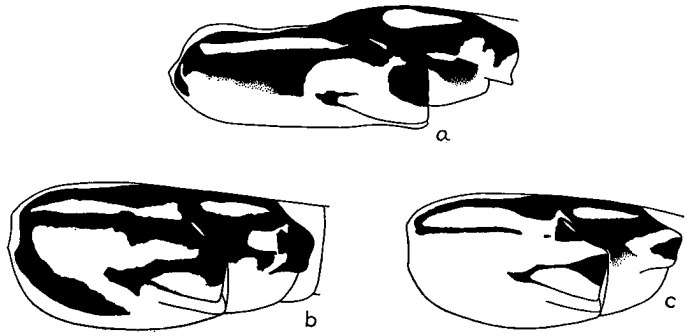

FIGURE 2.—Coloring of mesothorax and metathorax of *Limnogonus: a, L. fossarum* (Fabricius), winged; *b, L. luctuosus* (Montrousier) apterous, from Tahiti; *c, L. luctuosus* (Montrousier), apterous, from New Caledonia.

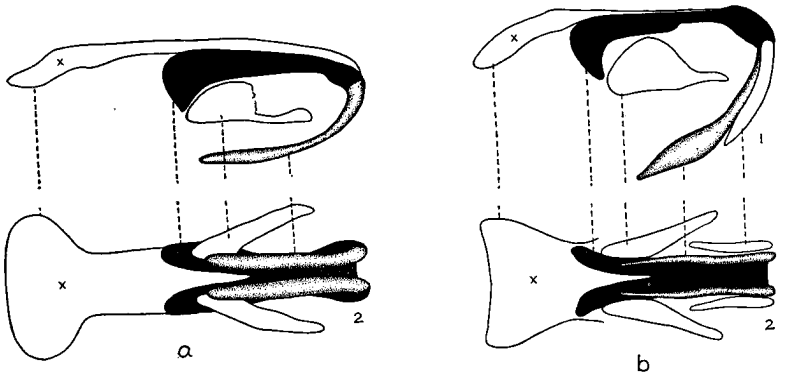

FIGURE 3.—Aedeagus of *Limnogonus: a, L. luctuosus* (Montrousier) (1, in side view; 2, from beneath); *b, L. fossarum* (Fabricius) (1, in side view; 2, from beneath); *x*, endosoma. Dorsal arm black, ventral arm dotted, lateral arm unmarked.

(compare fig. 2, *a* and *b*). Sometimes, though apparently seldom, the broad, black line bordering the yellow one from beneath is more or less obliterated (fig. 2, *c*). In some specimens there is a broad, black line or spot originating from near the anterior end of the mesothorax, where it joins the two other black lines (fig. 2, *b*); the free end of the spot is directed backward-downward.

The structure of the aedeagus of the two allied species is quite unknown. It presents very striking specific differences, especially in the so-called endosoma, which is spadelike, distended, and rounded at the apex in *L. luctuosus,* and excavated with the side corners projecting in *L. fossarum.* There are also some other differences, as can best be seen in figure 3, such as the presence of two pairs of lateral arms in *L. fossarum,* and one pair in *L. luctuosus.* The pair which is represented in both species is when seen from the side very broad, but has a long slender handle. In the figure the dorsal arm is black, the ventral one dotted, and the lateral one not especially marked.

Limnogonus cheesmani, new species (figs. 4, 5).

Male

Apterous form, length of body 5.0 mm. Shape short and robust, broadest at the second pair of acetabulae, which project considerably laterally. Abdomen shorter in relation to pronotum and head than in *L. fossarum* or *L. luctuosus.* Yellow coloring as in *L. luctuosus,* but the two spots on the pronotum are much broader. The midline of the dorsal side of the abdomen is dirty yellow, the broad, longitudinal band not being interrupted for each segment as in *L. luctuosus.* The characteristic color of the mesothoracic and metathoracic sides can be seen from the figure. Because of the very limited material it is impossible to say whether the color marking here figured is the most common one in the species. Probably it varies to some degree. At any rate the yellow line on the side of the mesothorax is not distended apically and the yellow spot on the metathorax is connected with the yellow part of the lower side of the metathorax. The color of the whole body differs also in being dull, not shining as in *L. fossarum* and *L. luctuosus.*

The relative figures for the segments of antennae, rostrum, and foreleg (femur, tibia, tarsus) are:

	I	II	Accessory segment 1	III	Accessory segment 2	IV
Antennae	36	21	1.5	20	0.5	27.5
Rostrum	8	4	....	29	....	9
Anterior leg	54	45	....	5	....	9

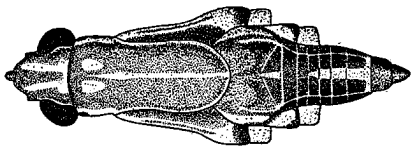

FIGURE 4.—*Limnogonus cheesmani,* new species, male.

As the last abdominal and genital segments are damaged, they cannot be fully described. The eighth cylindrical abdominal segment has the distal end excavated dorsally in the middle. It seems as if the same segment had been slightly protruded ventrally in the middle, perhaps in the same manner as in *L. luctuosus* or *L. fossarum.* The seventh segment is not so angularly incised ventrally as in *L. fossarum,* but seems to be evenly rounded. Unfortunately the aedeagus is also badly damaged, but the end of the endosoma is well preserved and of characteristic shape, being very little distended at the tip, which is rather blunt. The lateral arms of the aedeagus armature are provided with a long handle. I am unable to say whether the short and thick arm (black in the figure)

actually belongs to the dorsal arm (and not to the lateral), but I feel inclined to believe so. The parameres are rudimentary, broad, pointed at the apex and carry some long bristles.

Female

Apterous form, length of body 6.6 mm. In the obsolete and dull color the female resembles the other sex. Body much shorter and broader than in *L. fossarum* or *L. luctuosus*. Abdomen with a broad, yellowish or brownish, longitudinal band dorsally throughout. Connexiva broadly bordered with the same color. Last abdominal segment angularly projecting ventrally in the middle as in *L. luctuosus,* hence much slighter than in *L. fossarum.* There are, however, no lateral projecting teeth as in *L. luctuosus* or *L. fossarum,* the ends of the connexiva being blunt and obtusely cut off.

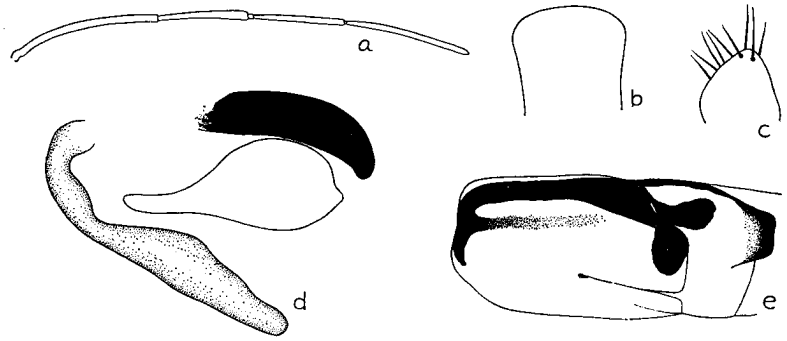

FIGURE 5.—*Limnogonus cheesmani,* new species, male: *a,* antenna; *b,* endosoma; *c,* paramere; *d,* parts of aedeagus; *e,* mesothorax and metathorax in side view. Dorsal arm black, ventral dotted, lateral unmarked.

Raiatea: 3 specimens (1 male, 2 females), May, 1925, L. E. Cheesman.

Two very small species of *Limnogonus* have already been described from the Pacific islands, *L. buxtoni* Esaki and *L. hopkinsi* Esaki, both from Samoa. *L. buxtoni* is even smaller than *L. cheesmani,* and both species differ in that the female sex has the last abdominal segment ventrally truncate at apex, and without toothlike processes.

CERAMBYCIDAE FROM THE SOCIETY ISLANDS*

By

K. G. Blair

British Museum (Natural History)

In a previous report,[1] I listed the Cerambycidae collected in the Marquesas Islands by the Pacific Entomological Survey and the St. George Expedition. In the present paper, I shall put on record a number of species collected in Tahiti, Borabora, and Raiatea in the Society Islands by C. L. Collenette and Miss L. E. Cheesman of the St. George Expedition, in Tahiti and Moorea by A. M. Adamson of the Pacific Entomological Survey. I have also included, for the sake of convenience, a few additional records from the Tuamotus, Austral Islands, and Rapa.

The presence of a strong element of introduced species, mostly of Central American origin, has been commented upon in my previous paper. With the possible exception of a single specimen from Raiatea of the difficult genus *Ropica,* none of the species here reported upon are new. Notes on the distribution and biology of such species as were not included in my previous paper follow the records of each species. Synonymy is, as before, given only in that the name used by Fairmaire, when different from that now used for the species, is given in brackets.[2]

Subfamily CERAMBYCINAE

Xystrocera globosa Olivier.

Tahiti: Papeete, March 18, 1925, at light, 1 example, C. L. Collenette; March, April, 1925, altitude 1,500-2,000 feet, 5 examples, L. E. Cheesman.

Cylindera flava Fabricius.

Tahiti: altitude 2,000 feet, April 17 and 30, 1925, 2 examples; Papeete, July 3, 1925, 1 example; L. E. Cheesman.

Raiatea: sea level, May 16-29, 1925, 7 examples, L. E. Cheesman.

Ceresium unicolor Fabricius.

Tahiti: Papeete, March 2, 1925, at light, 1 example; Papenoo, March 2, 1925, at light, 1 example; altitude 1,500-2,000 feet, May, 1925, 2 examples, L. E. Cheesman.

Raiatea, sea level, May 15-17, 1925, 6 examples, L. E. Cheesman.

Borabora: sea level, June 14, 1925, 1 example, L. E. Cheesman.

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[1] Blair, K. G., Cerambycidae from the Marquesas Islands: B. P. Bishop Mus., Bull. 114, 1934.

