

## NEW HEMIPTERA-HETEROPTERA FROM THE MARQUESAS\*

By

E. P. VAN DUZEE

CALIFORNIA ACADEMY OF SCIENCES

### INTRODUCTION

I am indebted to the Pacific Entomological Survey for the opportunity to study certain Heteroptera taken by them in the Marquesas. With the exception of the specimens from Uapou, taken by R. R. Whitten, the collections were made by E. P. Mumford and A. M. Adamson of the Survey and by local assistants trained by them. Types have been deposited in Bernice P. Bishop Museum, and for most species I have retained one or more paratypes in the Museum of the California Academy of Sciences, San Francisco.

### FAMILY SCUTELLERIDAE

#### ***Coleotichus adamsoni***, new species.

This species belongs to Schouteden's subgenus *Paracoleotichus* and in his table runs to *breddeni* but is proportionately longer; yellowish testaceous, quite uniformly punctured with black, the punctures tending to form transverse broken sinuate lines, with a percurrent pale line; pronotum with four black points in a transverse row; sides of scutellum parallel on basal half; connexival segments acute, the 4th, 5th, and 6th spined. Length, 12 mm. to 15 mm.

Head of male, 2.7 mm. long, 3.5 mm. wide across the eyes; shaped about as illustrated by Schouteden,<sup>49</sup> moderately convex at base; sides narrowly smooth and calloused, feebly sinuate near base, then slightly arcuate to apex of tylus; tylus almost impunctate, sides about parallel before and behind the stricture; surface irregularly punctate, but with four regular rows between the ocelli. Antennal segments 1 and 2 subequal; 3 not twice as long as 2; 4 and 5 subequal, longer than 3. Rostrum attaining hind margin of metasternum.

Pronotum of male, 5 mm. long, 8 mm. wide; sides rectilinear, narrowly calloused; median line smooth, percurrent; surface quite uniformly punctured, the punctures finer and closer within the lateral margins; callosities smooth with a median and an encircling row of punctures. Scutellum, 5 mm. wide, 7 mm. long; sides briefly divergent, then subparallel to the middle, beyond arcuately converging to the truncate and slightly emarginate apex; median line smooth, percurrent; base usually with a small callus near the basal angle.

Corium with a subcostal series of irregular, more or less confluent punctures, forming a blackish vitta; membrane exceeding the scutellum.

Prosternal flap broadly rounded, briefly truncate next the eye, areolate-punctate. Exterior pleural margin broadly smooth; surface very irregularly and in places sparsely punctate; the punctures forming a vitta anteriorly. Apical hook of osteolar canal not

<sup>49</sup> Schouteden, Henri, Monograph of Genus *Coleotichus*: Mus. Nat. Hung., Ann., vol. 8, pp. 317-361, pl. 8, figs. 9, 10, 1905.

\* Pacific Entomological Survey Publication I, article 20. Issued December 21, 1932.

attaining anterior margin of mesosternum. Bifurcated tubercle on ventral segment 2 broader than in *sordidus* Walker. Apex of connexival segment 3 acute, 4 and 5 short-toothed, 6 with a longer tooth which passes the middle of the male genital segment. Genital segment strongly, transversely impressed, apical margin deeply roundedly excavated, clothed with long hairs, this excavation deeper than shown by Schouteden.<sup>50</sup> Female genital plates formed about as in *artensis*.<sup>51</sup>

Color yellowish testaceous, more strongly tinged with yellow on the head and on the pronotum anteriorly. Pronotum with four black dots placed one at each end of each callosity; scutellum sometimes showing indications of 2 or 4 black spots at base and an arcuate, darker vitta on either side from base to middle of lateral margin; this vitta may be followed by a paler area and in some females there are faint indications of transverse darker lines toward the apex. Beneath with a black line above the antennal base and on some of the pleural sutures; stomata and marginal segmental spots black; ventral sutures often slenderly brown. Antennae and legs concolorous; rostrum mostly black.

Fatuhiva: Tetana, Omoa [Oomoa] Valley, altitude 500 feet, August 22, 1930, on *Dodonaea viscosa*, 2 males, including holotype, and allotype female, LeBronnec.

Hivaoa: Mount Temetiu, altitude 1,670 feet, February 23, 1929, 1 female; Atuona, near sea level, May 11, 1929, 1 female; Mumford and Adamson.

Tahuata: Hanahevane Valley, altitude 45 feet, July 16, 1930, 1 female; Hanatetena Valley, altitude 50 feet, July 23, 1930, 1 female, LeBronnec and H. Tauraa.

Eiao: Vaituha, October 2, 1929, at light, 1 female, Adamson.

Society Islands, Tahiti: Faa, November 7, 1928, near sea level, 1 female, A. M. Adamson.

#### FAMILY ARADIDAE

##### *Ctenoneurus parallelus*, new species (pl. 5).

Small, parallel-sided; castaneous brown, a little paler beneath and on the tergum; vertex and pronotum minutely granulate, as are the veins of the corium and carinae of scutellum; tergum still more minutely granulate; scutellum transversely wrinkled. Length, 3 mm. to 3.5 mm.

Head as long as pronotum, with a small blunt tubercle superiorly behind each eye; tooth on antenniferous tubercles short, obtuse; tylus narrow, short, reaching to basal third of segment 1 of antennae, apex truncate, with the cheeks produced as minute points. Antennae as long as head and pronotum together; segment 1 fusiform, its thickness one-half its length; 2 scarcely longer than thickness of 1; 3 linear, hardly longer than 1; 4 clavate with conical tip, equal to 3 in length.

