

ANOMOTERGA TAHUATA, NEW GENUS AND NEW SPECIES,
AND OTHER CHERMIDAE FROM THE MARQUESAS *

By

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INTRODUCTION

The material upon which this paper is based was collected by E. P. Mumford, Director of the Pacific Entomological Survey, A. M. Adamson, of the Survey, and their field assistants. The collection was placed at my disposal for study at the suggestion of E. O. Essig, Professor of Entomology, University of California, with the concurrence of D. L. Crawford, President of the University of Hawaii.

The holotypes and allotypes of the three new species here described are in the collection of Bernice P. Bishop Museum.

PAUROPSYLLINAE CRAWFORD

ANOMOTERGA, new genus

Body small, robust. Head strongly deflexed, as wide as or wider than thorax; vertex uniformly rounded forward and downward, with two foveae on each side of the median suture; very little swollen beneath antennal insertions, genae wanting; frons conspicuous, bearing the prominent anterior ocellus; antennal segments one and two small, slender (remaining antennal segments wanting and unknown); eyes large, hemispherical. Thorax strongly arched, broad. Fore wings somewhat translucent and fumate, oval, broadly rounded apically, the venation suggesting that of *Paurocephala* but with the radial sector very nearly perfectly straight throughout its length; pterostigma present. Hind wings well developed; venation obscure. Legs short and stout; the posterior tibia without a claw or claws at the base, with eight to ten large teeth and a group of two to four smaller teeth at the apex. Metacoxal spurs large. Abdomen with the tergites, particularly tergites five and six in the male and tergites five, six, and seven in the female, with the posterior half greatly raised above the level of the anterior half to form several broadly rounded ridges across the abdominal dorsum. Genitalia of both male and female simple in structure.

* Pacific Entomological Survey Publication I, article 8.

Type of the genus: *Anomoterga tahuata*, new species. (FK333.1. ♀ 1).

The most important and striking characters of the genus are the greatly modified tergites and the secondary groups of small teeth at the apex of the posterior tibiae.

Anomoterga tahuata, new species (fig. 27, *a-p*).

Length to tip of folded wing, 1.6 mm. to 2.3 mm.; length of body mounted on slide, 2.3 mm. to 2.5 mm.; length of fore wing, 1.4 mm. to 1.6 mm.; width of fore wing, 0.6 mm. to 0.8 mm.; width of head, 0.6 mm. to 0.7 mm. General color dark brown to black with lighter brown markings and stripes on the thorax and abdomen, legs lighter brown, the head with the vertex pale brownish grey with the eyes and foveae dark brown, the first and second antennal segments light brown. Wings brownish around the apical margin and along the caudal margin.

Head as wide as or slightly wider than the thorax, nearly perpendicularly deflexed, shape and proportions as illustrated (fig. 27, *d*), the vertex uniformly rounded forward and downward, with two foveae (fig. 27, *e*) on each side of the median suture and situated toward the upper part of the vertex, represented by four dark brown spots in dry mounts, the surface only slightly rugose and with but few setae (fig. 27, *d, e*). First and second antennal segments small and slender; remaining segments unknown.

Thorax strongly arched, with the prothorax bulging over the back of the head; dorsum with only very minute setae; metacoxal spurs (fig. 27, *h*) well developed. Posterior femur with a row of three sensoria on the anterior mesal aspect (fig. 27, *g*). Posterior tibia without a claw at the base (fig. 27, *f*); with 8 to 10 large black teeth and a group of 2 to 4 smaller teeth at the apex (fig. 27, *o, p*). Fore wing with the shape and venation as illustrated (fig. 27, *k*), the membrane semi-translucent and fumate along the apical and caudal margins, the membrane beset, except immediately along the veins, with conspicuous punctations, the membrane thicker, slightly more translucent, and more densely beset with points in the relatively large pterostigma, the wing veins bearing obscure hair-like setae; alar radulae wanting. Hind wings (fig. 27, *m, n*) three-fourths as long as fore wings, the membrane beset with numerous punctations, the obscure venation developed in the form of fine ridges along which the punctations are arranged in more or less definite single, double, and irregular rows.