[2] Fairmaire, Léon, Essai sur les Coléoptères de la Polynesie: Rev. et Mag. Zool., vol. 2, pt. 2, pp. 57-64, 115-119, 1850. Coléoptères des Iles Viti: Soc. Ent. France, Ann., vol. 6, no. 1, pp. 468-482, 1881.

* Pacific Entomological Survey Publication 6, article 27. Issued May 26, 1934.

Ceresium guttaticolle Fairmaire.

Tahiti: Paea, October 2, 1928, 1 male, Adamson.

Ceresium olidum Fairmaire.

Raiatea: sea level, May 16-17, 1925, 2 examples, L. E. Cheesman.

Known only from the Society Islands and Fiji.

Obrium gynandropsidis Fairmaire.

Tahiti: Faaa, altitude 300 meters, November 7, 1928, beaten from *Inocarpus edulis,* 2 examples; Hitiaa, altitude 1,000 feet, November 20, 1928, 1 example; Adamson.

Borabora: altitude 500 feet, June 19, 1925, 1 example, L. E. Cheesman.

Cyllene crinicornis Chevrolat.

Tahiti: Papenoo Valley, altitude 150 meters, October 25, 1928, 1 example, Adamson; Tautira Valley, August 11, 1925, 2 examples, L. E. Cheesman.

Raiatea: Vallée Vaiurumai, June 4, 1925, 5 examples, L. E. Cheesman.

Subfamily LAMIINAE

Ptychodes trilineatus Linnaeus (*insularis* Fairmaire).

Tahiti: March, 1925, at light, 3 examples, C. L. Collennette.

From Central America, the southern United States, West Indies, and Venezuela. Its introduction into Tahiti must be of long standing, for it was described by Fairmaire as long ago as 1850 as found on the trunks of *Spondias dulcis* and *Inocarpus edulis.* Fairmaire considered that the Tahitian form differed constantly from the American in the sutural white patch being always abbreviated about the middle of the elytra instead of extending throughout their length. Many specimens from Mexico, however, have the white patch abbreviated as in the Tahitian form.

Oopsis nutator Fabricius.

Tahiti: Papenoo Valley, altitude 150 meters, October 25, 1928, 1 example, Adamson; March, April, 1925, 2 examples, L. E. Cheesman.

Raiatea: sea level, May 15-20, 1925, 9 examples, L. E. Cheesman.

Borabora: altitude 500 feet, June 19, 1925, 1 example, L. E. Cheesman.

Rapa: sea level to 800 feet, 9 examples, on herbage, C. L. Collenette.

Austral Islands: March, 1925, beaten from flowers, 8 examples, C. L. Collenette.

Tuamotus, Napuka: February 8, 1925, on flowering plants, 6 examples, C. L. Collenette.

Tuamotus, Fakaraua: February 11, 1925, at light, 1 example, C. L. Collenette.

Oopsis oblongipennis Fairmaire (?).

Raiatea: sea level, May 20-22, 1925, 3 examples, L. E. Cheesman.

Borabora: altitude 300-500 feet, June 16-19, 1925, 2 examples, L. E. Cheesman.

Austral Islands, Rurutu: March, 1925, beaten from foliage, 2 examples, C. L. Collenette.

Appears to agree well with the description; described from Tahiti and Vavao and said to inhabit only the terminal bud of the coconut tree (cocotier).

Hippaphesis punctata Thomson.

Tahiti: March, April, 1925, 1 example, L. E. Cheesman.

Ropica species.

Raiatea: sea level, June 8, 1925, at light, 1 example, L. E. Cheesman.

Acanthoderes quadrigibba Say.

Tahiti: Hitiaa, altitude 1,500 feet, November 20, 1928, 1 example, Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, December 4, 1928, in dead trunk of breadfruit (*Artocarpus*), larva, Adamson.

Lagocheirus obsoletus Thomson.

Tahiti: Fautaua Valley, altitude 2,500 feet, March 13, 1925, at light, 1 example, C. L. Collenette.

A native of Central America and Cuba, it has long been known from Hawaii and the Loo Choo Islands. Recorded from Tahiti by Fairmaire as *L. araneiformis* and said to be found on trunks of *Spondias dulcis*.

MYRIOPODA FROM THE SOCIETY ISLANDS*

By

F. SILVESTRI

LABORATORIO DI ENTOMOLOGIA AGRARIA, PORTICI

Mr. E. P. Mumford has recently submitted to me for study a collection of myriopods from the Society Islands made by Mr. A. M. Adamson. The collection contains 5 families, 8 genera, and 9 species; none are new. Of these 9 species, 4, *Scolopendra subspinipes* Leach, *Orphnaeus brevilabiatus* (Newport), *Orthomorpha coarctata* (Saussure), and *O. gracilis* (C. Koch), had been previously recorded from the Society Islands by Chamberlin,[1] but 5, *Trigoniulus (Spirotrophus) naresii* Pocock, *Mecistocephalus maxillaris* (Lucas), *Cryptops niuensis* Chamberlin, *Glyphiulus granulatus* Gervais, and *Opisthoporodesmus* species, are here listed from the Society Islands for the first time. Of the 6 Society Islands species listed by Chamberlin but not collected by Adamson, 4, *Cryptops mirus* Chamberlin, *C. tahitianus* Chamberlin, *Mecistocephalus angustior* Chamberlin, and *Trigoniulus tahitianus* Chamberlin, were described from Tahiti and have not yet been recorded elsewhere, and 2, *Ethmostigmus platycephalus* (Newport) and *Mecistocephalus tahitiensis* Wood, are widely distributed. Of these *E. platycephalus* is recorded from the East Indies (Kei and the Moluccas), New Guinea, Bismarck Archipelago, Ellice Islands and Tokelau, and *M. tahitiensis* from Western Australia, Queensland, New South Wales, and Fiji.

Seven of the species listed above, *Trigoniulus naresii, Scolopendra subspinipes, Orphnaeus brevilabiatus, Mecistocephalus maxillaris, Orthomorpha gracilis, O. coarctata,* and *Cryptops niuensis,* were also collected in the Marquesas by the Pacific Entomological Survey.[2]

Though this collection is inadequate for any but the most tentative statements regarding geographical relations, it would appear that the Tahitian myriopods migrated from the west. The fact that 4 of the 15 species now known from the Society Islands have not yet been recorded elsewhere suggests the possibility of an endemic element, and further collecting is much to be desired.

---

[1] Chamberlin, R. V., The Myriopoda of the Australian region: Mus. Comp. Zool., Harvard, Bull., vol. 64, no. 1, pp. 1-269, 1920.

[2] Adamson, A. M., Myriopoda of the Marquesas Islands: B. P. Bishop Mus., Bull. 98, pp. 225-232, 1932. Silvestri, Filippo, A Further Report on Marquesan Myriopoda: B. P. Bishop Mus., Bull. 114, 1934.

* Pacific Entomological Survey Publication 6, article 28. Issued November 21, 1934.

Order CHILOPODA

Family SCOLOPENDRIDAE

Cryptops niuensis Chamberlin

Tahiti: Fautaua, altitude 750 feet, September 10, 1928, 2 specimens; Fautaua, 2 kilometers below falls, 1 specimen; Adamson.

Moorea: Faaroa Valley, altitude 1,500 feet, November 28, 1928, 1 specimen, Adamson.

Recorded from the Solomon Islands, Fiji, Niue, and Cook Islands.

Scolopendra subspinipes Leach.

Tahiti: Fautaua Valley, altitude 20 feet, September 8, 1928, 2 specimens, Adamson.

Moorea: Faaora Valley, December 4, 1928, 1 specimen; Faaroa Valley, altitude 1,000 feet, December 4, 1928, 1 specimen; Adamson.

This species is known from New Guinea, Fiji, New Zealand, Hawaii, Society Islands, and the Tuamotus. It was commonly found by the Survey in the Marquesas.

Family GEOPHILIDAE

Subfamily ORYINAE

Orphnaeus brevilabiatus (Newport).

Tahiti: Papenoo Valley, altitude 350 feet, October 25, 1928, 2 specimens, Adamson.

This geophilid has been recorded from West Australia, the East Indies (Kei, Aru, Flores, and the Celebes), Solomon Islands, Fiji, Gilbert Islands, Ellice Islands, Hawaii, Society Islands, and the Marquesas.

Subfamily MECISTOCEPHALINAE

Mecistocephalus maxillaris (Lucas).

Tahiti: Hitiaa, 4 miles west of Hitiaa Village, November 16, 1928, 1 specimen, Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, December 4, 1928, 1 specimen, Adamson.

This species ranges from New Guinea to the Marquesas.

Order CHILOGNATHA

Family POLYDESMIDAE

Orthomorpha coarctata (Saussure).

Moorea: Opunohu Valley, altitude 500 feet, November 29, 1928, numerous; Faaroa Valley, altitude 1,500 feet, November 28, 1928, 2 specimens; Adamson.

This polydesmid is known from the East Indies (Kei and Aru, Flores, Saleyer, Celebes, and Moluccas), Fiji, Ellice Islands, Hawaii, Society Islands, Cook Islands, and the Marquesas. It has been introduced in other tropical regions, also.

Orthomorpha gracilis (C. Koch).

Tahiti: Papenoo Valley, altitude 300 feet, 3.5 miles from sea, October 23, 1928, numerous; Papeete, August 28, 1928, numerous; Adamson.

This species is recorded from Fiji, New Zealand, Samoa, Hawaii, Society Islands, Cook Islands, the Marquesas, and many other places. It has been introduced in hothouses of temperate countries, also.

Opisthoporodesmus species.

A unique female *Opisthoporodesmus,* 6.5 mm. long, taken by A. M. Adamson on November 16, 1928, about 6 kilometers west of Hitiaa Village, Tahiti, does not agree with either of the described species of that genus. The description of the Tahitian species awaits the finding of additional material. *O. obtectus* Silvestri was described from Tamara Island, New Guinea.[3]

Family SPIROBOLIDAE

Trigoniulus (Spirotrophus) naresii Pocock.