Pronotum twice wider than long; sides oblique, almost rectilinear, carinate, narrowly recurved; anterior angles prominent, obtuse; hind margin straight before the scutellum; hind angles slightly produced. Margin and median line of scutellum distinctly carinate; its surface transversely wrinkled.

Corium short, passing the scutellum by one-third its length; hind margin oblique, rectilinear, apex subacute; reflexed basal costal lobes narrow, as long as median carina of scutellum; membrane attaining apex of penultimate tergite, inner field faintly transversely veined.

<sup>50</sup> Schouteden, pl. 9, fig. 14.

<sup>51</sup> Schouteden, pl. 9, fig. 2.

Prosternum with a shallow median groove; mesosternum feebly depressed behind the carinate anterior edge. Femora unarmed. Margin of abdomen feebly sinuate posteriorly.

Color castaneous brown, a little darker on the disk posteriorly of the pronotum and on the scutellum and corium; membrane piceous, paler at base; legs pale. Connexivum paler, becoming yellowish at apex of each segment.

Nukuhiva: Tapuaooa, altitude 3,100 feet, November 10, 1929, on *Weinmannia* species, holotype male; Teivipakeka, altitude 2,300 feet, October 16, 1929, in dead stipes of *Histiopteris incisa*, 1 pair; Teuanui, Tovii [Toovii], altitude 2,000 feet, October 25, 1929, under bark of *Hibiscus tiliaceus*, 1 male, and in dead stipes of *Angiopteris* species, 1 male; Mumford and Adamson.

Uapou: Aneou [Aneo] Valley, altitude 1,000 feet, December 30, 1929, in dead fern stipes, allotype female; Hakahetau Valley, altitude 2,000 feet, January 29, 1930, in dead stem of *Musa fehi*, 1 female; R. R. Whitten.

Society Islands, Tahiti: Vallée de la Reine, altitude 460 feet, December 17, 1928, 1 female, Mumford and Adamson; Tipaerui Valley, altitude 750 feet, September 12, 1928, in rotting banana stem, 1 female, A. M. Adamson.

This insect belongs to the little group of species loosely placed by Bergroth and China under the generic name *Ctenoneurus* Bergroth. It is very close to *samoanus* China, but certainly distinct; the hind angles of the pronotum are more produced, the sides scarcely notched, scutellum narrower, costal lobe of elytra very differently shaped, the membrane shorter.

#### FAMILY LYGAEIDAE

#### Genus GERMALUS Stål

#### OPHTHALMOCORIS Montandon 1907.

This genus, of which 21 species have been described, has a wide distribution in the Australian region and the islands of the South Pacific, with 1 species from Ceylon, 1 from Mauritius, and 1 from Madagascar. In this paper 6 species are recorded from the Marquesas Islands, a group from which none had before been reported. Of these 6 species, 5 are here described as new. The determination of the sixth, *unicolor* Montandon, a Bornean species, is uncertain. This makes a total of 26 known species in this genus.

In *Germalus* the sides of the clavus are almost parallel and the eyes are distinctly stylate, and directed more or less upward and backward. In one species, *membranaceus* Montrouzier, the ocular peduncles are extended posteriorly to the apex of the eyes which somewhat overlap the anterior angles of the pronotum. This has been made the type of a new genus, *Neogermalus*, by Montandon, but Bergroth considers it as scarcely of subgeneric value.

## Key to Marquesan Species

1. Ocelli nearer than the distance between the ocelli and nearest margin of the eyes; peduncles semitransparent; eyes distinctly elevated; venter pale, without a vitta ..... **costalis**  
     Ocelli more distant than to the nearest margin of the eyes.....2
2. Elytra of a uniform, smoky brown, polished, the costal area paler; general color of body darkened; legs pale, without dots..... **fuliginosus**  
     Elytra semipellucid, at least in part.....3
3. Color uniformly pale yellowish, the costal margin slenderly, and some punctures along the elytral veins, black; legs nearly immaculate .....? **unicolor**  
     Color pale yellowish, black-punctate on the pronotum and scutellum; a line on the vertex and lateral vitta beneath more or less developed blackish; osteolar canal long, curved to a contact with the hind margin of the metapleura..... **infans**  
     Color more a fulvous yellow, tinted with luteous on the pronotum posteriorly, marked with piceous-brown, with lateral blackish vittae beneath; vertex with a median and two short lateral vittae; pronotum with a median geminate and a double lateral vitta brown, best distinguished before and behind.....4
4. Vittae of the vertex best distinguished anteriorly; corium maculate at base and apex; membrane marmorate; connexivum maculate..... **maculatus**  
     Vittae of vertex best distinguished posteriorly, elytra slightly fuliginous, marked with brown only on the veins and apical margin; membrane scarcely fuliginous, immaculate; lateral vitta beneath strongly marked; oviduct of female nearly attaining base of abdomen..... **lateralis**

Two or three specimens of *Germalus* in this collection are somewhat aberrant and cannot well be placed with present material. Distant<sup>52</sup> figures an insect evidently belonging to this genus but wrongly identifies it as *Ocyopus variegatus* Montrouzier. A careful study of the description by Montrouzier convinces me that he was describing a true capsid as he stated, and not a lygaeid. Distant's figure very closely represents our *costalis* described below.

***Germalus costalis***, new species (fig. 45, a).

Pale yellowish testaceous with a few coarse, black punctures on the pronotum, scutellum, and along the elytral nervures. Length, 5 mm.

Eyes castaneous, their peduncles subhyaline; the red ocelli narrowly ringed with black; apex of head slightly infuscated.