Abdomen with the tergites greatly modified as described for the genus and as illustrated (fig. 27, *a*); the sternites, especially in the female, of abdominal segments 5, 6, and 7 each with two lateral sclerites representing the lateral portions of ordinary sternites but without continuous chitinized plates on the ventral side of the abdomen; the last character resulting in the complete collapsing of the ventral side of the female abdomen in dry mounts, causing the abdomen to be so distorted that the genital segment assumes a vertical position; the abdominal membrane dorsad and immediately anterior to the anal valve of the female bearing a group of relatively large setae. Genitalia of the male (fig. 27, *i*) simple in structure, the claspers of uniform width, with a forward directed claw-like process on the mesal side of the apex (fig. 27, *j*). Genitalia of the female about one-third the length of the entire abdomen (fig. 27, *a*), the ventral valve short, subacute at the tip, the dorsal valve nearly twice as long as the ventral, tapering from a broad base to a subacute tip bearing scattered large setae and many anteriorly directed smaller setae (fig. 27, *c*), the circumanal ring developed as a single row of simple, elongate pores; the spermatheca persisting even in specimens cleared with potassium hydroxide, with a membranous wall bearing curious hooked rings (fig. 27, *l*) which apparently have not been previously noticed.

Marquesas: Tahuata, Hanatuuna Valley, elevation 300 feet, July 19, 1930, host unrecorded, holotype female (FK331.1. ♀ 1) and allotype male