Tahiti: Fautaua Valley, altitude 750 meters, September 10, 1928, 6 specimens; Tuauru Valley, altitude 20 feet, September 6, 1928, numerous; Papenoo Valley, 3.5 miles from sea, October 23, 1928, numerous; Adamson.

Moorea: altitude 500 feet, November 29, 1928, 1 specimen; Faaroa Valley, altitude 1,500 feet, November 28, 1928, 1 specimen, altitude 500 feet, November 29, 1928, 8 specimens, altitude 1,000 feet, December 4, 1928, 2 specimens; Adamson.

In the Pacific area, this species ranges from the Marshall and Caroline Islands in Micronesia, through the Society Islands, to the Marquesas in eastern Polynesia.

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[3] Silvestri, F., Term. Füz. vol. 22, p. 206, pl. 9, figs. 5-7, 1899.

FAMILY CAMBALIDAE

Glyphiulus granulatus Gervais.

Tahiti: Tuauru, 1 specimen; Papeete, numerous specimens; Fautaua, numerous specimens; Adamson.

This species has a very wide distribution in Indo-Malaysia, the Seychelles, South China, and other regions. I collected specimens in Pago Pago, Samoa, and Honolulu, Hawaii, as early as August, 1908.

COLLEMBOLA FROM THE SOCIETY ISLANDS*

By

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UNIVERSITY OF MANCHESTER, ENGLAND

Investigations of the Pacific Entomological Survey in the Society Islands have revealed 10 species of Collembola (springtails). Three of these are hitherto undescribed, and one of them may be regarded as the type of a new genus. The remainder are referable to species already recorded from the Marquesas or Hawaii, or from other localities; three at least are members of the fauna of northern continental lands. The insects recorded in this paper were collected for the most part in Tahiti, the largest and best-known island of the archipelago; a few specimens, however, were obtained in Moorea. All the species belong to the suborder Arthropleona, characterized by the more or less elongate body with segmentation definitely indicated.

FAMILY PODURIDAE

SUBFAMILY NEANURINAE

Genus **NEANURA** MacGillivray

Neanura Macgillivray: Canad. Ent., vol. 26, pp. 105-110, 1894.

Achorutes (in part) Templeton: Ent. Soc. London, Trans., vol. 1, 1835; Börner, Naturh. Mus., Hamburg, Mitt., vol. 13, 1906.

Neanura insularum Carpenter.

Neanura insularum Carpenter: B. P. Bishop Mus., Bull. 114, 1935.

Moorea: Faaroa Valley, altitude 1,000 feet, December 4, 1928, under bark, 10 specimens, A. M. Adamson.

These specimens are all referable to the species taken in numbers on several islands of the Marquesas and described in my recent paper on Marquesan Collembola.

FAMILY ENTOMOBRYIDAE

SUBFAMILY ISOTOMINAE

Genus **FOLSOMIA** Willem

Folsomia Willem: Soc. Ent. Belgique, Ann., vol. 46, p. 280, 1902.

Isotoma (in part) Bourlet: Soc. Sci. Agric. Lille, Mem., pp. 377-417, 1839; Tullberg: Ofv. Kongl. Vet-Akad. Forhandl., pp. 143-155, 1871.

* Pacific Entomological Survey Publication 6, article 29. Issued December 24, 1934.

Folsomia fimetaria (Linnaeus).

Isotoma alba Tullberg: Ofv. Kongl. Vet.-Akad. Forhandl, no. 1, p. 152, 1871.

Tahiti: Vallée de la Reine, altitude 460 feet, 3 miles from shore, December 17, 1928, 3 specimens; Faraura Valley, November 17, 1928, on bamboo, 1 specimen; Mumford and Adamson.

This small delicate springtail has a wide range over the northern continents, Europe, Asia, and North America, extending to Greenland and Franz Joseph Land.

Folsomia fimetarioides (Axelson).

Isotoma fimetarioides Axelson: Soc. Faun. et Flor. Fenn., Acta, vol. 25, no. 7, p. 8, 1903.

Tahiti: Faraura Valley, November 17, 1928, on bamboo, 4 specimens, A. M. Adamson.

This species, small and frail like the preceding, has hitherto been recorded only from northern Europe and its presence on Tahiti is noteworthy.

Genus ISOTOMA Bourlet

Isotoma Bourlet: Soc. Sci. Agric. Lille, Mém. (in part), pp. 377-417, 1839.

Isotoma alticola, new species (fig. 1).

Length 1 mm. Feelers twice as long as head; 8 ocelli on each side, the second in both series large; post-antennal organ narrowly crescentic (fig. 1, *b*). Abdominal segments 5 and 6 imperfectly distinct. Feet with long, narrow untoothed claw and leaflike empodium with hairlike process (fig. 1, *d*). Spring less than half as long as body, manubrium three fourths length of dens; mucro with apical and ante-apical teeth, anterior tooth on outer edge (fig. 1, *e, f*). Body clothed with uniformly short hairs. Color purple with dark mottling.

Tahiti: Hitiaa, altitude 1,500 feet, November 19, 1928, on *Freycinetia*, 3 specimens, A. M. Adamson.

The nearest ally of this springtail seems to be *Isotoma maritima* Tullberg, which inhabits the seacoasts of northwestern Europe, including Great Britain. The form of the mucro in both species is closely similar; the foot claw of *I. alticola* is narrower and less curved than that of *I. maritima*, while the empodium in *I. maritima* is relatively longer than in the European species. *I. maritima* exceeds *I. alticola* considerably in size.

SUBFAMILY ENTOMOBRYINAE

Genus **ENTOMOBRYA** Rondani

Entomobrya lactea Folsom.

Entomobrya lactea Folsom: Hawaiian Ent. Soc., Proc., vol. 8, pp. 65, 66, figs. 76-78, 1932; Carpenter: B. P. Bishop Mus., Bull. 114, 1935.

Tahiti: Faraura Valley, altitude 500 feet, November 17, 1928, in rotting bamboo, 3 specimens; Mataiea, sea level, December 19, 1928, in axils of sugar-cane leaves, 3 specimens; A. M. Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, December 4, 1928, 2 specimens, A. M. Adamson.

This species, described from Hawaii and recorded from the Marquesas, may be widespread in Polynesia.

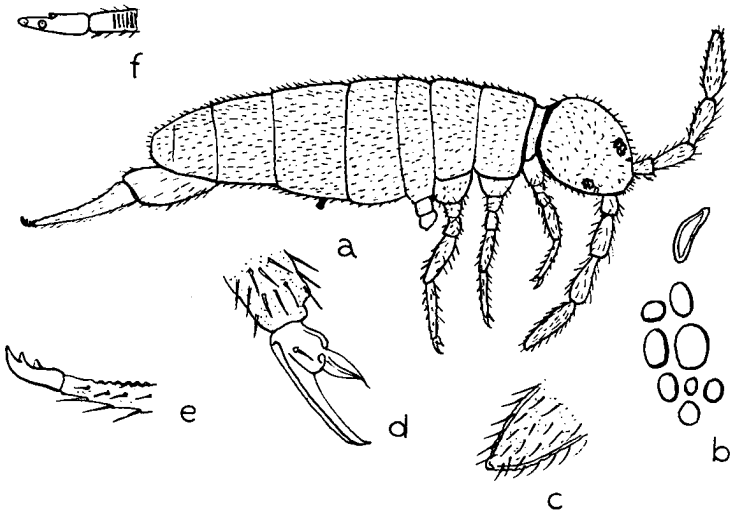

FIGURE 1.—*Isotoma alticola*, new species: *a*, side view, head seen from above, × 100; *b*, ocelli and postantennal organ of right side, × 450; *c*, tip of right feeler, × 335; *d*, hind foot, × 450; *e*, terminal part of left dens, and mucro, lateral view, × 450; *f*, dorsal view, × 450.

Genus **SINELLA** Brook

Sinella caeca (Schött).

Entomobrya caeca Schött: Calif. Acad. Sci., Proc., 2d ser., vol. 6, p. 178, figs. 14-16, 1896.

Sinella hofti Schäffer: Naturh. Mus. Hamburg, Mitt., vol. 13, p. 192, figs. 102-105, 1896; Folsom: Hawaiian Ent. Soc., Proc., vol. 8, p. 66, figs. 79-81, 1932.

Sinella caeca Linnaniemi: Soc. Sci. Fenn., Acta, vol. 40, pp. 214, 215, pl. 14, fig. 13, 1912; Carpenter: B. P. Bishop Mus., Bull. 114, 1935.

Tahiti: Papara Valley, altitude 750 feet, 4 miles from sea, December 21, 1928, on *opuhi* (*Zingiberaceae*), 1 specimen, A. M. Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, December 12, 1928, under bark, 2 specimens, A. M. Adamson.

This species, like *Entomobrya lactea*, inhabits both Hawaii and the Marquesas; it has a wide continental range in both hemispheres.

Genus **PARASINELLA**, new genus

Dentes of spring with rounded scales; mucro falciform; foot claw with prominent basal wing appendage, empodium simple, acute; antennal segment 4 simple, imperfectly jointed to third; eyes and postantennal organs absent.

The insect for which this new genus is suggested is definitely related to *Sinella* Brook and *Pseudosinella* Schäffer, distinguished from *Sinella* by its scaled dentes and from *Pseudosinella* by its falciform mucro. From *Lepidosinella* Handschin it differs in the absence of a wing appendage on the empodium. The single specimen, imperfect and somewhat injured, does not show any scales on the head or body, but it is likely that in fresh specimens they would be apparent.

Parasinella adamsoni, new species (fig. 2).

Length 1 mm. White; eyes absent; feelers 1.5 times as long as head; spring two thirds as long as body. Legs with long, acute spines, and on the inner edge flattened foliate scales with short delicate spinules; foot claw with acute basal wing appendage, untoothed empodium relatively long, lanceolate, without wing appendage (fig. 2, *b*). Dens of spring with ventral scales, lateral spines, and subterminal feathered bristle; mucro falciform, elongate with sharp subapical spine (fig. 2, *c*). Hinder abdominal segments with prominent clubbed feathered bristles (fig. 2, *d*).