Pronotum with large, scattering, black punctures which omit a broad band across the callosities, a narrow median line and the humeri and hind margin; humeri more or less infuscated. Scutellum tinged with fulvous, with a smooth, arcuate vitta between the basal angles, sending a slightly calloused line to the apex, thus leaving a punctured basal area and one at either side.

Elytra subhyaline, the clavus more opaque; clavus and the two discal areas of corium outlined with rows of black punctures; costal margin slenderly black; apical brown; membrane hyaline with a faint discal cloud.

Legs, rostrum, and all beneath, pale. Propleura with an area of black punctures, the mesoplera and metapleura with a slender black line. Femora and tibiae faintly tinged with fuscous. Apex of osteolar canal slender and feebly curved anteriorly at apex. Supra-anal plate of male with a large fuscous cloud.

<sup>52</sup> Distant, W. L., Rhynchota from New Caledonia and the surrounding islands: Sarasin and Roux, Nova Caledonia, Zoologie, vol. I-L.IV, no. 10, pl. 11, fig. 10, 1914.

Hivaoa: Kopaafaa, altitude 2,700 feet, August 2, 1929, by sweeping, 6 males, including holotype, 5 females, including allotype; Mount Temetiu, northeast slope, altitude 2,500 to 3,200 feet, July 24, 1929, August 1 to 3, 1929, and September 13, 1929, 4 males, 3 females; Tepuna, altitude 3,010 feet, August 1, 1929, 1 male, 1 female; Mumford and Adamson.

***Germalus lateralis***, new species (fig. 45, *b*).

Narrower than *costalis*, with a shorter osteolar canal, longer female genital groove, and with a more strongly marked venter. Length, 5 mm.

Head slightly more produced than in *costalis*; antennae a little more slender, segment 4 somewhat shorter than 3, in *costalis* as much longer; ocular peduncles shorter. Anterior angles of pronotum less broadly rounded. Rostrum longer, attaining base of genital groove in the female. Osteolar canal broader than in *costalis*, the anteriorly curved tip less attenuated. In this species the pygofers of the female are much extended, their base reaching nearly to the hind coxae, the 4th ventral segment being entirely cut away, as are the 5th and 6th.

Color soiled yellowish testaceous tinged with ochraceous on the head, callosities of scutellum, and sometimes on the discal area of the corium and beneath, occasionally with a decided reddish tint on the disk of the tergum and sides of the venter. Pronotum and scutellum with large black punctures as in *costalis*. Vertex with a median fuscous vitta which may become black on the tylus; usually there is another on either side which passes through the ocelli; front of the head with a slender black line from the antennae to the tylus, and a similar line encircles the ocular peduncles superiorly, these peduncles with a fuscous cloud posteriorly. Pronotum with a humeral cloud and three longitudinal vittae blackish fuscous, the median geminate, these vittae more pronounced on the callosities and hind margin; pale Y-shaped mark on the scutellum more or less obscured by black punctures. Elytra opaque, the costal area subhyaline, parallel behind the middle; margins of clavus, apical margin of corium, and median vein behind the middle, infuscated; costal margin slenderly black; all veins with black punctures as in *costalis*; membrane slightly infuscated. Beneath with a broad submarginal fuscous or black vitta, covering the genital segment in the male and black-punctate on the pleural pieces; base of venter and dorsal genital plate of male mostly blackish. Segment 1 of antennae with a dorsal fuscous spot, the incisures more or less darkened. Femora dotted with fuscous. Prosternum with concolorous punctures more or less distinct; ventral line and tip of rostrum and the oviduct of the female black; tibiae sometimes embrowned.

Hivaoa: Teava Uhia i te Kohu, altitude 2,100 feet, February 15, 1930, on *Weinmannia* species, 17 males, including holotype, 8 females, including allotype; Kopaafaa, altitude 2,770 feet, August 2, 1929, on *Metrosideros collina*, 2 males, 5 females; Mumford and Adamson.

Fatuhiva: Ahuava, altitude 1,800 feet, August 19, 1930, on *Metrosideros collina*, 6 males, 4 females, LeBronnec.

Nukuhiva: Ooumu, altitude 3,400 feet, November 11, 1929, on *Weinmannia* species, 6 males, 4 females; Ooumu, altitude 3,800 feet, November 10, 1929, 1 male; Tauamaka, altitude 2,900 feet; November 10, 1929, on *Metrosideros collina*, 1 male, 1 female; Puokoke, altitude 3,485 feet, October 22, 1929, 3 males, 3 females; Mumford and Adamson.

