MARQUESAN INSECTS—III

BERNICE P. BISHOP MUSEUM
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PREFACE

The studies recorded in this bulletin were made possible by a cooperative agreement between the Hawaiian Sugar Planters' Association, the Association of Hawaiian Pineapple Canners, and Bernice P. Bishop Museum for a five-year period, 1927-1932, later extended to include the year 1933. Under the terms of this agreement, the Pacific Entomological Survey was organized and its activities directed by a committee representing the institutions concerned. As the Director of the Survey, C. F. Baker, Dean of the College of Agriculture, University of the Philippines, was chosen. On the death of Doctor Baker, the directorship was offered to Mr. E. P. Mumford, Graduate Fellow, University of California, who accepted the position and served as Director until the Survey was officially disbanded (1933).

As the first region for study by the Survey, the Committee chose the Marquesas Islands because faunal knowledge of this isolated region was needed for comparison with better known regions and because helpful relations with Government officials and natives had been established by previous Museum expeditions. Under instructions from the Committee, Mr. Mumford, in company with Mr. A. M. Adamson (now Professor of Entomology at the Imperial College of Tropical Agriculture, Trinidad), collected in the Society Islands (September-November 1928) and in the Marquesas (January 1929 to April 1930). Their collections, much enlarged by H. Tauraa (1929-31) and especially by G. LeBronnec (1929-32), comprise more than 25,000 specimens. In the original plans for the Survey, studies in the Marquesas were to be extended to other parts of the Pacific but, because the overhead costs of the organization proved excessive and difficulty was found in maintaining a satisfactory staff, the original program was abandoned (1933) and arrangements were perfected whereby the collections on hand should be distributed to specialists for study, the resulting papers published, and the work continued under other auspices. The Pacific Entomological Survey is thus essentially the "Marquesan Survey" and finds its place in the list of major projects organized, financed, and directed by institutions in Hawaii: Hawaiian Survey (in cooperation with Bishop Museum) publications issued 1899-1913; Tanager and Whippoorwill Expeditions, 1923-24; Samoan Survey (in cooperation with the London School of Hygiene and Tropical Medicine), 1920-30; Marquesan Survey, 1929-32; Mangarevan Expedition, 1934; Micronesian Expedition, 1935-36; Guam Survey, 1936; and the Henry G. Lapham Expedition to Fiji, 1938.

The published papers of the Survey obviously comprise a regional study of outstanding value. The technical reports (Bulletins 98, 113, 114, 142)

include 103 papers in which the characters and taxonomic position of some 1,000 insects are discussed, 467 of them new species. The general reports (Bulletins 139, 159) discuss in detail the origin, environment, and regional relations of the known species.

It is a pleasure to take this occasion to congratulate the authors on the results of their studies which have been highly commended by their colleagues and on behalf of the Museum to express appreciation for their generosity in giving time and thought to the intricate problems involved.

In fulfilling its obligations under the revised cooperative agreement the Museum has classified, labeled, and made accessible for study the collections of the Survey, and has published the description and interpretative papers that deal with the material. As a chapter in the Museum's program for Pacific insect studies, the work of the Pacific Entomological Survey has thus come to an end.

Albert F. Judd
President, Board of Trustees
Bernice P. Bishop Museum

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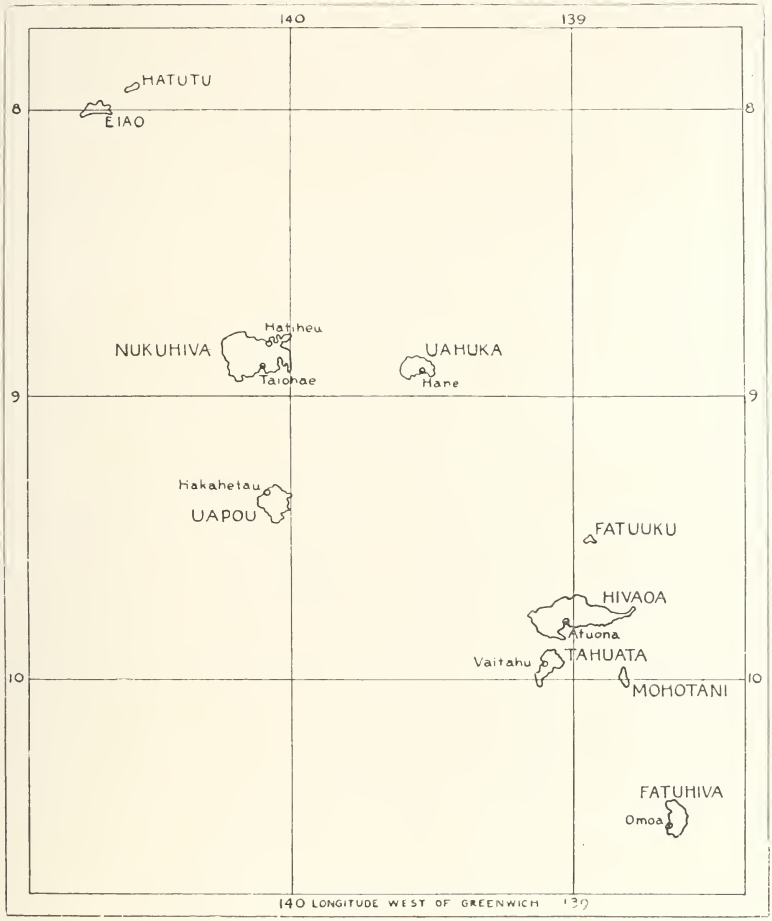

MAP OF THE MARQUESAS ISLANDS.

A FURTHER REPORT ON MARQUESAN MYRIOPODA*

By

F. Silvestri
Laboratorio di Entomologia Agraria, Portici

Of 8 species of myriopods listed by Adamson and identified by me [1] from the Marquesas, 5 belong to the Chilopoda, *Scolopendra morsitans* Linnaeus, *S. subspinipes* Leach, *Orphnaeus brevilabiatus* (Newport), *Mecistocephalus tahitiensis* H. F. Wood, and *M. maxillaris* Gervais, and 3 to the Chilognatha (Diplopoda), *Orthomorpha coarctata* (Saussure), *O. gracilis* Koch, and *Trigoniulus naresii* Pocock. To Adamson's list I wish now to add 5 species, 1 of which (*Cryptops notandus*) is here described as new. Of these supplementary records, 2 are Chilopoda, *Cryptops niuensis* Chamberlin and *C. notandus*, 2 are Chilognatha (Diplopoda), *Hypocambala anguina* (Attems) and *Cylindrodesmus hirsutus* Pocock, and 1 is a symphylid, *Hanseniella orientalis* Hansen. In this report, therefore, the number of Marquesan myriopods is raised from 8 to 13.

With the exception of *Cryptops notandus*, taken by me in a few hours' collection at Pago Pago, Samoa, all the species listed below have a wide distribution in the tropics from the Indo-Malayan to the Philippine-Australian-Pacific region. As the smaller species of myriopods living in the soil have not been adequately studied in the tropics, we may assume that *C. notandus* has a wider range than is at present known.

My conclusions regarding the geographical relations of this group of arthropods, after examining the remainder of the collections of the Pacific Entomological Survey, are almost the same as those arrived at by Adamson in reporting upon my earlier identifications, namely, the Marquesan myriopods, as far as they are at present known, are all migrants from the west and none of the species can be considered as endemic. This same statement also holds true for some of the Marquesan Thysanura and Embioptera described by me,[2] but is in striking contrast with the opinions reached by many of the entomologists who report a high degree of endemicity among the Marquesan insects. I should like to add that 6 of the 13 Marquesan species have also been recorded from the Seychelles, *Scolopendra subspinipes, Orthomorpha coarctata, O. gracilis, Trigoniulus naresii, Hypocambala (Agastrophus)*

[1] Adamson, A. M., Myriopoda of the Marquesas Islands: B. P. Bishop Mus., Bull. 98, pp. 225-232, 1932.

[2] Silvestri, Filippo, Marquesan Thysanura: B. P. Bishop Mus., Bull. 114, pp. 305-311, 1935 (*Isolepisma mumfordi* Silvestri, taken on an endemic species of *Cyperus* at 4,050 feet at Ooumu, Nukuhiva, is not known from elsewhere; hitherto undescribed forms of the Australian *Acrotelsella reducta* Folsom were also found). Silvestri, Filippo, Marquesan Embioptera: B. P. Bishop Mus., Bull. 114, p. 271, 1935.

* Pacific Entomological Survey Publication 8, article 1. Issued January 2, 1935.

anguina, and *Cylindrodesmus hirsutus*. The Society Islands collection of the Pacific Entomological Survey has been reported upon elsewhere.[3]

Order CHILOPODA

Family SCOLOPENDRIDAE

Scolopendra morsitans Linnaeus.

This species, which is widely distributed in most parts of the tropics, has already been reported as being taken by the Entomological Survey on Uahuka, Fatuuku, Hivaoa, and Mohotani.

Scolopendra subspinipes Leach.

Uapou: Hakahetau Valley, 2 specimens, Whitten; Teepotaootetoiki [Teepotautetoiki], Hakahetau, altitude 125 feet, November 23, 1931, 1 specimen, LeBronnec.

The species has already been recorded from Eiao, Nukuhiva, Uahuka, Uapou, Hivaoa, Tahuata, Mohotani, and Fatuhiva.

With the exception of such rare anomalies as a specimen from Hakahetau, Uapou, which has 2 spines on the right posterior leg and 1 on the left, and which lacks the internal spines and has the apical processus bispinosus, all the Marquesan specimens are typical of the subspecies *subspinipes*.

Cryptops niuensis Chamberlin.

Hivaoa: Kopaafaa, altitude 2,900 feet, February 25, 1930, under dead bark of *Crossostylis biflora*, 1 specimen, Mumford and Adamson.

Uahuka: crest of north range, altitude 2,350 feet, September 24, 1929, under bark of *Hibiscus tiliaceus*, 1 specimen, Adamson.

Tahuata: Amatea, altitude 2,500 feet, July, 1930, in dead trunk of *Musa fehi*, 2 specimens, LeBronnec and H. Tauraa.

Uapou: Hakahetau Valley, altitude 2,800 feet, December 6, 1929, from dead fern stipes, 1 specimen, Adamson; Hakahetau Valley, 6 specimens, R. R. Whitten; Pepehitoua Valley, altitude 2,760 feet, December 8, 1929, in petioles of *Cyathea*, 1 specimen.

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2,000 feet, December 27, 1929, under bark of *Hibiscus tiliaceus*, 1 specimen; October 25, 1929, 1 specimen; Mumford and Adamson.

Mohotani: altitude 1,200 feet, February 2, 1931, LeBronnec and H. Tauraa.

This species, here recorded from the Marquesas for the first time, was previously known from the Solomon Islands, Fiji, Niue, and the Cook Islands.

[3] Silvestri, Filippo, Myriopoda from the Society Islands: B. P. Bishop Mus., Bull. 113, pp. 132-134, 1935.

Cryptops notandus, species nova (fig. 1).

Corpus feminae flavescens. Caput supra sulcis posticis submedianis brevibus instructum et setis sparsis sat numerosis brevibus (mm 0.075 longis); antennae 17-articulatae, articulis 1-4 setis nonnullis brevibus et brevioribus, articulis ceteris setis numerosis brevissimis et setis paucioribus brevioribus proximalibus instructis; clypeo setis subposticis 1 + 1 et posticis 3 + 3, labro unidentato.

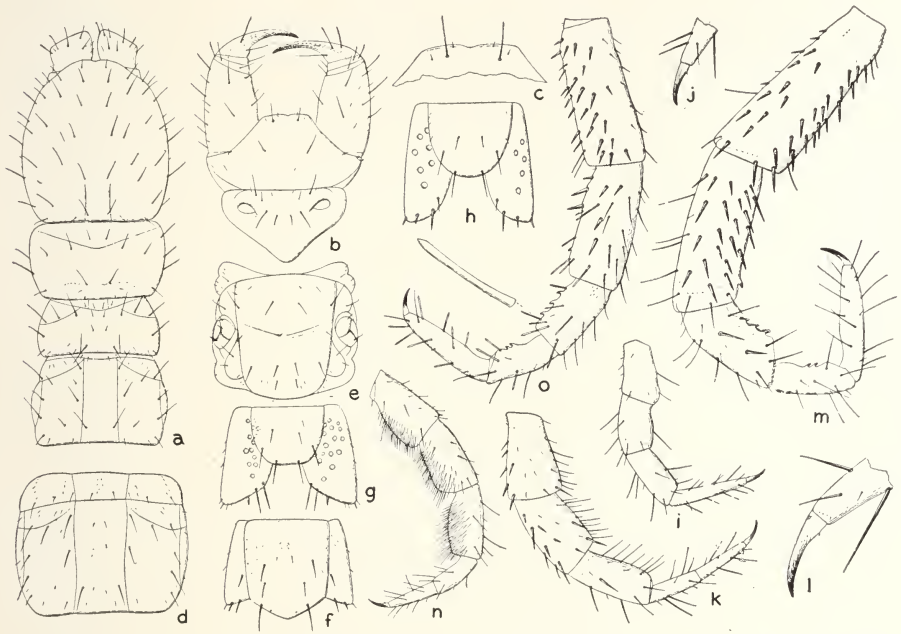

FIGURE 1.—*Cryptops notandus: a,* caput cum tergitis tribus pronum; *b,* pedes maxillares cum sterno segmenti sequenti; *c,* pedum maxillarium subcoxarum margo anticus magis ampliatus; *d,* tergitum decimum; *e,* sternitum decimum; *f,* segmentum ultimum pediferum pronum; *g,* idem supinum; *h,* juvenis segmentum ultimum pediferum supinum; *i,* pes paris decimi; *j,* eiusdem pars terminalis magis ampliata; *k,* feminae pes paris penultimi; *l,* eiusdem pars terminalis magis ampliata; *m,* pes paris ultimi; *n,* maris pes paris penultimi; *o,* pes paris ultimi.

Pedes maxillares subcoxarum margine antico subrecte truncato seta tantum minima marginali submediana aucto et seta brevi sublaterali et seta brevissima magis sublaterali praemarginalibus instructo, ducto venenifero ad unguis basim pertinente.

Tergita: primum antice a capite parum obtectum, sulco transverso subantico integro, lineis ceteris nullis; tergitum secundum lineis nullis; tergita cetera a tertio lineis submedianis integris, lineis subanticis obliquis et lineis sublateralibus bene evolutis, setis parce numerosis brevibus et brevioribus.

Sternita: sulco transverso interpedali integro et sulco longitudinali mediano a sulco transversali obsoleto.

Pedes setis brevibus instructi, articulo quinto (tarso auctorum) integro, quam quartus (pede decimo exempli gratia), circa 1/3 longiore, praetarsi ungue elongato attenuato, processu setiformi basali antico minimo; pedes paris penultimi articulis 2-4 parte infera setis brevioribus subtilibus, numerosis instructo, articulo penultimo biarticulato, articulo ultimo (praetarso) attenuato. Segmentum ultimum pediferum tergito

postice angulato, sternito trapezoideo, subcoxis area porosa longa poris 19 sat magnis instructa; pedibus articulis secundo et tertio setis brevioribus, robustis, spiniformibus praesertim subtus sat numerosis instructis et articulo tertio etiam setis nonnullis attenuatis ut articuli 4-6, articulo tertio etiam dente parvo infero distali, articulo quarto dentibus quatuor et quinto duobus armatis, praetarsi ungue simplici.

Long. corporis ad mm 10, lat. capitis 0.65, long. pedum paris decimi 1, paris ultimi 2.20.

Mas, pedes paris 20[1] articulis 2-4 subtus quam feminae aliquantum magis pilosis; pedes paris ultimi articulis 4-6 etiam seta nonnulla brevi parum clavata (fig. 1) instructi.

Juvenis, long. corporis mm 5.5, segmenti ultimi pediferi subcoxis poris 7 instructis.

Species haec ad C. neocaledonicus Ribaut perproxima est, sed statura minore, tergitorum lineis transversis subanticis et lineis sublateralibus, nec non maris pedum paris ultimi setis nonnullis subclavatis distincta est.

Uahuka: Hanatekeo, Hane Valley, altitude 750 feet, from coconut leaf, February 24, 1931, type female; Hitikau Ridge, 1 male; altitude 2,970 feet, from dead stipes of *Cyathea,* March 4, 1931, 1 specimen; LeBronnec and H. Tauraa. I collected one male buried in the ground, Pago Pago, Samoa, and one juvenile.

Family GEOPHILIDAE

Subfamily ORYINAE

Orphnaeus brevilabiatus (Newport).

This species, which is widely distributed through the tropics, was, as stated in the earlier report, taken by the entomologial survey on Hatutu [Hatutaa], Uahuka, Hivaoa, Tahuata, and Mohotani.

Subfamily MECISTOCEPHALINAE

Mecistocephalus tahitiensis H. F. Wood.

Hivaoa: Temetiu Ridge, altitude 3,900 feet, January 10, 14, 1932, under bark of *Cheirodendron* species, numerous specimens; Feani Summit, altitude 3,800 feet, January 21, 1932, 1 specimen; LeBronnec.

Uapou: Tekohepu Summit, altitude 3,100 and 3,200 feet, November 20, 21, 1931, 8 specimens, LeBronnec.

Previously recorded from Hivaoa, Nukuhiva, Uahuka, Uapou, Eiao and Hatutu [Hatutaa].

Mecistocephalus maxillaris (Gervais).

Geophilus maxillaris Gervais, Silvestri: Indian Mus., Rec., vol. 16, pp. 61-63, fig. 9, 1919 = *Lamnonyx maxillaris* (Gervais). Attems: Das Tierreich, Lief. 52, p. 134.

Mecistocephalus insularis Lucas, Attems: Das Tierreich, Lief. 52, p. 134; Insects of Samoa, pt. 8, fasc. 2, p. 29, 1929.

Uapou: Vaikokoo, Paaumea, altitude 1,850 feet, November 30, 1931, 1 specimen, LeBronnec; Hakahetau Valley, numerous specimens, Whitten.

Mohotani: altitude 750 feet, February 1, 1931, 1 specimen, LeBronnec and H. Tauraa.

Previously recorded from Hivaoa, Nukuhiva, Fatuhiva, Uahuka, Uapou and Eiao.

Order SYMPHYLA

Family SCUTEGERILLIDAE

Hanseniella orientalis (Hansen).

Hivaoa: Tapeata, on east slope of Mount Ootua, altitude 2,500 feet, May 25, 1929, from dead stipes of *Cyathea* species, Mumford and Adamson.

Fatuhiva: Ihiota, altitude 450 feet, September 10, 1930, 1 specimen, LeBronnec.

A few specimens of this widely distributed species from Indo-Malaysia to the tropical Australian region are here recorded from the Marquesas for the first time.

Order CHILOGNATHA (DIPLOPODA)

Family POLYDESMIDAE

Orthomorpha gracilis Koch.

Hivaoa: Temetiu Summit, altitude 4,160 feet, January 20, 1932, on the ground, numerous specimens, altitude 3,900 feet, January 14, 1932, under rotten leaves of *Metrosideros collina,* numerous specimens; Kaava Ridge, altitude 2,500 feet, January 8, 1932, on the ground, numerous specimens, altitude 2,820 feet, January 6, 1932, in logs on *Hibiscus tiliaceus,* numerous specimens; Feani Crest, altitude 3,900 feet, January 19, 1932, in log of *Metrosideros collina,* 1 specimen; LeBronnec.

Uapou: Teavaituhai, Hakahetau Valley, altitude 3,000 feet, November 19, 1931, numerous specimens; Tekohepu Summit, altitude 3,000 feet, November 30, 1931, numerous specimens; Vaikokoo, Paaumea Valley, altitude 2,200 feet, November 26, 1931, numerous specimens; Vaihakaatiki, Hakahetau, altitude 3,020 feet, December 18, 1931, numerous specimens; LeBronnec.

Mohotani: altitude 750 feet, February 1, 1931, in dead leaves, numerous specimens, altitude 1,000 feet, February 2, 1931, numerous specimens, LeBronnec and H. Tauraa.

Previously recorded from Nukuhiva, Hivaoa, Tahuata, and Fatuhiva.

Orthomorpha coarctata (Saussure).

This species is recorded as having been taken on Uahuka, Uapou, Tahuata, and Mohotani.

Cylindrodesmus hirsutus Pocock.

Uahuka: Hanahoua Valley, altitude 750 feet, March 10, 1931, in dead log of *Inocarpus edulis,* 1 specimen, LeBronnec and H. Tauraa.

Fatuhiva: Ihiota, altitude 450 feet, September 10, 1930, under dead bark of breadfruit (*Artocarpus* species), 2 specimens, LeBronnec.

Eiao: Vaituha, altitude 200 feet, October 3, 1929, in damp wood, 2 specimens, Adamson.

This species, which is here recorded from the Marquesas for the first time, ranges right across the Pacific from the Indo-Malayan region to South America. I myself have seen specimens from Guayaquil, Ecuador.

Family SPIROBOLIDAE

Trigoniulus (Spirostrophus) naresii Pocock.

Uapou: Teavaituhai, Hakahetau Valley, altitude 300 feet, November 19, 1931, numerous specimens; Vaihakaatiki, Hakahetau Valley, altitude 2,500 feet, November 18, 1931, 3 specimens; altitude 3,020 feet, December 18, 1931, 1 specimen; Tekohepu Summit, altitude 3,000 feet, November 30, 1931, 1 specimen; Vaikokoo, Paaumea Valley, altitude 2,200 feet, November 26, 1931, 1 specimen; Koputukea, altitude 1,200 feet, October 16, 1931, numerous specimens; LeBronnec.

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2,000 feet, October 25, 1929, under bark of *Hibiscus tiliaceus,* 1 specimen (larval), Adamson; Keahaatiki, altitude 2,000 feet, August 6, 1931, numerous specimens, LeBronnec and H. Tauraa.

Previously recorded from Nukuhiva, Uahuka, Uapou, Hivaoa, Tahuata, and Fatuhiva.

Family CAMBALIDAE

Genus **HYPOCAMBALA** Silvestri

Hypocambala Silvestri, Abhand. u. Ber. K. Zool. u. Anthr.-Ethn. Mus. Dresden, Bd. 6, n. 9, p. 11, Taf. 2, pp. 59-62, 1897.

Agastrophus Attems, Zool. Jahrb., Syst. 13, p. 151, 1900.

There is no question as to the synonymy given above. As the figures I formerly gave of the type of this genus (*H. helleri*) from the Dutch East Indies (Celebes and Aru islands) were incorrect and based on an unsatisfactory preparation in potash, I have included in this paper figures of the principal parts of type specimens (fig. 2) for comparison with those of the closely allied *H. anguina* (Attems) (fig. 3).

Hypocambala anguina (Attems) (fig. 3).

Agastrophus anguinus Attems: Zool. Jahrb. Syst. 13, p. 152, Taf. 16, figs. 25-30, 1900; Insects of Samoa, p. 8, fasc. 2, p. 30, figs. 1-4, 1929.

Hivaoa: Mount Temetiu, altitude 1,500 feet, May 27, 1929, 1 specimen, Mumford and Adamson; Feani Ridge, altitude 3,900 feet, January 21, 1932, on the ground, 3 specimens, LeBronnec.

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2,000 feet, October 27, 1931, from dead stipes of *Angiopteris* species, 1 specimen, Mumford and Adamson;

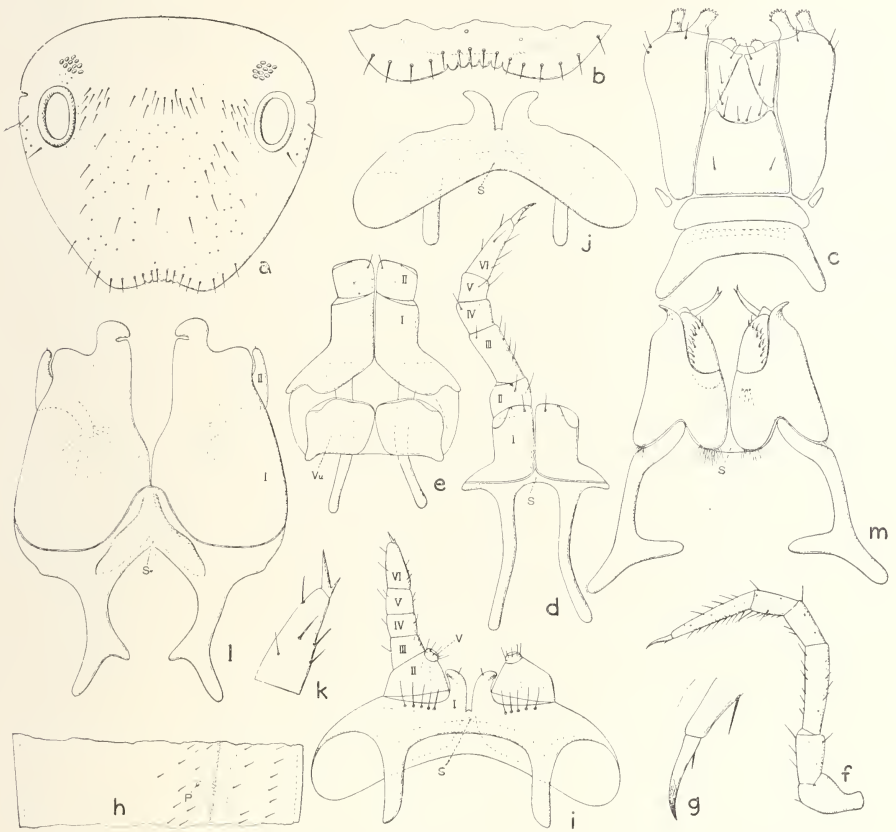

FIGURE 2.—*Hypocambala helleri: a,* caput pronum (aliquantum depressum); *b,* clypei pars antica; *c,* hypostoma; *d,* feminae pedes paris secundi antice inspecti: *S,* sternum, I-VI articuli primus ad sextum; *e,* feminae pedum paris secundi pars proximalis postice inspecta cum vulvis, *Vu*; *f,* pes paris decimi; *g,* eiusdem tarsi apex et praetarsus magis ampliati; *h,* segmenti decimi metazonae pars dextera: *P,* porus repugnatorius; *i,* maris praetrunci sternum primum cum pedibus paris primi postice inspectum: *S,* sternum, I-VI articuli primus ad sextum; *V,* vesicula; *j,* sternum idem cum pedis subcoxa antice inspecta; *k,* maris pedis primi paris tarsus et praetarsus magis ampliati; *l,* organi copulativi pars antica inspecta: *S,* sternum, I-II articuli primus et secundus; *m,* organi copulativi pars postica antice inspecta: *S,* sterna.

Tekao Hill, altitude 3,250 feet, July 23, 1931, in dead stem of *Piper latifolium*, 3 specimens, LeBronnec and H. Tauraa.

Uahuka: crest of north range, altitude 2,350 feet, September 24, 1929, under bark of *Hibiscus tiliaceus*, 3 specimens, Adamson; Hitikau, altitude 2,800-2,970 feet, March 3, 4, 1931, from dead stipes of *Cyathea* species, from dead stipes of *Angiopteris* species, under dead leaves, under moss, numerous specimens, LeBronnec.

This species was first described by Attems from the Seychelles, and later by the same author from Samoa; the figures in the two papers differ in certain details, including the interpretation of the sternal portions of the first pair of legs of the male.

FIGURE 3.—*Hypocambala anguina: a*, antenna; *b*, eiusdem antennae pars distalis magis ampliata; *c*, clypei pars antica; *d*, feminae sternum cum primi paris pedibus antice inspectum (litterae ut in fig. praecedente); *e*, segmenti decimi metazonae pars dextera; *f*, pes paris decimi; *g*, eiusdem pedis tarsi apex et praetarsus; *h*, maris sternum cum pedibus primi paris antice inspectum; *i*, idem cum pedum articulis primo et secundo postice inspectum; *j*, maris pedis primi paris tarsus et praetarsus; *k*, feminae praetrunci sternum secundum cum pedibus antice inspectum; *l*, sternum idem cum pedum articuli primus et secundus et vulvis postice inspectum; *m*, feminae sternum tertium cum pedibus antice inspectum; *n*, organi copulativi pars antica antice inspecta; *o*, eiusdem partis articuli primus et secundus postice inspecti; *p*, eiusdem pars apicalis magis ampliata; *q*, organi copulativi pars postice antice inspecta; *r*, eiusdem partis articuli primus et secundus postice inspecti; *s*, eorumdem pars distalis antice inspecta magis ampliata.

Dr. Attems (1929) writes that the clypeus (labrum) has three teeth, but I have always found five normally, and four as an anomaly. It is possible that Attems did not get a good preparation of this part of the head or that the specimen he described was anomalous. Moreover he neither mentioned nor figured the extroflexible vesicle which opens on the anterior apical part of second article of male first legs. Despite these differences, however, I maintain that the Marquesan specimens examined by me and here illustrated (fig. 3) are the same species as that described from Samoa by Attems under the name *Agastrophus anguinus*.

The species must be very widely distributed in the Pacific. This is the first record from the Marquesas.

The largest specimen from Uahuka has 60 segments and measures 12 mm in length and 1.10 in width; smaller, but fully mature, specimens, male and female, may have only 4 to 56 segments. In this species therefore, maturity may be reached at various stages in the development of body segmentation.

NEUROPTERA FROM THE MARQUESAS*

By

P. Esben-Petersen
Silkeborg, Denmark

Edward P. Mumford has kindly asked me to examine and give a report upon the neuropterous insects collected by the Pacific Entomological Survey in the Marquesas. It gives me great pleasure to undertake this work, because so little is known of the fauna of the Marquesas and the adjacent islands.

As far as I am aware, only the following species are mentioned in the literature as occurring in the Marquesas: *Chrysopa basalis* Walker,[1] *Chrysopa flaveola* Schneider[1] (the material reported under this name belongs probably to *C. basalis*), *Chrysopa delmasi* Navas[2] (this is the same as *C. basalis*), *Megalomus* species,[1] *Nesomicromus marquesanus* Kimmins.[3]

The material before me contains 772 imagines and 76 larvae of *Chrysopa* and 9 specimens of a hemerobiid. The most remarkable feature in the collection is that all the above-mentioned specimens of *Chrysopa* belong to a single species, *Chrysopa basalis*; whether other species are to be found is a problem which can only be solved by still further collecting.

It seems that *Chrysopa basalis* is common everywhere in the islands. The material here reported upon was taken in some eighty localities, distributed over all 10 islands.

In this connection it may be remembered that the imagines of chrysopids and especially their larvae are very useful because they feed chiefly upon Aphididae and Coccidae.

Family CHRYSOPIDAE

Chrysopa basalis Walker (figs. 1, 2).

Chrysopa basalis Walker: List of Neuropterous Insects in Brit. Mus., p. 239, 1853, (Loochoo Islands).

Chrysopa delmasi Navas: Pontific. Accad. Romana, Mem., p. 20, 1927 (Marquesas Islands).