Tahiti: Vallée de la Reine, altitude 460 feet, 3 miles from shore, December 17, 1928, 1 specimen, A. M. Adamson.

Genus **LEPIDOCYRTUS** Bourlet

Lepidocyrtus medius Schäffer.

Lepidocyrtus medius Schäffer: Arch. f. Naturg. vol. 68, pp. 420-421, figs. 35-37, 1898; Carpenter: B. P. Bishop Mus., Bull. 114, 1935.

Tahiti: Mataiea, sea level, December 19, 1928, on sugar cane, 3 specimens, A. M. Adamson.

Moorea: Faaroa Valley, November 28, 1928, among dead leaves of *fei* (*Musa fehi*), 2 specimens, A. M. Adamson.

This species was described from specimens collected on Ralum in the Bismarck Archipelago. It was recorded by Handschin from Java[1] and is

[1] Handschin, E., Collembolen aus Java: Rev. Suisse Zool., vol. 28, pp. 135-147, 1920.

represented among the Marquesan Collembola of the Pacific Entomological Survey; its range in the eastern tropics must therefore be wide.

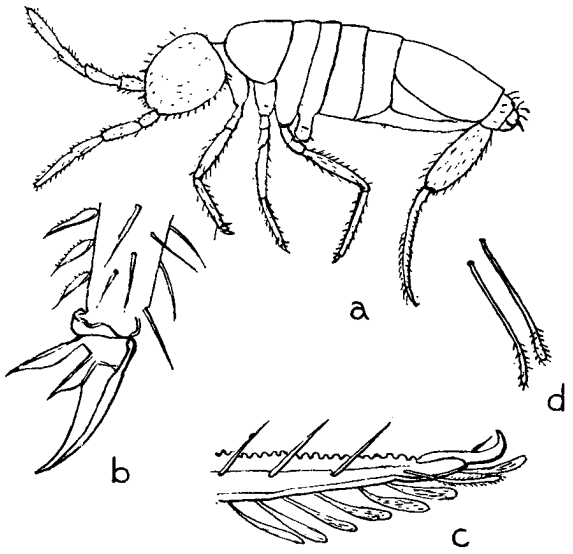

FIGURE 2.—*Parasinella adamsoni,* new species: *a,* side view, head seen from above, × 50; *b,* hind foot, × 500; *c,* terminal part of left dens, and mucro, lateral view, × 450; *d,* feathered bristles from sixth abdominal segment, × 450.

Lepidocyrtus faaroanus, new species (fig. 3).

Length 2.5 mm. Mesonotum 0.80 times as long as head, twice as long as metanotum; fourth abdominal segment 5 times as long as third. Foot (fig. 3, *c*) with elongate, acute claw, bearing two pairs of teeth on the inner edge; empodium narrow and lanceolate, nearly as long as claw. Manubrium of spring three fourths length of dens, which has a terminal unannulated region somewhat longer than the mucro and bears scales and feathered bristles; mucro with strong apical and ante-apical teeth and the usual basal spine (fig. 3, *d*). Color yellowish with dark purple areas on head, mesonotum, and abdominal segments 1-5 (fig. 3, *a*).

Moorea: Faaroa Valley, November 28, 1928, among dead leaves of *fei* (*Musa fehi*), 4 specimens, A. M. Adamson.

In size and color this handsome species resembles *L. pictus* Schäffer[2] from the Bismarck Archipelago rather closely; the foot claw and empodium are also somewhat similar, but the empodium is longer and more acute in *L. faaroanus.* The most important distinction, however, appears to be the form of the scales, which in *L. faaroanus* have the broadly rounded distal margins

[2] Schäffer, C., Die Collembola des Bismarck-Archipels: Arch. f. Naturg., vol. 68, pp. 393-425, pls. 11-12, 1898.

that are characteristic of *Lepidocyrtus,* whereas those of *L. pictus* are pointed like the scales of a *Sira.* It is unfortunate that in none of the specimens are any antennal segments beyond the basal preserved; probably those appendages are elongate.

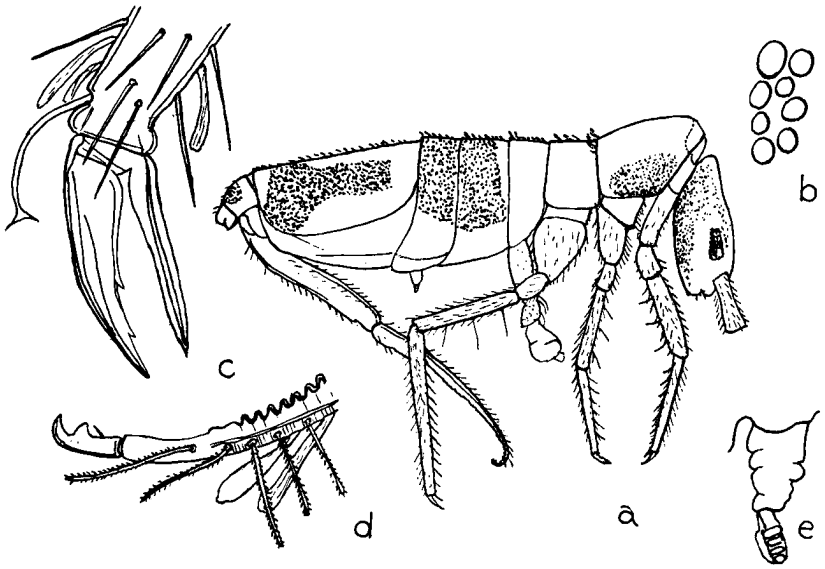

FIGURE 3.—*Lepidocyrtus faaroanus,* new species: *a,* side view, × 28; *b,* eyes of right side, × 135; *c,* hind foot, × 450; *d,* terminal part of right dens, and mucro, × 450; *e,* retinaculum, side view, × 160.

SUBFAMILY PARONELLINAE

Genus SALINA MacGillivray

Salina MacGillivray: Canad. Ent., vol. 26, p. 107, 1894.

Cremastocephalus Schött: Calif. Acad. Sci., Proc., 2d ser., vol. 6, p. 107, 1896.

Salina maculata Folsom.

Salina maculata Folsom: Hawaiian Ent. Soc., Proc., vol. 8, p. 71, figs. 105-110, 1932.

Tahiti: Vallée de la Reine, altitude 460 feet, 3 miles from shore, December 17, 1928, 7 specimens; Fautaua Valley, altitude 750 feet, September 11, 1928, on *Hibiscus tiliaceus,* 10 specimens; A. M. Adamson.

These specimens agree closely with those from Hawaii described and figured by Folsom. It is remarkable that this Hawaiian representative of a distinct group of the Entomobryidae should inhabit the Society Islands, though it is apparently absent from the Marquesas.

Distribution

Of the 10 species from the Society Islands recorded in this paper, four, *Neanura insularum* Carpenter, *Entomobrya lactea* Folsom, *Sinella caeca* Schött, and *Lepidocyrtus medius* Schäffer, are found also in the Marquesas; *Entomobrya lactea* Folsom, *Sinella caeca* Schött, and *Salina maculata* Folsom occur also in Hawaii. *Salina maculata* Folsom belongs to the paronelline group of the Entomobryidae, not represented in the Marquesan collections. The two species of *Folsomia* are definitely northern continental insects and the new species of *Isotoma* (*I. alticola* Carpenter) appears to have northern affinity. The two Lepidocyrti are identical with or related to springtails of the eastern tropics. As in the Marquesan collection, the apparent absence of the Podurinae and the Onychiurinae is noteworthy; the suborder Symphypleona, represented by at least one species in the Marquesas, has no member among the springtails from the Society Islands.

TALORCHESTIA RECTIMANA (DANA) FROM TAHITI AND MOOREA*

By

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Though the specimens of the terrestrial amphipod *Talorchestia rectimana* (Dana) taken by the Pacific Entomological Survey on Tahiti and Moorea in the Society Islands agree in their more important essentials fairly closely with Chevreux's description,[1] there are so many small discrepancies that a new description with detailed figures seems advisable.

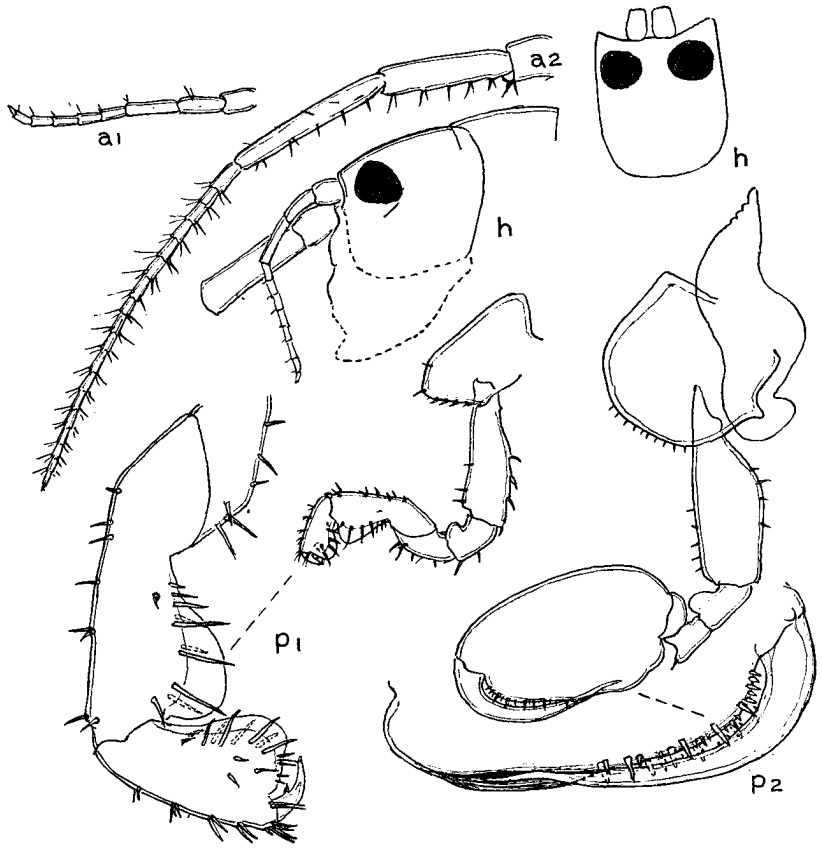

FIGURE 1.—*Talorchestia rectimana* (Dana), male (Vaipuarii Valley, Tahiti): *a1*, *a2*, antennae 1-2; *h*, head; *p1*, *p2*, pereiopods 1-2.