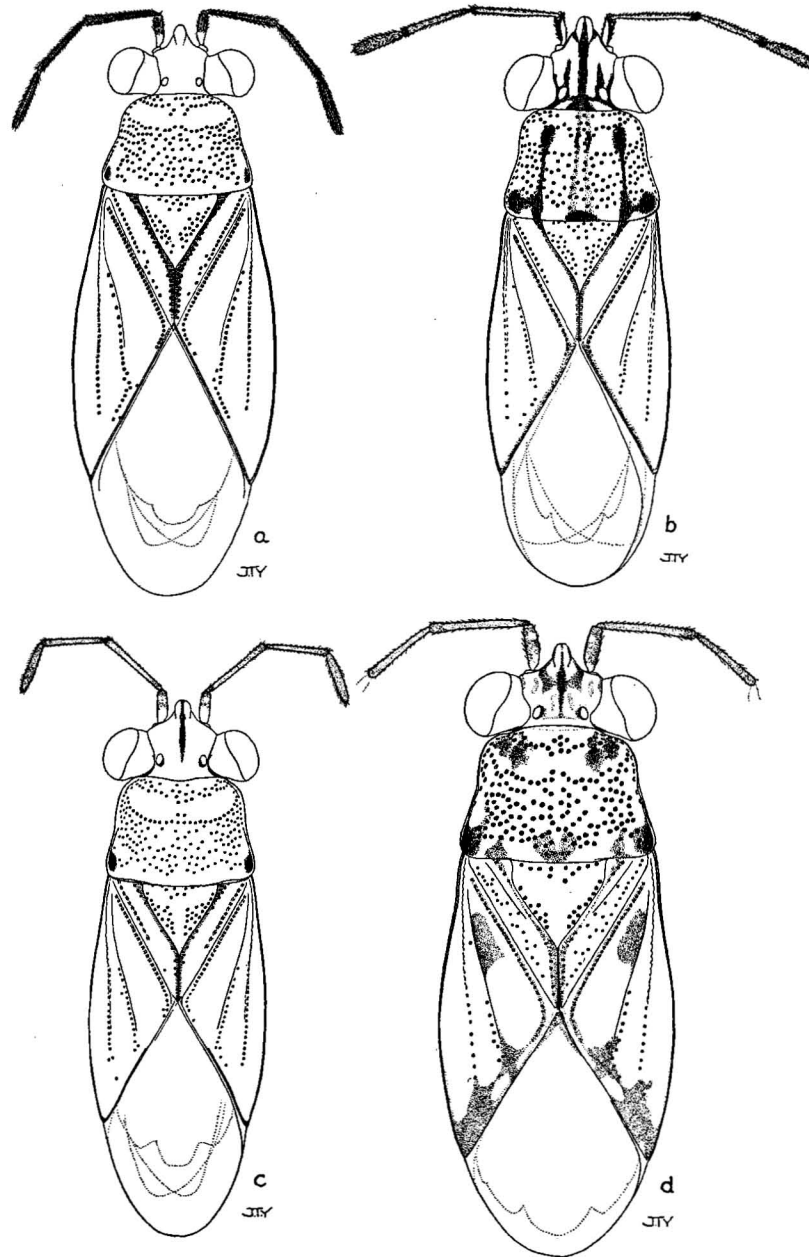


FIGURE 45. New species of *Germalus*: a, *G. costalis*, female, from Hivaoa,  $\times 13 \frac{1}{3}$ ; b, *G. lateralis*, male, from Hivaoa,  $\times 15 \frac{1}{3}$ ; c, *G. infans*, male from Hatutu,  $\times 15$ ; d, *G. maculatus*, male, holotype, from Tahuata,  $\times 17 \frac{1}{3}$ .

Some of the specimens from Ooumu, Nukuhiva, are paler, with the dark markings reduced, but they have the narrow form and broad osteolar canal with a short abrupt tip and the long female pygofers and undoubtedly belong here.

**Germalus infans**, new species (fig. 45, c).

A small, pale species with the square thorax and the lateral ventral vittae of *lateralis*; head with a black median line; osteolar canal long. Length, 4.5 mm.

Head as in *costalis*. Pronotum as in *lateralis*, but little narrowed to the briefly rounded anterior angles. Elytra mostly subhyaline, becoming somewhat opaque basally; costal area arcuately expanded, but somewhat less so than in *costalis*. Antennae shorter and more slender; segment 4 stout, fusiform, subequal to 3 in length. Osteolar canal abruptly contracted to a thick linear carina, which is curved and attains the anterior margin of the metapleura just within the outer margin of the lateral vitta.

Color pale or whitish testaceous, slightly tinged with yellow on the head, callosities, and scutellum; median line of head, an anterior line from antennae to tylus, another behind the base of the ocular peduncle and a ring about the ocelli, black. Pronotum with coarse scattering black punctures which omit the sloping hind margin and the callosities; humeri smooth with a brown cloud; pale Y on scutellum well developed. Lines of punctures along the elytral veins less distinct than in the other species; costal and commissural nervures pale, very slenderly lineate with black; membrane hyaline. Beneath with a lateral fuscous or black vitta, more or less developed. Femora with nearly obsolete brown points.

Hatutu [Hatutaa]: middle of east side of island, altitude 1,010 feet, September 30, 1929, on *Pisonia* species, 6 males, including holotype, 3 females, including allotype; on *Waltheria lophanthus*, 1 male; by miscellaneous sweeping, 1 male; Adamson.

Eiao: near center of island, altitude 1,665 feet, September 28, 1929, on *Hibiscus tiliaceus*, 4 males, 2 females, altitude 1,450 feet, October 1, 1929, on *Waltheria lophanthus*, 1 male; uplands toward north end, east side, altitude 1,855 feet, September 29, 1929, on *Hibiscus tiliaceus*, 2 females; above Vaituha, altitude 1,200 feet, October 2, 1929, on *Waltheria lophanthus*, 1 male, 1 female; altitude 800 feet, September 29, 1929, 1 female; altitude 1,100 feet, September 29, 1929, on *Waltheria lophanthus*, 2 females; Adamson.

A male from Hanavave Valley, Fatuhiva, at 1,550 feet, taken August 23, 1930, by LeBronnec on *Metrosideros collina* seems to be nearly typical of this species. Another male from Amatea, Tahuata, taken at 2,600 feet, June 27, 1930, on *Reynoldsia* species, by LeBronnec and H. Tauraa, has the brown markings on the pronotum and elytra strongly developed, the membrane with a distinct median vitta and the lateral vittae of the venter nearly obsolete. A female from Matauuna, Hivaoa, taken March 2, 1930, at 3,700 feet, on *Cyrtandra* species by Mumford and Adamson, is more strongly tinged with yellow, becoming orange on the disk of the scutellum. In this individual the lateral vittae on the venter are represented by a fulvous shade and the osteolar canal is shorter. Its identity is somewhat doubtful.