Chrysopa skottsbergi Esben-Petersen: Insects of Samoa, pt. 7, p. 104, pl. 3, fig. 4, 1928 (Samoa and Ellice Islands).

[1] Cheesman, L. E., Contribution towards the insect fauna of French Oceania: Ent. Soc. London, Trans., vol. 75, p. 160, 1927.

[2] Navas, Longinos, Pontific. Accad. Romana, Mem., p. 20, 1927.

[3] Kimmins, D. E., Two New Hemerobiidae (Neuroptera): The Entomologist, vol. 65, p. 160, figs. 4, 5, 1932.

* Pacific Entomological Survey Publication 8, article 2. Issued January 2, 1935.

Chrysopa basalis has until now been a misunderstood species, chiefly because of Walker's brief and incomplete description. For instance, he does not mention the distinct rectangular dark brown spot on the basal segment of the antennae, an important character. After consultation with Mr. D. E. Kimmins of the British Museum, I have decided the material listed below all belongs to Walker's species.

FIGURE 1.—*Chrysopa basalis* Walker, male, from Fatuuku: left fore and hind wings.

In my description of *Chrysopa skottsbergi* in the Insects of Samoa, I call attention to the very conspicuous and large pterostigma, especially in the hind wings. In the male the pterostigma is more distinct and strongly colored than in the female.

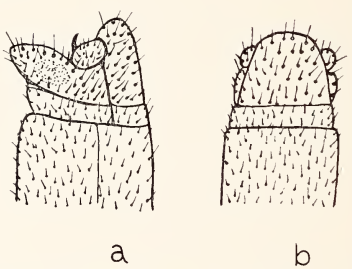

FIGURE 2.—*Chrysopa basalis* Walker, apex of abdomen, male: *a*, from side; *b*, from below.

Hivaoa: Kopaafaa, altitude 2,770 feet, August 2, 1929, 4 specimens; west of Taaoa crest, altitude 2,800 feet, June 3, 1929, 1 specimen; Mataovau, altitude 390 feet, June 5, 1929, 5 specimens; ridge northwest of Taaoa, altitude 2,800 feet, June 3, 1929, 1 specimen; Anatikaue, altitude 1,750 feet, August 1, 1929, 6 specimens, on *Piper latifolium*; Mumford and Adamson. Kaava Ridge, altitude 2,800 feet, January 7, 1932, 9 specimens, on *Reynoldsia* species, *Rapanea* species, *Hibiscus tiliaceus, Weinmannia* species, *Metrosideros collina;* altitude 2,820 feet, January 6, 1932, 1 specimen; altitude, 2,750 feet, January 6, 1932, 2 specimens, on *Weinmania* species; alti-

tude 2,000 feet, October 27, 1931, 17 specimens, on *Glochidion ramiflorum;* Kakahopuanui, altitude 2,500 feet, January 5, 1932, 4 specimens, sweeping herbage and beating *Weinmannia* species; Temetiu Ridge, altitude 3,900 feet, January 4, 1932, 2 specimens, on *Metrosideros collina;* Feani Ridge, altitude 3,900 feet, January 21, 1932, 3 specimens, beating on *Cyrtandra* species; Kaava Ridge, Kakahopuanui, altitude 2,800 feet, October 27, 1931, 5 specimens, beating on *Glochidion ramiflorum*; Temetiu summit, altitude 4,160 feet, January 20, 1932, 1 specimen, beating on *Reynoldsia* species; Avaoa Valley, altitude 1,350 feet, January 4, 1932, 1 specimen; LeBronnec. Near Ootua spring, February 13, 1929, 1 specimen, in dead flowers of *Zingiber* species; Mumford and Adamson. Mount Temetiu, altitude 730 feet, May 27, 1929, 1 specimen, Mumford and Adamson.

Uahuka: Vaikivi [Vaikiva] Valley, altitude 1,300 feet, March 6, 1931, 20 specimens; Vaipaee Valley, altitude 150 feet, March 10, 1931, 7 specimens; Hiniaehi Valley, altitude 150 feet, March 10, 1931, 7 specimens; Vaipaee Valley, altitude 250 feet, March 17, 1931, 4 specimens; Haave [Haavei] Valley, altitude 200-250 feet, March 19, 1931, 129 specimens; Vaitiake, altitude 1,000 feet, March 24, 1931, 53 specimens; Teavamataiki, altitude 730 feet, March 19, 1931, 1 specimen; LeBronnec and H. Tauraa.

Hatutu: altitude about 1,000 feet, April 28, 1931, 1 specimen; altitude 1,200 feet, April 28, 1931, 2 specimens; altitude 1,300 feet, April 28, 1931, 1 specimen; altitude 1,500 feet, April 28, 1931, 1 specimen; LeBronnec and H. Tauraa. Middle of east side, altitude 1,010 feet, October 30, 1929, 3 specimens, on *Pisonia* species, Adamson.

Nukuhiva: Tovii [Toovii], altitude 2,500 feet, August 4, 1931, 2 specimens; Oomu, altitude 3,000 feet, May 28, 1931, 1 specimen; Tapuaooa, altitude 3,100 feet, November 11, 1931, 5 specimens; LeBronnec and H. Tauraa. Teuanui, Tovii [Toovii], altitude 2,500 feet, October 29, 1929, 1 specimen, beating on *Weinmannia parviflora,* Mumford and Adamson.

Uapou: Hapava, altitude about 500-600 feet, December 13, 1929, 22 specimens; Hakahetau, altitude 500 feet, December 13, 1929, 6 specimens; Vakaoaokee [Vakokokee], altitude about 300 feet, December 17, 1929, 3 specimens, R. R. Whitten. Tekohepu Summit, altitude 3,000 feet, November 30, 1931, 37 specimens, beating on *Metrosideros collina, Cyathea* species, *Weinmannia* species, *Cheirodendron* species, *Cyrtandra* species and ferns; altitude 3,200 feet, November 28, 1931, 8 specimens, beating on *Cheirodendron* species and *Freycinetia* species; altitude 3,300 feet, November 27, 1931, 1 specimen, beating on *Sclerotheca* species; LeBronnec. Teoatea, Hakahetau Valley, altitude 1,950 and 2,000 feet, November 19, 1931, 22 specimens, beating on *Metrosideros collina* and *Vaccinium* species; altitude 2,200 feet, November 20, 1931, 7 specimens; altitude 1,950 feet, November

21, 1931, 49 specimens, beating on *Metrosideros collina* and ferns; altitude 2,000 feet, November 20, 1931, 10 specimens, beating on *Histiopteris* species; Vaihakaatiki, Hakahetau Valley, altitude 3,020 feet, November 18, 1931, 2 specimens, beating on *Vaccinium* species and *Cyrtandra* species; altitude 2,800 feet, November 19, 1931, 2 specimens, beating on *Freycinetia* species; Hapava, Hakahetau Valley, altitude 1,000 feet, November 23, 1931, 32 specimens; LeBronnec. Teepotaootetoiki, Hakahetau Valley, altitude 120 feet, November 23, 1931, 3 specimens; Vaikokoo, Paaumea Valley, altitude 2,000 feet, November 26, 1931, 1 specimen, beating on *Weinmannia* species; Teavaituhai, Paaumea Valley, altitude 3,020 feet, November 19, 1931, 2 specimens, beating on *Vaccinium* species and *Cyrtandra* species; Teavanui, Paaumea Valley, altitude 2,900 feet, November 27, 1931, 5 specimens, beating on *Freycinetia* species; Teavanui Pass, altitude 2,900 feet, November 30, 1931, 4 specimens, beating on *Cyathea* species and *Angiopteris* species; LeBronnec.

Tahuata: Hanamiai Valley, altitude 1,600 feet, May 28, 1930, 1 specimen, sweeping over grass, LeBronnec and H. Tauraa. Kiinui, altitude 1,200 feet, June 14, 1930, 4 specimens; Hanamenino Valley, sea level, July 17, 1930, 10 specimens; Hanatuuna Valley, altitude 325 feet, July 19, 1930, 1 specimen; Hanahevane Valley, seashore, August 16, 1930, 22 specimens; LeBronnec and H. Tauraa.

Fatuhiva: Uia [Ouia] Valley, altitude 500 feet, September 2, 1930, 3 specimens, Teavaipuhiau, altitude 2,150 feet, August 25, 1930, 1 specimen, sweeping over *Paspalum conjugatum*; Teaotu, Hanavave Valley, altitude 700 feet, September 9, 1930, 1 specimen, beating on *Eugenia* species; Tapuhiva, Hanavave Valley, altitude 500 feet, September 9, 1930, 1 specimen; Teavaione, Omoa [Oomoa] Valley, altitude 1,700 feet, August 29, 1930; Tahuna, altitude 2,050 feet, September 3, 1930, 6 specimens; Tetana, Omoa [Oomoa] Valley, altitude 500 feet, August 22, 1930, 7 specimens; Vaikoao, Omoa [Oomoa] Valley, altitude 1,600 feet, August 29, 1930, 8 specimens, altitude 1,500 feet, August 30, 1930, 6 specimens; Ahuava, altitude 1,800 feet, August 19, 1930, 9 specimens; LeBronnec.

Eiao: near center, altitude 1,665 feet, September 28, 1929, 4 specimens, on *Hibiscus tiliaceus,* Adamson; uplands, toward north and east side, altitude 1,875 feet, September 29, 1929, 7 specimens, Adamson; above Vaituha, altitude 1,100 feet, October 2, 1929, 2 specimens, on *Dodonaea viscosa,* Adamson; altitude 1,600 feet, April 24, 1931, 3 specimens, LeBronnec and H. Tauraa.

Mohotani: above Anaoa, altitude 160-650 feet, August 13, 1929, miscellaneous sweeping, 3 specimens, Adamson; altitude 200 feet, February 4, 1931, 9 specimens; altitude 300 feet, February 4, 1931, 2 specimens on *Corcopsis* species; altitude 900 feet, February 3, 1931, 3 specimens; altitude 1,300

feet, February 2, 1931, 4 specimens; altitude 1,400 feet, February 1, 1931, 2 specimens, on *Ageratum conyzoides;* altitude 1,500 feet, February 1, 1931, 4 specimens; LeBronnec and H. Tauraa.

Fatuuku: altitude 860 feet, November 19, 1930, 50 specimens, H. Tauraa.

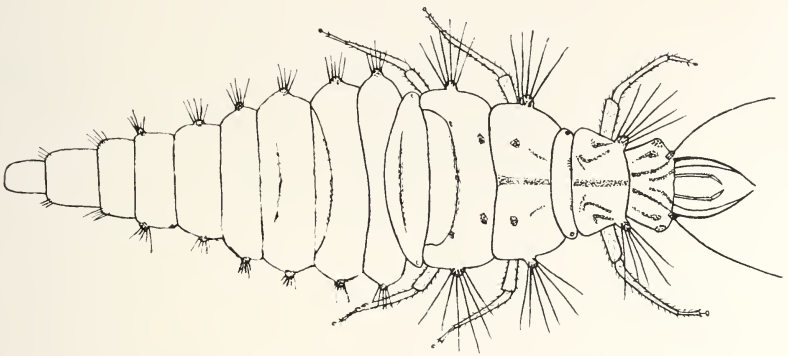

FIGURE 3.—Larva of *Chrysopa basalis* Walker.

Chrysopa basalis Walker (fig. 3).

Larva. Body pale brownish yellow. The jaws with a narrow brown stripe along their margin exteriorly. Basal antennal joint rather stout, and with a brownish stripe along the interior and exterior margins; second joint unmarked, narrower than the basal joint but somewhat longer; the rest of the antennae finely brownish annulated. Head with three pairs of brownish markings as shown in the figure. Prothorax broader than long and with brown markings. Each front angle with a strongly developed tubercle, provided with a tuft of yellowish setae. Mesothorax and metathorax with laterally placed tubercles, and with a pair of dark brown sclerites dorsally. Mesothorax with a brown longitudinal median streak and a pair of two narrow obliquely placed brown streaks in front of the sclerites. Abdominal segments 1 to 6 with brown tubercles laterally, bearing rather long yellowish setae. Dorsum of thorax and abdomen with numerous minute short brown bristles and a few longer yellowish hairs. Legs yellowish white and yellowish haired; claws and empodium brownish black. Under side of the body pale brownish yellow.

Hivaoa: Kakahopuanui, altitude 2,610 feet, January 5, 1932, 5 specimens, beating on *Weinmannia* species; Kaava Ridge, altitude 2,750 feet, January 6, 1932, 7 specimens, beating on *Weinmannia* species; altitude 2,800 feet, January 7, 8, 1932, 16 specimens, on *Metrosideros collina* and *Weinmannia* species; LeBronnec.

Uapou: Teavaituhai, altitude 3,000 feet, November 19, 1931, 4 specimens; Vaikokoo, Paaumea Valley, altitude 2,000 feet, November 26, 1931, 4 specimens; Teavanui, altitude 2,900 feet, November 27, 1931, 1 specimen; Tekohepu summit, altitude 3,000 feet, November 30, 1931, 2 specimens; LeBronnec.

Uahuka: Hanahoua Valley, altitude 280 feet, March 10, 1931, 1 specimen, LeBronnec and H. Tauraa.

Tahuata: Hanahevane Valley, seashore, July 16, 1930, 5 specimens, on *Pisonia* species; altitude 150 feet, July 17, 1930, 10 specimens; LeBronnec and H. Tauraa.

FIGURE 4.—Wings of *Archaeomicromus marquesana* (Kimmins).

Fatuhiva: Uia [Ouia] Valley, altitude 15 feet, September 2, 1930, 1 specimen, on *Triumfetta bartramia;* Uia [Ouia] Valley, altitude 500 feet, September 2, 1930, 6 specimens; LeBronnec.

Eiao: toward northeast side, altitude 1,900 feet, September 29, 1929, 4 specimens, Adamson.

Mohotani: north part, altitude 200 feet, February 4, 1931, 4 specimens, on *Melochia velutina,* LeBronnec and H. Tauraa.

Hatutu: middle, east side, altitude 800 feet, September 30, 1929, 2 specimens, Adamson.

It is, of course, not absolutely certain that the larvae belong to the species *Chrysopa basalis,* but I think it is most probable because this is the only species known from the islands. A study of its life history will, I hope, confirm this supposition.

FAMILY HEMEROBIIDAE

Archaeomicromus marquesana (Kimmins) (fig. 4).

Nesomicromus marquesana Kimmins: The Entomologist, p. 160, figs. 4, 5, 1932 (Marquesas Islands).

Hivaoa: Tenatinaei, Feani Ridge, altitude 3,970 feet, January 12, 1932, 2 individuals; January 13, 1932, 2 males, 2 females; LeBronnec. Temetiu, slope north of summit, altitude 3,860 feet, December 30, 1930, 2 females, at light, H. Tauraa.

Uapou: Vaihakaatiki, altitude 2,800 feet, November 19, 1931, 1 male, LeBronnec.

Kimmins placed this species provisionally in the genus *Nesomicromus* Perkins, but it now has to be transferred to *Archaeomicromus*, which genus contains the second known Polynesian species, *A. navigatorum* Brauer.

TERRESTRIAL TALITRIDAE FROM THE MARQUESAS*

By

K. Stephensen

Zoological Museum, Copenhagen, Denmark

The name "sandhoppers" characterizes a large number of the species of Talitridae very well, as they are commonly found on the shore hopping in the sand. Numerous species, however, live near the shore, swimming in the water, others are found in the open ocean, and still others live in fresh water. A list of the fresh-water and terrestrial species is given by Spandl.[1]

A number of species have truly terrestrial habits; these belong to the four genera, *Orchestia, Parorchestia, Talorchestia,* and *Talitrus* (including *Talitriator*).

The extensive material collected by the Pacific Entomological Survey in the Marquesas in the south-central Pacific includes three species, one of which (*Orchestia marquesana*) is new to science, another contains a previously undescribed form (*O. floresiana* form *monospina*), and all are new records for the Marquesas.

Genus TALITRUS Latreille

Talitrus, Stebbing: Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 524, 1906. Hunt: Mar. Biol. Assoc. Plymouth, Jour., vol. 13, no. 4, p. 861, key to all species, 1925.

Talitrus sylvaticus Haswell (figs. 1-3).

Talitrus sylvaticus Stebbing: Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 524, 1906. Sayce: Roy. Soc. Victoria, Proc., vol. 22 (new ser.), pt. 1, p. 30, pl. 11, 1909. Chilton: Roy. Soc. New South Wales, Jour. Proc., vol. 50, p. 83, figs., 1916. Chilton: Rec. Australian Mus., vol. 14, no. 2, p. 89, 1923. Hunt: Mar. Biol. Assoc. Plymouth, Jour., vol. 13, no. 4, p. 858, figs., 1925.

Talitrus dorrieni Hunt: Mar. Biol. Assoc. Plymouth, Jour., vol. 13, no. 4, p. 854, figs., 1925 (see Schellenberg, Zool. Anz., vol. 105, p. 159, 1934.)

Ovigerous female

Length about 10 mm. Head about 1¾ times as long as 1st mesosome segment. Eyes black, rather large, separated dorsally by a distance almost equal to their smallest diameter (fig. 1).

[1] Spandl, H., Studien über Süsswasser-amphipoden I: Sitz.-ber. Akad. Wiss. Wien., Math.-Naturwiss. Kl., Abt. 1, vol. 133, pt. 9, pp. 460-474, 516-517, 1924.

* Pacific Entomological Survey Publication 8, article 3. Issued January 10, 1935.

Antenna 1 reaches distal end of ultimate joint of peduncle of antenna 2; the 3 joints of the peduncle subequal in length, the flagellum as long as the peduncle, 8-articulate; joint 8 extremely short. Antenna 2 almost as long as the head and 5 mesosome segments combined; the 3 distal joints of the peduncle are increasing in length (length ratio about 2:3:4); the flagellum longer than the peduncle, with about 15 joints.

The oral parts were not dissected out, except the maxillipeds, which have a small 4th joint in the palp, with a few setae.

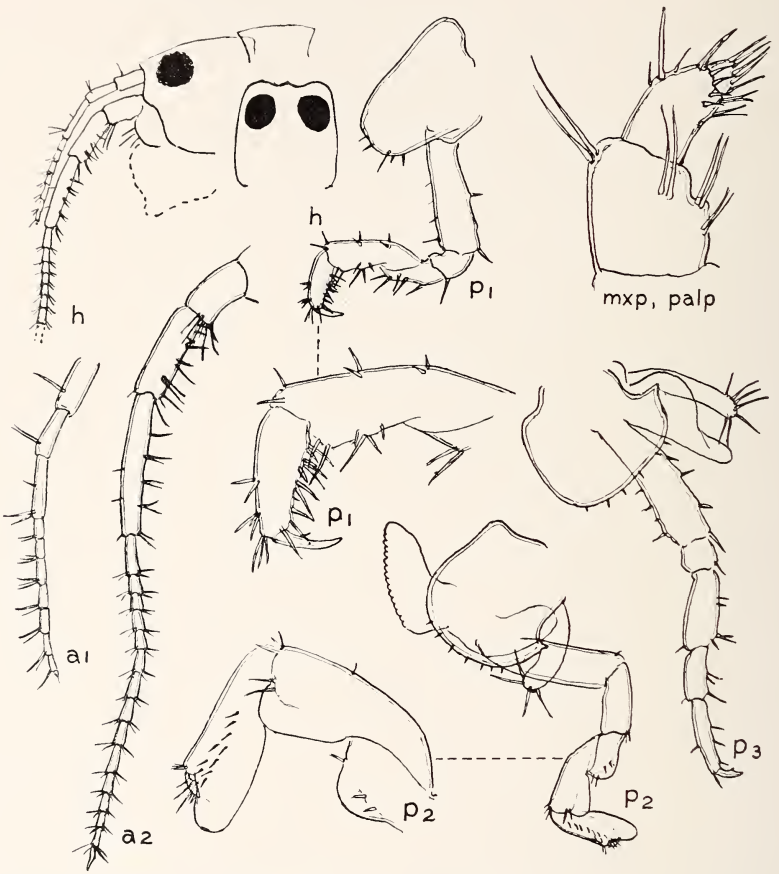

FIGURE 1.—*Talitrus sylvaticus* Haswell, female (Teavaione, Omoa (Oomoa) Valley, Fatuhiva): *h*, head; *a1*, *a2*, antennae 1-2; *mxp.*, *palp*, apex of the palp of the maxillipeds; *p1-p3*, pereiopods 1-3.

Pereiopod 1: the side plate is apically somewhat tapering, with rounded corners, and about 5 spines on the under margin; joint 2 not quite as long as the 3 next joints combined; joint 5 as long as 3 and 4 together, with the margins almost parallel (there are no lobes on joints 4 and 5); joint 6 distally tapering, only a trifle more than half as long as 5; the finger half as long as 6.

Pereiopod 2: the side plate (which is of the same shape as those of pereiopod 3-4) has an acute projection on the hind margin and 6-7 spines on the under margin. Joint 2 longer than the 2 next joints combined, 3 longer than 4. 5 somewhat shorter than 4 and 5

combined, 6 equals 5 in length. Joints 4, 5, and 6 have prominent chagreened expansions, that of 6 projecting far beyond the rather short finger.

Pereiopods 3-4: nothing specially to remark.

Pereiopod 5: longer than pereiopod 3, the two lobes of the side plate equally deep; joint 2 oval (the length is 1½ times the breadth), on the fore margin with a few spines, on the hind margin with about 8 serrations (each with a seta or small spine in the bottom fig. 2).

Pereiopod 6: much longer than pereiopod 5 (which is as long as the 5 first joints combined); the side plate not as deep as 5. Joint 2 oval, the length more than 1½ times the breadth, the fore margin with about 8 spines and a few serrations, the hind margin with about 5 spines but only very slight serrations.

Pereiopod 7: only a trifle longer than pereiopod 6; joint 2 almost circular in outline (the length is 12/11 times the breadth); the fore margin with about 10 spines (or pairs of spines) and a few serrations, the hind margin with about 11 serrations each with a spine.

The gills are of the ordinary shape; that of pereiopod 2 has the fore lobe strongly projecting foreward. The marsupial plates are small, short, with a few setae on the tips.

The metasome segments have the hind margins quite even, but each has a small tooth on the lower hind corner.

Pleopods 1-2 are somewhat normal, quite equal in shape and length. The peduncles have on the median margin a few (pleopod 1) or no (pleopod 2) setae, on the outer margin some feathered setae; the outer ramus about as long as the peduncle, with numerous pairs of feathery setae but (probably) no real segmentation; the inner ramus half as long as the outer ramus, with 5-6 pairs of feathery setae (fig. 3).

Pleopod 3 short and degraded, reaching to the under margin of the epimeral part of the segment, consisting of a peduncle and an extremely short outer ramus; there are no setae.

Uropod 1 has the rami as long as the peduncle; the inner ramus has 5 marginal spines, the outer ramus is quite naked (except for the apical spines). In uropod 2 also, the outer ramus has no marginal spines. Uropod 3 is a trifle more than half as long as the telson; the peduncle is twice as long as the ramus, with 3 spines; the very short ramus has 2 minute apical spines.

The telson is as long as broad, distally tapering, cleft in about 1/3 of the length; there are 2-3 pairs of marginal spines and 1 pair of apical spines.

The antennae have kept traces of red color, and there is a broad red transverse band on the head and on each of the mesosome segments.

Male

Not markedly different from the female, but larger: length up to about 13 mm. Antenna 2 has the ultimate joint of the peduncle about twice as long as the penultimate joint, and the flagellum has about 20 joints.

Uapou: Vaihakaatiki, Hakahetau Valley, November 15, 1931, 1 male, LeBronnec.

Hivaoa: Tapeata, on east side of Mount Ootua, altitude 2250 feet, May 15, 1929, 1 specimen; Maunaofefe, altitude 2000 feet, September 14, 1929, in dead petioles of *Angiopteris* species, about 10 specimens; Mumford and Adamson.

Fatuhiva: Omoa [Oomoa] Valley, Vaikoao, altitude 1500 feet, August 30, 1930, in rotten branches of *Angiopteris* species, about 10 specimens, Punahitahi, altitude 650 feet, August 18, 1930, under dead leaves, about 10

specimens including ovigerous female, Tepeia, altitude 600 feet, August 16, 1930, under dead leaves, 3 specimens, Teavaione, altitude 1700 feet, August 29, 1930, in leaves of *Angiopteris* species, numerous specimens; Hanavave Valley, Teaotu, altitude 1000 feet, September 9, 1930, under dried dead leaves on the ground, about 25 specimens, Ihiota, altitude 950 feet, September 10, 1930, in leaves of *Angiopteris* species, several specimens including ovigerous female; LeBronnec.

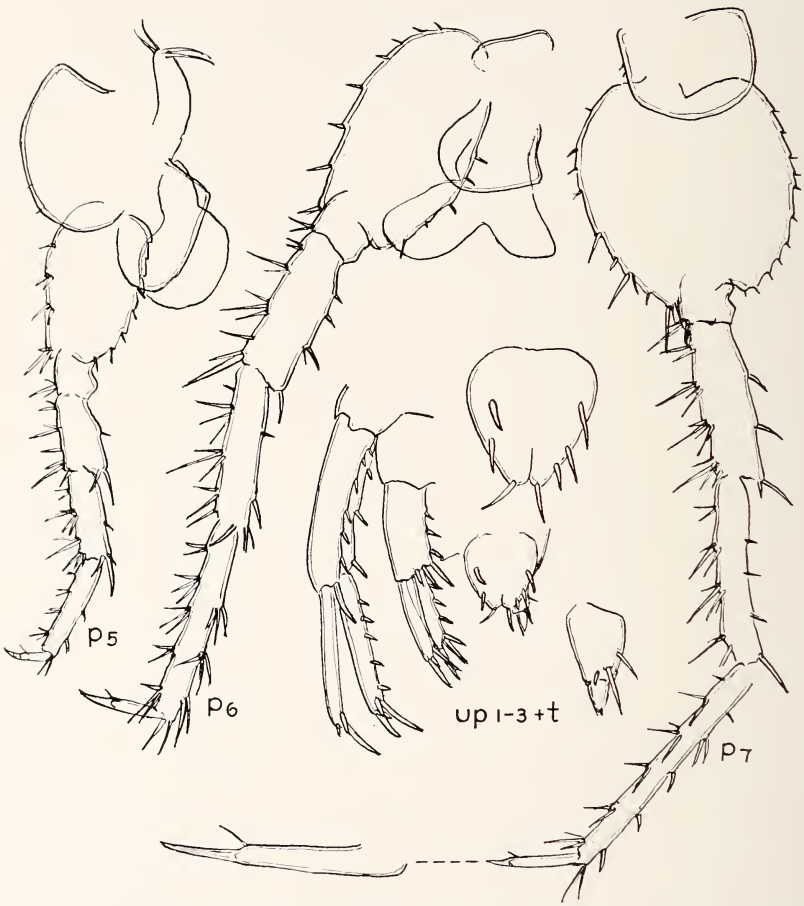

FIGURE 2.—*Talitrus sylvaticus* Haswell, female: *p5-p7*, pereiopods 5-7; *up.* 1-3 + *t*, uropods 1-3 and telson.

The species was taken under dead leaves and in similar habitats; the altitudes (when noted) were from 600 to 2000 feet.

Also recorded from:

New South Wales: on moist ground in woods and scrubs; at Rootyhill, over 50 km from the coast (Stebbing); Barrington Tops, altitude about 1500 meters (Chilton).

Victoria (Sayce):

Very common throughout Victoria at all elevations, under logs and dead leaves in forest and scrub lands, preferably in damp situations, but also frequent in dry places, and often in association with *T. kershawi*. I have also found them just above the tide level at several places on our coast, under dead seaweed, lying on the sand.

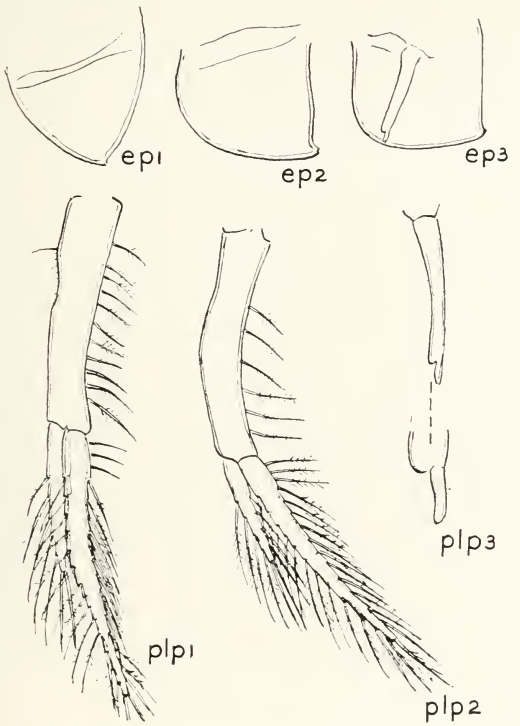

FIGURE 3.—*Talitrus sylvaticus* Haswell, female: *ep*1-*ep*3, epimeral parts of the metasome segments 1-3; *plp*1-*plp*3, pleopods.

Tasmania: very common (Sayce). On Mount Kosciusko and to a height of 760 meters on Mount Wellington (Stebbing).

Hawaii: in a forest in the mountains behind Honolulu, Oahu, under wood, March 27, 1915, 2 ovigerous females, Dr. Mortensen (in the Zool. Museum, Copenhagen).

The species is ordinarily of terrestrial habit, the altitudes (when noted) about 200-1500 meters, but it may be found on the coast just above the tide mark.

In trying to identify the present species from Hunt's key[2] we came to the conclusion that it is *Talitrus sylvaticus,* and it probably is in reality this species. In comparing the material with the rather brief description and the figures given by Sayce[3] we do not find any important difference. Apart from the telson (described and drawn as having the "margin entire"), there is no discrepancy other than the shape of the pleopoda: the second pair is described as "considerably shorter than the first, but of a similar form and clothing. No vestige of a third pair is to be found." Hunt[4] has given figures of the pleopoda in which pleopoda 1-2 agree with Sayce's description, but pleopod 3 is represented by small vestiges, with 1-2 setae but no rami; Chilton[5] describes pleopod 3 as "quite small, with the branches vestigial."

If we bear in mind the great variation of the pleopoda of the well-known *T. alluaudi,* common in hothouses in Europe and other localities, it is possible that a similar variation is also present in other species, and that the Marquesan *Talitrus* species is *T. sylvaticus.*

Genus ORCHESTIA Leach

Orchestia, Stebbing: Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 530, 1906.

Orchestia floresiana Weber (figs. 4-6).

Orchestia floresiana Max Weber: Zool. Ergebn. einer Reise in Niederl. Ost-Indien, vol. 2, pp. 562-564, figs., Leiden, 1892. Stebbing: Amphipoda I. Gammaridea, Das Tierreich, Lief. 21, p. 539, 1906.

Orchestia anomala Chevreux: Soc. Zool. France, Mém., vol. 14, pp. 393-397, figs., 1901.

Orchestia malayensis (Tattersall) variety *thienemanni* Schellenberg: Archiv. f. Hydrobiol., suppl. Bd. 8, "Tropische Binnengewasser Bd. I," pp. 498-502, figs., 1931.