[1] Chevreux, Edouard, Amphipodes recueillis dans les possessions Francaises de l'Océanie par M. le Dr. Seurat: Soc. Zool. France, Mem., vol. 20, pp. 470-527, 1907 (1908).

* Pacific Entomological Survey Publication 6, article 30. Issued January 10, 1935.

Genus **TALORCHESTIA** Dana

Talorchestia, Stebbing, Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 543, 1906; Tattersall, Asiatic Soc. Bengal, Calcutta, Mem., vol. 6, p. 454, key to the species, 1922.

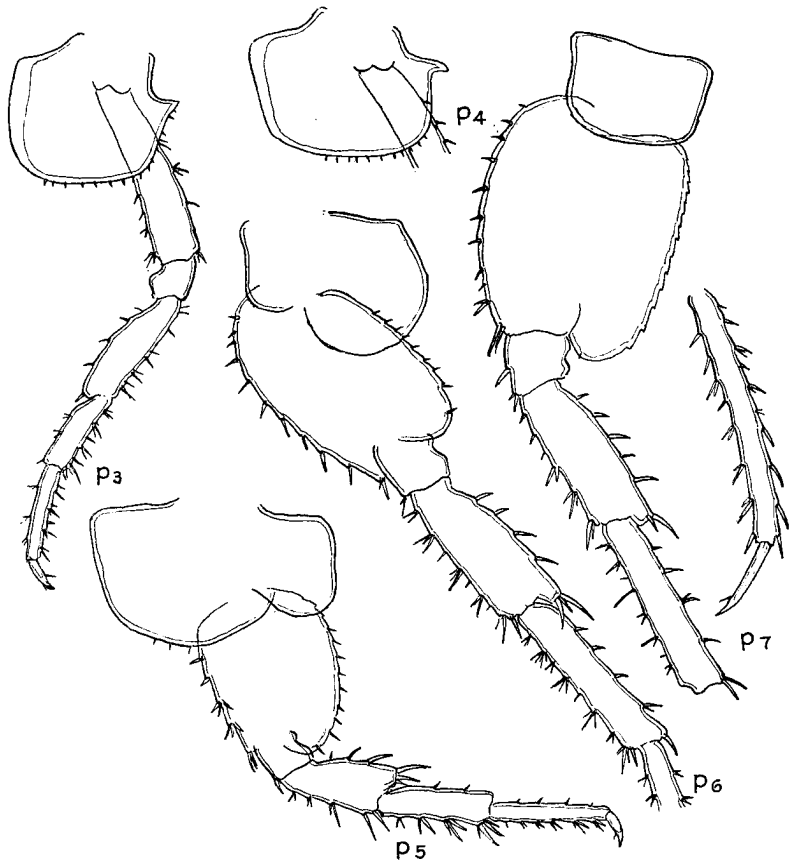

FIGURE 2.—*Talorchestia rectimana* (Dana), male: *p3-p7*, pereiopods 3-7.

Talorchestia rectimana (Dana) (figs. 1-4).

Orchestia rectimana Dana: Am. Acad., Proc., vol. 2, p. 203, 1852. Stebbing: Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 543, 1906.

Orchestia tahitensis, Dana: U. S. Expl. Exped., vol. 13, p. 877, figs., 1855.

Talorchestia rectimana, Chevreux: Soc. Zool. France, Mem., vol. 20, p. 495 (literature and synonymy), figs. 1-3, 1907 (1908).

Male

Length 14 mm.

The head is shorter than 1st mesosome segment. The eyes are black, large, pear-shaped, their greatest diameter not fully 1/3 of the length of the head; separated dorsally by a distance about half as long as the greatest diameter.

Antenna 1 reaches somewhat beyond the penultimate joint of the peduncle of antenna 2 or to about the middle of the ultimate joint; the 2 first joints of the peduncle are equal in length, the 3d joint longer than each of the two first. The flagellum as long as the peduncle, with 6 (smaller specimens 10 mm)—8 joints (larger specimens about 14 mm) (Chevreux, "8 joints").

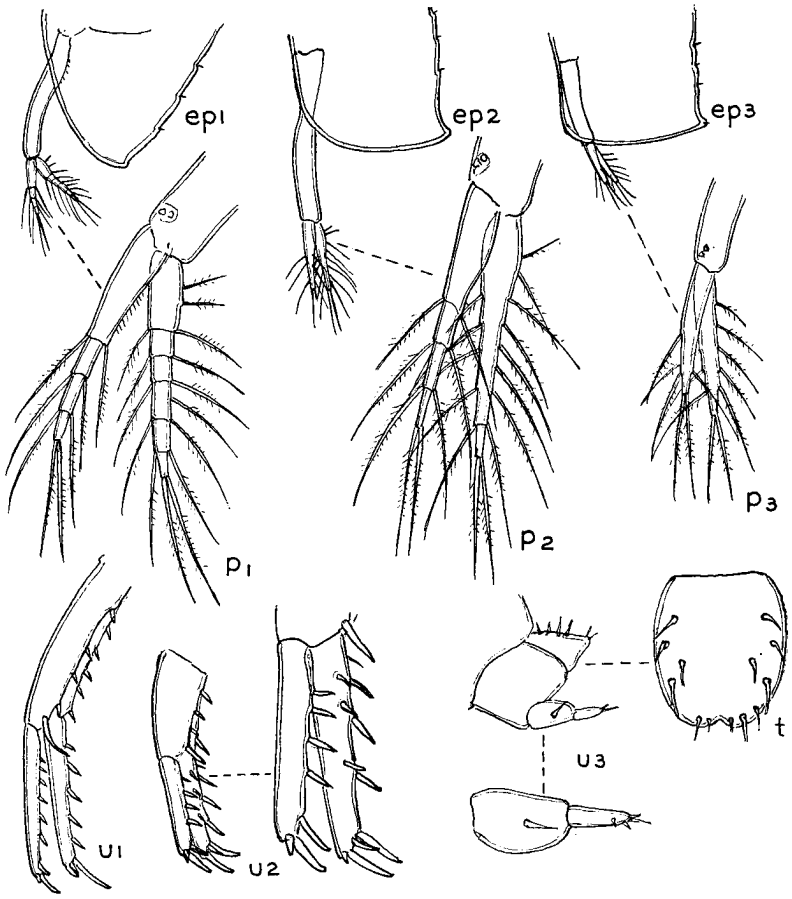

FIGURE 3.—*Talorchestia rectimana* (Dana), male: *ep*1-*ep*3, epimeral parts of metasome segments 1-3; *p*1-*p*3, pleopods 1-3; *u*1-*u*3, uropods 1-3; *t*, telson.

Antenna 2 about as long as the head plus the 4 first mesosome segments. The ultimate joint of the peduncle is much longer than the penultimate. The flagellum is somewhat longer than the 3 distal joints of the peduncle, with about 18 joints (in the smaller specimens; in the large males the flagellum is lost; Chevreux, "some more joints than in the female" which has 24 joints).

On the oral parts there is nothing specially to remark; the maxillipeds have a small 4th joint in the palps, quite like that for *Orchestia floresiana*.[2]

Pereiopod 1 has the side plate small, with spines on the under margin; the limb agrees well with Chevreux. The finger has a spine a little proximally of the center.

Pereiopod 2 has the side plate rather deep, like the two next side plates with a tooth on the hind margin and spines on the under margin. Joint 4 has a process on the under margin. Joints 6 and 7 (the finger) are very characteristic, in good accordance with Chevreux (fig. 2). Pereiopods 3-7 agree well with Chevreux.

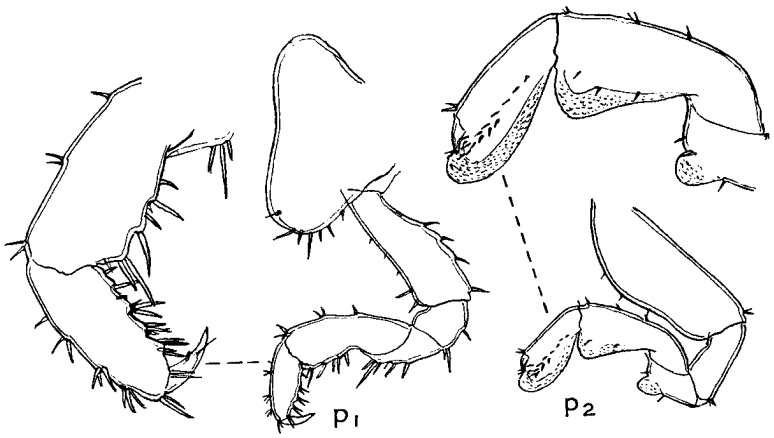

FIGURE 4.—*Talorchestia rectimana* (Dana), female: *p*1, *p*2, pereiopods 1-2.

Metasome segments 1-3 have the lower hind corners somewhat acute, but not sharp-pointed as described by Chevreux; there are traces of very broad serrations on the hind margins. The pleopoda are somewhat degraded, but each has two rami and a pair of minute coupling-spines; the articulation is most distinct in pleopod 1, quite invisible in pleopod 3, and the inner rami are shorter than the outer rami. Pleopod 1 has the rami not much shorter than the peduncle; the inner ramus has 4 pairs, the outer ramus about 6-7 pairs of feathered setae and a couple of unpaired setae. Pleopod 2 is longer than pleopod 1, with the rami not half as long as the peduncle, but with a similar number of setae. Pleopod 3 is not quite as long as the peduncle of pleopod 2, with the rami not much shorter than the peduncle; the inner ramus has only about 3 pairs of setae, but the outer ramus has about 4 pairs. According to Chevreux, pleopoda 2-3 are still more reduced (especially pleopod 3 which has the rami only ¼ as long as the peduncle).