**Germalus maculatus**, new species (fig. 45, d).

Aspect of *infans* but with the head characters, nearly, of *lateralis*; more strongly tinged with fulvous than our other species and more maculate with brown, with maculate connexivum. Length, 5 mm.

Head formed about as in *lateralis* but with the eyes a little more elevated and more produced backward, the peduncles being more produced posteriorly. Pronotum but little narrowed anteriorly, as in *lateralis*, the disk distinctly transversely depressed behind the callosity and the sides sinuate with edge of anterior lobe more strongly carinate; calloused Y of the scutellum strongly developed, leaving but a few punctures at base and a row either side. Costal membrane broad as in *costalis*. Osteolar canal long, nearly attaining mesopleural margin as in *infans*. Posterior angles of metapleura obviously produced. Antennal segment 2 longer than 3 (3-2).

Color pale yellow tinged with gray on the disk of pronotum. Median line of vertex widened at base and continued on clypeus; an angulate vitta either side including the ocelli, and a line before the antennae brown; base of head margined with black behind the eyes; eyes castaneous; antennae infuscated, segment 1 pale beneath (4 wanting). Pronotum coarsely black-punctate, leaving the hind margin, a sublateral vitta, and an obscure median line smooth; anterior margin smooth, the latter especially, calloused. Elytra subhyaline, tinged with golden brown, the veins punctate; most of the clavus, a large spot on base of inner corial area, one at middle of apical margin, and a larger apical spot, fuscous-brown; membrane brownish hyaline. A blackish vitta on the genital plate and the apical connexival spot showing through. Pleura with a broad vitta of black punctures; venter brown at base and apex, the connexivum with a small brown spot at base of each segment. Middle of femora and tibiae embrowned, on the former black-punctate, tips of tibiae and tarsi black. In this individual the humeri, three small spots on the posterior margin of the pronotum, and a cloud on the distal one-half of the callosities are brown. Described from a unique specimen.

Tahuata: Haaipo, summit, altitude 2,700 feet, July 9, 1930, on *Metrosideros collina*, holotype male, LeBronnec and H. Tauraa.

**Germalus fuliginosus**, new species (fig. 46, a).

Form of *maculatus*, having the head and pronotum of *lateralis* and the expanded elytra of *costalis* and *infans*; dull fulvous broadly marked with fuscous on the head and pronotum; elytra a uniform smoky-hyaline with paler costa; legs immaculate. Length, 6.5 mm.

Head essentially as in *lateralis*, the clypeus a little broader at apex. Smooth Y of scutellum but poorly distinguished. Elytra very minutely shagreened, the costa expanded about as in *infans*. Antennal 2 one-half longer than 3 (3-2), 4 longer than 3 (8-5). Pleurae opaque; prosternum polished and punctate for a space as wide as the gula between the eyes; osteolar canal produced, curved, about as in *costalis*, not attaining the mesopleural margin. Oviduct reaching to the third ventral segment. Color dull fulvous. Antennae infuscated; segment 4 brown and 1 pale at base. Vertex with three broad vittae, coalescing before, leaving two lines between the ocelli and a spot next the eye, pale. Pronotum much infuscated, especially on the humeral region and behind the eyes, the inner field of the callosities and median line paler. Scutellum obscured, with a pale oblique vitta from each basal angle and a short apical pale line. Elytra polished smoky brown, opaque, the costal area paler and subhyaline; membrane paler smoky hyaline. Legs honey-yellow, a little darker apically. Body below clouded with brown, becoming smoky on the metapleura; a spot on the posterior acetabulae and one on either side of the second ventral segment pallid. Described from a unique specimen.



Hivaoa: Matauuna, March 4, 1930, holotype female, Mumford and Adamson.

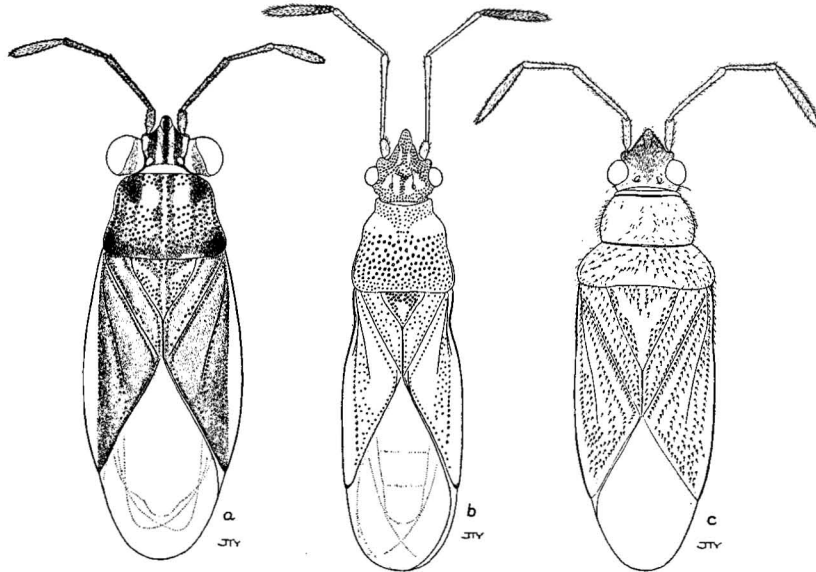


FIGURE 46. New species and a new genus of Lygaeidae from Hivaoa: *a*, *Germalus fuliginosus*, female, holotype,  $\times 10 \frac{3}{4}$ ; *b*, *Neocymus insularis*, new genus and new species, male,  $\times 14$ ; *c*, *Ptochiomera castanea*, male, holotype,  $\times 14$ .