Male

Eyes separated dorsally by a distance of about 1/3—1/4 their diameter, but sometimes (even in the female) the eyes are almost contiguous.

Antenna 1 (fig. 4) reaches to the distal end of penultimate joint of peduncle of antenna 2; joint 3 of the peduncle about as long as the 2 first joints combined. Flagellum is a trifle shorter than the peduncle, 4-articulate, with the joints more slender than those of the peduncle; the apical (4) joint is quite minute.

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[2] Hunt, O. D., On the amphipod genus *Talitrus,* with a description of a new species from the Scilly Isles, *T. dorrieni,* new species: Mar. Biol. Assoc. Plymouth, Jour., vol. 13, no. 4, p. 861, 1925.

[3] Sayce, O. A., Description of two terrestrial species of Talitridae from Victoria: Roy. Soc. Victoria, Proc., vol. 22 (new ser.), pt. 1, p. 30, pl. 11, 1909.

[4] Hunt, O. D., On the amphipod genus *Talitrus,* with a description of a new species from the Scilly Isles, *T. dorrieni,* new species: Mar. Biol. Assoc. Plymouth, Jour., vol. 13, no. 4, pp. 854-869, text-fig. 4, 1925.

[5] Chilton, Charles, Occasional notes on Australian Amphipoda: Australian Mus., Rec., vol. 14, no. 2, p. 90, 1923.

Antenna 2, the ultimate joint of the peduncle in length equals the two preceding joints combined; the flagellum about as long as the peduncle (or somewhat longer), with about 17-18 articles. In a few specimens (both male and female) the antennae are much more slender and elongate than drawn in the figure.

The oral parts were not dissected out, except the maxillipeds; the palp of these has a very small, bud or scalelike joint 4. (See fig. 6.)

On pereiopods 1-2 (Weber, gnathopods 1-2) there is nothing to remark; in a few specimens the hind corner of the 4th joint of pereiopod 1 is much more prominent (bud-like) than drawn in the figure; thus it may have a form like that of *O. floresiana* form *monospina* (fig. 7). The end of the finger in pereiopod 2 is apparently rather feeble and slender, somewhat irregularly curved.

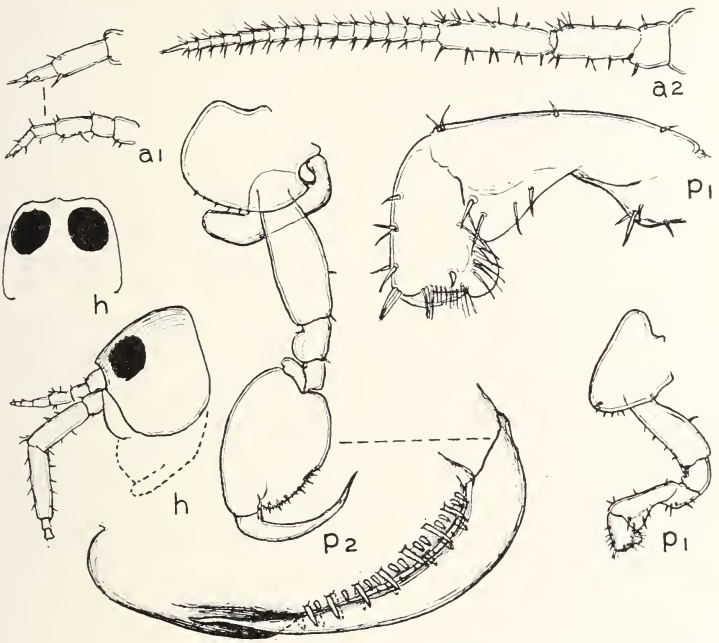

FIGURE 4.—*Orchestia floresiana* Weber, male (Mount Temetiu, Hivaoa): *a1-a2*, antennae 1-2; *h*, head; *p1-p2*, pereiopods 1-2.

On pereiopods 3-6 (not described by Weber) there is nothing especially remarkable except that the side plates of pereiopods 3-4 have the hind corners somewhat acute; pereiopods 3-5 are of about equal length, pereiopod 6 longer. Pereiopod 5 has joint 2 broadened, the length being 1¼ times the breadth, with the fore margin almost straight and with about 5 teeth (each with a spine), and the hind margin very slightly convex, with about 10 small teeth. Pereiopod 6 is very similar to pereioped 5, but longer; joint 2 has on the fore margin about 10 spines, and on the hind margin about 10 (or a few more) small teeth and spines. Pereiopod 7 is nearly as long as pereiopod 6 and of a similar shape, except that joint 2 is much broader, almost circular in outline, the fore margin with about 10 larger spines, and with hind margin very densely serrate, with about 35 small denticles, each having a small spine in the bottom (Weber, "26-28 small spines"). None of the joints of pereiopods 6-7 are specially broadened, except joint 2 (fig. 5, pereiopods 3-7).

The hind edge of the epimeral parts of metasome segment 1 is even, in segment 2-3 finely dentate in the lower part (Weber, "quite even in all the 3 segments"), but the lower hind corner of all the 3 segments are somewhat produced, with a blunt tooth. Along the lower margin of these 3 segments (especially in segment 2) is a row of small, vertical fissures, probably the openings of small oval glands (these glands are not mentioned in the literature, but they are present also in the specimens in the Copenhagen Zool. Museum). The pleopoda are normal, but the rami are rather short, with 4-6 pairs of feathered setae.

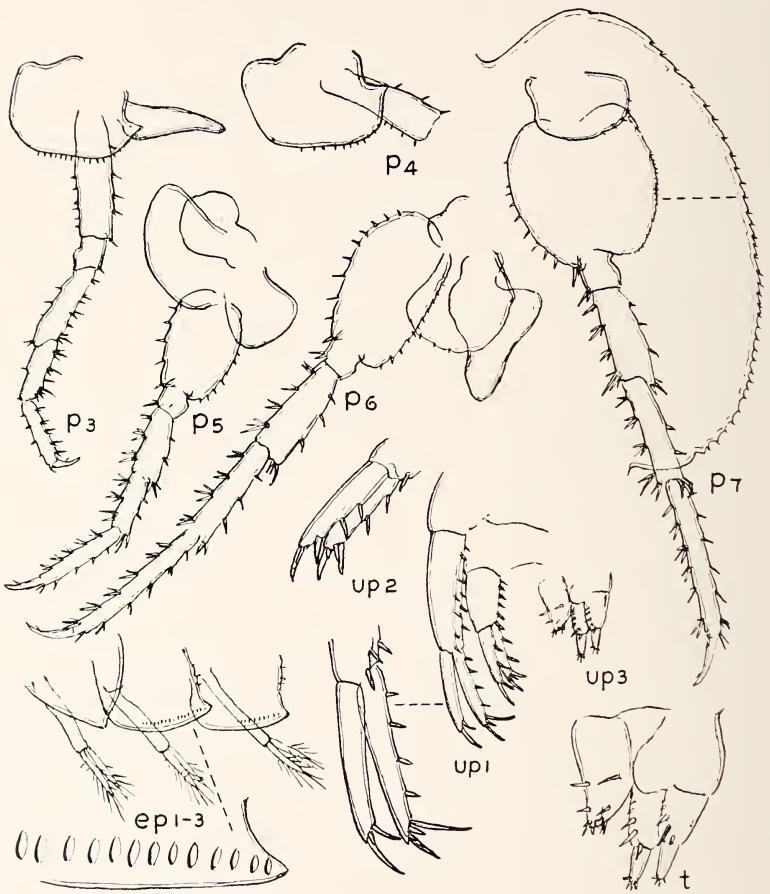

FIGURE 5.—*Orchestia floresiana* Weber, male: *p*3-*p*7, pereiopods 3-7; *ep*1-3, epimeral parts of the metasome segments 1-3, with the pleopods; *up*1-3+*t*, uropods 1-3 and telson (*t*, telson, left; uropods, right).

Uropod 1 has in the outer ramus no marginal spines. Uropod 2 has on the peduncle 5 marginal spines and 1 apical spine (Weber, "3-4 larger and smaller apical spines"), and on each ramus 2 spines, besides the apical spines (Weber, "inner ramus has 5, outer ramus 2 spines"). Uropod 3 has on the peduncle a row of about 2-5 spines, on the ramus 4 small apical spines (Weber, "the peduncle and the short ramus are spinose on the outer margins").

The telson (not mentioned by Weber) is oval, cleft in about ¼ of the length, with 2 pairs of marginal spines and about 3 pairs of apical spines.

The length is up to about 10-11 mm. (Weber, "up to 8 mm").

Female

The female agrees fully with the male, except in pereiopods 1-2; in 1 the very short palm is not concave, but somewhat straight. Uropod 3 and the telson have some fewer spines than the male. Length up to about 12 mm. (Weber, "up to 8 mm") (fig. 6).

Nukuhiva: Teuanui, Tovii [Toovii], altitude 2000 feet, October 27, 1929, under dead leaves, 1 male; Ooumu, altitude 4050 feet, November 12, 1929, among dead leaves, 1 male, about 10 females, altitude 3700-4000 feet, about 10 females; Mumford and Adamson.

Uapou: Vaihakaatiki, Hakahetau Valley, altitude 3010 feet, November 18, 1931, under dead leaves, 1 female; Tekohepu Summit, altitude 3300 feet, September 21, 1931, 1 male, 2 females; LeBronnec.

Hivaoa: Matauuna, altitude 3760 feet, August 1, 1929, among dead leaves, 2 males, about 10 females and juveniles; Mounaofefe [Maunaofefe], altitude 2000 feet, September 14, 1929, in dead petioles of *Angiopteris* species, 2 females; Tapeata, on east side of Mount Ootua, altitude 2250 feet, May 15, 1929, 2 females; Mount Ootua Summit, altitude 3032 feet, February 13, 1930, at base of *Asplenium nidus,* 1 male, 6 females; Mumford and Adamson. Feani Summit, altitude 3900 feet, January 21, 1932, 2 males, 2 females, LeBronnec; Mount Temetiu, altitude 3750 feet, December 27, 1930, 1 male, several females, H. Tauraa.

Tahuata: Hanamiai Valley, altitude 1000 feet, May 18, 1930, under rotten leaves, 3 juveniles (and 1 female ?); Vaitupaahei, altitude 2000 feet, July 2, 1930, in dead stipes of *Angiopteris* species, 2 males, several females; Amatea, altitude 2000 feet, June 28, 1930, 1 male, 1 female, altitude 2500 feet, July 9, 1930, 1 male, 7 females, altitude 2700 feet, July 7, 1930, on *Metrosideros collina,* 3 females; LeBronnec and H. Tauraa.

Fatuhiva: Ihiota, Hanavave Valley, altitude 930 feet, September 10, 1930, in leaves of *Angiopteris* species, 1 male, 1 female; Vaikoao, Omoa [Oomoa] Valley, altitude 1700 feet, August 29, 1930, in leaves of *Angiopteris* species, 4 males, 7 females; Teavaipuhiau, altitude 2150 feet, July 25, 1930, in rotten leaves of *Angiopteris* species, 1 male, 3 females; ridge east of Omoa [Oomoa] Valley, altitude 3000 feet, August 28, 1930, in *Freycinetia* species, 2 males, 4 females, altitude 300 feet, August 27, 1930, on *Freycinetia* species, 3 males, 1 female, altitude 3100 feet, on the ground, 2 males, 4 females; LeBronnec.

Also recorded from:

Seychelles: Île Ronde, on the beach, under algae; La Digue, under similar conditions; Mahé, sand and algae, 2-3 meters (*O. anomala,* Chevreux).

Gulf of Siam: Koh Kut, stony coast, January 1, 1900, 1 male, 1 female, Dr. Mortensen (Zool. Museum, Copenhagen; K. Stephensen determination).

Java, Bali, and Westflores: 18 localities, in rivulets, fountains, and waterfalls, in moss, etc., the altitudes above sea level (when noted) 980-1787 meters (*O. malayensis* variety *thienemanni* Schellenberg).

Flores: on the edge of a fresh-water pool in a small forest near the shore, and in the rivulet Lella near its mouth (*O. floresiana* Max Weber).

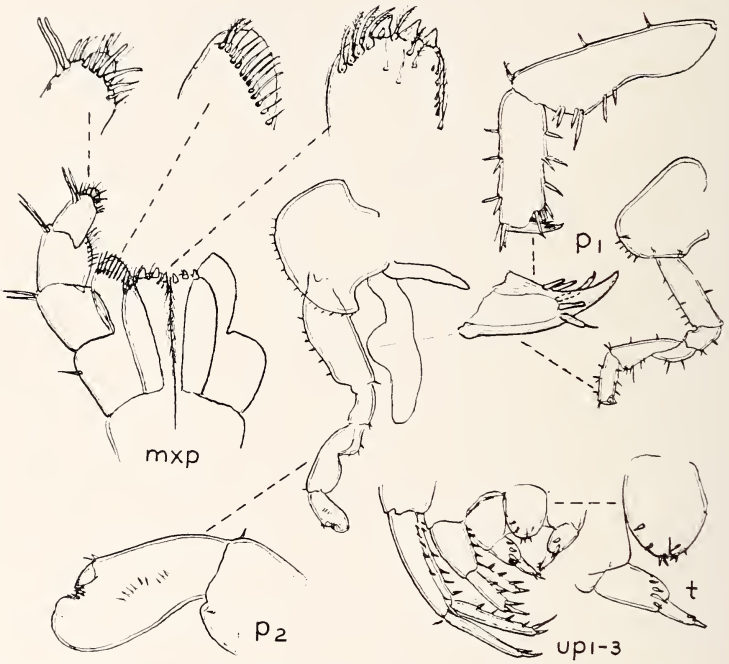

FIGURE 6.—*Orchestia floresiana* Weber, female (Mount Temetiu, Hivaoa): *mxp.* maxilliped; *p1, p2,* pereiopods; *up*1-3+*t,* uropods 1-3 and telson.

New Britain: Mövehafen, several specimens, and Arawe, from the stomach of the lizard *Lygosoma atrocostatum* several specimens, Dr. H. Hediger collector, 1931 (Basel Museum and Zool. Museum, Copenhagen: K. Stephensen determination).

According to the above records this species is distributed in the tropical islands of the Indo-Pacific from the Seychelles to the Marquesas, under very variable conditions, from the shore up to forests at an altitude of about 1800 meters above sea level.

No doubt the material belongs to the species cited above; the original description is, however, rather brief and provided with only 4 figures (pereio-

pods 1-2 in male and female). Thus it was considered proper to give new figures of all the appendages and other details with some supplementary remarks.

There does not seem to be any doubt as to the correctness of the determination, for there is a very close agreement with Weber's original description, especially as to the two most important characters, the long and apically almost filiform finger of pereiopod 2 in the male, and the very densely serrate hind margin of joint 2 of pereiopod 7 in both sexes.

No doubt *O. floresiana* Weber 1892 (from Flores) is synonymous with *O. anomala* Chevreux 1901 (from the Seychelles) and *O. malayensis* (Tattersall) variety *thienemanni* Schellenberg (from Java, etc., = *O. parvispinosa* Chilton 1912, from Java, non *O. parvispinosa* Weber 1892).

The agreement with *O. anomala* male is very striking; the essentials are quite alike; the shape of pereiopod 2 in the male (Chevreux "gnathopode postérieur"), with the long, apically slender finger; the shape of the finger of pereiopod 1 in female (Chevreux, "gnathopode antérieur"), provided with 5 (not 6) spines; and the densely dentate hind margin of joint 2 of pereiopod 7. The disagreements are rather few and not of any importance, and some of them are probably not quite constant; the flagellum of antenna 1 has 4 (not 3) joints; the palm of pereiopod 1 has more numerous spines; pereiopod 2 has the hind margin of joint 2 not very convex; joint 2 of pereiopod 6 has the hind margin not even but dentate; outer ramus of uropod 1 has distally 3 spines (Chevreux writes 2, but his figure shows 3); uropod 3, number of spines on the ramus rather inconstant, varying from 2 to 5 (Chevreux: 3); the number of spines on the ramus is also rather variable; the telson is a trifle narrower than in Chevreux's species, and the number of spines varies to some extent.

The agreement with *O. malayensis* (Tattersall) variety *thienemanni* Schellenberg is also very striking, but there are a few discrepancies: the hind margin of the epimeral parts of metasome segments 2-3 is not quite even; the telson is longer than broad (the length not equal to the breadth); the joints of the flagellum of antenna 2 are not markedly longer than broad (this is possibly an age character); the joints of the palps of the maxillipeds are not extremely broad; the palm of pereiopod 1 in the male is not slightly concave; the finger of pereiopod 2 in the male is apically not quite straight; pereiopod 7 has on the hind margin more than 30 small denticles (Schellenberg, "about 20"); the uropods 1-2 have not quite as many spines as recorded by Schellenberg.

Schellenberg[6] writes that his species is very close to *O. anomala,* and that

[6] Schellenberg, A., Amphipoden der Sunda-Expeditionen Thienemann und Rensch.: Archiv. f. Hydrobiol. suppl. Bd. 8, "Tropische Binnengewasser Bd. I," p. 502, 1931.

he finds important discrepancies only in the shape of the finger of pereiopod 2 in male; he dare not consider them synonymous. I cannot see why he considers his species identical with *O. parvispinosa* Chilton, for pereiopod 2 in the male is very different in the two species.

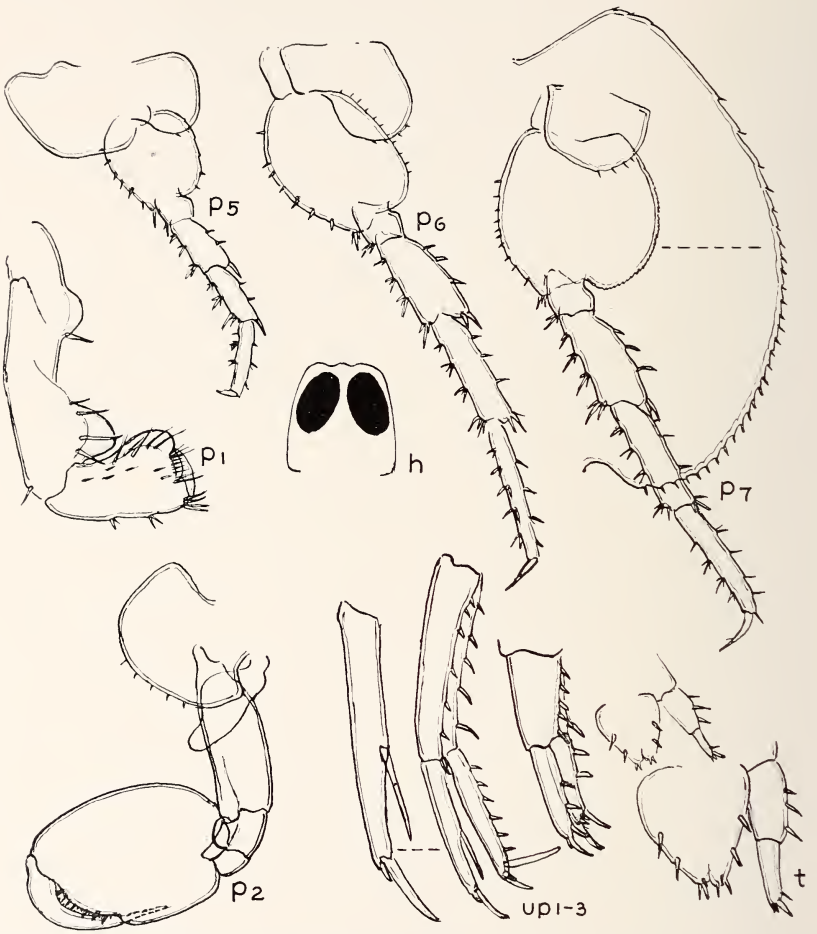

FIGURE 7.—*Orchestia floresiana* form *monospina* new form, male, (Uapou, Tekohepu Summit): *h*, head; *p*1, *p*2, *p*5, *p*6, *p*7, pereiopods 1, 2, and 5-7; *up*1-3 + *t*, uropods 1-3 and telson.

Orchestia floresiana form **monospina,** new form (fig. 7).

The specimens (3 males, no females) agree well with the majority of the specimens of *O. floresiana,* as described above, with the following exceptions:

Eyes enormous, contiguous at the top of the head. Antenna 1 somewhat more slender, but not longer. Antenna 2, the flagellum a trifle shorter than the peduncle, 10- or 11-articulate. Maxillipeds quite identical with those of *O. floresiana.* Pereiopod 1: the processes or lobes on the hind margin of joints 4 and 5 larger and more sharply con-

stricted than ordinarily in *O. floresiana*; but in some specimens of *O. floresiana* these processes have the same shape. Pereiopod 2; joint 6 a trifle more elongate; on pereiopods 3-4 there is nothing to remark. Pereiopods 5-7 somewhat more stout than in *O. floresiana*; especially joint 2 in pereiopod 5-6 is considerably broader. Pleopods 1-3 are longer, in that the rami are as long as the peduncles. Uropod 1 has on the outer ramus 1 long marginal spine, placed near the centre of the joint, and apically 1 very short and only 1 long spine (not 2). Uropods 2-3 and telson not differing from those of *O. floresiana*. Length up to about 9 mm.

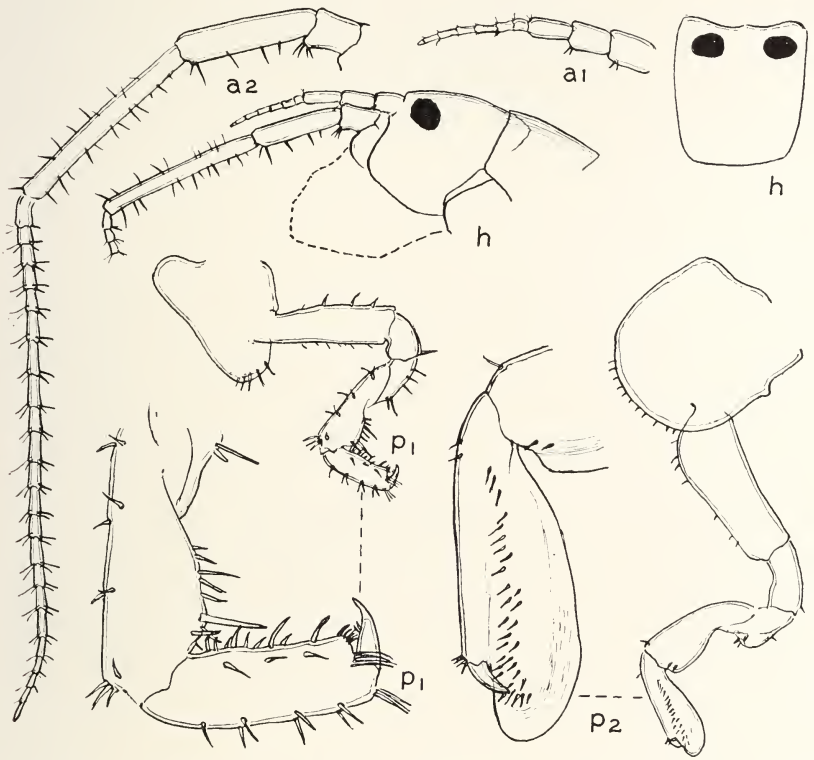

FIGURE 8.—*Orchestia marquesana*, new species, female (Uapou, Teavaituhai, Hakahetau Valley): *a1*, *a2*, antennae 1-2; *h*, head; *p1*, *p2*, pereiopods 1-2.

Uapou: Tekohepu Summit, altitude 3300 feet, November 21, 1931, 2 males, LeBronnec.

Uahuka: Hitikau, altitude 2900 feet, March 3, 1931, 1 male, LeBronnec and H. Tauraa.

Of the discrepancies recorded above, probably few are due to more than individual variation; the broad joint 2 in pereiopods 5-6, and especially the long marginal spine of the outer ramus of uropod 1 (no other species of *Orchestia* and the allied genera has 1 long marginal spine; the ramus is either naked, apart from the apical spines, or there is a row of spines).

I dare not establish this form as a new species and prefer to call it *Orchestia floresiana monospina,* new form (*monospina* was chosen in allusion to the single marginal spine mentioned above).

Orchestia marquesana, new species (figs. 8-10).

Female

Marsupium well developed. Body quite even. The head is a trifle longer than 1st mesosome segment. Usually the eyes are moderately large (fig. 8), separated dorsally by a distance almost equal to their greatest diameter, but sometimes they are much larger, and then the distance between them is only half of their greatest diameter.

In most of the specimens the eyes are black, but in some they are quite colorless (in spirits), and yet it was not possible to find any other differences between the two sorts of specimens. Reduced eyes have been found in a few other species: *Orchestia japonica* Tattersall and *Talorchestia parvispinosa* Chilton.

Antenna 1 reaches a trifle beyond the penultimate joint of the peduncle of antenna 2. The peduncle is as long as the flagellum; the 3 joints are of almost equal length, joint 3 somewhat more slender than the others. The flagellum has 7 equal-sized joints; only joint 7 is very minute.

Antenna 2 is as long as the head plus the mesosome. The ultimate joint of the peduncle is very slender and as long as or a trifle longer than the 2 preceding joints together; the flagellum is longer than the peduncle, with about 22 rather elongate joints.

On the oral parts there is nothing to remark; the palp of the maxillipeds has a minute, scalelike 4th joint.

Pereiopod 1 has the side plate ventrally tapering, with a few spines. The limb is rather slender; none of the joints are especially widened. There is no pellucid lobe on joint 4. Joint 5 is not much shorter than 2, distally very slightly widened, with a few smaller and a single larger spine. Joint 6 is about 2/3 as long as joint 5, with parallel margins and some spines, and the transversal palm about half as long as the breadth of the joint. The finger is moderately stout, as long as joint 6 is broad.

Pereiopod 2 has the side plate ventrally rounded, with about 10 spines, and on the hind margin a minute triangular process (similar processes are probably not present in the side plates of pereiopods 3-4). Joint 4 has a lobe, joint 5 is distally somewhat widened; joint 6 is as long as 5, not very broad; there is no distinct palm, and the finger is half as long as the distal lobe of joint 6.

On pereiopods 3-4 there is nothing specially to remark.

Pereiopods 5-6 have joint 2 oval, with spines on the fore margins and with about 10-12 denticles on the hind margins. Joint 2 of pereiopod 7 is much broader, but with a similar armature on the margins. Pereiopod 7 is somewhat longer than pereiopod 6 (fig. 9).

Metasome segments 1-3 have the hind margins provided with about 5-7 serrations; the lower hind corners are almost rectangular, very little protruding, rounded at the apex. The pleopoda are rather reduced and not reaching the under margin of the epimeral plates. They are quite alike, but somewhat decreasing in length from 1 to 3. Each pleopod has a long peduncle, with a single pair of minute coupling-spines; there are 2 small single-jointed rami of about equal length (about ¼ as long as the peduncle) each with 1-3 feathered setae.

The uropoda are normal. Uropod 1 has the peduncle and the two rami of almost equal length (the same applies to uropod 2). Each of the two rami has 3-4 spines; the inner ramus has 4 marginal spines, the outer ramus is quite naked, except for the apical spines. Uropod 2 has two marginal spines on each ramus. Uropod 3 has the peduncle heavy, with 1-2 spines; the ramus is of almost equal length, with 3-5 spines.

The telson is oval, with the length a trifle greater than the breadth, and distally with a minute fissure. There are 1-2 pairs of dorsal spines and 2-3 pairs of apical spines. Length to about 14 mm (fig. 10).

Nukuhiva: Oomu, altitude 3700-4000 feet, November 13, 1929, among wet herbage, 8 females, eyes black; Teuanui, Tovii [Toovii], altitude 2000 feet, October 22, 1929, under dead leaves, about 15 females, eyes black; Mumford and Adamson.

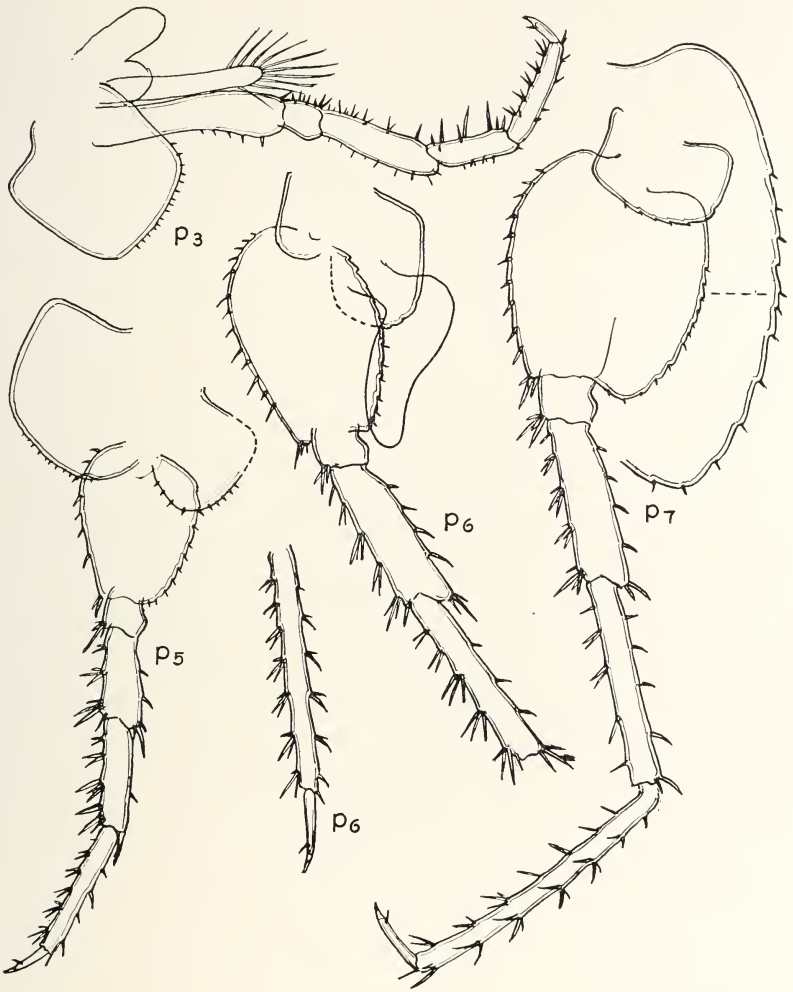

FIGURE 9.—*Orchestia marquesana*, new species, female: *p*3, *p*5, *p*6, *p*7, pereiopods 3, 5-7.

Uahuka: Hitikau, altitude 2900 feet, March 3, 1931, 5 females, eyes black; Penau, Hane Valley, altitude 1820 feet, February 27, 1931, under dead leaves, about 20 females, eyes black; LeBronnec and H. Tauraa.