Uropods 1-2 agree well with Chevreux, but inner ramus of uropod 2 has spines not only along the margin and at the apex, but also on the lateral side, near the dorsal margin. This character is present also in *Talorchestia japonica* Tattersall.[3] Uropod 3 has on the peduncle probably only one spine (Chevreux, 1 long and 1 short spine) and near the apex of the ramus 4 spines.

The telson has almost parallel sides and is somewhat longer than broad (Chevreux, "a trifle broader than long"), distally with a small notch. Dorsally there are about 4 (Chevreux, "5") pairs of spines, and apically 2-3 pairs (Chevreux, "no spines"). The female agrees with Chevreux's description and figures (fig. 4).

[2] Stephensen, K., Terrestrial Amphipoda (Fam. Talitridae) from the Marquesas: B. P. Bishop Mus., Bull. 142, art. 3, fig. 6.

[3] Tattersall, W. M., Asiatic Soc. Bengal, Calcutta, Mem., vol. 6, pp. 435-459, pl. 21, fig. 8, 1922. Not mentioned in the text.

Tahiti: Vaipuarii Valley, altitude 1800 feet, August 18, 1928, 3 males; Papenoo Valley, altitude 350 feet, 7 miles from sea, October 25, 1928, 1 male, 3 females; Hitiaa, altitude 1500 feet, November 20, 1928, about 10 specimens, including 1 male; Adamson.

Moorea: Opunohu Valley, altitude 500 feet, September 29, 1928, about 15 specimens (male, female); Adamson.

This species, which has not been recorded outside the Society Islands, was in 1855 called *Orchestia tahitensis* by Dana. The previously recorded localities are Tahiti, in damp places at 457 meters above sea level, Dana, type locality; Tahiti, under stones in Papenoo Valley, from 100-150 meters; and Tahiti, altitude 2-60 meters (Chevreux). Though a truly terrestrial species, it seems to occur from near sea level (2 meters) up to 600 meters (1800 feet).

TERRESTRISCHE ACARINEN

von den

SOCIETY-INSELN*

VON

DR. H. GRAF VITZTHUM

BERLIN

In einer verschiedenen Arbeit[1] spreche ich über die Acarinen der Marquesas-Inseln. Ich kann nun fünf Arten aus fünf Gattungen von den Society-Inseln hinzufügen. Im Gegensatz zu den Marquesas, von deren Acarofauna vor der Ankunft des Pacific Entomological Survey nichts bekannt war, beschreibt Berlese schon 1918 und 1920 sechs Arten: *Epicroseius seurati, Dinychopsis elimata, Dinychopsis uropodina, Uropoda hippocrepea, Rhizoglyphus grossipes* und *Rhizoglyphus longipes*.[2]

Berleses Material war von Seurat auf Tahiti an abgefallenen Früchten von *Thespesia* und *Musa* gesammelt worden. Dazu kommen, von Jacot 1934 beschrieben, nur noch *Caloglyphus introitus* und *Indotritia lebronneci tahitiana*.[3]

Die unten beschriebenen Arten sind vom Pacific Entomological Survey gesammelt worden. Die Typen befinden sich im Bernice P. Bishop Museum.

Auch hier ist zu bedenken, dass die Expedition in der Hauptsache entomologische Ziele verfolgte. Die dabei ausserdem zustande gekommene acarologische Sammlung ist auch hier nur eine Nebenausbeute. Trotz ihres verhältnismässig geringen Umfanges ist aber auch sie ein willkommener Beitrag zu einer Acarofauna der Südsee.

Die fünf Milben-Arten reihen sich systematisch folgendermassen aneinander:

Ordnung Acari Leach.

3. Unterordnung Parasitiforme Reuter.
  1. Kohorte Gamasides Leach.
  1. Unterkohorte Gamasina Kramer.
    1. Familie Parasitidae.
      Nr. 1: Sessiluncus oculatus, species nova.

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[1] Vitzthum, H. Graf, Terrestrische Acarinen von den Marquesas: B. B. Bishop Mus., Bull. 142, 1935.

[2] Berlese, Antonio, Centuria quarta di Acari nuovi: Redia, Bd. 13, pp. 135, 179, 180, 1918; Centuria quinta di Acari nuovi: Redia, Bd. 14, p. 144, 1918.

[3] Jacot, A. P., Two Tyroglyphina (Sarcoptiformes) of Tahiti: B. P. Bishop Mus., Bull. 113, pp. 111-114, 1934.

* Pacific Entomological Survey Publication 6, article 31. Issued February 4, 1935.

5. Familie Laelaptidae.
   Nr. 2: Platyseius mollicomus Berlese.
11. Familie Celaenopsidae.
   Nr. 3: Euzercon ovulum Berlese.

2. Kohorte Uropodina Kramer.
5. Familie Urodinychidae.
   Nr. 4: Urodinychus polyphemus, species nova.
7. Familie Uropodidae.
   Nr. 5: Cilliba bordagei Oudemans.

Das sind 3 bereits bekannte und 2 neue Arten. Im Folgenden werden vor allem die neu entdeckten Arten beschrieben und abgebildet. Es möge aber diese Gelegenheit dazu benutzt werden, auch die bereits bekannten Arten genauer abzubilden oder ausführlicher zu beschreiben, soweit dies für die Systematik erwünscht erscheint.

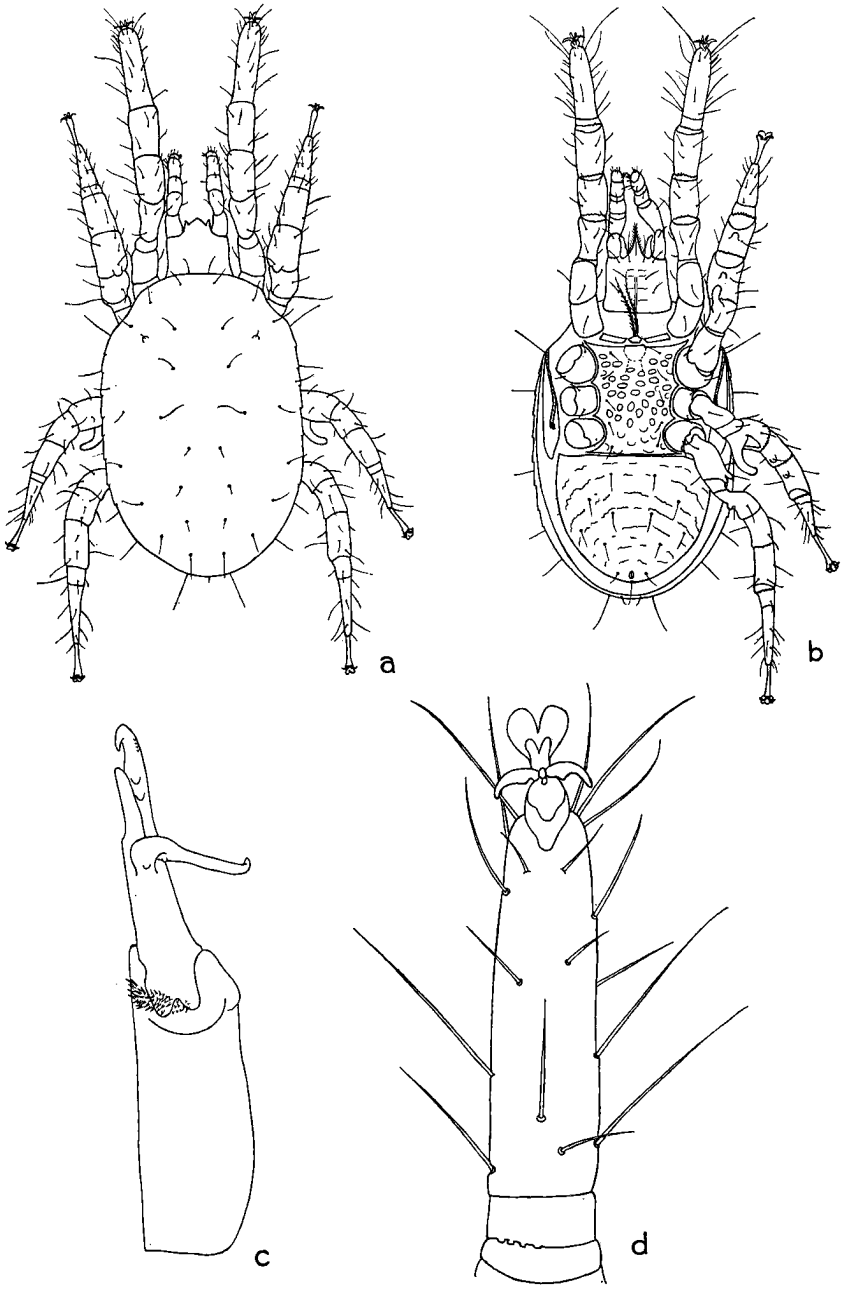
1. **Sessiluncus oculatus,** species nova (fig. 1).

Männchen

Idiosomalänge, 0.800 mm; grösste Breite, 0.515 mm. Gestalt fast elliptisch, doch liegt die Linie der grössten Breite vor der Rumpfmitte, nämlich über den Coxae II, und das Rumpfende ist ein wenig zugespitzt. Farbe kräftig kastanienbraun.

Das einheitliche Rückenschild (fig. 1, *a*) deckt den ganzen Rücken und die Rumpfseiten. Es zeigt undeutlich eine etwas schuppige Strucktur und einige Grübchen, die am Rumpfende und an den Seiten besser zu erkennen sind als auf der Rückenmitte. Alle Rumpfhaare glatt, nadelförmig, ziemlich radiär abstehend, an den Seiten und hinten länger als auf der Rückenfläche. Auf der Rückenfläche befindet sich oberhalb der Coxae II jederseits ein Organ in Gestalt einer glasklaren, farblosen Halbkugel, die einen winzigen, nach vorn gerichteten Stift trägt. Aus der Form und der Lage dieser Organe muss man schliessen, dass es sich um Augen handelt. Der Stift erinnert an die Borste, die bei gewissen Tyroglyphiden auf der Cornea und bei solchen Oribatiden, die Augen besitzen, am Vorderrande der Cornea steht.