#### Genus NEOCYMUS, new genus

Intermediate between *Cymus* and *Cymoninus*; elongate, with the horizontally produced head of *Cymus* and the long antennae and hyaline elytra of *Cymoninus*.

Head nearly horizontal, constricted behind the eyes; length behind the eye equal to that between the eye and antenna. Eyes rather small, sessile; ocelli slightly farther from one another than from the eyes. Tylus produced; distance from its apex to base of antennae equal to that from base of antennae to hind margin of the eyes. Antennae scarcely shorter than the elytra; segment 1 very short, ovate, attaining middle of tylus; 2, longest; 3, one-fifth shorter than 2; 4, a little shorter than 3, fusiform. Rostrum almost attaining hind coxae; segment 1 nearly reaching base of head. Pronotum almost twice as wide across base as across the wide collum. Elytra constricted at base, mostly hyaline; claval commissure twice the length of the small scutellum; mesosternum sulcate, venter carinate. Type of genus is *Neocymus insularis* Van Duzee.

**Neocymus insularis**, new species (fig. 46, b).

Ferrugineous-yellow to castaneous, antennae and legs paler; apical segment of antennae and usually a vitta on apical margin of corium blackish; surface somewhat polished. Length, 4 mm. to 5 mm.

Head minutely punctate with a smooth spot about the ocelli, continued as a vitta toward the antennal base; punctured areas and tylus clothed with short, appressed, golden pubescence. Eyes castaneous, ocelli red.

Pronotum coarsely punctate, sides swollen opposite the transverse smooth callosities; humeri rounded, a little tumid. Scutellum transversely tumid across the middle.

Clavus opaque and punctured as is the corium between the two discal nervures, the claval and apical margins with a single row of punctures; membrane hyaline, with a linear, median, fuscous vitta beyond the middle, the basal margin typically with a black vitta from tip of clavus to middle of corial margin, sometimes reduced or wanting; extreme tip of corium embrowned.

Antennae pale, basal and apical segments castaneous, or the apical segment may be black. Legs and rostrum ochraceous, the tarsal claws and apex and the median line of rostrum black. Mesosternum piceous, its median area opaque. The general color above varies from ochraceous to castaneous, the head usually being castaneous. Described from 28 examples.

Fatuhiva: Omoa [Oomoa] Valley, near sea level, August 21 and 22, 1930, on *Cyperus* species, 11 males and 8 females, including holotype and allotype; Teavaipuhiau, altitude 2,150 feet, August 25, 1930, on *Paspalum conjugatum*, 2 females; LeBronnec.

Hivaoa: Tapeata, on east slope of Mount Ootua, altitude 2,500 feet, May 25, 1929, on *Paspalum conjugatum*, 2 males, 2 females; Teava Uhia i te Kohu, altitude 2,100 feet, February 15, 1930, on *Paspalum conjugatum*, 2 males, 1 female; Mumford and Adamson.

This interesting insect agrees with genus *Cymoninus* in having the eyes distant from the pronotum, in the mostly hyaline and basally constricted elytra, and in the longer second antennal segment, but differs in the horizontally produced head and carinate venter. As a rule the females are larger and paler than the males.

**Ptochiomera castanea**, new species (fig. 46, c).

Form and size nearly of a small *Orithaea basalis* Dallas; pertains to Stål's section "aa" in which the elytra are quite uniformly brown; color dull castaneous-brown; base of antennae, rostrum, and legs, paler. Length, 4 mm.

Head as long as wide before the eyes; minutely golden pubescent; surface shagreened, impunctate. Antennal 1 as long as posterior lobe of pronotum; 2 equal to width of head across the eyes; 3 as long as 1; 4 scarcely longer than 2, fusiform, thicker than 1. Rostrum attaining intermediate coxae; segment 1 not reaching base of head, subequal to 2; 3 a little shorter; 4, shortest.

Pronotum dull, with a few short appressed golden hairs; anterior lobe narrower before, impunctate, one-third longer than the posterior, slightly convex; collum slender; both transverse impressed lines deep, linear, subpunctate, black; posterior lobe with a few irregular coarse punctures, one-third wider than anterior lobe. Scutellum equilateral, the apical carina short; a triangular area on the base and the lateral margins punctate.

Elytra coarsely punctured in regular rows which become irregular on the costal area. Pleurae coarsely punctured; venter impunctate; hind angle of metapleura acutely produced. Anterior femora incrassate, armed inferiorly on apical one-third with three teeth, the basal the longest. Antennae and tibiae with a few short pale hairs.

Color dull castaneous-brown, more reddish on the head, pronotum, and scutellum; legs, antennae, and rostrum paler or honey-yellow; tip of rostrum black; apical two antennal segments dusky; elytra obscurely varied with darker brown; membranal veins paler.

Hivaoa: Vaiepoepo, altitude 2,450 feet, June 3, 1929, on *Metrosideros collina*, 2 males, including holotype, Mumford and Adamson.

**Ptochiomera caeca**, new species.

Like *castanea* in color and in most structural details but with ovate, rugosely punctured, semi-brachypterous elytra and modified pronotum.