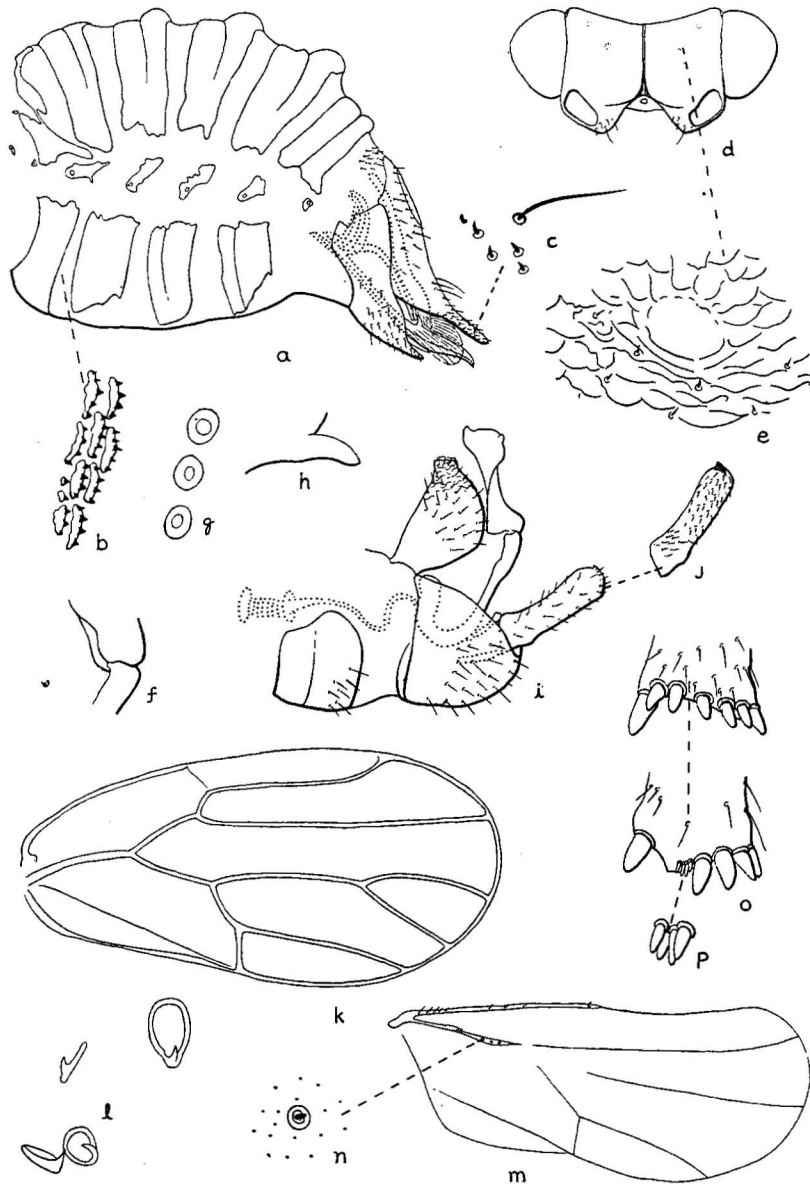


FIGURE 27. *Anomoterga tahuata*, new species: *a*, lateral aspect of female abdomen and genitalia; *b*, chitinized areas on membrane; *c*, setae on apex of dorsal valve; *d*, head; *e*, fovea with surrounding area and setae; *f*, base of posterior tibia; *g*, sensoria on posterior femur; *h*, metacoxal spur; *i*, male genitalia; *j*, inner aspect of clasper; *k*, fore wing, without pigmentation; *l*, structures in wall of spermatheca; *m*, hind wing; *n*, detail of hind wing; *o*, apex of posterior tibia; *p*, detail of posterior tibia, enlarged.

(FK333.1. ♂ 1), 7 paratype males and 4 paratype females (FK333.1.-333.13), LeBronnec and H. Tauraa.

TRIOZINAE PUTON

TRIOZA Forster

Trioza alifumosa, new species (fig. 28, *a, c-f, h-l, o, p*).

Length to tip of folded wing, 3.5 mm. to 3.8 mm.; length of body mounted on slide, 2.8 mm. to 3.0 mm.; length of fore wing, 2.9 mm. to 3.2 mm.; width of fore wing, 1.2 mm. to 1.3 mm.; width of head, 0.6 mm. General color very dark brown to black, excepting antennal segments 3, 4, 5, 6, and tibiae and tarsi of all the legs, which are lighter brown. Wings black or very darkly fumate in areas illustrated (fig. 28, *c*) and faintly and uniformly fumate over the remainder of the membrane, veins and alar radulae dark brown. (One teneral specimen is general reddish brown.) Characters of the genus well developed with the one exception that the posterior tibia bears a conspicuous claw at the base (fig. 28, *i*), a character which is unusual in the Triozinae and is unknown in *Trioza* according to Crawford.

Head as wide as mesothorax, strongly deflexed; shape and proportions as illustrated (fig. 28, *a*), the eyes large, the genae bluntly rounded and but little divergent, the foveae of the vertex joined by two sulca meeting at the median line, the vertex and genae moderately pubescent. Antennae 10-segmented, somewhat more than twice as long as width of head, segment 3 longer than segments 4 and 5 combined, segments 4, 6, and 8 bearing sensoria at their distal ends.

Thorax moderately arched, bearing scattered large hair-like setae. Posterior trochanter having a row of sensoria around the outer aspect (fig. 28, *l*), posterior femur with a row of four or more stout setae (fig. 28, *j*) on the outer anterior side of the apex, posterior tibia with a claw or several small claws at the base (fig. 28, *i*) and with three black teeth on one side and a single tooth and a row or comb of setae on the other side of the apex (fig. 28, *k*). Fore wing with shape and venation as illustrated (fig. 28, *c*), the proximal end darkly fumate to black and the remainder of the membrane brownish tinged or fumate; the membrane beset with punctations over the caudal two-thirds of the outstretched wing, the punctations being absent on the anterior third and, over the remainder of the wing, never on or near the veins; the proximal end of the wing membrane tending to be somewhat rugose particularly in the darkest areas, the veins beset with small, inconspicuous slender setae; three alar radulae present, one in each of the marginal cells and one between Cu_1 and $M_3 + 4$. Posterior wing two-thirds as long as fore wing, the membrane beset with many conspicuous punctations, the venation for the most part distinct and developed as a single or double row of punctations along which are brownish fumate streaks.