Uapou: Vaihakaatiki, altitude 3020 feet, November 18, 1931, 3 females,

eyes black, about 15 females with eyes colorless; Vaihakaatiki, Hakahetau Valley, altitude 3020 feet, November 18, 1931, under dead leaves, about 10 females, eyes black, 1 female, eyes colorless; Teavaituhai, Hakahetau Valley, altitude 3020 feet, November 19, 1931, 7 females, 6 with eyes black; Tekohepu Summit, altitude 3300 feet, November 21, 1931, 7 females, eyes colorless; Tekohepu Summit, altitude 3200 feet, November 28, 1931, under rotting leaves, 3 females, eyes black, 6 females, eyes colorless, LeBronnec. Hakahetau Valley, altitude 2700 feet, July 8, 1929, in dead stipes of *Cyathea* species, 1 female, eyes black, Adamson.

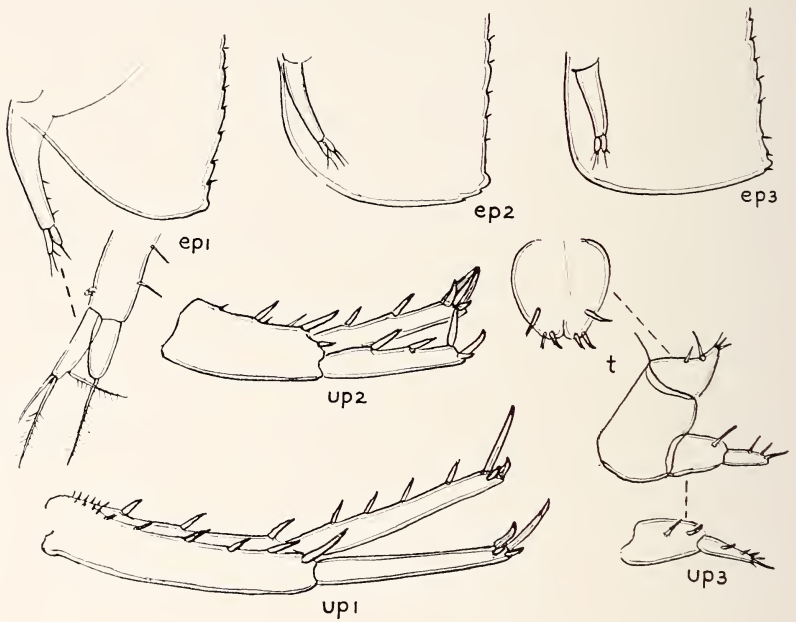

FIGURE 10.—*Orchestia marquesana,* new species, female *ep*1-*ep*3, epimeral parts of the metasome segments 1-3 with the pleopods; *up*1-3 + *t*, uropods 1-3 and telson.

On account of the shape of the minute 4th joint of the palp in the maxillipeds and of the distinct transversal palm of pereiopod 1 in the female, the species must belong to the genus *Orchestia;* but unfortunately there is no male. It belongs to the group without marginal spines on the outer ramus of uropod 1. The most important character is the degraded pleopoda, a character not found in any other *Orchestia,* but in species of the genera *Talitrus* and *Talorchestia.* An exception is *Parorchestia luzonensis*[7] which would seem to belong to the genus *Orchestia* (palm of pereiopod 1, female); here the pleopods are said to be "not half the size of those of *P. lagunae* (which are not described), but otherwise normal."

[7] Baker, C. F., Two Amphipoda of Luzon: Philip. Jour. Sci., sect. D, vol. 10, p. 253, figs., 1915.

NOUVELLES ARAIGNEES MARQUISIENNES*

Par

Lucien Berland

Muséum National d'Histoire Naturelle, Paris

Depuis la publication que j'ai fait en 1933[1] d'une étude sur les Araignées des Marquises, un nouvel envoi m'est parvenu, contenant les récoltes récentes de M. LeBronnec, résident aux Marquises.

Cet envoi, qui dénote chez M. LeBronnec une extrême application, et un talent remarquable d'entomologiste collecteur, améliore encore très sensiblement nos connaissances sur les Araignées de cet archipel. Il comprend, bien entendu, la plupart des espèces précédemment récoltées, mais en outre un certain nombre de formes nouvelles, qui modifient d'une façon appréciable nos conceptions de la faune aranéenne des Marquises. Cet heureux résultat est dû non seulement a l'habileté de M. LeBronnec dans la récolte de très petites formes, mais aussi à son souci constant d'explorer les sommets des montagnes, dans des endroits presque inaccessibles, et où certainement la faune endémique n'a été troublée par aucune intervention humaine, et a pu rester dans un état absolument virginal.

Si l'on veut bien se reporter a l'intéressant exposé fait par MM. Mumford et Adamson[2] on voit que les îles marquisiennes comprennent une zone côtière et subcôtière, dont les caractères sont rapidement altérés par l'action de l'homme, en particulier par la présence de mammifères d'élevage introduits, et qui détruisent très vite une partie de la forêt. Mais le sommet des montagnes échappe jusqu'à présent à ces déprédations, et la forêt s'y maintient dans son état, entretenue d'ailleurs par d'abondantes pluies. On sait, au reste, que les sommets de la plupart des îles hautes de Polynésie sont dans cette situation, et qu'ils sont à ce point peu fréquentés par l'homme que le sommet, à Tahiti, n'a été atteint que par un très petit nombre d'ascensionnistes[3]. Du temps des indigènes, leurs croyances superstitieuses leur communiquaient une crainte invincible de ces montagnes, et même depuis l'arrivée des européens l'ascension en reste pleine de difficultés.

Ces sommets humides et boisés abritent une faune qui se révèle très intéressante: c'est ainsi que M. LeBronnec a pu y trouver, en particulier, plusieurs Linyphies et Erigones; on sait que ces Argiopides de petite taille

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

[2] Mumford, E. P., and Adamson, A. M., Entomological researches in the Marquesas Islands: V^e Cong. internat. d'Ent., p. 431, Paris, 1932 (1933).

[3] Malardé, Y., Excursion à l'Aorai: Soc. d'études océaniennes, Bull., no. 48, p. 233, 1933.

* Pacific Entomological Survey Publication 8, article 4. Issued February 11, 1935.

sont surtout les habitants des régions froides et tempérées, et leur présence dans les pays chauds était considérée comme exceptionnelle. Cela ne serait-il pas dû avant tout au manque d'attention des collecteurs habituels et non spécialistes?

Quoiqu'il en soit, grâce aux récoltes de M. LeBronnec, les Marquises, qui sont les dernièrement explorées, deviennent les mieux connues de Polynésie, et leur faune aranéenne l'est actuellement bien mieux que celle de Tahiti. Par suite de ce que nous apportent de nouveau ces captures, je puis donner quelques remarques sur leur répartition.

La liste des Araignées actuellement connues des Marquises est assez différente de celle que j'avais donnée dans le précédent mémoire pour qu'il me paraisse utile de la donner à nouveau. Elle s'établit aujourd'hui ainsi qu'il suit:

Dysderidae: Ariadna lebronneci Berland.
Sicariidae: Scytodes striatipes L. Koch, Scytodes marmorata L. Koch.
Oonopidae: Gamasomorpha loricata L. Koch.
Drassidae: Poecilochroa rollini Berland.
Thomisidae: Misumenops delmasi Berland.
Clubionidae: Corinna cetrata Simon, Clubiona alveolata L. Koch.
Sparassidae: Heteropoda regia Fabricius, Heteropoda nobilis L. Koch.
Salticidae: Bavia aericeps Simon, Plexippus paykulli Audouin, Menemerus bivittatus Dufour, Mollica microphthalma L. Koch, Thorellia ensifera Thorell, Athamas whitmeei Cambridge, Sandalodes calvus Simon, Sandalodes triangulifer Berland, Sandalodes nigrolineatus Berland, Sandalodes flavipes Berland, Sandalodes nigrescens Berland, Sandalodes magnus Berland.
Pholcidae: Physocyclus gibbosus Taczanowsky, Smeringopus elongatus Vinson, Pholcus ancoralis L. Koch.
Theridiidae: Theridion rufipes Lucas, Theridion fatuhivaensis Berland, Theridion mendozae Berland, Theridion 7-punctatum Berland.
Argiopidae: Uapou maculata Berland, n.g., n.sp., Hivaoa argenteoguttata Berland, n.g., n.sp., Hivaoa nigromaculata (Berland), Hivaoa hirsutissima Berland, n.sp., Uahuka spinifrons Berland, n.g., n.sp., Uahuka affinis Berland, n.sp., Ischnyphantes pacificanus Berland, n.sp., Leptyphantes lebronneci Berland, n.sp., Leucauge mendanai Berland, Tetragnatha nitens Audouin, Tetragnatha macilenta L. Koch, Tetragnatha marquesiana Berland, n.sp., Cyclosa tauraai Berland, Araneus theisi Walckenaer, Araneus plebejus L. Koch.
Pisauridae: Nukuhiva (n.g.) adamsoni (Berland), Dolomedes noukhaiva Walckenaer.
Uloboridae: Uloborus geniculatus Olivier.
Dictynidae: Syrorisa mumfordi Berland.

Le nombre d'espèces connues est donc maintenant de 48 (contre 36 précédemment), et le nombre des endémiques étant de 24, nous avons un endémisme de 50%, chiffre très voisin de l'endémisme néo-calédonien, ou de Samoa, qui est de 56% dans un cas comme dans l'autre, mais encore nettement inférieur à celui des Hawaii, 80%.

Mais les espèces que je décris plus loin comme nouvelles ont un caractère très particulier. Tout d'abord, elles m'ont obligé à créer plusieurs genres

nouveaux—auxquels j'ai donné le nom des îles de l'archipel marquésien—car elles semblent sans affinité aucune avec le restant du Pacifique. En effet ce sont ce que arachnologues connaissent bien sous le nom d'Erigones ou de Linyphies, c'est à dire des Araignées de très petite taille, appartenant à la famille des Argiopidae, et qui abondent dans les pays tempérés. Mais si on les connaît fort peu des régions tropicales, c'est d'abord que, peut-être, y sont-elles limitées aux montagnes, ou tout au moins à certaines altitudes, car il ne paraît pas douteux que la faune tropicale proprement dite s'élève très peu au-dessus du niveau de la mer et que dès 800 ou 1,000 mètres, elle disparaît presque totalement, pour laisser place à des éléments bien différents. Cela doit tenir, en outre, à ce qu'on a très peu récolté sur les hauteurs, surtout en Océanie, ou bien que les récoltes n'y ont pas été faites par des naturalistes spécialisés. Ainsi donc, tandis que les Marquises se rattachent très nettement au restant de la Polynésie par la plupart de ses éléments, il semblerait que les sommets sont au contraire très différents. Mais cette apparence est due tout simplement à ce que les sommets des autres îles hautes du Pacifique n'ont pas été explorés zoologiquement, sauf peut-être ceux de la Nouvelle Calédonie et des Hawaii. J'ajouterai que, si ces petites Araignées rappellent nos Erigones et Linyphies, cependant elles ne rentrent pas, en général, dans nos genres, mais au contraire à des genres bien spéciaux, dont je n'ai pas trouvé l'équivalent. Il y a cependant deux exceptions, une de ces Araignées appartenant au genre *Ischnyphantes*, et une autre au genre bien connu *Leptyphantes*.

Espèces cosmopolites. Même ces Araignées, très largement répandues, sont susceptibles de nous fournir des indications non dépourvues d'intérêt si on veut bien les examiner à un point de vue différent des autres. Elles sont au nombre de 9, dont la liste suit, sur la vingtaine de cosmopolites actuellement connues, et, ainsi que je l'avais fait remarquer dans le précédent mémoire, les pancosmopolites qui habitent aussi bien les pays chauds que pays tempérés, ne s'y trouvent pas encore: le tableau ci-joint fait d'ailleurs mieux ressortir l'absence de certaines cosmopolites, absence d'autant plus remarquable que plusieurs d'entre elles se trouvent en Polynésie, notamment *Theridion tepidariorum* à l'île de Pâques et aux Hawaii, *Argiope trifasciata* dans la région canaque, etc. La distribution des Araignées cosmopolites est donc discontinue, mais on peut admettre qu'elle a une tendance à s'uniformiser, le transport passif de ces espèces s'opérant de nos jours et sous nos yeux.

Espèces Cosmopolites (pc = pancosmopolite ; ct = cosmotropicale)

Présentes aux Marquises	Absentes des Marquises
Heteropoda regia (ct)	Hasarius adamsoni (pc)
Plexippus paykulli (ct)	Pholcus phalangiodes (pc)
Menemerus bivittatus (ct)	Theridula opulenta (pc)
Physocyclus gibbosus (ct)	Teutana grossa (pc)
Smeringopus elongatus (ct)	Tegenaria domestica (pc)
Theridion rufipes (ct)	Latrodectus geometricus (ct)
Araneus theisi (ct)	Araneus nauticus (ct)
Uloborus geniculatus (ct)	Nephila cruentata (ct)
	Argiope trifasciata (pc)
	Oecobius annulipes (pc)
	Dysdera crocata (pc)
	Loxosceles rufescens (pc)
	Scytodes domestica (ct)

Un cas curieux se présente au sujet des *Heteropoda* : il y a, dans le Pacifique, deux espèces associées de ce genre, *H. regia,* cosmopolite, et *H. nobilis,* qui n'est que polynésienne. Nous manquons de renseignements sur l'écologie de *H. nobilis,* mais nous savons que *H. regia* est essentiellement domestique, vivant dans les cases des indigènes de toute la zone tropicale ; par ailleurs on la trouve souvent sur les navires de toutes dimensions, et il n'est pas douteux que c'est de cette manière qu'elle a été répandue. *H. nobilis,* par contre, est strictement polynésienne, on ne la connaît actuellement que de Samoa, Tahiti, Rapa, les Marquises ; je ne sais si elle vit dans les habitations humaines, mais, en tout cas, il n'y a pas de doute qu'elle ne se laisse pas transporter, sans quoi elle aurait depuis longtemps dépassé les limites de ce qui semble bien être son aire de répartition naturelle. Aux Marquises, cependant, elle s'est répandue aussi abondamment que *H. regia,* et les deux espèces habitent les îles suivantes en commun : Nukuhiva, Hivaoa, Fatuhiva, Uapou ; et en outre, *H. regia* se trouve à Uuhuka, et *H. nobilis* à Tahuata.

Voici donc deux espèces, qu'on peut considérer comme associées (ou géminées) dans le domaine qui leur est commun, mais qui ont un comportement bien différent, l'une ne quittant pas la Polynésie, l'autre se laissant transporter partout. Nous saisissons là l'un des facteurs de l'extension des espèces cosmopolites, facteur interne, car elles ont, en elles mêmes, un besoin pourrait-on dire, d'évasion, presque toujours corrélatif au désir de vivre avec l'homme, et auquel se joint, naturellement, la faculté d'acclimatation en des pays divers. Seule parmi les Heteropoda, *H. regia* réunit ces conditions différentes, que rien, dans leur morphologie, ne permettrait de soupçonner. Son cas se retrouve très exactement chez des insectes cosmopolites ; par exemple la Fourmi *Pheidole megacephala* est la seule, parmi les quelque 300 espèces du genre, qui soit cosmopolite, en outre elle est domestique, se laisse transporter par l'homme, et s'acclimate a peu près partout. Ce qui me paraît

remarquable c'est que ces facultés de transport et d'acclimatation sont l'apanage d'espèces isolées parmi des genres nombreux, et qu'au surplus elles ne sont décelées par aucun caratère externe.

Mais si *Heteropoda regia* fréquente l'homme, elle ne reste pas strictement commensale, et elle s'évade pour vivre en plein air. C'est ainsi que, si elle a été trouvée à Taiohae et Atuona, les deux agglomérations les plus importantes des Marquises, on l'a trouvée aussi dans de petites îles très peu peuplées, telles que Uahuka et Uapou, dans les montagnes de l'intérieur (800 et 1,000 mètres) et a Hivaoa où on l'a trouvée jusqu'à la côte 1,300. Il n'est pas possible de savoir actuellement si, dans les autres contrées qu'elle habite, elle quitte également l'homme, mais on peut penser qu'elle le fait aux Marquises grâce à un climat particulièrement favorable.

Quant à *H. nobilis,* elle n'a pas été rencontrée à Taiohae, ni à Atuona, et tout indique que son peuplement est différent de celui de *H. regia*: la première se trouve bien "en place" aux Marquises, par suite de l'existence d'un continent polynésien. Par contre *H. regia,* dont on ne connait pas l'origine, n'y a probablement été introduite qu'à une époque récente, et artificiellement, ayant abordé la côte et les endroits peuplés, c'est secondairement qu'elle a gagné l'intérieur des îles.

Pour les autres cosmopolites, *Araneus theisi* est la plus commune, elle fréquente de préférence le littoral et les vallées qui y aboutissent, mais elle s'évade largement vers l'intérieur, sans toutefois atteindre les hauts sommets.

Espèces communes et caractères de la faune aranéenne. Il est intéressant de signaler, autant qu'on puisse le savoir à distance, quelles espèces sont dominantes, et caractérisent la population des Araignées. Les espèces les plus abondantes en individus, et les plus largement représentées, sont:

1. deux cosmopolites, *Araneus theisi,* l'Araignée la plus commune du Pacifique, et *Heteropoda regia.* Les autres cosmopolites ne sont pas très communes, à part quelquefois *Uloborus geniculatus.*

2. parmi les espèces à large répartition, la Salticide *Sandalodes calvus,* que j'ai reçue en exemplaires extrêmement nombreux, et aussi *Tetragnatha nitens.*

3. parmi les espèces polynésiennes, les Salticides *Athamas whitmeei, Thorellia ensifera;* le *Scytodes striatipes* est assez commun.

4. au nombre des éléments endémiques, la Thomiside *Misumenops delmasi* domine de beaucoup.

J'ai l'impression que, aux yeux d'un voyageur arrivant aux Marquises, et qui ne rechercherait pas les formes de petite taille et rares, les Marquises apparaîtraient comme peuplées avant tout par l'*Araneus theisi,* Araignée sédentaire filant ses toiles régulières sur tous les arbustes, par la *Tetragnatha nitens* filant des toiles comme celles de l'espèce précédente, mais de préférence au bord des ruisseaux, et par la grosse *Heteropoda regia,* souvent trouvée

dans les maisons, et avec laquelle il pourrait confondre, à l'intérieur, l'*Heteropoda nobilis*. Puis il verrait courir au soleil, et parfois sauter, la tribu des Salticides, notamment le *Sandalodes calvus*, et aussi parfois les petites, mais si brillantes, *Athamas* et *Thorellia*. Le *Misumenops* apparaitrait sur les feuillages et dans les herbes.

Mais ce ne serait là qu'un aspect très superficiel. Pour avoir une connaissance de la faune réelle marquisienne, il faudrait selon le conseil du bon Rabelais "rompre l'os et sucer la substantifique moelle," c'est à dire s'enfoncer dans l'intérieur et recueillir les très petites formes.

Faune des massifs montagneux. Il n'est pas douteux que la faune marquisienne a au moins deux domaines distincts: le littoral, et l'intérieur qui est montagneux[4], très boisé, humide, avec moins de chances d'avoir été altére par l'action de l'homme.

Je voudrais noter ici seulement quelles espèces sont limitées aux sommets, et dont nous devons la connaissance aux excellentes méthodes de récolte employées par MM. Mumford et Adamson, puis par M. LeBronnec.

Parmi ces hauteurs je ne parlerai que de celles qui atteignent, et dépassent 1,000 mètres. On sait qu'elles sont très peu accessibles, tant à cause de leur caractère abrupt que par suite de la végétation dense qui les recouvre. Voici les espèces qui m'en semblent caractéristiques:

Ariadna lebronneci Berland, se trouve dans les îles Hivaoa, Uahuka, Fatuhiva, Uapou, mais jamais au-dessous de 1,000 mètres.

Misumenops delmasi Berland, espèce trés commune dans tout l'archipel, atteignant et dépassant parfois 1,000 mètres.

Heteropoda regia, et *H. nobilis*, ont été trouvées parfois à 1,000 mètres et au-dessus.

Thorellia ensifera Thorell, commune dans tout l'archipel, trouvée une fois à 1,200 mètres et une fois à 1,300 mètres à Nukuhiva.

Athamas whitmeei Cambridge, trouvée à 1,000 mètres à Hivaoa, à Uahuka, à Uapou.

Sandalodes calvus Simon, trouvée souvent à 1,000 mètres et même à 1,300 mètres.

Sandalodes triangulifer Berland, Nukuhiva, 1,400 mètres; Fatuhiva, 1,000 mètres; Uapou, 1,000 mètres; Tahuata, 800 mètres, aucune localité d'une altitude inférieure à cette dernière; cette espèce paraît confinés aux sommets.

Sandalodes nigrolineatus Berland, Hivaoa, 1,300 mètres; Nukuhiva, 1,300 mètres. Même remarque que pour la précédente.

Sandalodes flavipes Berland, Hivoao, 1,300 mètres.

Theridion 7-punctatum Berland, Nukuhiva, 1,000 mètres, pas d'altitude inférieure.

Theridion mendozae Berland, Hivaoa, de 1,000 à 1,300 mètres.

Leucauge mendanai Berland, souvent au-dessus de 1,000 mètres.

Tetragnatha marquesiana Berland, Hivaoa, 930 à 1,400 mètres; Upou, 1,000 mètres; n'a pas été trouvée au-dessous.

Uapou maculata, n. sp., Uapou, 960 à 1,000 mètres.

Hivaoa argenteoguttata, n. sp., Hivaoa, 1,300 mètres.

Hivaoa hirsutissima, n. sp., Uapou, 1,000 mètres.

[4] Berland, Lucien, Note sur les Araignées recueillies aux îles Marquises par le R. P. Simeon Delmas: Mus. Bull., p. 366-368, 3 figs., 1927.

Hivaoa nigromaculata (Berland), Nukuhiva, 1,350 mètres.
Uahuka spinifrons n. sp., Hivaoa, 1,000 mètres.
Uahuka affinis, n. sp., Hivaoa, 1,300 mètres.
Ischnyphantes pacificanus, n. sp., Hivaoa, 900-1,000 mètres.
Leptyphantes lebronneci, n. sp., Uahuka, 1,000 mètres.
Cyclosa tauraai Berland, Uahuka, 1,000 mètres.

Cette liste met en évidence les faits suivants : les espèces cosmopolites restent en général confinées à la côte et ce n'est que rarement qu'on les trouve dans les hauteurs; par contre les espèces polynésiennes s'y rencontrent fréquemment; mais la faune endémique paraît presque entièrement confinée aux sommets : non seulement on trouve vers 1,000 mètres à peu près toutes les espèces spéciales aux Marquises, mais encore la grande majorité de celles-ci ne descend jamais au-dessous de cette altitude. Il y aurait donc une zone côtière où se rencontreraient aussi bien les cosmopolites que les espèces à large répartition, et une région montagneuse qui serait le domaine de la faune endémique, avec quelques incursions des éléments côtiers.

Malheureusement les autres archipels polynésiens n'ont pas été explorés de cette manière : des Hawaii nous n'avons comme indications que les localités, sans altitudes, et de Samoa seules les stations de la côte semblent avoir été visitées. Il en résulte que, actuellement, aucune comparaison n'est possible entre les sommets des îles hautes du Pacifique : c'est d'autant plus regrettable que cette comparaison serait très probablement fort instructive.

Absence de spécialisation de chacune des iles. Les Marquises constituant un archipel bien isolé, on pourrait s'attendre à trouver dans chacune des îles des éléments spéciaux relatifs à la ségrégation. Or il n'en est rien, et l'examen impartial de la faune aranéenne montre que presque toutes les espèces sont communes à deux, et très souvent à plusieurs des îles.

C'est le cas en particulier pour les espèces polynésiennes qui se trouvent dans toutes les îles, ou presque, notamment *Scytodes striatipes, Heteropoda nobilis, Thorellia ensifera, Athamas whitmeei, Pholcus ancoralis, Sandalodes calvus.* Bien entendu il n'y a rien de surprenant à ce que ces espèces, répandues dans tout le Pacifique, se trouvent dans plusieurs îles de chaque archipel. Mais il est bien plus intéressant de constater, comme il est facile de le faire par la lecture des deux mémoires que j'ai consacrés aux Marquises, que la situation est la même pour les espèces endémiques, c'est à dire spéciales à cet archipel. Je relève par exemple la liste suivante d'espèces qui se trouvent dans presque tout l'archipel :

Ariadna lebronneci, Hivaoa, Fatuhiva, Uahuka, Uapou.
Misumenops delmasi, Hivaoa, Nukuhiva, Fatuhiva, Tahuata, Uapou, Hatutu.
Sandalodes triangulifer, Hivaoa, Nukuhiva, Fatuhiva, Uapou, Tahuata.
Leucauge mendanai, Nukuhiva, Hivaoa, Fatuhiva, Uahuka, Uapou, Tahuata.
Araneus plebejus, Hivaoa, Nukuhiva, Uapou.
Syrorysa mumfordi, Hivaoa, Uahuka, Hatutu.

Par ailleurs les espèces suivantes se trouvent dans deux îles :
Sandalodes magnus, Uapou, Uahuka.
Sandalodes nigrolineatus, Hivaoa, Nukuhiva.
Hivaoa hirsutissima, Hivaoa, Uapou.
Ischnyphantes pacificanus, Hivaoa, Tahuata.
Tetragnatha marquesiana, Hivaoa, Uapou.
Cyclosa tauraai, Nukuhiva, Uahuka.
Nukuhiva adamsoni, Nukuhiva, Uahuka.

Par conséquent, la liste d'espèces qui n'existent que dans une seule des îles est très réduite ; elle s'est fortement diminuée par la nouvelle exploration de M. LeBronnec, et il n'est pas douteux que de nouvelles recherches l'abaisseraient encore. Car il ne faut pas oublier que presque, toutes ces espèces endémiques sont confinées aux sommets des montagnes, qui n'ont été visités qu'un très petit nombre de fois. Si par ailleurs les grandes îles telles que Nukuhiva et Hivaoa ont été assez bien explorées, la plupart des autres ne l'ont été que fort peu.

On peut donc conclure qu'on ne trouve pas trace de spécialisation faunique de chacune des îles, mais au contraire que l'ensemble de celles-ci se comporte — en ce qui concerne les Araignées — comme une unité géographique. J'étais arrivé à la même conclusion par l'étude des Araignées des Açores.[5]

Famille DYSDERIDAE

Genre **ARIADNA** Audouin

Ariadna lebronneci Berland.

Ariadna lebronneci; Berland: B. P. Bishop Mus., Bull. 114, p. 43, figs. 1-5, 1933.

Hivaoa : sommet du mont Temetiu, altitude 1,400 mètres, 20 janvier 1932, 1 grosse femelle, 1 jeune ; sommet Feani, altitude 1,000 mètres, 21 janvier 1932, plusieurs jeunes, LeBronnec.

Uapou : Teavaituhai, altitude 1,000 mètres, 20 novembre 1931, 1 femelle ; sommet du Kohepu, altitude 1,000 mètres, 28 novembre 1931, 1 femelle, LeBronnec.

Toutes les captures signalées ici sont dues à M. LeBronnec, ce nom ne sera donc plus mentionné, pour éviter de trop nombreuses répétitions, mais il est entendu que c'est LeBronnec qu'il faudra lire, quand aucun autre nom ne sera cité.

[5] Berland, Lucien, Araignées: Soc. Ent. France, Ann., vol. 101, p. 69, 1932.

Famille SICARIIDAE

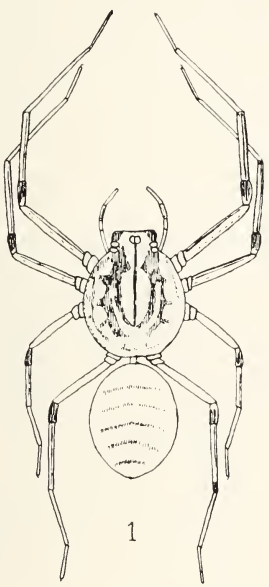
Genre SCYTODES Latreille

Scytodes striatipes L. Koch (figs. 1, 2).

Scytodes striatipes, Berland: B. P. Bishop Mus., Bull. 114, p. 45, 1933.

Hatutu: altitude 300 mètres, 28 avril 1931, 1 mâle, plusieurs femelles et jeunes, LeBronnec et H. Tauraa.

Eiao: altitude 500 mètres, 25 avril 1931, 2 femelles très claires, LeBronnec et H. Tauraa.



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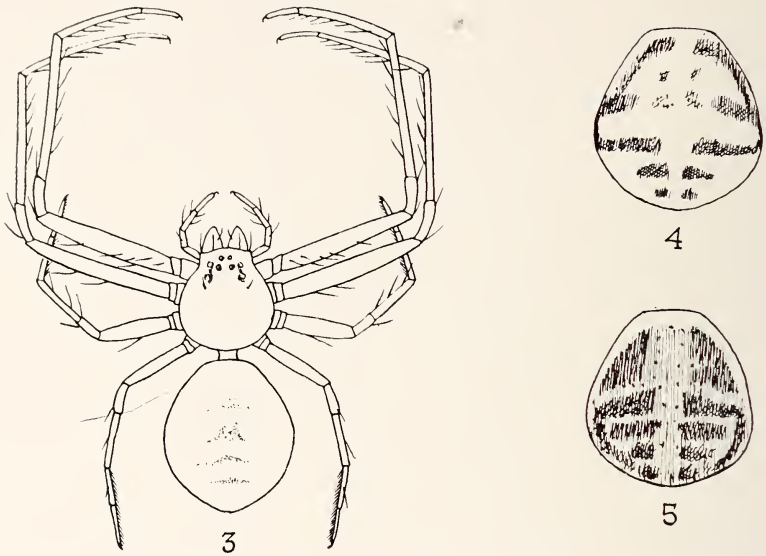
Figures 1-2.—*Scytodes striatipes* L. Koch: 1, femelle, exemplaire de couleur claire, × 6; 2, céphalothorax d'un exemplaire de la forme obscure.

Cette espèce se présente sous deux aspects de coloration. Les mâles, les jeunes, et quelques femelles adultes, sont de couleur très claire, les dessins de l'abdomen et du céphalothorax bien nets, comme il est représenté par la figure 1; ces exemplaires correspondent bien à la description et au dessin donnés pour l'espèce par L. Koch. *Dictys striatipes* est donc la forme typique.

Mais on trouve en outre, dans les mêmes localités, et probablement avec les exemplaires précédents, une variété sombre (fig. 2), chez qui le céphalothorax et l'abdomen sont à peu près entièrement envahis par une tache sombre qui fait disparaître les dessins. Cette couleur sombre n'atteint pas les pattes, et ne se présente, ni chez les mâles, ni chez les jeunes. Du moins c'est qui semble résulter de l'examen des exemplaires assez nombreux que j'ai pu voir.

Dans la précédente étude sur les Araignées des Marquises, j'avais appelé l'attention sur cette variation de couleur, qui pouvait amener à une confusion avec *Scytodes lugubris* Thorell. Par ailleurs une pareille variation peut se rencontrer chez d'autres *Scytodes,* et en particulier on connaît le *S. velutina* dont la forme typique est sombre, et la variété *delicatula* claire (la notion de forme typique et de variété ne repose d'ailleurs que sur une question de priorité, de sorte qu'elle n'a aucun sens biologique réel).