Female

Length, 4 mm. Head as in *castanea* but with the eyes only about one-half the size and nearly circular, and with the ocelli wanting. Antennae stouter; segment 1 slightly but distinctly clavate; 2 twice longer than 1; 3 one-half longer than 1; 4 wanting.

Pronotum almost flat; anterior lobe nearly square, a little narrower before; anterior impressed line arcuate, leaving the collum much wider at the center with an irregular line of punctures; disk of anterior lobe feebly depressed either side of the middle, with a few obsolete punctures; sides arcuate with about two rows of coarse punctures; posterior lobe flat, less than one-half as long as anterior, coarsely punctate, slightly impressed along median line, separated from the anterior by a shallow impressed line. Scutellum longer than wide at base, the median line tumid; sides with one row of coarse punctures, the center of basal area with 4 or 5 coarse punctures.

Elytra ovate, convex, reaching nearly to apex of fifth tergite; membrane wanting; surface coarsely, rugosely punctate, the claval suture obsolete. Legs and below as in *castanea*.

Color dull castaneous-brown; antennae redder and elytra more mottled with pale than in *castanea*.

Nukuhiva: Ooumu, altitude 3,400 feet, December 11, 1929, on *Weinmannia* species, holotype female, Mumford and Adamson.

At first I was inclined to consider this a brachypterous form of *castanea*, but the small eyes, heavier antennae, and the want of ocelli are characters that would hardly be changed in the brachypterous form, whereas those of the pronotum, scutellum, and elytra might possibly be subject to such change. On the whole, it seems best to consider it distinct, at least until more material is secured.

FAMILY NABIDAE

**Nabis mumfordi**, new species.

Aspect of *spinicrus* Reuter from the West Indies, but larger with annulate antennae and tibiae and pertaining to a different section of the genus; somewhat allied to *subrufus* White from the Hawaiian islands but with antennae and tibiae annulate; dull rufous-brown obscurely marked with lighter and darker colors. Length, 8 mm. to 9 mm.

Eyes large. Head produced behind the eyes for a space equal to one-half the

longitudinal diameter of the eye. Antennae long and slender; segment 1 linear, a little thicker than 2, a little longer than the pronotum; 2, one and a half times the length of 1; 3, equal to 1; 4, slightly longer than 3. Rostrum nearly attaining intermediate coxae.

Pronotal base two and one-half times as wide as the collum on the median line; sides obtusely carinate, nearly rectilinear, but slightly sinuate on posterior lobe; transverse impression strong; posterior lobe minutely punctate or shagreened; hind margin straight, slenderly pale-carinate; anterior lobe with a pale callus on either side against the transverse impressed line. Suture between venter and connexivum distinct.

Anterior femora moderately thickened, about twice the diameter of the intermediate and hind femora, unarmed but with a villous stripe beneath; anterior tibiae minutely serrate beneath. Genital hooks of male narrow, oblique, gradually produced to a very acute point. Whole surface irregularly pale pubescent with a few longer pale hairs, especially on the posterior tibiae. Hind tarsi slender, especially segment 3, which is nearly as long as 1 and 2 together.

Color rufous-brown or somewhat ferruginous, marked with a red line on apical margin of corium near its tip. Antennal segment 2 with a black, subapical annulus and about five narrow brown annulations; head paler with the gula, an area behind the eyes, and a similar one before the amber-colored ocelli, brown, the latter area produced forward in a curved line; the elevated tylus more or less rufous. Pronotum varied with lighter and darker brown, the median line darker, the calloused areas paler; scutellum with the sides on the posterior lobe pale and calloused. Elytra parallel, veins more or less dark-margined, thickened and paler on the disk; membrane dusky, the veins heavily brown-margined. Beneath more or less dusky along the sides and on the mesosternum. Legs paler, middle and hind femora and all tibiae annulate with darker, anterior with the usual oblique brown lineations before and behind.

Tahuata: Amatea, altitude 2,700 feet, July 7, 1930, on *Weinmannia* species, 2 males, including holotype, 1 female; Amatea, altitude 2,600 feet, June 27, 1930, on *Weinmannia* species, 1 male; Haaopu, summit, altitude 2,700 feet, July 9, 1930, on *Metrosideros collina*, female allotype; LeBronnec and H. Tauraa.

Hivaoa: Matauuna, altitude 3,700 feet, March 3, 1930, on ground under dead leaves, 1 brachypterous male; Kopaafaa, altitude 2,770 feet, August 2, 1929, 1 male, 2 females; Mount Temetiu, northeast slope, altitude 2,600 feet, November 13, 1929, on *Hibiscus tiliaceus*, 1 pair; Mumford and Adamson.

Nukuhiva: Ooumu, altitude 3,600 feet, September 10, 1929, 1 female, Mumford and Adamson.

This species might easily be confounded with *Nabis spinicrus* Reuter from Brazil and Trinidad, but may be distinguished by the annulate antennae and legs, the more inflated anterior femora, the want of the longer spine-like hairs on the legs, and the different form of the male genital hook. From *capsiformis* it may be distinguished by the shorter postocular space and closely punctured posterior lobe of the pronotum.

***Nabis longipes*, new species.**

Brachypterous, elongate, with a broadly ovate abdomen and tumid anterior lobe to the pronotum; ocelli wanting; antennae and legs unusually long and slender; color

rufous-brown, abdomen dull sanguineous, femora and base of the tibiae and antennal segments annulate with fuscous; connexivum maculate. Length, male, 8.5 mm.: female, 10 mm.