Abdomen with the tergites and sternites heavily chitinized, and with a series of lateral sclerites on either side ventrad of tergites 5, 6, and 7. Male genitalia (fig. 28, *o, p*) relatively simple, the proctiger about twice as long as the claspers, the latter short, stout, with the upper fourth turned backward in lateral aspect. Female genitalia (fig. 28, *e, f, h*) one-third as long as the remainder of the abdomen, robust, the dorsal valve irregularly chitinized at the base and with an intricate system of small sclerites on the membrane anteriorly (fig. 28, *f*), the ventral valve uniformly and heavily chitinized, the circumanal ring developed as a series of simple pores (fig. 28, *h*).

Marquesas: Fatuhiva, ridge east of Omoa [Oomoa] Valley, elevation 2800 feet, August 28, 1930, by beating *Metrosideros collina*, holotype male (FK313.1. ♂ 1) and allotype female (FK313.1. ♀ 1), 7 paratype males and

1 paratype female (FK313.1-313.10); elevation 3000 feet, sweeping over *Vaccinium* species, 9 males and 5 females (FK314.1-314.14); host unrecorded, 5 males (FK315.1-315.5), LeBronnec.

This and the following species are remarkably similar in nearly all important details.

Trioza alipellucida, new species (fig. 28, *b, g, m, n*).

Length to tip of folded wing, 3.4 mm. to 3.7 mm.; length of body mounted on slide, 2.8 mm. to 3.0 mm.; length of fore wing, 2.9 mm. to 3.2 mm.; width of fore wing, 1.0 mm. to 1.2 mm.; width of head, 0.55 mm. to 0.7 mm. General color dark chocolate brown to jet black, usually with a yellow brown stripe one-third as wide as the thorax extending from the median posterior margin of the scutellum to the tips of the genae, with the stripe lacking or imperfectly developed in the darker specimens, with a patch of similar color on the thorax at the base of the wings, on antennal segments 3 and 4, and from the base of the tibiae to the ends of the legs. Wings mostly hyaline except for a dark brown area along about one-half of the proximal end of the anal vein, wings of some specimens slightly fumate, veins and alar radulae distinctly brown. Characters of the genus developed as in the preceding species.

Head slightly wider (fig. 28, *b*) than in *Trioza alifumosa*, with the genae relatively shorter, more conical, and more divergent. Thorax differing, possibly, in being less pubescent. Fore wings slightly longer and narrower, without punctations except in a limited area in the proximal angle of the anal cell, without coloration except for a dark brown to black area along the proximal half of the anal vein and, in some cases, for a faintly brownish tinge over the remainder of the wing. Hind wings similar.

Abdomen similar except for significant differences in the male, and less importantly the female, genitalia. Genitalia of the male (fig. 28, *m, n*) with the proctiger less elongate and proportionately more robust, with the claspers relatively longer but differing as illustrated (fig. 28, *n, p*), tapering uniformly from a wide base to a narrow angular apex. Genitalia of the female with the dorsal and ventral valves more nearly and regularly chitinized, with the intricate system of small sclerites less developed than in *T. alifumosa* (fig. 28, *f*).

Fatuhiva: Tahuna, elevation 2,100 feet, September 3, 1930, beating *Metrosideros collina*, holotype male (FK308.2. male 1) and allotype female (FK308.2. female 1), 29 paratype males and 45 paratype females (FK308.1-308.76); Teavapuhiau, elevation 2,100 feet, August 25, 1930, beating *Weinmannia* species, 11 males, 9 females, (FK309.1-309.20), LeBronnec.

Hivaoa: Matauuna, elevation 3,800 feet, July 24, 1929, on *Weinmannia* species, 9 males, 8 females, (FK316.1-316.17); Mount Temetiu, elevation 3,600 feet, July 24, 1929, host unrecorded, 1 male, 1 female (FK319.1-319.2); Tepuna, elevation 3,000 feet, August 1, 1929, miscellaneous sweeping, 1 male (FK326.1); Kopaafaa, elevation 2,800 feet, February 25, 1930, beating *Metrosideros collina*, 1 male, 1 female (FK322.1-322.2), August 2, 1929, by miscellaneous sweeping, 2 females (FK324.1-324.2), August 3, 1929, miscellaneous sweeping, 3 males, 1 female (FK325.1-325.4); Mounaofefe, elevation 2,000 feet, September 13, 1929, on *Weinmannia* species, 1 male (FK317.1), Mumford and Adamson.