FIGURES 3-5.—*Misumenops delmasi* Berland: 3, femelle de couleur claire; 4, 5, abdomen d'exemplaires progressivement plus foncés, ces dessins montrent quel est le type du dessin abdominal.

Misumenops delmasi Berland (figs. 3-5).

Uapou : vallée Hakehetau, altitude 500 mètres, 21 novembre 1931, plusieurs mâles et femelles; Teavaituhai, altitude 1,000 mètres, 30 novembre 1931, 1 mâle, plusieurs femelles; sommet du Kohepu, altitude 1,000 mètres, 27 octobre 1931, plusieurs femelles.

Hivaoa: chaine Feani, altitude 1,300 mètres, 22 janvier 1932, mâle, femelle; Kaava, altitude 950 mètres, 1 janvier 1932, femelles; sommet du Temetiu, altitude 1,400 mètres, 20 janvier 1932, femelles.

Nukuhiva: altitude 1,300 mètres, 20 juin 1931, plusieurs jeunes, LeBronnec et H. Tauraa; colline Tekao, altitude 1,100 mètres, 23 juillet 1931, femelles, jeunes, LeBronnec et H. Tauraa; Oumu, altitude 1,200 mètres, 29 mai 1931, femelles et jeunes; Tapuaooa, altitude 1,000 mètres, 18 juin 1931, femelles et jeunes.

Hatutu: 28 avril 1931, femelles et jeunes, LeBronnec et H. Tauraa.

Cette espèce, si commune aux Marquises, présente, comme c'est souvent le cas chez les Thomisides, une grande variation de couleur, surtout en ce qui concerne le dessin abdominal. Malgré le désordre apparent de cette variation, on peut y reconnaître un plan et une direction bien nets, comme le montrent les figs. 3, 4, 5.

Le type du dessin abdominal est constitué par des groupes de bandes transversales et, dans les exemplaires les plus claires (fig. 3), il est constitué par quelques lignes tellement ténues qu'on les aperçoit à peine. Dans une autre série, ces lignes s'accentuent et laissent voir le plan fondamental (fig. 4). Enfin, dans les exemplaires les plus foncés, les bandes transversales sont devenues très fortes et se touchent presque (fig. 5), on y reconnaît alors : deux grandes plages sub-rectangulaires antérieures, puis quatre paires de bandes transversales qui vont en s'atténuant vers l'arrière, et peuvent être reliées latéralement, le tout peut être noyé dans une vaste tache dorsale grise, un peu moins foncée que les bandes elles-mêmes.

Naturellement il y a des intermédiaires entre ces types différents. Il n'est pas possible de reconnaitre une localisation géographique des différents types de dessin; il est même fort probable que, comme l'a montré jadis une étude sur *Uloborus plumipes*,[6] dans la descendance d'une seule femelle apparaissent les types différents de dessins; ce ne seraient donc que des variations individuelles.

Famille SPARASSIDAE

Genre HETEROPODA Latreille

Heteropoda regia Fabricius.

Hivaoa: Kaava, altitude 1,300 mètres, 6 janvier 1932, 1 femelle, dans des souches de *Hibiscus tiliaceus*, 2 jeunes.

Uapou: vallée Hakahetau, 23 novembre 1931, 1 mâle adulte, 1 mâle jeune, LeBronnec et H. Tauraa; Teavanui, altitude 1,000 mètres, 28 novembre 1931, 1 jeune.

Espèce cosmotropicale, précédement signalée de Nukuhiva, Hivaoa, Fatuhiva, Uahuka.

Heteropoda nobilis (L. Koch).

Nukuhiva: Tapuaooa, altitude 750 mètres, juin 1931, 1 mâle adulte, 1 femelle jeune, LeBronnec et H. Tauraa.

Uapou: Teavanui, altitude 960 mètres, 30 novembre 1931, 1 jeune.

Espèce très voisine de la précédente, mais seulement polynésienne.

[6] Berland, Jeanne: Archiv. Zool., Paris, p. 45, 1914.

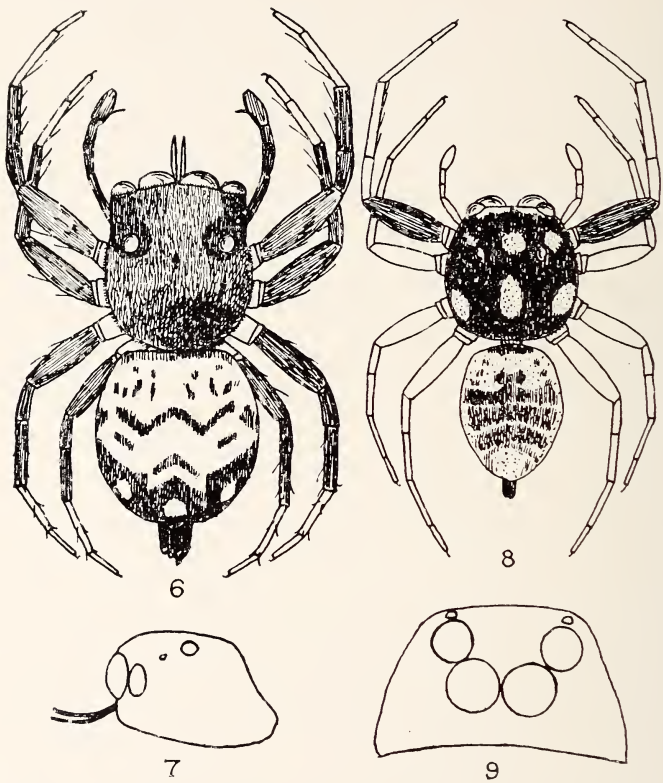
Famille SALTICIDAE

Genre MENEMERUS E. Simon

Menemerus bivittatus (L. Dufour).

Hivaoa: Atuona, 14 novembre 1929, 1 femelle, prise avec une mouche, Mumford et Adamson.

Espèce cosmopolite, mais paraissant peu commune aux Marquises, cependant déja signalée de Fatuhiva.



Figures 6-7.—*Thorellia ensifera* Thorell: 6 mâle, × 12; 7, céphalothorax du mâle, vu de profil, montrant les deux cornes frontales.

Figures 8-9.—*Athamas whitmeei* Cambridge: 8, mâle, × 12; 9, face et yeux de la première ligne, vue de l'avant (aussi bien mâle que femelle).

Genre THORELLIA Keyserling

Thorellia ensifera (Thorell) (figs. 6, 7).

Hivaoa : altitude 500 mètres, 1 avril 1929, femelle, Mumford et Adamson.

Uapou : Vallé Hakahetau, altitude 500 mètres, 21 novembre 1931, plusieurs femelles et jeunes; Teavaituhai, 30 novembre 1931, jeunes; vallée Vaihakaatiki, 2 mâles, 1 femelle.

Nukuhiva : altitude 1,300 mètres, 20 avril 1931, 1 femelle, LeBronnec et H. Tauraa.

Espèce commune en Polynésie, et notamment aux Marquises, d'où elle était déja connue, en outre, de Tahuata, Fatuuku, Uhuka, je donne ici le dessin de la femelle, et le profil caractéristique du céphalothorax du mâle, les deux cornes frontales ne se retrouvent pas chez la femelle, mais elles sont remplacées par deux petites soies.

Genre ATHAMAS Cambridge

Athamas whitmeei Cambridge (figs. 8, 9).

Uahuka : Hitikau, altitude 1,000 mètres, 3 mars 1931, 1 femelle, LeBronnec et H. Tauraa.

Nukuhiva : altitude 1,300 mètres, 20 avril 1931, 1 femelle, LeBronnec et H. Tauraa.

Uapou : Vaihakaatiki, novembre 1931, 1 mâle, plusieurs femelles; sommet du Kohepu, altitude 1,000 mètres, 27 novembre 1931, femelles.

Espèce polynésienne, comme la précédente. La fig. 8 montre le mâle de cette curieuse Araignée; ce dessin un peu simplifié, fait d'ailleurs d'aprés un exemplaire vu sous le liquide, ne donne qu'une faible idée de ce merveilleux petit animal, dont le pelage a, par endroits, des reflets de toutes couleurs; la femelle est un peu moins brillante, mais dans les deux sexes l'espèce est caractérisée par la disposition des quatre yeux antérieurs, qui sont placés en deux lignes (fig. 9), ce qui rappelle les *Lyssomanes*.

Genre SANDALODES Keyserling

Sandalodes calvus E. Simon.

Kukuhiva : altitude 1,000 mètres, 28 mai 1931, femelles, LeBronnec et H. Tauraa, altitude 1,300 mètres, 20 juin 1931, 1 mâle, 1 femelle.

Hivaoa: Kaava, altitude 900 mètres, 7 janvier 1932, 1 femelle, 1 jeune.

Uapou : vallée Hakahetau, 21 novembre 1931, 1 femelle.

Indépendamment des exemplaires ici mentionnés, j'en ai reçu un grand nombre du Père Siméon Delmas, qui montrent que l'espèce est extrêmement abondante dans certaines localités des Marquises, en particulier à Taiohae. Les jeunes mâles, avant la dernière mue, ont la livrée de la femelle.

Sandalodes triangulifer Berland.

Uapou : sommet Kohepu, altitude 1,000 mètres, 19 novembre 1931, 1 mâle, 1 jeune, 2 femelles dont une de couleur très pâle.

Il arrive que chez certains exemplaires femelles, les dessins en triangle du dos ont disparu, ou sont peu visibles; dans ce cas les bandes obliques des côtés du dos sont plus stables.

La taille peut devenir relativement grande, une femelle de Uapou mesure 11 mm.

Sandalodes magnus Berland.

Uahuka : Teavamataiki, altitude 250 mètres, 19 mars 1931, 1 femelle, LeBronnec et H. Tauraa.

Sandalodes nigrolineatus Berland.

Hivaoa : Feani, altitude 1,300 mètres, 22 janvier, 1932, 1 femelle, LeBronnec.

Famille THERIDIIDAE

Genre **THERIDION** Walckenaer

Theridion rufipes Lucas.

Hivaoa : Feani, altitude 1,300 mètres, 19 javier 1932, 1 femelle, LeBronnec.

Espèce cosmopolite, déja signalée de Nukuhiva.

Theridion septempunctatum Berland.

Nukuhiva : Oomu, altitude 1,000 mètres, 28 mai 1931, 1 femelle (même localité que le type), LeBronnec et H. Tauraa.

Theridion mendozae Berland.

Hivaoa : sommet du mont Temetiu, altitude 1,350 mètres, 20 janvier 1932, 1 femelle, LeBronnec.

Déja connue de la même localité, et de plusieurs autres de Hivaoa.

Famille ARGIOPIDAE

Genre **UAPOU,** genus novum

Yeux petits, en deux lignes, la seconde procurvée. Partie céphalique fortement relevée vers l'arrière, où elle forme une crête anguleuse dominant la partie céphalique, qui est en pente presque verticale. Abdomen pourvu d'un grand scutum dorsal, dans les deux sexes. Génotype, *Uapou maculata,* species nova.

Uapou maculata, species nova (figs. 10-15).

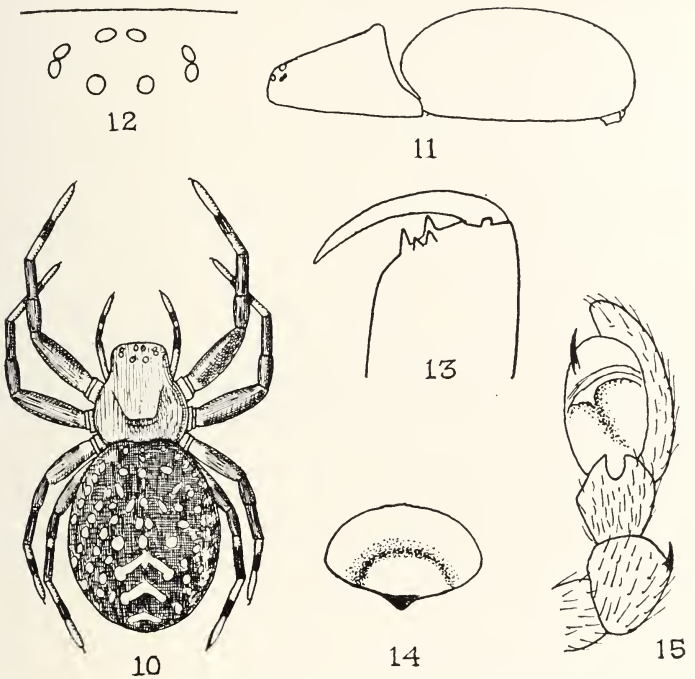
Femelle

Couleur : céphalothorax uniformément brun clair, avec des traces de bandes plus sombres sur les côtés; sternum de même couleur, uniforme; pièces buccales brunes à la base, blanches à l'apex; pattes: les hanches et trochanters bruns, les autres

articles annelés de très larges anneaux bruns occupant presque toute la longueur des fémurs et des tibias, ceux-ci ont la base claire, surtout aux paires postérieures, des anneaux semblables occupant la moitié des métatarses, tarses clairs, patellas brunes; abdomen brun rougeâtre, moucheté de nombreuses petites taches claires et de quelques accents clairs, à la face dorsale et postérieurement (fig. 10); à la face ventrale ces taches forment des bandes longitudinales obliques presque continues; filières brunes, blanches à l'apex.

Céphalothorax large en avant, remarquable, vu de profil, par la forte élévation postérieure de la partie céphalique (fig. 11), son sommet formant un angle bien net.

Yeux (fig. 12) petits, la première ligne droite (vue de l'avant) les médians plus rapprochés l'un de l'autre que des latéraux, deuxième ligne procurvée, les médians plus écartés entre eux que les antérieurs, le groupe des médians plus long que large; latéraux des deux lignes se touchant.



FIGURES 10-15.—*Uapou maculata,* species nova: 10, femelle, × 12; 11, profil de céphalothorax et de l'abdomen; 12, groupe oculaire; 13, chélicère; 14, épigyne; 15, patte-mâchoire du mâle.

Chélicères (fig. 13) avec deux petites dents se touchant à la marge postérieure, deux plus petites et un peu séparées à la marge antérieure.

Pièce labiale triangulaire surbaissée, marginée à son bord antèrieur, beaucoup plus large que longue; sternum aussi large que long, subtriangulaire, séparant les hanches IV d'un espace supérieur au diamètre de ces articles.

Pattes courtes et assez robustes, sans aucune trace d'épines ou même de poils spiniformes.

Abdomen fortement chitinisé à la face dorsale, la surface de ce scutum granuleuse et ne portant que des poils très courts, face ventrale souvent concave.

Epigyne peu saillant et peu net (fig. 14).

Mâle

Tout a fait semblable à la femelle. Patte-mâchoire avec une apophyse apicale sur la patella (fig. 15), le tibia portant deux prolongements entourant une échancrure, du côté externe; tarse peu large, recouvrant un bulbe peu développé, et sans apophyses, sauf un style apical, assez court et aigu.

Dimensions : mâle, femelle, longueur totale, 2 mm., céphalothorax, longueur 0.6 mm.

Uapou : sommet du Tekohepu [Tekohepou], altitude 1,000 mètres, 30 décembre 1931, 1 femelle (type), 2 femelles, en battant sur *Bidens lantanoides*; 20 novembre 1931, 2 mâles, 3 femelles; vallée Hakahetau, Vaihakaatiki, altitude 960 mètres, 19 novembre 1931, en battant sur *Freycinetia* species, 1 mâle, 1 femelle; colline Teavanui, 30 novembre 1931, 1 mâle; en outre 5 femelles à sec de la vallée Hakahetau, Teavaituhai [Teavatuhai], altitude 1,010 mètres, en battant sur *Freycinetia* species et sur *Cytandra* species, Le-Bronnec.

Cette très remarquable espèce paraît jusqu'à présent confinée à l'ile Uapou, où elle ne se trouve qu'au sommet des montagnes.

Elle appartient certainement au groupe des Erigones, mais elle se distingue par la forme de son céphalothorax, par le scutum dorsal de son abdomen, par ses pattes annelées, et par les dessins de l'abdomen. Tous ces caractères se rencontrent dans les deux sexes, et il ne semble y avoir aucun dimorphisme sexuel, ce qui n'est pas le cas pour les Erigones européennes. Notre ignorance à peu près totale des Erigones exotiques nous empêche de discuter sur les affinités de cette espèce, et nous ne pouvons savoir non plus si elle a des parents dans les austres archipels du Pacifique, dont les montagnes n'ont pas été explorées.

Genre HIVAOA, genus novum[7]

Genre appartenant au groupe des Pachygnatheae, auquel il se relie notamment par le bulbe, et la disposition du pli épigastrique. Il se distingue par l'élévation de la partie céphalique, qui forme une forte saillie sur le céphalothorax (dans les deux sexes), et par les yeux médians postérieurs beaucoup plus gros que les autres yeux. Le stigmate trachéen est rapproché des filières (dans les genres *Glenognatha* et *Dyschiriognatha* il est à égale distance du pli génital et des filières, ou à peu près). Génotype, *Hivaoa argenteoguttata,* species nova.

L'espèce marquisienne décrite précédemment sous le nom de *Dyschiriognatha nigromaculata* Berland, 1933, doit être rattachée au genre nouveau *Hivaoa.*

[7] Par suite d'une erreur dans la numérotation des figures, cette espèce n'est pas exactement à sa place, elle devrait se trouver un peu plus loin, entre les genres *Lethyphantes* et *Tetragnatha.*

Hivaoa argenteoguttata, species nova (figs. 16-19).

Mâle

Couleur : en entier brun, y compris les pattes et le sternum, abdomen brun grisâtre, pattes III et IV plus claires, sauf l'apex des fémurs et les patellas qui sont brun foncé ; abdomen portant à la face ventrale 4 taches rondes argentées, à la face dorsale 4 lignes longitudinales de taches rondes grises, les 2 lignes médianes se fusionnant vers l'arrière, chacune de ces taches portant en son milieu un point argenté ; de plus à la partie antérieure de l'abdomen, 2 grands espaces gris, portant de chaque côté un semis de taches argentées irrégulières.

Céphalothorax non gibbeux en arrière des yeux, mais les yeux médians portés sur une saillie très nette (figs. 16, 17), les médians postérieurs beaucoup plus gros que les autres, la 1re ligne procurvée (vue de l'avant), ses yeux égaux, les médians plus rapprochés ; bandeau creusé en dessous des yeux.

Chélicères (fig. 18) à marge antérieure avec 2 fortes dents largement séparées l'une de l'autre.

Pattes très fines, I et II longues, le fémur et le tibia plus longs, ensemble, que le céphalothorax, pattes portant des poils fins et peu serrés, mais sans aucune épine.

Patte-mâchoire (fig. 19), on sait que la patte mâchoire dans ce groupe est d'un type très spécial, mais qu'elle est en général trop peu differenciée pour donner des caractères spécifiques.

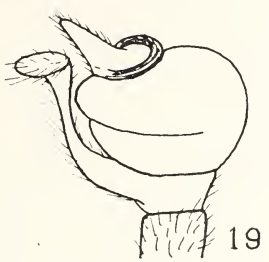
À la partie antérieure du céphalothorax se trouve un tubercule petit tubercule aigu, qui est peut-être un organe stridulant, n'ayant qu'un seul exemplaire, je n'ai pu en faire un examen plus approfondi.

Longueur totale, 1.8 mm.

16

17

18



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Figures 16-19.—*Hivaoa argenteoguttata,* species nova: 16, corps vu de profil; 17, face et yeux vu de l'avant; 18, chélicère, face antérieure; 19, patte-mâchoire du mâle.

Hivaoa: Matauuna, altitude 1,300 mètres, 2 mars 1930, 1 mâle (type), Mumford et Adamson.

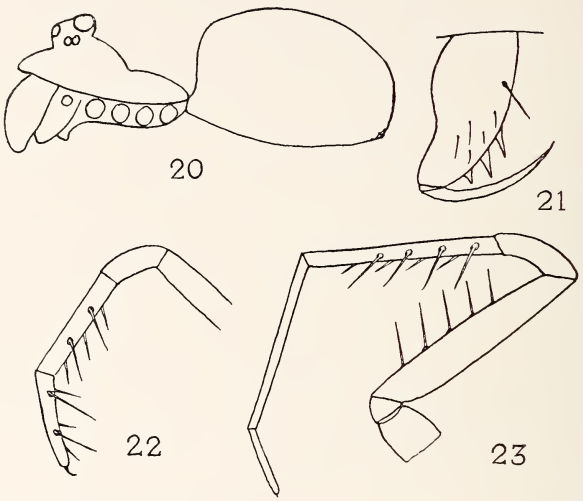
Cette espèce me paraît se distinguer par la coloration, et par l'absence de gibbosité postoculaire, si remarquable chez *H. nigromaculata* (Berland), l'armure des chélicères est aussi particulière.

Hivaoa hirsutissima, species nova (figs. 20-23).

Femelle

Couleur : céphalothorax jaune pâle, ou rougeâtre, pouvant être rembruni sur les côtés ; chélicères rougeâtres, sternum et pattes jaune pâle, ces dernières portant un anneau brun-gris vers le tiers apical des fémurs, un vers le milieu des tibias et un presque à l'apex des métatarses ; abdomen brun, probablement pigmenté de jaune safran sur le vivant, avec un semis de petites taches argentées peu serrées, sur la face dorsale.

Partie céphalique très élevée en une protubérance portant en haut les yeux médians postérieurs et en avant les médians antérieurs ; bandeau concave en dessous des yeux, puis fortement avancé au-dessus des chélicères (fig. 20).



FIGURES 20-23.—*Hivaoa hirsutissima*, species nova : 20, corps vu de profil ; 21, chélicère de la femelle, face antérieure ; 22, patte-mâchoire, face externe ; 23, patte I, face externe.

Yeux : médians postérieurs plus du double en diamètre des autres yeux, ceux-ci étant à peu près égaux entre eux. Face rappelant celle de l'espèce précédente (fig. 17), les médians postérieurs plus resserrés.

Chélicères bombées sur leur face antérieure, portant sur celle-ci un long poil spiniforme non loin de la base, et près du bord interne, à la suite quelques poils moins forts, cette chélicère rappelant ainsi celle de notre *Drapetisca socialis* ; trois fortes dents sur la marge antérieure (fig. 21).

Pièce labiale fortement rebordée, le rebord formant comme un bec lorsqu'on regarde de profil.

Pattes assez longues et fines, remarquables par la présence de fortes épines dressées, paraissant peu mobiles, et rappelant l'aspect des pattes des Opilions laniatores ; elles sont disposées ainsi qu'il suit : aux pattes-mâchoires, tibia 3 épines du côté interne, 2 du côté externe ; tarse, 3 et 2 (fig. 22) ; aux autres pattes, à la face inférieure du fémur une ligne de 5-6 épines, à la face inférieure des tibias, deux séries latérales de 4 chacune (fig. 23).

Abdomen : orifice génital et ligne épigastrique très reculés, placés verse le milieu de la face ventrale, la partie qui précède cette ligne formant comme une tumeur.

Longueur totale : 2.5 mm.

Uapou : Teavaituhai, altitude 1,000 mètres, 30 novembre 1931, 2 femelles (dont le type) ; vallée Hakahetau, Vaihakaatiki, altitude 1,000 mètres, 18 novembre 1931, 1 femelle, en battant *Cytandra* species ; sommet du Tekohepu, altitude 1,000 mètres, 30 novembre 1931, 1 femelle.

Un jeune de Hivaoa, de couleur plus claire, à abdomen franchement jaune safran, des épines seulement sur les pattes-mâchoires, mais non sur les pattes paraît bien appartenir a cette espèce.

Espèce distincte par les pattes armées d'épines. Il est possible que ces épines manquent en tout ou en partie chez les jeunes (voir l'exemplaire de Hivaoa, et aussi un jeune de Uapou, sommet du Kohepu, qui n'a d'épines qu'aux pattes-mâchoires.

Genre UAHUKA, genus novum

Céphalothorax peu élevé en avant, sans déformations céphaliques. Groupe oculaire très compact, les yeux se touchant presque, et de taille médiocre, occupant à peine la moitié de la largeur de front. Bandeau large. Pattes presque mutiques, portant un poil spiniforme à la patella, deux poils pareils à la lingne dorsale des tibias I et II, et un seul aux tibias III et IV. Génotype *Uahuka spinifrons,* species nova.

Uahuka spinifrons, species nova (figs. 24-30).

Mâle

Couleur : céphalothorax jaune orangé, légèrement grisé sur les côtés et avec des lignes rayonnantes grises très peu nettes, l'une médiane allant vers les yeux, les autres partant de la fossette et allant vers les hanches ; pattes jaune orangé plus clair, ainsi que les chélicères et les pièces buccales ; sternum gris clair, les bords finement liserés de brun ; abdomen, face dorsale brune, avec quelques minces accents plus clairs sur la partie postérieure (variable), face ventrale grise.

Céphalothorax normal, sans élévation particulière de la partie céphalique, mais remarquable par le bandeau, qui est large, et couvert de petites épines noires assez nombreuses.

Yeux petits et en groupe très serré (fig. 25) formant un demi-cercle ; les médians antérieurs noirs et plus petits que les autres, qui sont à peu près égaux entre eux, 2e ligne droite, un peu plus large que la 1re, les médians un peu plus séparés entre eux (d'environ leur rayon) que des latéraux qu'ils touchent presque.

Chélicères : marge antérieure à trois dents assez espécès, la 3e (en partant du crochet) plus petite que les deux autres, celles-ci de paille égale ; marge postérieure avec trois très petites dents resserrées.

Pattes fines, inermes, sauf un poil spiniforme aux patelles, et deux poils pareils à la face supérieurs des tibias I et II, les tibias III et IV ne portant qu'un de ces poils.

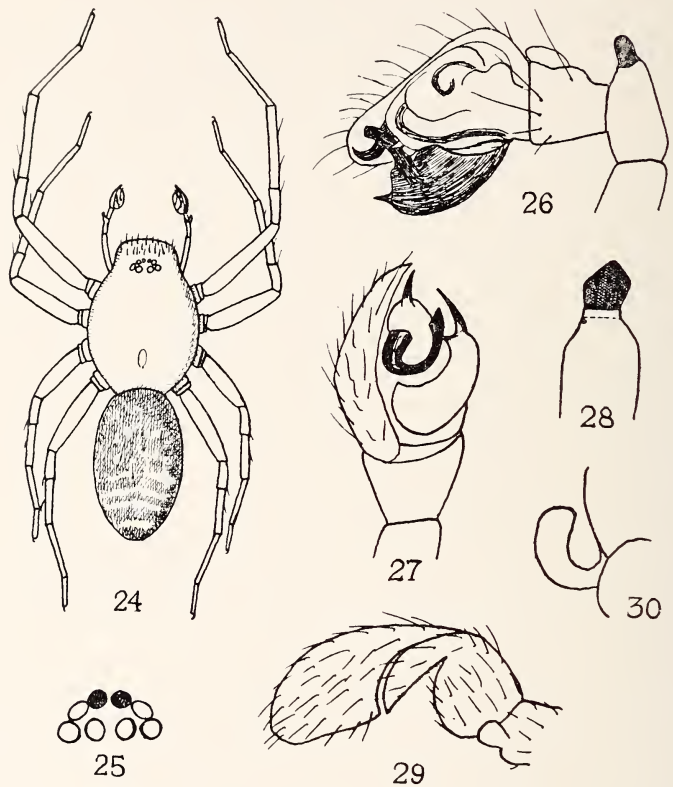
Patte-mâchoire (figs. 26-30) remarquable par la forme de la patella, qui a une protubérance apicale, portant un tubercule noir (fig. 28), tibia inséré non au sommet, mais sur le côté de la patella, avec une profonde incision sur le côté externe (fig. 29), la partie supérieure de cette incision s'encastrant dans une échancrure du tarse ; bulbe avec un paracymbium du tarse court à sa base (fig. 30), un style noir et court à

l'extrémité, et une lamelle caractéristique très large, brune (au moins à l'apex), formant une grosse plaque qui recouvre toute la face inférieure du bulbe (fig. 27).

Longueur totale : 2.8 mm.

Variation : abdomen clair avec des dessins transversaux bruns (cotype).

Uahuka : Hitikau, altitude 1,000 mètres, 3 mars 1931, 1 mâle (type), 1 femelle (cotype), LeBronnec et H. Tauraa.



FIGURES 24-30.—*Uahuka spinifrons*, species nova: 24, mâle, × 22; 25, mâle, groupe oculaire vu de dessus; 26, patte-mâchoire du mâle, côté externe; 27, patte-mâchoire, face inférieure, montrant le style; 28, patella de la patte-mâchoire, vue de dessus; 29, patella, tibia et tarse de la patte-mâchoire, vus de dessus; 30, patte-mâchoire du mâle, paracymbium.

Petite Érigone très remarquable, qui semble n'avoir sa pareille ni dans nos pays, ni dans les pays tropicaux, mais, comme il a été dit précédemment, ces petites Araignées sont fort mal connues en dehors de l'Europe et de l'Amerique du nord. Cependant il n'est pas douteux qu'il en existe un bon nombre, principalement au sommet des montagnes.

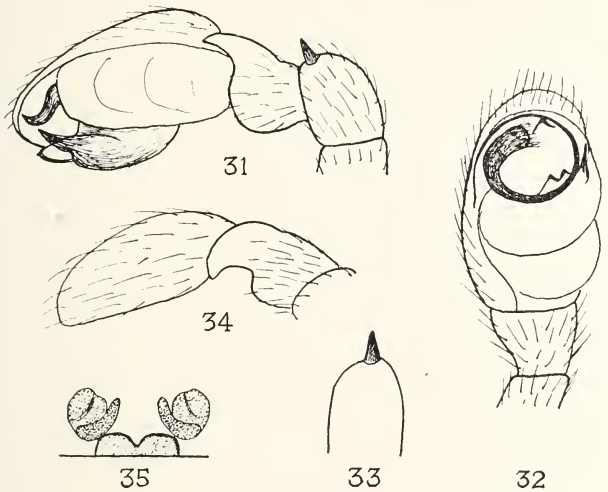
Uahuka affinis, species nova (figs. 31-35).

Mâle

Très voisin de l'espèce précédente *U. spinifrons,* notamment par l'aspect, la coloration, et la forme du groupe oculaire très compact. En diffère par les caractères suivants :

Céphalothorax et pattes uniformément fauve rougeâtre très clair; abdomen gris concolore sans aucun dessin sur la face dorsale.

Patte-mâchoire (fig. 31) du même type que l'espèce précédente, mais avec des différences spécifiques : patella (fig. 33) portant une apophyse spéciale, mais celle-ci est conique et à extrémité pointue; échancrure apicale du tibia moins profonde (fig. 34), bulbe avec un long style enroulé sur lui-même, et formant ua moins une boucle complète (figs. 31, 32).



FIGURES 31-35.—*Uahuka affinis,* species nova, patte-mâchoire du mâle: 31, côté externe; 32, vue de dessous; 33, patella vue de dessus; 34, tarse et tibia, vus de dessus; 35, epigyne.