Head well produced; distance behind the eyes equal to the length of the eye; vertex twice as wide as an eye, evenly, transversely arcuate; surface impunctate, minutely shagreened, obliquely striate behind the eyes, minutely pale pubescent. Ocelli apparently completely absent, hardly indicated by an oblique ruga, more distinct in the female. Rostrum long; segment 1 scarcely longer than wide, 2 and 3 subequal, each as long as the head; 4 longer than 1. Antennae as long as the entire body; segment 1 a third longer than the head; 2 and 3 subequal, longer than 1; 4 subequal to 1.

Pronotum as long as head; hind margin one-third wider than anterior, sides nearly rectilinear, a little bulging above the tumid anterior acetabulae; collum and posterior lobe flat, of equal length, transversely wrinkled; anterior lobe tumid, impunctate but minutely granulate in lines about and behind the area of the callosities. Scutellum nearly equilateral, flat, transversely wrinkled.

Elytra about twice the length of the scutellum, ovate at apex, flat, wrinkled, with three heavy longitudinal veins; membrane wanting. Abdomen ovate, not quite twice longer to apex of segment 6 than wide, margins somewhat recurved; suture, between ventrals 2 and 3, subobsolete; surface impunctate, shagreened. Legs long and slender, hind femora as long as the body behind the pronotum; anterior femora as thick as the head; anterior tibiae nearly attaining the trochanters, intermediate quite so, posterior nearly as long as their femora and coxae. Male genital hooks broad, rounded externally, truncate apically, oblique on inner margin, with a minute but acute point.

Color dull yellowish brown varied with fuscous, with a divergent blackish line on either side of vertex, hooked at base over ocellar region; a median blackish vitta on pronotum expanded on hind margin of anterior lobe; a rounded polished black spot at base of anterior acetabulae and some irregular fuscous lines on the sides and pleurae. Male genital segment mostly black; abdomen dull rufous, especially above; connexivum darker with a light area on base of each segment; femora testaceous, anterior, clouded above, with the usual oblique lines along each side, intermediate and posterior irregularly annulate; tibiae rufo-testaceous, their apex and a sub-basal annulus dusky or black; antennae rufo-testaceous, dusky at apex, base of segment 1 and a basal and subapical annulus on 2 blackish; tibiae with pale hairs and an exterior row of minute black teeth.

Hivaoa: Kopaaftaa, altitude 2,800 feet, February 25, 1930, holotype male; Matauuna, altitude 3,700 feet, March 3, 1930, allotype female; Mumford and Adamson.

This species undoubtedly is related to *annulipes* China from Samoa, but the markings on the pronotum, scutellum and legs are different, the ocelli are wanting, and the male genital hook is broader and more rounded posteriorly.

The long slender antennae and legs and the want of ocelli might be considered as characters of generic value, but I cannot see that anything could be gained by the erection of a new genus.

#### **Nabis plicatulus**, new species.

Elongate ovate; fuscous-brown varied with lighter; apical half of scutellum black; connexivum beneath with a percurrent prominent fold carrying the stomata; elytra attaining apex of abdomen. Length, 7 mm.

Head shorter than in *longipes*, less produced behind the eyes where the length is one-half the length of the eye. Rostrum attaining middle of mesosternum; segment 1

about as long as wide; 2 as long as the head; 3 subequal to 2; 4 equal to 1. Antennae a little shorter than the body; segment 1 as long as the head; 2 and 3 subequal; 4 equal to 1.

Pronotum about as in *longipes*, the posterior lobe a little longer than the collum. Scutellum distinctly longer than wide at base, with a lanceolate, depressed smooth area at each basal angle.

Elytra thick and opaque, infuscated, the clavus but feebly distinguished by a row of almost obsolete punctures; clavus with one, corium with two, longitudinal nervures, the outer forked near apex and both connected to the costa by a transverse vein before the apex of the clavus; membrane small, extending but little beyond apex of corium, coriaceous, with prominent veins.

Venter moderately convex; connexivum deeply distinguished and with a submarginal furrow, leaving a prominent fold carrying the stomata. Anterior femora stout, as thick as the head, with a pubescent area beneath for their whole length.

Mesosternum slenderly carinate as in *longipes*. Male genital hooks narrow, bent at a right angle and produced in a slender, acute point, much as in *mumfordi*, but shorter with a more rounded outer angle.

Color brownish fuscous varied with lighter, especially on the sides of the head and pronotum; tylus tinged with rufous; impressed black lines on the vertex more curved than in *longipes*. Median line of pronotum geminate, posteriorly forming a loop about a round, pale tubercle on either side against the transverse impressed line; humeri prominent, smooth, pale; sides pale, obtusely carinate; scutellum dull black with a pale spot either side at apex of an impressed polished, broadly lanceolate spot on each basal angle. Elytra with some pale marks along the veins. Beneath mostly black, marked with pale about the acetabulae and in the male along the disk and margins of the venter and on the connexival plica, the hind edge of ventrals 4 and 5 pale. Legs annulate with pale, most conspicuous being an annulus on apical third of femora and near base of tibiae; antennae brownish with pale incisures; sides of anterior femora with the usual oblique dark lines.

Hivaoa: Matauuna, altitude 3,700 feet, among dead leaves, March 5, 1930, holotype male, one female; same locality, March 2, 1930, allotype female; Mumford and Adamson.

This species with *longipes* and possibly *annulipes* China forms a group in this genus quite distinct from any other known to me. They are well distinguished from one another by the form of the male genital hooks as well as by the other characters mentioned.



CTENONEURUS PARALLELUS, NEW SPECIES, MALE  
FROM NUKUHIVA,  $\times 19 \frac{1}{3}$ .