Das labiale Tritosternum (fig. 1, *b*) ganz kurz, mit zwei ziemlich lang behaarten Laciniae. Es wird von zwei quergelagerten Jugularia flankiert, die zugleich die Vorderkante des Sternale bilden, jedoch durch die Genitalöffnung getrennt werden. Das Sternale endet geradlinig zwischen den Hinterkanten der Coxae IV. Seine Struktur zeigt ein sehr deutliches, unvollkommen symmetrisches Netzmuster. Unmittelbar an das Sternale schliesst sich das Ventrianale an. Es deckt die ganze Bauchfläche hinter den Coxae IV und reicht überall fast bis an die Unterkante des Rückenschildes. Seine Struktur ist sehr deutlich schuppig, ganz anders als die des Sternale. Die Peritrematalia sind breit und füllen die ganze Fläche zwischen den Coxae II-IV und der Unterkante des Rückenschildes. Sie reichen bis neben die Hinterkanten der Coxae IV und stossen hier auf die Vorderecken des Ventrianale, ohne um die Coxae IV herumzugreifen. Die nur kleinen Stigmen liegen neben den Vorderkanten der Coxae IV. Ihre Peritremata sind einfache Röhren, die über den Coxae I enden (also ganz anders als bei der Typenart). Alle Haare der Bauchseite glatt und nadelförmig, viel kürzer als auf der Rückenseite, ausser dem Postanalhaar; 5 Paare auf dem Sternale, 6 Paare auf dem Ventrianale ausser den 3 Circumanalhaaren, 2 Paare seitlich der Analgegend auf dem schmalen weichhäutigen Streifen.



FIGUR 1.—*Sessiluncus oculatus,* species nova, Männchen: *a,* dorsal; *b,* ventral; *c,* mandibularschere; *d,* tarsus I, ventral.

Beinlängen: I, 0.760 mm; II, 0.625 mm; III, 0.490 mm; IV, 0.725 mm; diese Messungen gelten jedoch für die Beine in ihrer natürlichen, nicht ganz gestreckten Haltung, die eine Beugung im Bereiche der Femora bedingt, so dass also die gestreckten Beine gleichmässig etwas länger sein würden. Praetarsi an den Beinen II, III und IV gut entwickelt. An den Tarsi I (fig. 1, *d*) fehlen sie jedoch vollkommen, so dass deren Krallen unmittelbar aus der etwas manschettenartig gestalteten Tarsusspitze hervorragen. Die Hinterkanten aller Beinglieder auf der Ventralseite gezähnelt. Die Beine I, III und IV von gleicher Dicke, die Beine II etwas dicker. Nur die Beine I ohne Sexualcharaktere. Beine II: auf dem Femur ventral eine grosse, daumenförmige Apophyse; auf dem Genu und auf der Tibia je ein mehr rundlicher Höcker. Beine III: am Femur ventral eine riesenhafte Apophyse, die aus zwei Teilen besteht, einem vorwärts gerichteten ziemlich spitzen Zapfen und einem gewaltigen daumenförmigen Gebilde, das von der dem Rumpfe zugekehrten Seite des Femur absteht. Diese Apophyse ist viel grösser als die am Femur II. An Genu und Tibia ventral je ein rundlicher Höcker, der einem Haare als Sockel dient. Beine IV: ein Zapfen an der Aussenseite des Trochanters und ein unbedeutender Höcker an der Innenseite des Femur. Die Haare an den Beinen überwiegend glatt, doch einige von ihnen an den Beinen II, III und IV kaum merklich befiedert.

Das Epistom trägt an den Aussenecken seiner Vorderkante je eine kurze, nach aussen weisende Spitze; der zwischen diesen Ecken liegende Teil der Vorderkante bildet ein ganz flaches Dreieck ohne eigentliche Mittelspitze. Der Spermatophorenträger (fig. 1, *c*) schwingt sich mit S-förmiger Biegung nach aussen und oben (ebenfalls ganz anders als bei der Typenart).

Tahiti: Papara-Tal, 750 englische Fuss über dem Meer, 4 englische Meilen von der Küste; 21. Dezember 1928; an *Zingiber* species; A. M. Adamson.

Die Gattung *Sessiluncus* G. Canestrini 1898 hat den papuanischen *Gamasus heterotarsus* G. Canestrini 1897 zum Typus.[4] [5]

Berlese hat 1905 die Gattung *Sessiluncus* nicht als vollwertig, sondern nur als Untergattung von *Gamasellus* Berlese 1892 anerkannt, und ich bin ihm 1926 darin gefolgt.[6] Heute halte ich es aber doch für richtiger, die Gattung *Sessiluncus* wiederherzustellen. Denn Canestrini hat in seiner Gattungdiagnose das Hauptgewicht auf den stark verkürzten Ambulakralapparat der Tarsi I und auf die halbkreisförmige Gestalt der Verschlussklappe der weiblichen Genitalöffnung gelegt, während Berlese gerade diese Charaktere nicht beachtet. Daher erscheint es zweifelhaft, ob die von Berlese beschriebenen Arten: *latus, solitarius* und *eremita,* tatsächlich in diese Gattung einzureihen sind.

Dagegen entspricht die jetzt vorliegende neue Art in ihren Gattungskennzeichen genau der Typenart, wenigstens soweit es sich nach dem allein bekannten Männchen beurteilen lässt.

Platyseius mollicomus Berlese.

Tahiti: Papeari, 900 englische Fuss über dem Meer, 9. November 1928, an *Pandanus* species, A. M. Adamson.

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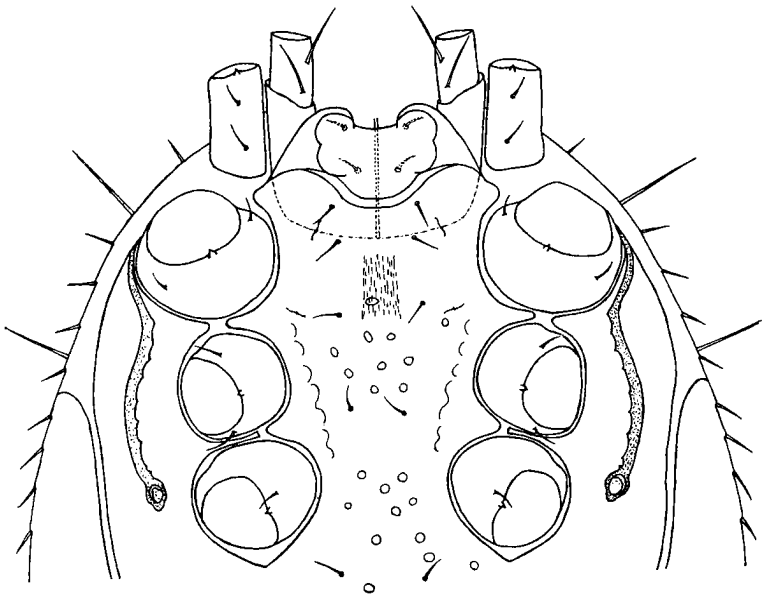
[4] Canestrini, Giovanni, Nuovi Acaroidei della Nuova Guinea: Termes. Füz. Bd. 20, p. 473, 1897; Bd. 21, pp. 486-487, 1898.

[5] Canestrini, Giovanni, Acari della Nuova Guinea: Atti Soc. Veneto-Trentina Sci. Nat., Ser. 2, Bd. 2, p. 13 des Sonderdruckes nebst Taf. 22, Fig. 6, 1898.

[6] Berlese, Antonio, Acari nuovi, Manipulus IV: Redia, Bd. 2, p. 168, 1905.
Berlese, Antonio, Centuria quarta di Acari nuovi: Redia, Bd. 13, p. 137, 1918.
Vitzthum, H. Graf, Malayische Acari: Treubia, Bd. 8, pp. 5-17, 1926.

Die Art wurde zunächst von Berlese unter dem Namen *Lasioseius* (*Platyseius*) *mollicomus* auf Grund des damals allein bekannten Weibchens beschrieben, aber nicht abgebildet. Später konnte ich sie abbilden und dabei auch das Männchen und die Deutonympha beschreiben.[7] Auf diese Abbildung sei verwiesen.

Es ist nicht näher bekannt, ob dieser *Pandanus* auf trockenem oder nassem Boden stand oder ob etwa zur Zeit des Fundes reichlicher Regen niedergegangen war. Denn alle *Platyscius*-Arten sind äusserst feuchtigkeitsliebend und nach allen bisherigen Erfahrungen sogar Quellenbewohner. Die vorliegende Art ist in Java immer wieder in Quellen gefunden worden, darunter sogar einer Thermalquelle von 41° C.



FIGUR 2.—*Euzercon ovulum,* species nova, Männchen, podosoma ventral.

3. **Euzercon ovulum** Berlese (fig. 2).

Tahiti: Papaoa-Tal, 750 englische Fuss über dem Meer, 4 englische Meilen von der Küste, 21. Dezember 1928, an *Zingiber* species, A. M. Adamson.

Die Art ist von Berlese nach einem weiblichen Exemplare aus Java so genau beschrieben und dessen Ventralseite so klar abgebildet, dass dem nichts hinzuzufügen ist.[8]

[7] Berlese, Antonio, Centuria prima di Acari nuovi: Redia, Bd. 12, pp. 42-43, 1916.
Vitzthum, H. Graf, Terrestrische Acarinen der Deutschen Limnologischen Sunda-Expedition: Archiv. für Hydrobiol., Supplbd. 9, 1931; Tropische Binnengewässer, Bd. 2, pp. 70-74.