Hivaoa : Matauuna, altitude 1,300 mètres, 4 mars 1930, 1 mâle (type), 1 femelle, Mumford et Adamson.

La présence de cette espèce distincte de la précédente, à Hivaoa, semblerait montrer une différenciation spécifique d'une île à l'autre. Mais nos connaissances actuelles sont trop rudimentaires pour qu'on puisse être affirmatif à ce sujet.

De Uapou, sommet Kopehu, j'ai une femelle qui appartient probablement au genre *Uahuka,* et serait assez voisine de la femelle de *U. affinis,* cependant ses pattes sont plus épineuses. Il est impossible de décider sur un seul exemplaire, mais la présence du genre *Uahuka* (ou d'un genre très voisin) dans l'île Uapou est intéressante.

Genre ISCHNYPHANTES Simon

Ischnyphantes pacificanus, species nova (figs. 36-40).

Mâle

Céphalothorax et abdomen entièrement brun de poix, chélicères rougeâtre foncé, sternum entièrement noir, pattes-mâchoires et pattes fauve clair.

Yeux gros et resserrés, un peu saillants, surtout les latéraux; les médians antérieurs plus petits que les latéraux, séparés entre eux et des latéraux à peine de leur rayon, les latéraux antérieurs un peu plus gros que les latéraux postérieurs; 2e ligne droite, ses yeux égaux et équidistants, séparés environ de leur rayon.

Bandeau concave en dessous des yeux. Sternum fortement convexe.

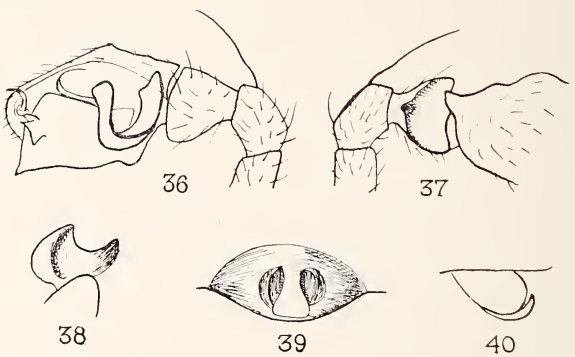
Pattes très peu épineuses : une épine a la patella, deux à la face supérieure du tibia.

Patte-mâchoire (figs. 36, 37), patella creusée du côté interne cette concavité prolongée en une pointe obtuse; tarse avec une saillie angulaire et un profil sinueux (vu du côté interne); bulbe (fig. 37) avec un petit style apical, crochu; paracymbium grand, en U à deux branches presque égales, la postérieure cependant un peu plus large, l'une et l'autre sans dents.

Femelle comme le mâle; épigyne (figs. 39, 40) en saillie bombée, avec une fossette séparée en deux par un septum blanc, élargi en arrière.

Longueur totale : mâle, 2 mm., femelle 2.5 mm.

Hivaoa : Kaava, altitude 950 mètres, 6 janvier, 1932, 1 mâle (type de l'espèce); 1 femelle (type de la femelle); en outre, 2 mâles, 3 femelles, 2 jeunes.



FIGURES 36-40.—*Ischnyphantes pacificanus,* species nova: 36, patte-mâchoire du mâle, vue du côté externe; 37, patte-mâchoire du mâle, vue du côté interne; 38, patte-mâchoire du mâle, tibia, vue de dessus; 39, femelle, épigyne; 40, épigyne vu de profil.

Tahuata : Haaoipu [Haoipu], altitude 900 mètres, juillet 1930, 1 mâle, 2 femelles.

Cette petite Linyphie est très voisine des *Ischnyphantes* de nos pays (jadis genre *Microneta*); en particulier elle a tout à fait l'aspect du si commun *I. rurestris* (connu longtemps sous le nom de *Microneta rurestris,* puis de *Micryphantes rurestris*). Il est curieux de trouver un représentant de ce

genre dans le Pacifique, et dans des lieux où toute importation accidentelle est impossible. Simon a décrit des Hawaii une *Micronета insulana* qui est assez voisine de la précédente, mais en diffère tant par la forme du bulbe que par les chélicères du mâle armées d'une dent en avant. Toutefois elle vient en appui des affinités qui ont été constatées á plusieurs reprises entre les Marquises et les Hawaii.

Genre LEPTYPHANTES Menge

Leptyphantes lebronneci, species nova (fig. 41).

Mâle

Céphalothorax, chélicères, pièces buccales et pattes fauve rougeâtre concolores, sternum brun, abdomen entièrement brun, moucheté de taches un peu plus claires, mais peu visibles, disposées en lignes longitudinales sur les flancs, remontant sur la face dorsale en accents transversaux, qui ne se rejoignent au milieu que dans la moitié postérieure.

Yeux normaux et gros de *Lyptyphantes*, première ligne droite, les médians antérieurs beaucoup plus petits que les autres yeux, et se touchant, séparés des latéraux antérieurs par environ leur diamètre; deuxième ligne droite, les médians séparés entre eux un peu moins que leur rayon.

Pattes très longues (exemplaire mutilé ayant presque toutes les pattes cassées à la patella); fémurs I beaucoup plus longs que le corps mesurant 4 mm.

Patte-mâchoire (fig. 41), patella, sur la face dorsale, avec une protubérance obtuse non pilifère; tibia long, sans saillie, régulièrement fusiforme, portant pleusieurs poils, et notamment un long poil sinueux dorsal; sur l'unique exemplaire, que je ne puis disséquer, je ne distinque pas de paracymbium différencié; style apical, coudé et court, le milieu du bulbe portant une grande lamelle caractéristique qui l'entoure, et vient se croiser vers l'avant avec le style, son extrémité est pointue, et régulièrement amincie.

Longueur totale: 2.7 mm.

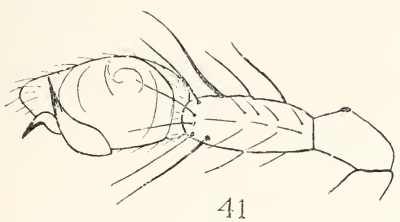


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FIGURE 41.—*Leptyphantes lebronneci,* species nova: patte-mâchoire du mâle, vue du côté externe.

Uahuka : Hitikau, altitude 1,000 mètres; 3 mars 1931, 1 mâle (type), LeBronnec et H. Tauraa.

La même remarque serait à faire que pour l'espèce précédente: le genre *Leptyphantes* est assez rare en dehors de la région holarctique, l'espèce que je décris ci-dessus est assez mal définie, puisque je ne disposais que d'un exemplaire en mauvais état, j'ai pensé qu'ily y avait cependant intérêt à la décrire, et á signaler la présence du genre *Lyptyphantes* dans le Pacifique.

Genre LEUCAUGE White

Leucauge mendanai Berland.

Hivaoa : Feani, altitude 1,300 mètres, 22 janvier 1932, 1 jeune; Tenatinaei, altitude 1,300 mètres, 19 janvier 1932, plusieurs femelles; Anatuakina, altitude 500 mètres, 1 avril 1929, plusieurs femelles et jeunes, Mumford et Adamson; sommet Temetiu, 1,400 mètres altitude, 20 janvier 1932, femelles.

Uapou : vallée Hakahetau, altitude 500 mètres; 21 novembre 1931, 2 femelles Teavaituhai, altitude 1,000 mètres, 30 novembre 1931, plusieurs femelles.

Genre TETRAGNATHA Latreille

Tetragnatha nitens (Aduouin).

Nukuhiva : Vaihakameama, altitude 850 mètres; juin 1931, mâles, femelles, nombreux exemplaires; Tapuaooa, altitude 850 mètres, 30 mai 1931, 1 femelle; LeBronnec et H. Tauraa.

Cette espèce a été décrite du bassin de la Méditerranée, où elle est commune; il est assez curieux de la rencontrer dans plusieurs îles du Pacifique; et en particulier aux Marquises; on lui connaît d'ailleurs des stations intermédiaires. J'ai comparé soigneusement les exemplaires des Marquises à ceux de la collection Simon, qui proviennent de la Méditerranée, et je n'ai trouvé aucune différence appréciable.

Tetragnatha macilenta L. Koch?

Uapou : Teavaituhai, altitude 1,000 mètres, 30 novembre 1931, 1 femelle jeune.

L'identité de cette espèce, représentée par un seul exemplaire non adulte, n'est pas certaine. L'espèce a été décrite de Samoa.

Tetragnatha marquesiana, species nova (figs. 42-46).

Mâle

Couleur : céphalothorax fauve clair avec une bande médiane grisâtre, qui se divise, avant la fossette, en deux branches se dirigeant vers les latéraux postérieurs; ces bandes renfermant une tache claire allongée; une bande grisâtre non entière sur les côtés; pattes jaune clair, vaguement annelées, notamment vers le milieu et à l'apex des articles; abdomen gris moucheté de petites taches argentées.

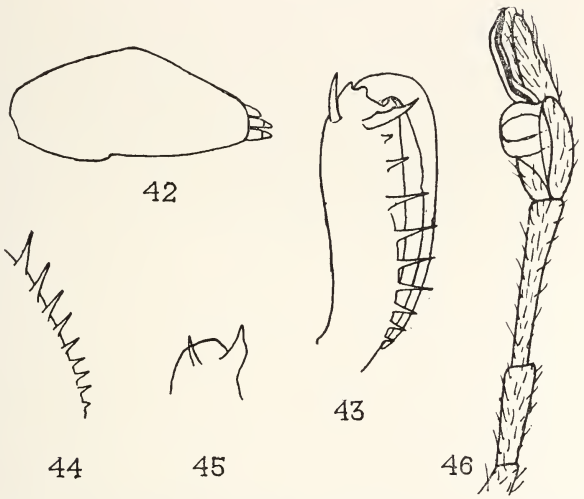
Yeux : les deux lignes légèrement récurvées, à peu près parallèles, et d'égale largeur. les médians plus gros que les autres et formant un carré, latéraux antérieurs un peu plus petits que les latéraux postérieurs.

Chélicères (figs. 43, 44, 45) caractérisées par deux fortes dents à la face antérieure, près de l'insertion, ensuite une très petite, puis une série régulière de fortes dents d'abord croissantes, puis décroissantes, à la marge antérieure; à la marge postérieure une série régulièrement décroissante; crochet sans saillie ni encoche, légèrement sinueux.

Patte-mâchoire (fig. 46), articles très longs, notamment le tibia, qui est plus long que la patella (presque double), et aussi long que le tarse.

Abdomen court et étroit, subcylindrique, sans bosse dorsale.

Longueur totale : 6.5 mm. (sans les chélicères).



FIGURES 42-46.—*Tetragnatha marquesiana*, species nova: 42, femelle, profil de l'abdomen; 43, mâle, face antérieure de la chélicère; 44, mâle, marge postérieure; 45, variante de l'épine apicale de la chélicère, d'après le cotype; 46, patte-mâchoire du mâle.

Uapou : Vaihakaatiki, vallée Hakahetau, altitude 1,000 mètres, 19 novembre 1931, sur *Freycinetia*, 1 mâle (type).

Hivaoa : Kaava, altitude 930 mètres, 7 janvier 1932, 1 mâle, (cotype). Chez cet exemplaire, on constate une certaine différence avec le type : les deux dents subapicales des chélicères sont plus courtes, et l'interne est plus épaisse (fig. 45), le tibia de la patte-mâchoire est plus court que le tarse ; ces caractères ne doivent donc pas être considérés comme ayant une valeur absolue.

Femelle

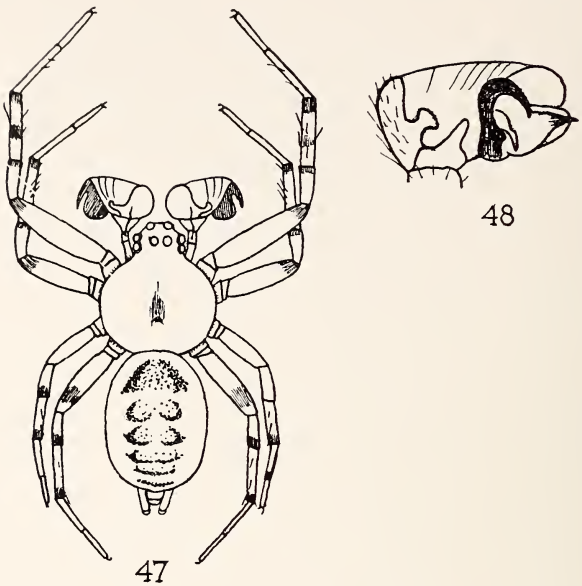
Je pense pouvoir attribuer à cette espèce deux femelles de Hivaoa, caractérisées par un abdomen court, et gibbeux au milieu du dos (fig. 42) ; je ne donne pas le dessin de leurs chélicères, parce que je ne suis pas sûr que ces exemplaires soient adultes.

Cyclosa tauraai Berland (figs. 47-48).

Nukuhiva : Ooumu, altitude 1,100 mètres, 10 novembre 1929, 1 mâle (type du mâle) ; Tapuaooa, altitude 1,000 mètres, 18 juin 1931, 3 femelles, 2 jeunes, LeBronnec et H. Tauraa.

L'espèce a été décrite dans le précédent mémoire sur une femelle de Uahuka. Plus récemment quelques exemplaires en ont été trouvés à Nukuhiva, dont un mâle, que je considère comme le type mâle de l'espèce, et dont

les caractères sont donnés suffisamment par les figs. 47, 48; sa longueur est de 3 mm.



FIGURES 47-48.—*Cyclosa tauraai* Berland: 47, mâle, × 12; 48, patte-mâchoire du mâle, face externe.

Genre ARANEUS Clerck

Araneus theisi (Walckenaer).

Nukuhiva : Tapuaooa, altitude 870 mètres, 12 juin 1931, 1 mâle, 6 femelles et plusieurs jeunes, LeBronnec et H. Tauraa.

Hivaoa : Kaava, altitude 900 mètres, 1 mâle, plusieurs femelles; vallée Avaoa, altitude 450 mètres, 4 janvier 1932, plusieurs exemplaires.

Eiao : altitude 500 mètres, 16 avril 1931, plusieurs femelles et jeunes (dont un mâle jeune); 24 mai 1931, très nombreux exemplaires mâles, femelles, et jeunes, LeBronnec et H. Tauraa; altitude 600 mètres, 30 septembre 1931, 1 mâle et plusieurs jeunes.

Hatutu : altitude 170 mètres, 28 avril 1932, nombreux exemplaires mâles et femelles, sur *Melochia velutina,* LeBronnec et H. Tauraa.
LeBronnec et H. Tauraa.

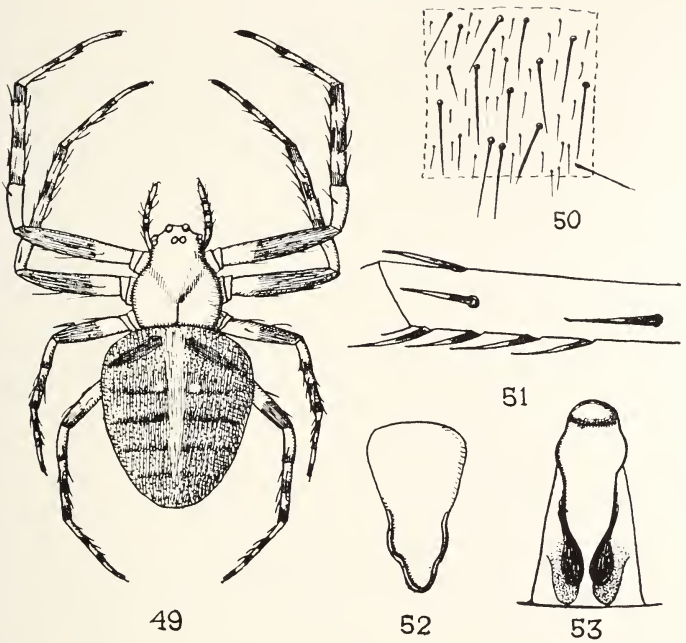
Araneus plebejus (L. Koch) (figs. 49-53).

Epeira plebeja L. Koch,, Die Arach. Austr., Band 1, p. 69, pl. 6, figs. 10, 10a, 1871.

Nukuhiva : Tapuaooa, altitude 1,000 mètres, 18 avril 1931, 1 femelle.

Hivaoa : Vaiepoepo, altitude 800 mètres, 3 juin 1929, 1 femelle, Mumford et Adamson.

Uapou : Teoatea, vallée Hakahetau, 21 novembre 1931, 1 femelle, 1 jeune.



FIGURES 49-53.—*Araneus plebejus* L. Koch: 49, femelle, × 3.5; 50, dessin montrant le mode de pilosité de l'abdomen, avec des poils de deux tailles; 51, extrémité du tibia I, montrant les épines qui sont noires à la base; 52, femelle, crochet de l'épigyne, vu de dessus; 53, scape de l'épigyne, vu de l'arrière, le crochet relevé.

Cette espèce a été décrite de Tonga, elle est connue aussi des Fidji, et, ayant comparé les exemplaires marquisiens à ceux des Fidji, je crois pouvoir leur donner le nom de *plebejus*.

Cette espèce est très voisine de *A. theisi,* dont elle se distingue par : 1. la forme de l'abdomen, qui n'est plus ovalaire, mais a les angles antérieurs assez nets (fig. 49) ; 2. la pilosité de l'abdomen, faite de poils très raides et serrés, avec en plus des poils plus fins (fig. 50), chez *A. theisi* les poils longs sont moins raides, souvent courbes, et moins serrés; 3. les épines des pattes, surtout des tibias, qui ne sont pas complètement brunes comme c'est le cas chez *A. theisi,* mais brunes à la base et claires à l'apex (fig. 51) ; 4. le dessin de l'abdomen qui, bien que variable, ne représente jamais le type du dessin de *A. theisi,* l'espèce peut devenir entièrement fauve clair.

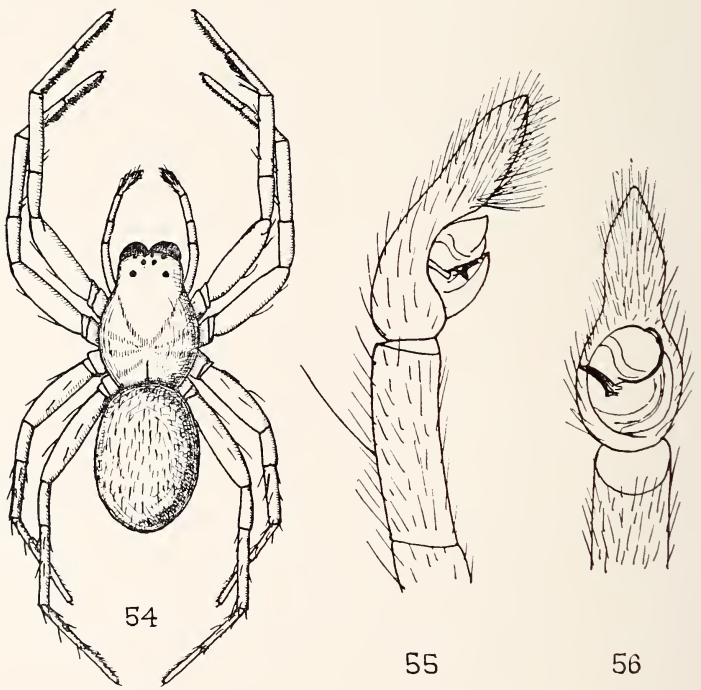
Par contre, l'épigyne ne donne pas de caractère différentiel précis; le crochet ressemble beaucoup à celui de *A. theisi,* ainsi que le scape, vu de l'arrière, le crochet relevé (figs. 52, 53).

Par la forme de l'abdomen l'espèce resemble aussi à *A. nauticus,* Epeire cosmopolite, mais elle s'en distingue par l'épigyne.

Famille PISAURIDAE

Genre NUKUHIVA, genus novum

Pisauride caractérisée par : yeux à 1re ligne très légèrement procurvée, les médians plus rapprochés entre eux que des latéraux, 2e ligne fortement récurvée, les yeux formant un trapèze, égaux entre eux, mais plus gros que ceux de la 1re ligne.



Figures 54-56.—*Nukuhiva adamsoni* Berland: 54, femelle, × 3.2, 55, patte-mâchoire du mâle vue du côté externe; 56, patte-mâchoire du mâle, vue de dessous.

Céphalothorax plus long que large, avec une fossette linéaire, longitudinale, très reculée. Chélicères fortement géniculées à la base, la marge antérieure avec trois dents rapprochées, la médiane plus grosse, ligne postérieure avec trois dents un peu plus séparées entre elles, et à peu près égales. Tibia de la

patte-mâchoire du mâle cylindrique, sans aucune apophyse. Génotype, *Dolomedes adamsoni* Berland.

Genre voisin de *Dolomedes,* auquel j'avais d'abord rapporté l'espèce; mais il est différent, n'en ayant ni l'aspect, ni la disposition des yeux ou des dents des chélicères, de plus celles-ci sont fortement géniculées, et le céphalothorax est notablement plus long que large.

Nukuhiva adamsoni (Berland) (figs. 54-56).

Dolomedes adamsoni Berland, B. P. Bishop Mus., Bull. 114, p. 68, figs. 55-59, 1933.

Nukuhiva : Tapuaooa, altitude 1,000 mètres, 1 juin 1931, 1 femelle; sommet de l'île, altitude 1,300 mètres, 20 juillet 1931, 1 mâle (type du mâle), LeBronnec et H. Tauraa.

Uahuka : Mont Hitikau, altitude 1,000 mètres, 4 mars 1931, 3 femelles (les types, déja cités), LeBronnec et H. Tauraa.

La capture du mâle complète nos connaissances de cette espèce, fort remarquable, et qui est connue maintenant de deux îles; elle paraît limitée aux sommets.

Le mâle (figs. 55, 56) est un peu plus grand que la femelle, et a les pattes plus longues; je donne ici le dessin du bulbe et le dessin d'ensemble de la femelle (fig. 54), pour compléter ceux que j'avais donnés précédemment.

Walckenaer[8] a décrit un *Dolomedes noukhaiva* recueilli par *La Zélée,* qui reste énigmatique. Cette espèce est essentiellement différente de celle que j'ai décrite, tant par la couleur verte qui est mentionnée de plusieurs parties du corps, que par les pattes annelées, et par la forme de la pièce labiale "en triangle isocèle". Il paraît difficile de savoir ce qu'est cette Araignée, et il est fort curieux que les naturalistes de *La Zélée,* abordant les Marquises aient pris une Araignée qu'on n'aurait pas retrouvée depuis.

[8] Walckenaer, C. A., Hist. Nat. Ins. Aptères, vol. 4, p. 401, 1847.

TERRESTRISCHE ACARINEN VON DEN MARQUESAS*

Von

Dr. H. Graf Vitzthum
Berlin

Die geographischen Verhältnisse der vielen, durch gewaltige Entfernungen getrennten Gruppen zahlloser kleiner und kleinster Inseln legen der Erforschung der terrestrischen Fauna im Bereiche des Pacifischen Oceans grosse Hindernisse in den Weg. Es ist begreiflich, dass da, wo es gelingt, sie zu überwinden, Arbeit, Zeit und Kosten vor allem für die wichtigen Dinge aufgewendet werden, und dass die mehr nebensächliche Kleinwelt erst in zweiter Linie Beachtung finden kann. Infolgedessen bildet die Acarofauna der pacifischen Inseln ein erst wenig durchforschtes Gebiet.

Was die Acarofauna der Marquesas im besondern angeht, so war über sie bis vor kurzem überhaupt nichts bekannt. Erst 1932 hat Ferris (22)[1] die ektoparasitischen Acarinen der Marquesas-Ratten bearbeitet und hat dabei das Vorkommen von *Laelaps hawaiiensis* Ewing (21) und *Laelaps echidninus* Berlese sowie von *Listrophoroides expansus* Ferris festgestellt. Im Jahre 1934 fügte Jacot (24) noch einen Rhizoglyphiden hinzu, den er *Rhizoglyphus natiformius* nennt. Beschreibung, Abbildung und die Art des Vorkommens deuten aber darauf hin, dass diese Species wohl besser in die Gattung *Schwiebea* Oudemans 1916 zu stellen wäre. Ausserdem beschrieb er 18 Oribatiden, die eigentlich nur 9 Arten angehören, von denen er aber zahlreiche Unterarten und Lokalformen abspaltete.

Bei der jetzt vorliegenden Sammlung des Pacific Entomological Survey von terrestrischen Acarinen von dieser Inselgruppe ist zu bedenken, dass die Expedition nicht das Studium der Acarofauna, sondern in der Hauptsache entomologische Ziele verfolgte. Die dabei ausserdem zustande gekommene acarologische Sammlung ist nur eine Nebenausbeute. Daraus erklärt sich ihr verhältnismässig geringer Umfang und auch eine gewisse Eintönigkeit, namentlich in Bezug auf die Uropodiden. Aber ihr Wert wird dadurch nicht herabgesetzt. Sie bildet in jedem Falle einen sehr willkommenen Beitrag zu einer Acarofauna der Südsee.

Die Sammlung enthält 16 Milben-Arten, die sich systematisch folgendermassen ordnen:

[1] Numbers in parentheses refer to the bibliography pp. 98-99.

* Pacific Entomological Survey Publication 8, article 5. Issued February 25, 1935.

Ordnung Acari Leach

3. Unterordnung Parasitiformes Reuter
  1. Kohorte Gamasides Leach
    1. Unterkohorte Gamasina Kramer
      2. Familie Macrochelidae
        Nr. 1: Nothrholaspis planus, species nova
      5. Familie Laelaptidae
        Nr. 2. Cypholaelaps semiglobulus, species nova
      11. Familie Celaenopsidae
        Nr. 3: Anoplocelaeno marquesana, species nova.
      12. Familie Sejidae
        Nr. 4: Epicroseius seurati Berlese
    2. Unterkohorte Epicriina (nom. novum pro Sejina Kramer)
      5. Familie Antennophoridae
        Nr. 5: Cercomegistus simplicior, species nova
  2. Kohorte Uropodina Kramer
    4. Familie Trachyuropodidae
      Nr. 6: Dinychopsis pacifica, species nova
    7. Familie Uropodidae
      Nr. 7: Uropoda bistellaris, species nova
      Nr. 8: Uropoda masculinata, species nova
      Nr. 9: Fuscuropoda hippocrepea (Berlese)
      Nr. 10: Fuscuropoda hippocrepoides, species nova
      Nr. 11: Fuscuropoda furcigera, species nova
      Nr. 12: Cilliba bordagei Oudemans

4. Unterordnung Trombidiformes Reuter
  3. Oberkohorte Prostigmata Kramer
      12. Familie Bdellidae
        Nr. 13: Biscirus symmetricus (Kramer)
    2. Kohorte Parasitengona Oudemans
      2. Unterkohorte Apobolostigmata Oudemans
        1. Familie Erythraeidae
          Nr. 14: Caeculisoma cordipes, species nova

5. Unterordnung Sarcoptiformes Reuter
  1. Oberkohorte Acaridiae Latreille
    1. Kohorte Diacotricha Oudemans
      20. Familie Anoetidae
        Nr. 15: Histiostoma granulatum, species nova
    2. Kohorte Anacotricha Oudemans
      3. Familie Proctophyllodidae
        Nr. 16: Alloptes phaetontis (Fabricius)

2. Oberkohorte Oribatei Dugès. (von A. P. Jacot an anderer Stelle bearbeitet.)

6. Unterordnung Tetrapodili Bremi

1. Familie Eriophyidae

Nr. 17: Eriophyes premnae Nalepa

Das sind 6 bereits bekannte und 11 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, als es bisher geschehen ist, soweit dies für die Systematik erwüncht erscheint.

1. **Nothrholaspis planus,** species nova (fig. 1.)

Weibchen

Idiosomalänge 1.060 mm., grösste Breite (hinter den Stigmen) 0.675 mm. Beinlängen: I, 0.900 mm; II, 0.785 mm; III, 0.825 mm; IV, 1.090 mm. Wegen der Bezeichnung der Einzelheiten des Sternale und ihrer Verwertbarkeit für die Systematik sei auf Berlese (7), Seite 147, verwiesen. Es wäre falsch, die Unterschiede in der Skulptur des weiblichen Sternale für nebensächlich zu halten. Denn ihnen entsprechen durchgreifende Unterschiede im biologischen Verhalten. Alle Arten mit den für Coprholaspis charakteristischen Typen leben koprophil, alle Arten mit anderen Typen sind nicht koprophil, und insbesondere für die Nothrholaspis-Arten ist der Lebensraum hauptsächlich der Erdboden, wenn er von Moos oder von modernden Pflanzenstoffen bedeckt ist. Im vorliegenden Falle besitzt das Sternale nur die Lineae angulatae, sonst keine einzige Linie, auch keine besonderen Areae punctatae. Dafür ist das ganze Sternale ziemlich dicht mit Punkten übersät, die in den verschiedenen Regionen von etwas verschiedener Grösse sind. Vertrianale 0.370 mm lang und ebenso 0.370 mm breit.

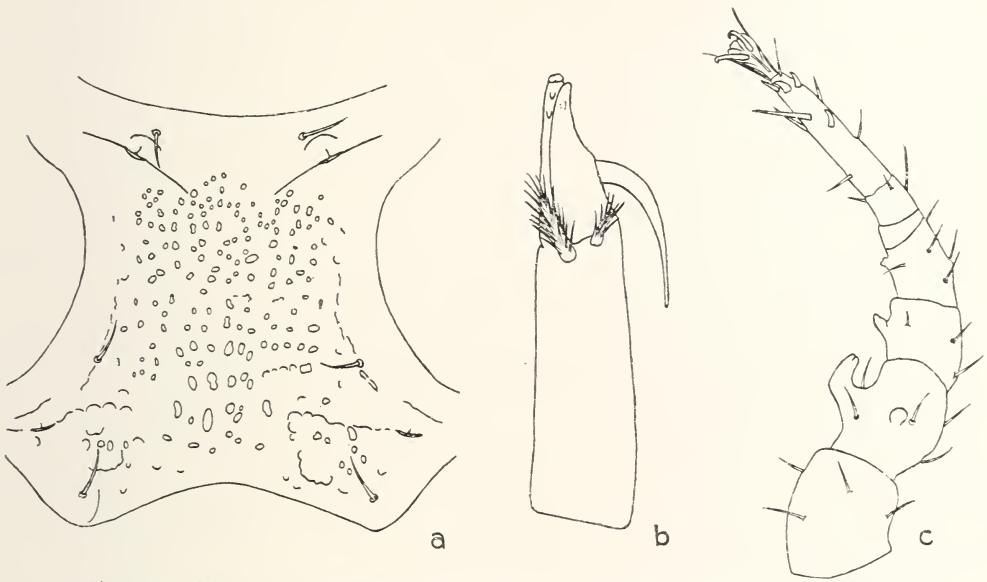
Männchen

Idiosomalänge 0.695 mm, grösste Breite 0.500 mm. Beinlängen: I, 0.655 mm; II, 0.615 mm; III, ungefähr 0.615 mm; IV, 0.840 mm. Infolge dieser Längenverhältnisse von Rumpf und Beinen erscheint das Männchen im Gegensatze zu dem Weibchen viel langbeiniger als es die Macrocheliden sonst sind. Sternalgegend genau dem Weibchen entsprechend. Sämtliche ventralen Panzerplatten vom Sternale bis zum Anale ohne Unterbrechung verschmolzen. Beine I und III ohne Sexualcharaktere. Beine II: Femur ventral mit einem stumpfen Höcker und einer grossen daumenförmigen Apophyse; Genu ventral mit einer kleinen, vorwärts gerichteten Apophyse; Tibia ventral mit einem unbedeutenden Höcker. Beine IV: Trennung von Basifemur und Telofemur nur auf der Aussenseite angedeutet; Telofemur mit kurzer, dicker und spitzer, vorwärts gerichteter Apophyse; Tarsus vollständig gerade gestreckt. Spermatophorenträger von der Länge der Mandibularschere, senkrecht von der Aussenseite des Digitus mobilis abstehend und dann halbkreisförmig nach rückwärts gebogen.