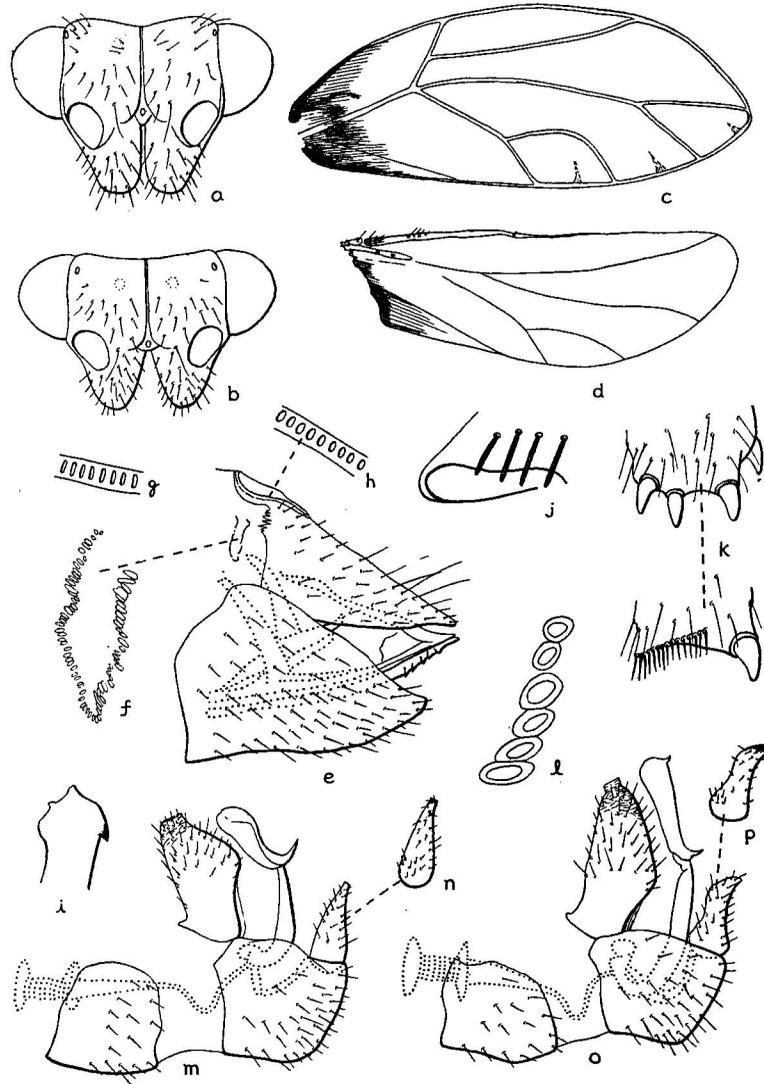


FIGURE 28. *Trioza alifumosa*, new species: a, head; c, fore wing; d, hind wing; e, female genitalia; f, detail of small chitinized areas; h, detail of circumanal ring; i, base of posterior tibia; j, setae, apex of posterior femur; k, apex of posterior tibia; l, sensoria on posterior trochanter; o, male genitalia; p, inner aspect of clasper. *Trioza alipellucida*, new species: b, head; g, detail of circumanal ring; m, male genitalia; n, inner aspect of clasper.

Tahuata: Amatea, elevation 2,700 feet, July 7, 1930, host unrecorded, 1 female (FK332.1), LeBronnec and H. Tauraa.