[8] Berlese, Antonio, Acari nuovi, Manipulus IV: Redia, Bd. 2, p. 161, Taf. 15, Fig. 20, 1905.

Nach dem jetzt vorliegenden männlichen Exemplare die Rückenseite abzubilden, ist leider nicht möglich, weil die für die Rückenfläche charakteristischen starken und langen Haare fast sämtlich abgebrochen sind. Immerhin gibt Fig. 2, wo vier dieser Haare über die Umrisslinie hinausragen, eine Vorstellung von deren Länge und Stärke.

Länge des Idiosoma, 0.830 mm; grösste Breite (hinter den Coxae IV) 0.610 mm. Gestalt wie bei dem Weibchen: breit oval, aber hinten etwas abgestutzt. Farbe dunkel kaffeebraun.

Die Besonderheiten des Männchens beschränken sich auf die Ventralseite des Podosoma, so dass nur dieses hier abgebildet zu werden braucht (fig. 2). Die Stigmen liegen neben der Mitte der Coxae IV. Ihre Peritremata erstrecken sich in ungewöhnlich starker Schlängelung nach vorn und lassen sich bis dahin verfolgen, wo sie über den Coxae II zu der Rückenseite emporsteigen. Infolge der dunklen Färbung des Tieres lässt sich nicht erkennen, ob sie auch noch bis über die Coxae I reichen. Auf der der Rumpfmitte zugekehrten Seite entsenden die Peritremata in ziemlich regelmässigen Abständen eine Reihe von spitzen Aussackungen nach innen. Das Sternale gewinnt eine sonderbare Form dadurch, dass es weit über das vorderste Paar der Sternalhaare hinaus verlängert ist. Bis wenig über dieses Haarpaar hinaus liegt es dem Rumpf in üblicher Weise fest auf. Eine Linie scheint anzudeuten, dass dieser Teil eine tief eingebuchtete Vordergrenze hat. Die Verlängerung des Sternale ragt frei in der Luft bis fast zwischen die Enden der Coxae I. Bei dem abgebildeten Exemplare ist das Gnathosoma weit zurückgezogen. Infolgedessen überdeckt die Verlängerung des Sternale seine ganze Basis, im vorliegenden Falle die Maxillicoxalhaare und sogar das hinterste Paar der Hypostomhaare (die beiden Haarpaare sind in fig. 2 punktiert gezeichnet). Unter diesem Vorbau liegt die riesenhafte Genitalöffnung. Der Ductus ejaculatorius lässt sich bis zwischen die Coxae II zurückverfolgen.

Die tiefdunklen Einzelheiten des Gnathosoma konnten am unzergliederten Tiere nicht studiert werden, auch nicht das sicherlich vorhandene Tritosternum, weil letzteres unter den dunklen Chitinisationen der vordersten Sternalgegend unsichtbar blieb.

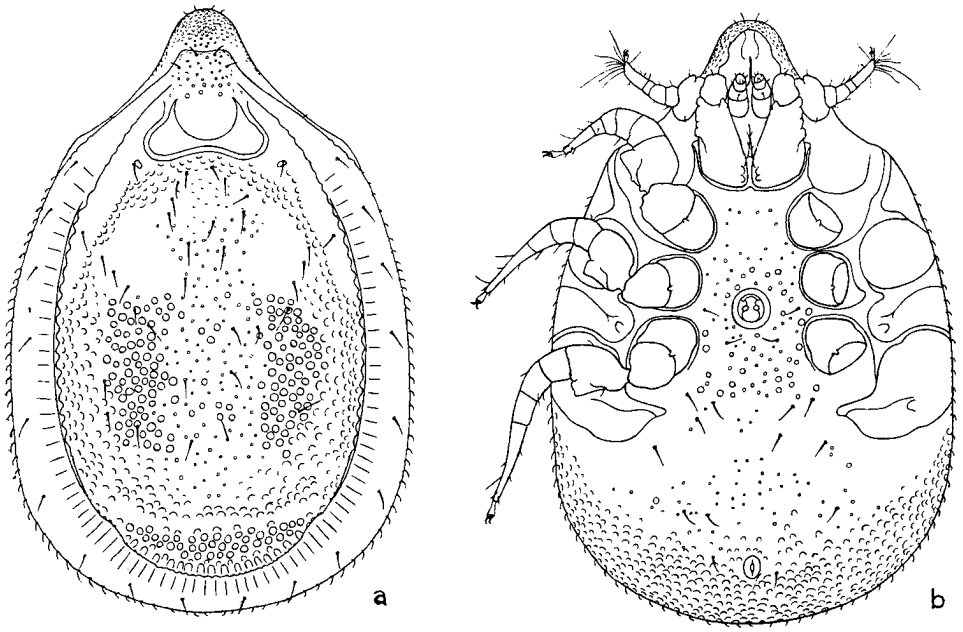
Beinlängen: I, 0.520 mm (Tarsi I, der Gattung entsprechend, ohne Ambulakrum), II und III 0.480 mm; IV, 0.570 mm. Beine II nur wenig dicker als III und IV, Beine I halb so dick wie III und IV. Sekundäre Sexualcharaktere fehlen vollkommen.

4. **Urodinychus polyphemus,** species nova (fig. 3).

Nur das Männchen ist bekannt. Länge, 0.665 mm; grösste Breite (über den Beinen IV), 0.440 mm. Rumpfende so breit abgerundet, dass man fast von abgerundeten Hinterecken sprechen könnte. Rumpfseiten ziemlich parallel, von der Rumpfmitte an nach vorn etwas convergierend, deutliche, durch das Hevorquellen der Peritremata gebildete Schultern, der davor liegende Rumpfabschnitt abgestumpf zugespitzt mit nach unter umgebogenem Vorderrande. Farbe kaffeebraun.

Das Scutum medium (fig. 3, *a*) ist von der Vertikalgegend an ringsum lückenlos von einem breiten Marginale umrahmt. Der Innenrand des Marginale ist glatt. Aber die Skulptur des Medium bewirkt, dass sich die Grenze zwischen Medium und Marginale als eine regelmässige Guirlandenlinie darstellt. Das Medium ist mässig gewölbt, ohne längsverlaufende Erhöhungen. Die Fläche des Marginale steigt von innen nach aussen beträchtlich an. Infolgedessen liegt die erwähnte Guirlandenlinie in einer ringsum verlaufenden tiefen Furche. Hinten, wo der Rumpf sich abzurunden beginnt, fällt das Medium plötzlich in einer tiefen Stufe ab. Ein besonderes Schild ist hier jedoch nicht abgetrennt. Das Medium ist dicht mit grossen Grübchen bedeckt, auch das vorderste Rumpfende, wo die Grübchen aber kleiner werden. Ausgenommen ist hiervon jedoch die Dorsalfläche oberhalb der Coxae I. Hier ist in sehr auffallender Weise ein Dreieck gezeichnet mit abgerundeten Hinterecken und einer undeutlich werdenden Vorderecke.

In die Seiten dieses gleichseitigen Dreieckes ist eine Kreisfläche eingefügt. Die Kreisfläche ist vollkommen glatt, auch heller gefärbt als der übrige Rumpf. Die Hinterecken des Dreieckes, also die nicht von der Kreisfläche ausgefüllten Teile des Dreieckes, sind granuliert. Das ganze Dreieck mitsamt der Kreisfläche ist tief in den Rumpf eingesenkt. Da diese Gegend genau oberhalb des Gehirnes liegt, so handelt es sich zweifellos um ein Lichtsinnesorgan. Es lag nahe, dadurch an Homer's einäugigen Zyklopen Polyphemos erinnert zu werden. Die auf dem Medium vorhandenen zahlreichen, nadelförmigen, glatten Haare kommen inmitten des Grübchenmusters nicht zur Geltung. Sie spielen im Gesamtbilde ebenso wenig eine Rolle wie die jederseits ungefähr 10 Haare auf der Fläche des Marginale. Der Aussenrand des Marginale ist dicht besetzt mit vielen, nach rückwärts und oben gekrümmten kurzen Härchen.



FIGUR 3.—*Urodinychus polyphemus,* species nova, Männchen: *a,* dorsal; *b,* ventral.

Die Panzerfläche der Ventralseite (fig. 3, *b*) ist in der Analgegend ebenso mit Grübchen besetzt wie das dorsale Medium. Weiter nach vorn werden die Grübchen spärlicher und kleiner. Die Höhlungen der Beingruben sind glatt. Die Peritremata ziehen sich in der dicken Scheidewand zwischen den tief eingesenkten Gruben der Beine III und II hin. Ihr Verlauf ist daher schwer zu erkennen und in Fig. 3 nicht wiedergegeben. In der Hauptsache bilden sie nur eine Schlinge, die sich schräg nach den Schultern hinzieht, etwas über diese hinausquillt und dann auf demselben Wege zurückläuft. Die Genitalöffnung ist kreisförmig und liegt nicht ganz zwischen den Coxae III, sondern etwas weiter hinten, so dass ihr Hinterrand ungefähr in der Linie der Vorderkanten der Coxae IV liegt.

Tahiti: Tuauru-Tal, 5. September 1926, A. M. Adamson.

Cilliba bordagei Oudemans.

Tahiti: Tuauru-Tal, 5. September 1928; Hitiaa, 1500 englische Fuss über dem Meer, 20 November 1928; Adamson.

Die Art ist von Oudemans so genau beschrieben und vor allen Dingen so vorzüglich abgebildet, dass dem nichts hinzuzufügen ist.[9] Sie kann wegen vieler Einzelheiten unmöglich mit einer anderen Art verwechselt werden, vor allem nicht wegen des ganz absonderlichen Verlaufes der Peritremata.

Das Oudemans'sche Material stammte von Réunion aus einem Nest von *Pison argentatum* (Sphegidae). Aber das mag wohl Zufall gewesen sein.

[9] Oudemans, A. C., Description d'une nouvelle espèce d'Acarien: Bull. sci., France et Belgique, Bd. 46, pp. 87-91, Taf. 2, Figs. 1-12.