Hivaoa: Matauuna, 3900 englische Fuss über dem Meer, 2. März 1930, Mumford und Adamson; 4. März 1930 am Erdboden unter abgestorbenem Laube; Temetiu-Gipfel, 4160 englische Fuss über dem Meer, am Erdboden, Le Bronnec.

Uapou: Kohepu-Gipfel, 3200 englische Fuss über dem Meer, 28. November 1931, an toten Stämmen von *Cyathea* species, Le Bronnec.

Berlese hat 1918 *Nothrholaspis* nur als eine Untergattung von *Macrocheles* aufgestellt. *Macrocheles* Latreille 1829: Typus *Acarus marginatus* Hermann 1804. *Nothrholaspis* Berlese 1918: Typus *Gamasus carinatus* C. L. Koch 1839 (= *Macrocheles hypochthonius* Oudemans 1913 = *Holostaspis tridentinus* G. u. R. Canestrini 1882) (17). Es erscheint aber besser, die Nothrholaspis-Gruppe als eine Gattung für sich aufzufassen, ebenso wie die anderen Untergattungen, die Berlese gleichzeitig von *Macrocheles* abspaltete. Sie hat nicht weniger Existenzberechtigung als andere Gattungen der Macrochelidae, wie *Calholaspis, Parholaspis, Holostaspella* und so weiter, und der systematische Überblick wird dadurch nur erleichtert. Dem entsprechend bin ich denn auch seit 1930 verfahren (48).



FIGUR 1.—*Nothrholaspis planus*, species nova: *a*, Weibchen, Sternale; *b*, Männchen, Mandibularschere; *c*, Mannchen, Bein II ventral.

Die Macrocheliden sind, sofern sie einigermassen eng mit *Macrocheles* verwandt sind, einander so ähnlich, dass es sich erübrigt, hier ein Habitusbild zu geben. Es genügt, wenn das dargestellt wird, was die neue Art vor den anderen auszeichnet.

Das Rückenschild deckt den ganzen Rumpf. Es ist gleichmässig granuliert, ohne irgendwelche Unebenheiten und ohne jede Spur einer netzartigen Felderung oder von Schuppen. Fast alle Haare am Rumpfe und an den Gliedmassen glatt. Nur die Vertikalhaare und 2 Haarpaare in der Schultergegend sind an der Spitze etwas befiedert und ausserdem je 2 Haare an den Tarsi IV des Weibchens (nicht des Männchens). Epistom doppelt gegabelt wie bei den meisten Macrocheliden.

2. **Cypholaelaps semiglobulus,** species nova (fig. 2).

Weibchen

Idiosomalänge 0.465 mm, grösste Breite 0.395 mm. Gestalt im Umrisse sehr breit eiförmig, die Linie der grössten Breite hinter den Beinen IV, ventral platt, dorsal halbkugelförmig emporgewölbt. Farbe kaffeebraun.

Das einheitliche Rückenschild greift ringsum, auch hinten, weit auf die Ventralfläche über, umhüllt also fast den ganzen Rumpf wie eine Kapsel. Seine Struktur glatt, nur die auf die Ventralseite übergreifenden Flächen lassen eine rhombische Felderung erkennen. Der Rumpf erscheint unbehaart. Es sind jedoch einige winzige, glatte Haare vorhanden, die schwer wahrnehmbar sind, weil sie sich der Rumpfwölbung dicht anlegen.

Auf der Ventralseite keine Jugularia. Das Sternale breiter als lang, von glatter Struktur, mit den normalen 3 Sternalhaarpaaren. Metasternalia mit den normalen Metasternalhaaren. Das Genitale sehr gross, von glatter Struktur, mit den normalen beiden Genitalhaaren dicht hinter den Coxae IV. Es breitet sich hinter den Coxae IV so weit aus, dass seine Breite so viel beträgt wie der Abstand zwischen den Aussenkanten dieser Coxae (Länge 0.185 mm; grösste Breite 0.205 mm). Es deckt die Ventralfläche hinter den Coxae IV in dem Umfange, wie man es sonst bei einem Genitiventrale gewohnt ist. Die Hinterkante ist geradlinig. An sie legt sich die Vorderkante des Ventrianale dicht an, lässt jedoch in einem schmalen Spalte noch so viel Raum, dass hier zwei quergelagerte winzige Plättchen eingeschoben sind. Das Ventrianale bildet ein annähernd gleichseitiges Dreieck mit etwas gerundeten Seitenkanten und abgerundetem Hinterende. Auf dem dem Ventrale entsprechenden Teile zeigt es eine Struktur von breiten, quergelagerten Schuppen und trägt hier 1 Paar Ventralhaare. Der dem Anale ensprechende Teil ist von glatter Struktur und trägt die normalen 3 Circumanalhaare. Zwischen den Coxae IV und der breitesten Stelle des Genitale sind lange, strichförmig schmale Inguinalia vorhanden. Die Peritrematalia enden neben den Coxae IV, schmiegen sich deren Rundung an, greifen aber nicht um sie herum. Auf den weichhäutigen Streifen zwischen dem Innenrande des Rückenschildes und den eigentlichen ventralen Panzerplatten stehen einige Haare: 1 Paar dicht neben dem Rande des Genitale in der Linie von dessen grösster Breite, 3 Paare neben dem Spalte, der das Genitale von dem Ventrianale trennt, und 2 Paare neben dem Ventrianale. Die sämtlichen ventralen Haare sind dünn und glatt. Die Stigmen liegen neben den Hinterkanten der Coxae III. Ihre Peritremata reichen bis über die Coxae I.

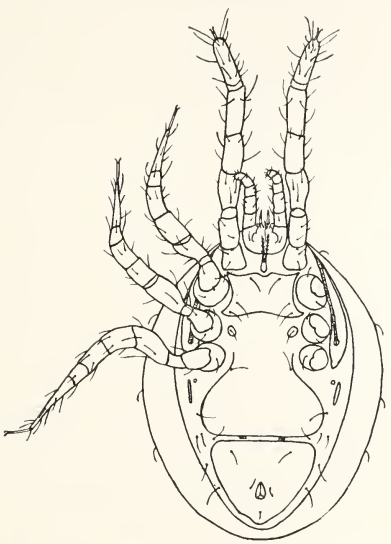
Das Epistom ragt nur wenig vor (im Gegensatze zu der langen Spitze bei der Typenart). Sein Vorderrand ist flach gerundet und vollständig glatt (letzteres in Übereinstimmung mit der Typenart).

Beinlängen ungefähr: I, 0.370 mm; II und III, 0.300 mm; IV, 0.395 mm. Alle Beine gleich dick; doch machen die Beine I einen etwas dickeren Eindruck, weil ihre Tarsi im Gegensatze zu den anderen Tarsi nicht zugespitzt sind.

Nukuhiva: Teuanui, Tovii [Toovii], 2000 englische Fuss über dem Meer, Oktober 1929, unter abgestorbenem Laube, Mumford und Adamson.

In der Annahme, den wohl niemals sicher identifizierbaren *Gamasus tumidulus* C. L. Koch wiedergefunden zu haben, beschrieb G. Canestrini (20) (wo auch das Nähere über die von Canestrini für richtig gehaltene ältere Synonymik zu finden ist) 1885 einen *Hypoaspis tumidulus*. Berlese (2, 4) nannte die Art 1889 *Laelaps tumidulus*, bekam dann aber wohl Bedenken wegen der Richtigkeit der Canestrini'schen Determination. Darum gab er ihr 1893 den neuen Namen *Hypoaspis venetus*. Das ist ein in Europa ziemlich verbreiteter und gut bekannter Bewohner feuchten Mooses. Diese Art nahm Berlese 1904 (5) zum Typus einer neuen Gattung *Ololaelaps*. Von dem

eigentlichen *Ololaelaps* unterschied Berlese 1916 (11) eine Untergattung *Cypholaelaps* mit *Ololaelaps* (*Cypholaelaps*) *haemisphaericus* als Typus, einer argentinischen Art, über deren Vorkommen nichts Genaueres bekannt ist. Das hinderte ihn aber nicht, 1918 (15) nochmals eine Gattung *Cypholaelaps* aufzustellen, dies mal mit dem Typus *Laelaps ampullula* Berlese 1910 (8), einer in Java mit *Apis indica* vergesellschaftet lebenden Art. *Cypholaelaps haemisphaericus* und *Cypholaelaps ampullula* haben garnichts mit einander



Figur 2.—*Cypholaelaps semiglobulus,* species nova, Weibchen, ventral.

gemein. Der *Cypholaelaps* von 1916 geniesst das Recht der Priorität vor dem *Cypholaelaps* von 1918. Daher muss der letztere Name durch einen anderen Gattungsnamen ersetzt werden. Der *Cypholaelaps* von 1916 ist nun aber von dem typischen *Ololaelaps* so stark unterschieden, dass man ihm unbedingt den Rang als selbständige Gattung zuerkennen muss.

Die neue Art entspricht in ihrem Habitus vollkommen dem typischen *Cypholaelaps haemisphaericus.*

3. **Anoplocelaeno marquesana,** species nova (fig. 3).

Weibchen

Länge des Idiosoma 0.755 mm, grösste Breite (in der Rumpfmitte) 0.515 mm. Die Grösse ist also geringer als bei *ramifera* (1.000 : 0.750 mm). Gestalt ist im Umrisse gleichmässig oval mit nur schwacher Andeutung von "Schultern". Farbe hell kaffeebraun, nur einzelne stärker chitinisierte Stellen etwas dunkler, nämlich die Dorsal- und die Ventralflächen aller Beinglieder, die Umrahmung der Sternalgegend und einige Gebilde innerhalb der Genitalöffnung.

Das Rückenschild erscheint glatt, lässt aber bei genauer Betrachtung eine schwache Andeutung einer Struktur von hauptsächlich quergelagerten Feldern erkennen. Es deckt

die Rückenfläche, greift von den Seiten her (fig. 3, *b*) auf die Bauchfläche über und verschmilzt hier hinter den Stigmen mit der ventralen Panzerung. Seitliche Zwischenplatten sind nicht zu unterscheiden. Die Grenze zwischen der dorsalen und der ventralen Panzerung wird nur durch eine schwer wahrnehmbare Linie angedeutet, die jederseits hinter der Coxa IV beginnt und dicht neben der Analöffnung vorbei dem Rumpfende zustrebt. Die darüber hinwegstreichende, schwach schuppige Struktur des Rumpfpanzers zeigt, dass diese Linien in tieferer Schicht unter der Oberfläche verlaufen. Sie umgrenzen also eine nach hinten spitz zulaufende Fläche, die einem Ventrianale entspricht und in deren spitzem Hinterende die Analöffnung liegt.

Die Behaarung des Rückenpanzers besteht aus dreierlei Sorten von Haaren: winzigen Borsten, mässig langen Haaren von ungefähr 0.020 mm Länge und ganz starken, etwas gebogenen, durchschnittlich 0.105 mm langen Haaren. Alle diese Haare sind nadelförmig und glatt. Zu den mässig langen Haaren gehören die 3 Vertikalhaare. Die unpaarige Zahl der Vertikalhaare (1, 3 oder 5) ist bei den Celaenopsidae eine Regel, die nur selten durchbrochen wird. 8 Paare ebenso langer Haare verteilen sich in der Schultergegend und über die Rückenmitte. Hinter ihnen schliesst sich eine Gruppe von 4 Paaren winziger Borsten an. Die sehr starken Haare, die dem ganzen Tiere das Gepräge geben, beginnen mit einem Paare hinter den Vertikalhaaren. Es folgen die Paare, die den Setae humerales und scapulares der Parasitidae entsprechen, und der Rest von ungefähr 20 Paaren verteilt sich über den Rand der Rückenfläche und über die Rumpfseiten, ihr hinterstes bereits vollkommen ventral stehend.

Auf der einem Ventrianale entsprechenden Fläche stehen 6 ähnliche Haarpaare, ihr vorderstes zwischen den Coxae IV, die beiden hintersten mit dem Charakter von Circumanalhaaren. Ein unpaariges Postanalhaar fehlt.

Unter dem Vorderrande des Sternale wächst das labiale Tritosternum hervor. Seine Gesamtlänge beträgt nicht mehr als normal ist. Aber sein Basalstück ist ganz ungewöhnlich lang. Dafür sind die ihm aufgesetzten Laciniae um so kürzer. Das Basalstück ist proximal ziemlich dicht, in der distalen Hälfte bedeutend spärlicher befiedert. Dafür ist die Befiederung der Laciniae wieder reichlicher, aber auch kürzer.

Die gesamte Sternalgegend ist von einer Panzerplatte bedeckt, deren Seiten etwas über die Basis der Coxae II, III und IV übergreifen, um dann mit dem Ventrianale zu verschmelzen. Ihre Ränder sind ringsum von etwas dunklerer Farbe als der übrige Rumpfpanzer. Das eigentliche Sternale hat einen schwach concaven Vorderrand und Seitenränder, die sich der Rundung der Coxae anpassen. Sein Hinterrand ist nicht zu erkennen; wahrscheinlich wird er durch den Verschluss der Genitalöffnung verdeckt. Dieses Sternale trägt nicht die normalen 3, sondern 4 Haarpaare, so dass anzunehmen ist, dass in seinen Hinterecken die Metasternalplättchen mit ihren Haaren aufgegangen sind. Das vorderste dieser Haarpaare ist ebenso gross und stark wie die starken Haare der Rumpfseiten. Wenn man dieses Haarpaar, dem Schema der normalen Mesostigmata entsprechend, als das vorderste Paar der normalen Sternalhaare auffasst, dann bedeuten die an den Seiten des Sternale folgenden Paare das mittlere Sternalhaarpaar und die Metasternalhaare. Ihre Länge beträgt nur ein Viertel der Länge des vordersten Paares. Das hinterste Paar der normalen Sternalhaare ist hier auf die Mitte der Platte gerückt und besitzt eine Länge von der Hälfte des vordersten Paares. Auf dieses Haarpaar sei schon hier besonders hingewiesen.

Bei dem Verschlusse der Genitalöffnung kann ich die Einzelheiten nicht so unterscheiden, wie es Oudemans gelungen ist (vergl. 30). Ich sehe am Hinterende der Genitalöffnung ein sehr kleines, unbehaartes, halbkreisförmiges Epigynium, das wohl nur eine recht nebensächliche Rolle spielt. In der Hauptsache wird die Genitalöffnung von zwei Paragynia verschlossen, die sich als zwei seitliche Klappen über sie legen. Jede Klappe trägt zwei Haare, von denen das hintere länger ist als das vordere. Ob diese aus dem Schema der Parasitidae übernommenen Bezeichnungen als "Epigynium" und "Paragynia" richtig sind, ist fraglich. Denn ein echtes Epigynium trägt 2 Haare und jedes echte Paragynium nur 1. Es müsste also hier eine Umwandelung stattgefunden haben, derzufolge das Epigynium seine beiden Haare an die Paragynia abgetreten hätte.

Dann bleibt die Frage offen, woher das hinterste Haarpaar auf dem Sternale kommt. Denn die Paragynia sind eine phylogenetische Weiterentwickelung der Metasternalia.

Das Gnathosoma ist sehr sonderbar und scheint genau dem zu gleichen, wie es von Kramer für *ramifera* geschildert wird (vergl. 26). Das Epistom hat die bei den Celaenopsidae häufig wiederkehrende Form, die aus fig. 3, *d* ersichtlich ist. Ventral ist die hypopharyngeale Hypostomrinne wenig ausgeprägt. Die Maxillicoxalhaare sind gerade und spärlich befiedert: ziemlich symmetrisch auf der Innenseite mit 3, auf der Aussenseite mit 4 - 5 Fiedern. Die Maxillarpalpi bieten keine Besonderheiten. Die Gabel am Palptarsus ist dreizinkig. Die Corniculi maxillares sind von normaler Form und kräftig entwickelt. Die 3 Paare der Hypostomhaare sind glatt und stehen so ziemlich an normaler Stelle, wenn auch die beiden hinteren Paare etwas weiter auseinander gerückt sind als im Allgemeinen üblich. Die etwas geschlängelten Styli stehen auf deutlich erkennbaren Sockeln. Zwischen ihnen schiebt sich das Hypostom noch sehr weit vor, spaltet sich und endet in zwei sehr langen Bändern, jedes Band mehr als doppelt so lang wie die Corniculi maxillares. Dies verleiht dem Gnathosoma ein ganz absonderliches Aussehen, und gerade dies könnte Veranlassung sein, die Art mit *ramifera* zu verwechseln. Dass das Hypostom in dieser Weisee endet, scheint bei den Celaenopsidae nichts Ungewöhnliches zu sein, vielleicht ist es sogar die Regel. So zeichnet Oudemans es auch für *indica* und *tropica*. Aber eine so ungeheuerliche Länge dieser Bänder ist noch bei keiner der besser bekannten Arten beobachtet worden, abgesehen von *ramifera*. Die Mandibularscheren konnten nicht studiert werden.

Beinlängen: I, 0.715 mm; II und III, 0.570 mm; IV, 0.665 mm, die Beine IV sogar vielleicht etwas länger; sie konnten nicht in eine ganz ausgestreckte Lage gebracht werden. Alle Tarsi sind ungefähr cylindrisch, also distal nicht zugespitzt. Tarsus I ohne Ambulakrum, die anderen Tarsi mit Praetarsus mit kräftig entwickelten Krallen. Die Beine I sind schlank, die Beine II doppelt so dick, und die Beine III und IV etwas dünner als II. Sonst bieten die Beine keine Besonderheiten. Insbesondere sind die Enden ihrer Glieder nicht angeschwollen: neben dem Grössenunterschiede ein weiterer Unterschied von *ramifera*.

Männchen

Länge des Idiosoma, 0.740 mm; grösste Breite, 0.480 mm. Die Grösse ist also auch hier etwas geringer als bei *ramifera* (0.950 : 0.700 mm). Gestalt im Umrisse nicht so gleichmässig oval wie bei dem Weibchen, sondern mehr eiförmig nach hinten zugespitzt. Farbe etwas dunkler als bei dem Weibchen.

Das Männchen gleicht dem Weibchen so vollkommen, dass es keiner besonderen Beschreibung und keines Habitusbildes bedarf. Jedoch muss die Sternalgegend abgebildet werden. (fig. 3, *d*) Das labiale Tritosternum ist ebenso sonderbar schlank geformt wie bei dem Weibchen. Die ganze Sternalgegend ist von einem kräftiger chitinisierten und dunkler gefärbten Rahmen umgeben. Der Vorderrand des Sternale, der auch den Ursprung des Tritosternum verdeckt, ist durch plastisch geformte Chitinmassen eigenartig umgestaltet. Sie umhüllen die Genitalöffnung. Die beiden vordersten Paare der Sternalhaare entsprechen in der Grösse denen des Weibchens. Das dritte Paar aber, das schon bei dem Weibchen etwas durch Grösse ausgezeichnet ist, ist hier nicht nur von ungewöhnlicher Länge, sondern auch sehr dick.

Die Einzelheiten des Gnathosoma sind bei dem einzigen vorliegenden Exemplare nicht klar zu erkennen. Sie scheinen mit denen des Weibchens übereinzustimmen.

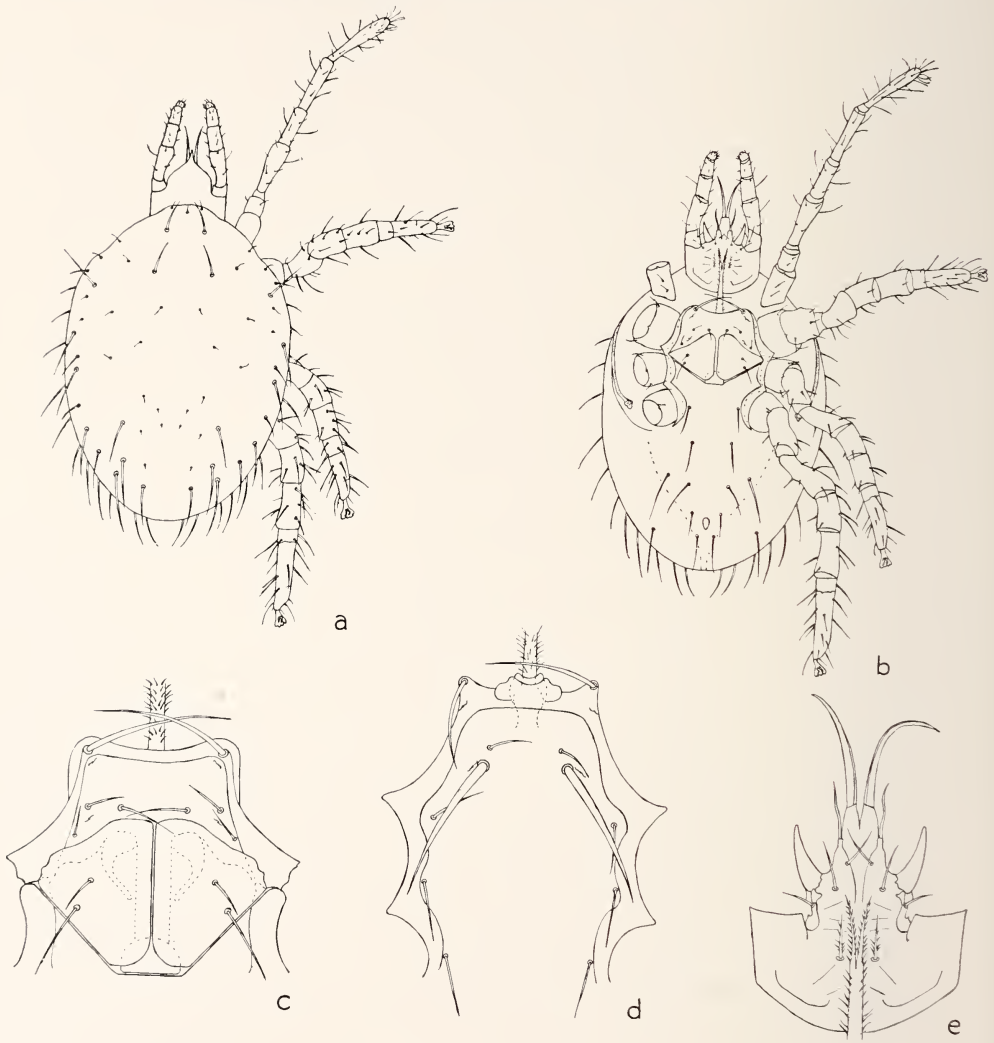
Beinlängen: I (abgebrochen), II, 0.535 mm; III, 0.535 mm; IV, 0.710 mm. An sekundären Sexualcharakteren sind nur vorhanden am Femur II ventral 2 und am Tarsus II ventral 1 besonders starker Dorn, die jedoch nicht von besonderer Länge sind.

Hivaoa: Mont Temetiu, 3900 englische Fuss über dem Meer, 14. Januar 1932, unter Rinde von *Cheirodendron* species, LeBronnec.

Was über die Systematik der wichtigeren Gattungen der Celaenopsidae zu sagen ist, das habe ich 1926 (unter Übergehung der weniger bekannten

Gattungen *Messoracarus* Silvestri und *Leptantennus* Berlese) in den Zoologischen Jahrbüchern zusammengefasst und verweise auf meine damaligen Ausführungen (46).

Das Verzeichnis der *Anoplocelaeno*-Arten war leider schon damals nicht vollständig. Es fehlten die von Stoll 1903 (35) aus Mittel-Amerika beschriebenen *Caelenopsis uropodoides* und *C. megisthanoides* und Kramer's



FIGUR 3.—*Anoplocelaeno marquesana*, species nova: *a*, Weibchen, dorsal; *b*, Weibchen, ventral; *c*, Weibchen, Basis des Tritosternums, Sternale und Genitalöffnung; *d*, Männchen, Basis des Tritosternums, Genitalöffnung und Sternale; *e*, Weibchen, Tritosternum, Coxae der Maxillarpalpen und Hypostom.

(26) *Celaenopsis ramifera* aus Chile. Neu hinzugekommen sind seither die Oudemans'schen (30) Arten *Anoplocelaeno indica* und *A. tropica* aus Buru in Niederländisch-Indien. Namentlich die Beschreibungen der beiden letzteren Arten sind wichtig, weil sie von ausserordentlich genauen Zeichnungen begleitet sind.

Die jetzt vorliegende neue Art erinnert stark an *Anoplocelaeno ramifera* (Kramer 1898). Kramer's wenig ausführliche Beschreibung könnte Wort für Wort auf die hier vorliegende Art Anwendung finden, zumal auch die etwas skizzenhaften Zeichnungen keine Unterschiede erkennen lassen. Aber sie enthält doch die oben hervorgehobenen zwei Punkte, die eine Synonymie der beiden Arten ausschliesssen.

4. **Epicroseius seurati** Berlese (fig. 4).

Nukuhiva: Teuanui, Tovii [Toovii], 2000 englische Fuss über dem Meer, 21. Oktober 1929, unter abgestorbenem Laube, Mumford und Adamson.

Hivaoa: Atuona-Tal, 300 englische Fuss über dem Meer, 1.5 englische Meilen von der Küste, 6. Juli 1929, unter moderndem Holze, Mumford und Adamson.

Eiao: 1800 englische Fuss über dem Meer, 30. April 1930, unter Rinde von *Aleurites moluccana,* LeBronnec und H. Tauraa.

Die Gattung *Epicroseius* ist von mir in systematischer Beziehung falsch bewertet worden.

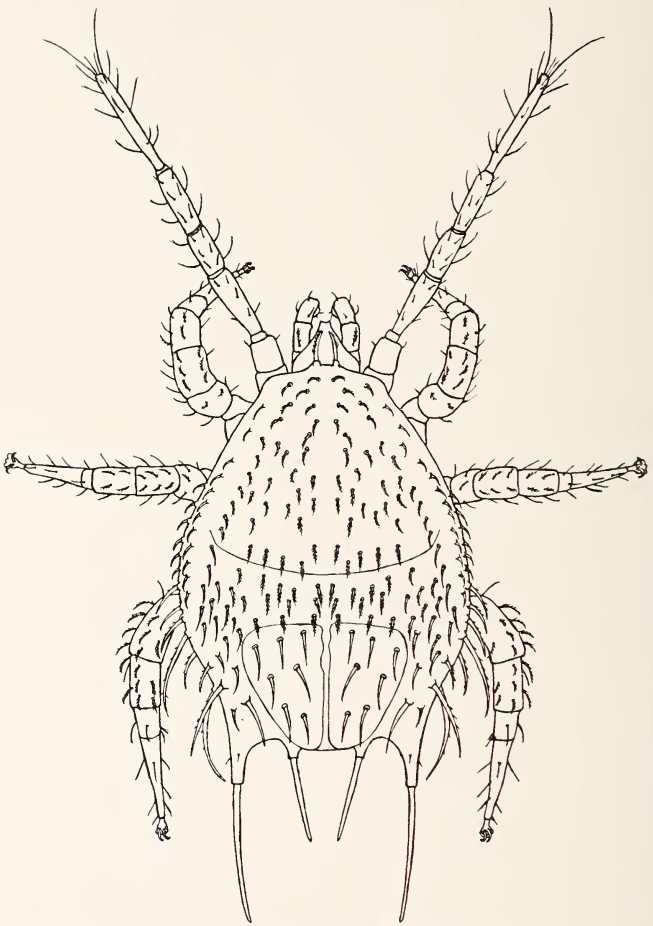
Neuere Untersuchungen haben ergeben, dass die auf phylogenetischer Grundlage aufgebaute, bisher für richtig gehaltene und mit einigen Abänderungen auch von mir 1931 in Kükenthal's Handbuch der Zoologie übernommene Klassifikation der Acari im Bereiche der Mesostigmata nicht durchweg richtig ist.

In der Gruppe der *Sejina* Kramer 1885 (= *Barypoda* Hull 1918) habe ich der Familie der Epicriidae Berlese 1885 den Namen Sejidae gegeben, weil ich hierher die Gattung *Seius* C. L. Koch 1836 rechnete und weil diese Gattung bedeutend älter ist als *Epicrius* Canestrini und Fanzago 1877.

Typus für *Epicrius* ist *Epicrius geometricus* Canestrini und Fanzago 1877, doch geniesst der für ein Nymphenstadium dieser Art geschaffene Name *Gamasus mollis* Kramer 1876 als Speciesname das Recht der Priorität. Bei der Typenart und somit bei allen Angehörigen dieser Familie liegt die männliche Genitalöffnung inmitten des Sternale.

Typus für *Seius* ist *Seius togatus* C. L. Koch 1836. Unter dem Namen *Seius serratus* hat Kramer 1882 im Archiv für Naturgeschichte, 1. Band des 48. Jahrganges, Seite 429, auch den Ascaiden *Zercon triangularis* C. L. Koch 1836 in die Gattung *Seius* einbezogen und behauptet, in dieser ganzen Gattung läge die männliche Genitalöffnung "uropodenartig" "mitten in der Fläche der Sternalplatte." Er sagt, bei *Seius serratus* (richtiger: *Zercon triangularis*)

läge sie zwischen den Coxae III. Das ist richtig. Bei *Scius togatus,* sagt er, läge sie zwischen den Coxae II. Das ist auch richtig, aber hier liegt bei *Scius togatus* auch die Vorderkante des männlichen Sternale, so dass sich die Genitalöffnung hier durchaus nicht "mitten in der Fläche der Sternalplatte" befindet. Unglücklicher Weise hat Kramer auf Tafel 20 die Nummerierung



FIGUR 4.—*Epicroscius scurati,* species nova, Männchen, dorsal.

von Fig. 23 und 22 verwechselt. Er bildet das Sternale von *Zercon triangularis* als das von *Scius togatus* ab und das von *Scius togatus* (Fig. 22) als das von *Zercon triangularis.* Dadurch sind manche Widersprüche in der Literatur entstanden. Da man einen männlichen *Scius* nur selten zu sehen bekommt, so habe ich dieses Versehen Kramer's und meinen eigenen Irrtum erst so spät erkannt, dass eine frühere Berichtigung nicht mehr möglich war.