Nukuhiva: Ooumu, elevation 4,000 feet, November 12, 1929, beating *Metrosideros collina*, 4 males, 3 females (FK328.1-328.7), host unrecorded, 1 male, 1 female (FK329.1-329.2), elevation 3,700 feet, November 12, 1929, on *Ilex marquesensis*, 1 male (FK327.1); Teuanui, elevation 2,500 feet, October 25, 1929, beating *Metrosideros collina*, 1 male (FK323.1); ridge north of Teuanui, elevation 2,800 feet, October 26, 1929, on *Metrosideros collina*, 1 male, 1 female (FK321-321.2), Mumford and Adamson.

Uapou: Hakahetau Valley, elevation 2,500 feet, December 6, 1929, on *Metrosideros collina*, 2 males (FK320.1-320.2), Adamson.

This species is here described only in the particulars in which it differs significantly from *Trioza alifumosa*, above, to which it is apparently closely related. However, the similarity does not here amount to intergradation, except in the matter of coloration, which is regarded as being merely of secondary importance. Structurally the two forms are distinctly separated as two species.

PHYLLOPECTA Zacher

Phyllopecta vitiensis (Kirkaldy) (fig. 29, *a-r*).

Length to tip of folded wing, 5.2 mm. to 6.3 mm.; length of body mounted on slide, 3.4 mm. to 4.0 mm.; length of fore wing, 5.0 mm. to 6.1 mm.; width of fore wing, 1.8 mm. to 2.1 mm.; width of head, 0.8 mm. to 1.0 mm. General color of the specimens in two distinct series; the general color of one series (FK312.1-312.38) pale brownish yellow or straw-colored over the entire body, with the eyes, the tips of the antennae, and the teeth of the posterior tibiae darker to black, the general color being strikingly constant in this series (a number of specimens in this series appear to have been taken while still teneral); the general color of the second series (FK307.1; 310.1-310.25; 311.1-311.5; 318.1-318.2) variable from a light to a dark brown, with the eyes only slightly darker and varying with the general color. Wings hyaline and somewhat glistening, the veins brown in marked contrast, two small dark brown to black spots at the characteristic bend of the basal vein and on the proximal half of the anal vein. Characters of the genus well developed except that the secondary metacoxal spurs are hardly developed as more than broadly rounded knobs of conspicuous size.

Head considerably wider than prothorax and not as wide as mesothorax, strongly deflexed, having the shape and proportions as illustrated (fig. 29, *a, b*), the pubescence of the head being noticeable chiefly on the genae in pin specimens. Antennae 10-segmented; the third segment nearly as long as segments 4, 5, 6, and 7 combined; antennal segments 4 (fig. 29, *f*), 6 (fig. 29, *e*), and 8 bearing sensoria, that of segment 6 being unusually large.

Thorax strongly arched, the prothorax relatively narrow and the mesothorax proportionately broad, the dorsum bearing scattered long hair-like setae. Posterior tibiae armoured with two large and several smaller spurs at the base, and with three black teeth on one side and a single tooth and a comb of stout setae on the other side of the apex. Fore wing hyaline and somewhat glistening; wing venation and shape as illustrated (fig. 29, *g*), the basal vein with a noticeable bend; three alar radulae (fig. 29, *h*), one in each of the marginal cells and one between Cu_1 and $M_3 + 4$. Posterior wings

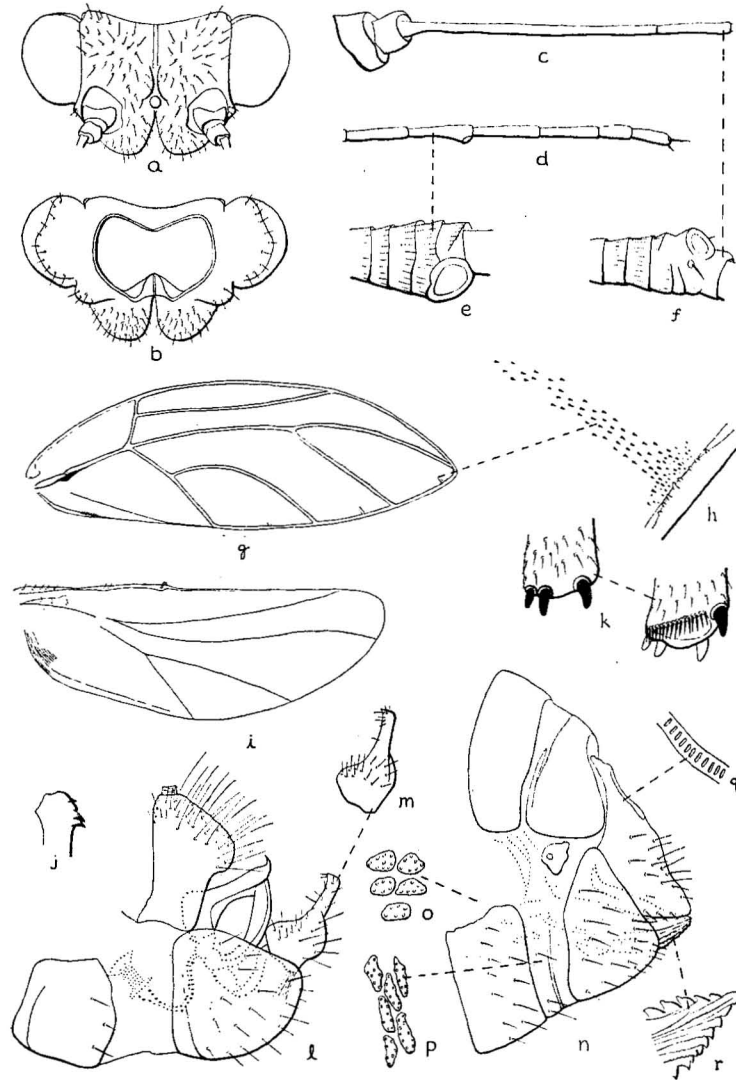


FIGURE 29. *Phyllopecta vitiensis* (Kirkaldy): *a*, dorsal aspect of head; *b*, ventral aspect of head; *c*, antenna; *d*, antenna; *e*, detail of segment six; *f*, detail of segment four; *g*, fore wing; *h*, detail of alar radula; *i*, hind wing; *j*, base of posterior tibia; *k*, apex of posterior tibia; *l*, male genitalia; *m*, inner aspect of clasper; *n*, female genitalia; *o*, chitinized areas on membrane; *p*, chitinized areas on membrane; *q*, detail of circumanal ring; *r*, apex of ovipositor.

(fig. 29, *i*) slightly more than one-half as long as fore wings, the membrane beset with numerous points, and the venation for the most part developed as an irregular single or double row of punctations.

Abdomen robust, with the tergites and sternites mostly heavily chitinized and the membrane for the greater part covered with small, closely set chitinized plates (fig. 29, *n, o, p*); the abdomen bearing a secondary series of lateral sclerites on either side slightly ventrad of the lateral extremities of tergites 5, 6 and 7, the corresponding spiracle in each instance in another sclerite ventrad of the lateral series. Genitalia of the male as illustrated (fig. 29, *l, m*) with the proctiger large and with a slight posterior lobe, the clasper relatively small and complex, the lower half large, the upper slender, with the apex directed forward hook-like. Genitalia of the female short and blunt (fig. 29, *n*), the circumanal ring developed as a single row of simple pores (fig. 29, *q*), the tip of the genital apparatus saw-like, suggesting a possible gall-forming habit (fig. 29, *r*).

Marquesas: Fatuhiva, Teaotu, Hanavave Valley, elevation 750 feet, September 9, 1930, beating *Eugenia* species, 12 males, 13 females (FK310.1-310.25), LeBronnec.

A specimen from Moorea, Society Islands, was also examined, the record being as follows:

Society Islands: Moorea, Opunohu Valley, 2 miles from sea, elevation 100 feet, November 30, 1928, host unrecorded, 1 male (FK307.1), Adamson.

Crawford has commented upon the habit of this species of forming leaf galls on *Eugenia malaccensis* (*Jambosa domestica*) in the south Pacific and in tropical Asia.