In Kükenthal's Handbuch der Zoologie, Band 3, 2. Hälfte, Seite 142 - 143, hat die 2. Unterkohorte der Gamasides nicht Sejina zu heissen, sondern Epicriina. Ihre 2. Familie hat nicht Sejidae zu heissen, sondern Epicriidae. Zu den Epicriidae gehören die Gattungen *Epicrius* Canestrini und Fanzago 1877, *Diepicrius* Berlese 1916 und *Iphidinychus* Berlese 1913.

Dafür ist die Familie der Sejidae in die 1. Unterkohorte der Gamasides, nämlich in die der Gamasina zu versetzen. Sie umfasst die Gattungen *Seius* C. L. Koch 1836, *Epicroscius* Berlese 1904 und *Zuluacarus* Trägårdh 1906.

Epicroscius ist die bisher einzige Gattung der Gamasides, bei der die Deutonympha befähigt ist, nach Art zahlreicher (aber nicht aller!) Uropoden vermittels eines aus der Analöffnung hervorquellenden Sekretes einen Stiel zu bilden, mit dem sie sich an Insekten anheften.

Berlese hat 4 *Epicroscius*-Arten beschrieben: 1. *Epicroscius angelioides* aus Java (1904); 2. *Epicroscius scioides* aus Java (1910); 3. *Epicroscius scurati* aus Tahiti (1918); 4. *Epicroscius scutatus* aus Sumatra (1917), (6, 7, 17, 19.)

Den *Epicroscius scioides* beschreibt Berlese 1910 als adultes Weibchen. Er berichtigt dies aber 1913 dahin, dass es sich um ein Nymphenstadium gehandelt habe, und er äussert gleichzeitig die Vermutung, dass *scioides* eine Jugendform von *scurati* sein könne. Er vergleicht *scurati* nur mit *scioides,* aber er sagt nicht, wodurch sich *scurati* von *angelioides* unterscheide. Dagegen stellt er fest, dass *scutatus* von *angelioides* und von *scurati* dadurch unterschieden sei, dass dem hintersten Rückenschilde die Zweiteilung fehle. Wenn jetzt also hier ein *Epicrius* vorliegt, dessen hinterstes Rückenschild zweigeteilt ist, so kann es sich nur entweder um *angelioides* oder um *scurati* handeln, sofern es nicht überhaupt eine species nova sein sollte. Der von Berlese in der Redia, Band 2, Tafel 16, Fig. 23, abgebildete *angelioides* ist es wahrscheinlich nicht. Denn dessen Schwerthaare an den Rumpfseiten und am Rumpfende sind bedeutend länger als hier (fig. 4). Allerdings habe ich bei den zahlreichen *Epicroscius*-Exemplaren, die mir aus Niederländisch-Indien durch die Hände gegangen sind, bemerkt, dass die Tiere in ihrer Grösse und in der Länge der dicken Schwerthaare stark variieren, so dass diese Merkmale nicht mit Sicherheit zu einer Unterscheidung von Arten herangezogen werden können. Die Rückenschilder liegen subkutan. Infolgedessen sind ihr Umrisslinien meist nur schwer zu erkennen. Dies gilt besonders für den Hinterrand des Notocephale. Wenn nun hier ein *Epicroscius* von den Marquesas vorliegt, so spricht eine gewisse Wahrscheinlichkeit dafür, dass dies dieselbe Art ist, die auch auf Tahiti vorkommt, nämlich *scurati.* Berlese's Beschreibung von *scurati* passt auch genau auf die Exemplare von den Marquesas, ausgenommen, dass ich die 4 Interscutalplättchen zwischen Notocephale und Notogaster nicht erkennen kann, von denen Berlese spricht. Sie mögen aber trotzdem vorhanden sein.

5. **Cercomegistus simplicior,** species nova (fig. 5).

Das allein bekannte Männchen der neuen Art ist zu beschreiben, wie folgt:

Idiosomalänge 0.990 mm, grösste Breite (hinter den Coxae IV) 0.720 mm. Gestalt breit eiförmig. Farbe dunkel kastanienbraun.

Rückenpanzer zweigeteilt; ein vorderes Schild (Notocephale) deckt das Podosoma, ein unmittelbar daran anschliessendes hinteres (Notogaster) das Opisthosoma (fig. 5, *c*). Beide Plattenteile ohne besondere Struktur. Beide zusammen lassen von den Schultern an einen Teil der Rückenfläche ringsum unbedeckt. Haare der Rückenfläche und der Seiten zahlreich, der Wölbung des Rumpfes ziemlich dicht anliegend, von vorn nach hinten an Länge zunehmend und überwiegend zweiseitig grob befiedert, so dass sich die Gestalt eines schmalen Blattes mit grob gezackten Rändern ergibt (fig. 5, *b*). Auf den seitlichen Rumpfflächen zwischen dem Rande der Rückenschilder und der Ventralpanzerung mehrere Längsreihen von kleinen längsgestreckten Plättchen, deren jedes 1 Haar trägt. Die Haare auf diesen Plättchen sind besonders grob befiedert, ausgenommen die Haare auf den 4 hintersten Plättchen zwischen dem Hinterrande des Notogasters und der Analöffnung, die kurz und glatt sind. Auf dem Hinterrande des Notogasters fehlen die Gebilde, die Berlese bei *Cercomegistus bruckianus* "Cerci" nennt. An ihrer Stelle finden sich Erhebungen in Gestalt eines Vulkankegels mit weitem Krater.

Auf der Ventralseite (fig. 5, *a*) sind sämtliche Panzerteile verschmolzen. Sie wird also ganz und gar von einer einheitlichen Platte bedeckt, die nur durch die Coxae I-IV unterbrochen ist. Die Platte lässt in der Sternalgegend und aussen neben den Coxae II - IV eine gefelderte Struktur erkennen, die hinter den Coxae IV undeutlich wird und dann verschwindet. Innerhalb der Gesamtplatte sind die Umrisslinien der Peritrematalia deutlich sichtbar. Die Peritrematalia sind breit und legen sich den Coxae II - IV eng an, ohne über die Coxae IV hinauszureichen. Die Behaarung der Ventralseite ist, auch in der Sternalgegend, kaum weniger dicht als auf der Rückenfläche. Aber die ventralen Haare sind ganz oder fast ganz unbefiedert. Nur nach den Seiten hin wird die Befiederung deutlicher, erreicht aber nicht den Grad wie auf der Rückenfläche. Das Postanalhaar fehlt. Die annähernd kreisrunde Genitalöffnung liegt zwischen den Coxae III. Hinter den Coxae IV, ziemlich genau in der Mitte zwischen der Genitalöffnung und dem Anus, liegt ein längsovaler Fleck von beträchtlicher Ausdehnung, dessen Struktur von der ihn umgebenden Schildfläche abweicht. Die Struktur ist an dieser Stelle fein und dicht gekörnelt, und die einzelnen Körnchen sind zu Rosetten zusammengefügt. Auf diesem Oval stehen 3 Querreihen von 2, 3 und 4 winzigen Borsten. Die Stigmen liegen neben der Mitte der Coxae IV. Ihre Peritremata reichen bis vor die Coxae I.

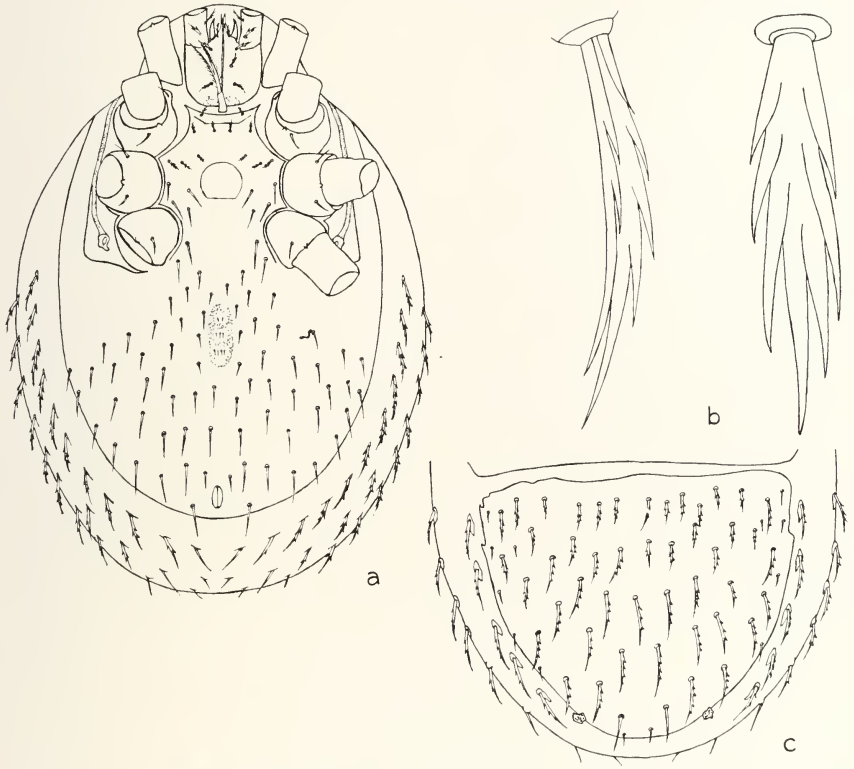
Die Beinlängen waren nur an den Beinen I mit 0.730 mm genau zu messen. Die anderen Beinlängen betragen ungefähr II, 0.550 mm; III, 0.720 mm; IV, 0.870 mm. Tarsi I ohne Ambulakrum. Die Beine I sind dünn, III und IV gleichstark und dicker als I, II noch etwas dicker. Haare an den Beinen teils glatt, teils etwas befiedert, am stärksten befiedert an den Beinen III und IV. Sexualcharaktere fehlen.

Das Epistom ist vorn nahezu geradlinig abgestutzt und trägt am Vorderrande 6 unregelmässig gekrümmte Spitzen.

Hivaoa: Temetiu, 3650 englische Fuss über dem Meer, 27. Mai 1929, an abgestorbenen Farnstämmen, Mumford und Adamson.

1901 beschrieb Berlese (3) einen Antennophoriden aus der Megisthanus-Gruppe, für den er eine neue Gattung aufstellen musste, die den damals neu entdeckten *Celaenogamasus hirtellus* zum Typus hat, angeblich aus St. Vincente in Chile; gemeint ist wahrscheinlich *San Vincente* bei Mendoza oder *San Vicente* bei Cordoba, beides in Argentinien, nahe der Grenze gegen Chile. Von dieser Art ist bis zum heutigen Tage nur das Weibchen bekannt. Berlese hat dieses Weibchen 1916 ausführlicher behandelt, aber nicht abgebildet.

1914 beschrieb er (10) aus La Plata in Argentinien einen anderen Antennophoriden auch aus der Megisthanus-Gruppe, für den er abermals eine neue Gattung aufstellen musste, mit der neuen Art *Cercomegistus bruckianus* als Typus. Von dieser Art kannte er beide Geschlechter und hat sie auch in allen wichtigen Einzelheiten abgebildet. Die besondere Eigentümlichkeit von *Cercomegistus bruckianus* ist die, dass das Männchen (das Weibchen aber nicht!) am Rumpfende zwei Anhänge besitzt, wie sie unter den Acari sonst nirgends wiederkehren und die Berlese für echte Cerci hält (homolog den Cerci der fossilen Palaeodictyoptera und vieler tiefstehender recenter Insekten). Ob diese Ansicht sich aufrecht erhalten lässt, erscheint zweifelhaft.



FIGUR 5.—*Cercomegistus simplicior*, species nova: *a*, Männchen, ventral; *b*, Männchen Rumpfhaare; *c*, *Männchen*, Notogaster.

1916 musste Berlese (12) feststellen, dass die Weibchen von *Celaenogamasus hirtellus* und *Cercomegistus bruckianus* keine Merkmale aufweisen, die eine Unterscheidung der beiden Gattungen ermöglichen. Die Frage, ob die beiden Gattungen synonym seien oder nicht, wäre nur zu entscheiden gewesen, wenn man von *Celaenogamasus hirtellus* auch das Männchen gefunden hätte. Besässe dieses Männchen auch "Cerci", dann wäre *Celaenogamasus* mit *Cer-*

comegistus synonym und hätte das Recht der Priorität. Anderenfalls bestünden beide Gattungen zu Recht. Gerade damals aber lag Berlese ein ebenfalls aus La Plata stammender männlicher Antennophoride (jedoch kein Weibchen) vor, der, von geringfügigen Abweichungen abgesehen, vollkommen dem männlichen *Cercomegistus bruckianus* glich, der aber keine "Cerci" besass, auch keine Spuren davon an entsprechender Stelle. Folgerichtig glaubte Berlese ihn *Celaenogamasus discutendus* nennen zu müssen, schob aber vorsichtshalber zwischen Gattungs- und Artnamen ein "?" ein.

Hier handelt es sich jetzt um ein männliches Tier, das so vollkommen mit dem männlichen *Cercomegistus bruckianus* übereinstimmt, dass einfach auf die Abbildungen von Berlese in der Redia, Band 10, Tafel 2, Fig. 29 *a* und *b*, verwiesen werden könnte. Nur besitzt es keine "Cerci", wohl aber an entsprechender Stelle scharf umgrenzte Höcker, viel zu niedrig, als dass sie als "Cerci" bezeichnet werden könnten.

Wegen der auch sonst vorhandenen deutlichen Unterschiede besteht kein Zweifel, dass das vorliegende Tier nicht mit *Cercomegistus bruckianus* identisch ist. Es verlohnt sich aber doch, auf die Möglichkeit hinzuweisen, dass bei *Cercomegistus* oder *Celaenogamasus* homoiomorphe und heteromorphe Männchen auftreten könnten. *Dendrolaelaps cornutus* (Kramer 1886) beweist, dass dies durchaus möglich ist. Dort gibt es heteromorphe Männchen, deren Notogaster in seinem hintersten Teile in einer scharf abgesetzten Stufe absinkt und hier zwei starke "Hörner" nach hinten streckt. Daneben gibt es Männchen, bei denen diese Stufe weniger ausgeprägt ist und bei denen die "Hörner" weniger stark entwickelt sind. Und es gibt endlich Männchen, bei denen die "Hörner" vollkommen fehlen und deren Notogaster sich von dem des Weibchens nicht wesentlich unterscheidet. Dass damit auch eine in abgestuftem Grade heteromorphe Entwickelung der Beine II einhergeht, ist an dieser Stelle nebensächlich (45).

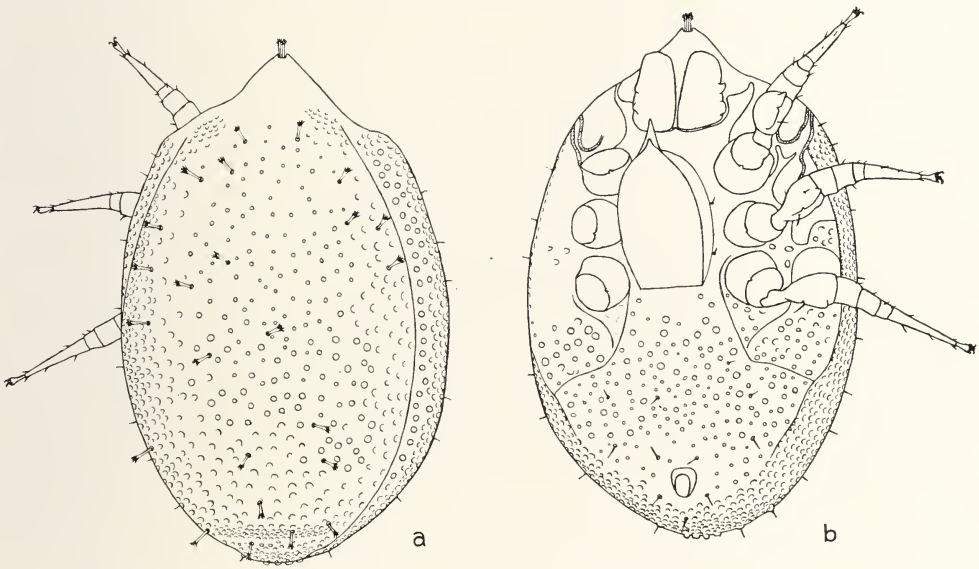
6. **Dinychopsis pacifica,** species nova (fig. 6).

Weibchen

Idiosomalänge, 0.465 mm, Breite, 0.300 mm. Der Rumpfumriss würde eine Ellipse bilden, wenn nicht der Rumpf von der Schultergegend an stark zugespitzt wäre. Das Vorderende des Rückenpanzers bildet sogar eine scharfe Spitze. Diese Spitze ist eingekerbt, und in der Kerbe entspringen die dicht aneinander gedrängten Vertikalhaare. Farbe kaffeebraun.

Das Scutum medium ist von den Schultern an von einem lückenlos ringsum verlaufenden Marginale umrahmt. Die gesamte Rückenfläche einschliesslich des Marginale ist mässig gewölbt und ohne besondere Erhebungen. Die Aussenkante des Medium und die Innenkante des Marginale sind glatt. Medium und Marginale sind ziemlich dicht mit Grübchen übersät. Zwischen den Grübchen bleibt aber noch so viel Raum, um erkennen zu lassen, dass die Panzerung ausserdem fein granuliert ist. Von dem Marginale stehen jederseits ungefähr 12 feine, glatte Härchen senkrecht ab. Die Vertikalhaare und die übrigen, mässig zahlreichen Haare auf dem Medium sind stabförmig, verbreitern sich nach der Spitze hin und sind an der Spitze zu einem Pinsel aufgespalten. Besonders ausgezeichnete Haare am Rumpfende sind nicht vorhanden, obwohl dies zu erwarten wäre, da das Medium vor dem Rumpfende eine Stufe macht.

Auf der Ventralseite besitzen die von den Lineae metapodicae umgrenzten Flächen dasselbe Grübchenmuster wie das dorsale Medium. Zur Erläuterung sei eingeschaltet: die Linien, für die Berlese die Bezeichnung "Lineae metapodicae" geprägt hat, bilden die hintere Grenze der Gruben, in die zur Verteidigung oder in der Ruhestellung die Beine IV zurückgezogen werden können (Beingruben; Foveae pedales). Sie verlaufen vom Innenrande der Coxae IV irgendwie schräg rückwärts nach dem Rande der Ventralfläche hin, und ihr Verlauf lässt sich für systematische Zwecke gut verwerten. Auch die übrigen Flächen der Bauchseite haben ein Grübchenmuster, nur sind hier die Grübchen kleiner. Allein das Epigynium ist glatt. Die Lineae metapodicae verlaufen zunächst nahezu geradlinig, bilden dann einen stumpfen Winkel und stossen schliesslich mit einem nach rückwärts schwach concavem Bogen auf die ventrale Kante des Marginale. Diese Kante ist hier und auch noch weiter nach hinten hin deutlich sichtbar. Seitlich der Analgegend aber verschwindet sie allmählich, und nur noch die Skulptur des Grübchenmusters deutet an, was Marginale und was Ventralpanzerung ist. Aus der starken Skulpturierung des Rumpfendes ragen einige nicht ganz regelmässig verteilte Höcker hervor. Sie entsprechen den Einzelplättchen, in die an dieser Stelle bei *Dinychopsis fractus* das Marginale zerlegt ist. Auf der Ventralfläche hinter den Coxae IV stehen einige nadelförmige Haare, von denen man 5 wohl als Circumanalhaare bezeichnen kann.



FIGUR 6.—*Dinychopsis pacifica*, species nova, Weibchen: *a*, dorsal; *b*, ventral.

Die Stigmen liegen, wie es bei den Uropoden im Normalfalle die Regel ist, im vorderen Teile der Beingruben III. Die Peritremata streben mässig geschlängelt der Schultergegend zu, erreichen hier die Umrisslinie des Rumpfes (was eigentlich nicht ganz der Gattungsdiagnose entspricht), wenden sich an der Aussenkante der Beingruben II in einigem Abstande von dem vorhergehendem Abschnitte wieder zurück und werden dann unsichtbar.

Die geradlinige Hinterkante des Epigyniums liegt in der Mitte zwischen den Coxae IV. Es reicht bis an die Coxae I und ist vorne zugespitzt. Ausserdem trägt die Spitze einen Fortsatz, der ebenfalls scharf zugespitzt ist und der sich zwischen die Coxae I einschiebt.

Das Gnathosoma konnte wegen eines eingeklemmten Quarzkörnchens nicht studiert werden.

Eiao: 1800 englische Fuss über dem Meer, 30. April 1931, unter Rinde von *Aleurites moluccana,* Le Bronnec und H. Tauraa.

Die Gattung *Dinychopsis* gehört zu den Trachyuropoden und zu denjenigen Uropoden, deren Deutonymphen nicht befähigt sind, aus der Analöffnung einen Befestigungsstiel auszuscheiden. Sie wurde ursprünglich von Berlese 1916 (11) als eine Untergattung von *Phaulodinychus* Berlese 1904 begründet mit *Dinychopsis fractus* als Typus. Das war zu einer Zeit, wo wegen der Gattung *Phaulodinychus* und überhaupt wegen der heutigen Familie der Phaulodinychidae noch Unklarheit herrschte, so dass noch keine Grenze zwischen den Phaulodinychiden und Trachyuropodiden gezogen werden konnte. Immerhin wurde durch die Benennung der Typenart der Charakter von *Dinychopsis* festgelegt. 1917 erhob Berlese (14) *Dinychopsis* zu einer vollwertigen Gattung, und zwar nunmehr innerhalb der Trachyuropodidae. Dabei nannte er aber *Dinychus appendiculatus* Berlese 1910 (9) als Typus. Das war unberechtigt, ist aber praktisch ohne Bedeutung.

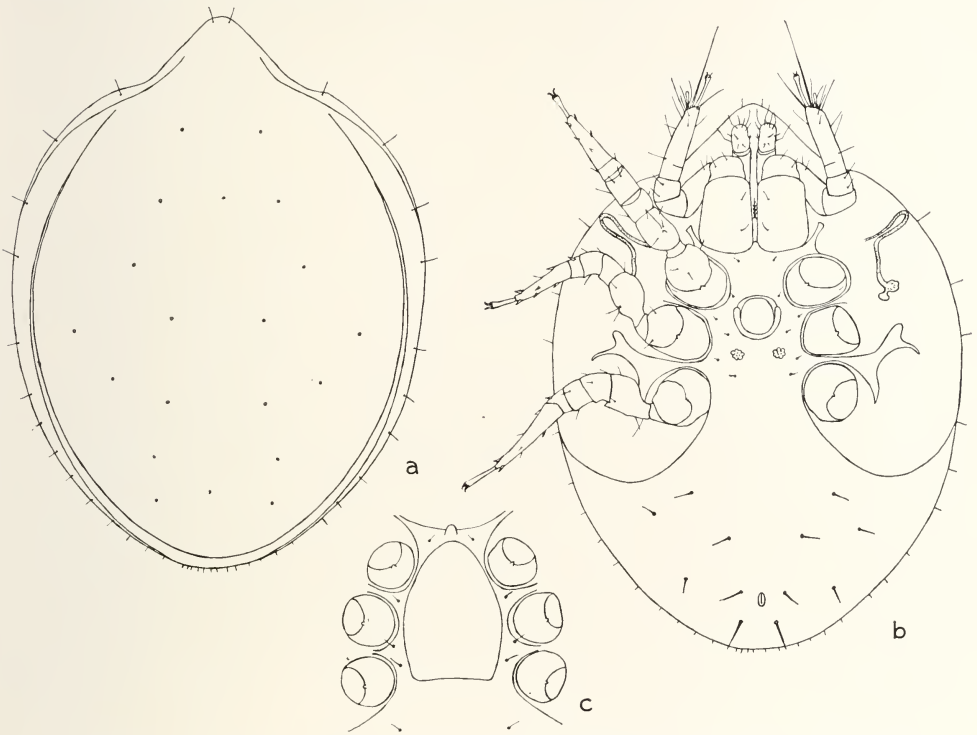
Eine Abbildung eines *Dinychopsis* gibt es bisher noch nicht. Umso bedauerlicher ist es, dass die vorliegende neue Art unter ungünstigen Umständen abgebildet werden musste (fig. 6). Das Tier ist schon an sich unsymmetrisch entwickelt. Dazu kommt, dass durch irgendwelche äusseren Einflüsse das Rückenschild gewaltsam auf die linke Seite gepresst worden ist, und endlich steckt zwischen der Spitze des Genitalverschlusses und den Coxae I ein Quarzkörnchen so fest eingeklemmt, dass es nicht entfernt werden kann, so dass diese Rumpfregion nicht klar erkennbar ist. Trotz dieser entstellenden Mängel werden die Abbildungen aber doch wohl eine richtige Vorstellung von der Art ermöglichen. Nur das Weibchen ist bekannt.

7. **Uropoda bistellaris,** species nova (fig. 7).

Gestalt und Grösse in beiden Geschlechtern gleich. Länge, 0.625-0.640 mm; grösste Breite, meist 0.455 - 0.470 mm. Länge und Breite stehen aber nicht immer im gleichen Verhältnisse. Bei einem Weibchen betrugen sie zum Beispiel 0.640 mm: 0.415 mm, während man bei einem so grossen Exemplare eine grössere Breite erwarten sollte. Farbe kaffeebraun. Der Rücken (fig. 7, *a*) wird in der Hauptsache von einem Scutum medium bedeckt. Von diesem Medium zweigt sich in der Schultergegend ein Marginale ab, das lückenlos das ganze Medium umrahmt. Aussenkante des Medium und Innenkante des Marginale glatt (keine Guirlandenlinie wie bei *Urodinychus*). Der vorderste Teil des Medium reicht dachartig weit über das Gnathosoma hinaus und ist nahezu farblos durchsichtig. Vorn, zunächst nur durch jederseits eine Linie abgegrenzt, entwickelt sich aus diesem vordersten Teile des Medium nach hinten hin eine Lamelle, die sich als verbreiternder Rand in der Schultergegend an das Marginale anlegt und, gleichmässig immer schmaler werdend, in der Mitte der Umrisslinie des ganzen Tieres verschwindet. Durch diese Verbreiterung des vorderen Teiles des Marginale ist die Linie der grössten Breite weit nach vorn gerückt, und infolgedessen erscheint das ganze Tier nach hinten hin etwas zugespitzt. Alle Rumpfhaare sind nadelförmig, farblos und sehr dünn. Das Medium trägt nur wenige, sehr kurze Haare, die nur mit Mühe zu finden sind. Die Vertikalhaare sind, in beträchtlichem Abstande, dorsal aufgesetzt. Nur sie und jederseits ungefähr 5 von der lamellenartigen Verbreiterung des Marginale radiär abstehende Haare sind so lang, dass sie ziemlich leicht erkennbar sind. Das Marginale

trägt jederseits ungefähr 17 sehr kurze, schwer wahrnehmbare, ebenfalls radiär abstehende Haare.

Auf der Ventralseite verlaufen die Peritremata (fig. 7, *b*) von den Stigmen aus zunächst in der Richtung der Körperachse ohne wesentliche Schlängelung geradeaus, wenden sich neben dem Vorderende der Coxae II schräg nach vorn dem Rande der lamellenartigen Verbreiterung des Marginale zu, erreichen diesen Rand, bilden hier eine Schleife, wenden sich zurück, um neben dem Vorderende der Coxae II in etwas höherer Schicht einen Punkt zu erreichen, den sie in tieferer Schicht bereits passiert hatten, und werden dann oberhalb der Coxae I unsichtbar. Die Kiele an den Femora aller Beine sind in beiden Geschlechtern ungezähnt. Der Praetarsus I ist besonders schlank und lang, von etwas mehr als halber Länge des Tarsus I.



Figur 7.—*Uropoda bistellaris,* species nova: *a,* Männchen, dorsal; *b,* Männchen, ventral; *c,* Weibchen, Sternale und Epigynium.

Die Lineae metapodicae verlaufen in sanfter Biegung der Randlinie zu. Das Sternale schiebt einen vorn gerundeten Vorsprung zwischen die Coxae I vor, der besonders beim Weibchen stark entwickelt ist (fig. 7, *c*). Abgesehen von der Unterbrechung durch die männliche oder weibliche Genitalöffnung ist die gesamte ventrale Panzerung einheitlich. Sie ist, ebenso wie die des Rückens, glatt, infolge einer äusserst feinen Granulierung aber nicht glänzend. Auf der Fläche hinter den Coxae IV stehen 7 Paare von gut sichtbaren, nadelförmigen, glatten Haaren, die von vorn nach hinten etwas an Länge zunehmen. Die beiden Haare hinter der Analöffnung sind somit die längsten des ganzen Tieres.

Die mehr ovale als kreisförmige Genitalöffnung des Männchens liegt in der Mitte des von den Coxae II und III gebildeten Viereckes (fig. 7, *b*). Dicht hinter ihr, zwischen

den Coxae III, liegen zwei inmitten der glatten Umgebung sehr auffällige Gebilde, wahrscheinlich Drüsenmündungen. Sie sehen aus wie zwei Rosetten oder Sterne; daher der Speciesname *bistellaris*.

Bei dem Weibchen liegt die geradlinige Hinterkante des Epigyniums (Operculum) in der Mitte zwischen den Coxae IV (fig. 7, *c*). Das Vorderende des Epigyniums ist abgerundet. Die Form des ganzen Epigyniums gleicht einem sehr langgestreckten Hufeisen. Der bei dem Weibchen sehr stark entwickelte Vorsprung, den das Sternale zwischen die Coxae I vorschiebt, könnte zu dem Irrtum Anlass geben, dass das Epigynium vorn einen Fortsatz trüge.

Hivaoa: Atuona-Tal, 300 englische Fuss über dem Meer, 1.5 englische Meilen von der Küste, 6. Juli 1929, unter moderndem Holze, Mumford und Adamson.

Eiao: 1800 englische Fuss über dem Meer, 30. April 1931, unter Rinde von *Aleurites moluccana*, Le Bronnec und H. Tauraa.

Unter den gefundenen Exemplaren befand sich eines, das im denkbar höchsten Grade von den Endoparasiten befallen war, die Reichenow als "zweifelhafte Haplosporidien" bezeichnet hat. Sie wurden zuerst von Hölldobler (23) bei der Zwergameise *Solenopsis fugax* entdeckt und gleich darauf von Thor (36, 38) bei zahlreichen Acarinen nachgewiesen. Dass sie in einem tropischen Gebiete und in einem Uropoden auftreten, das wird hier zum ersten Male beobachtet.

8. **Uropoda masculinata**, species nova (fig. 8).

Fast gleichmässig oval (fig. 8, *a*). Die mässig gewölbte Rückenfläche von einem Scutum medium bedeckt, von dem sich in der Schultergegend ein lückenlos ringsum verlaufendes, schmales Marginale abzweigt. Aussenrand des Medium und Innenrand des Marginale glatt. In der Schultergegend ist der Rumpfumriss durch eine schmale Lamelle wenig verbreitert. Die gesamte Rumpfpanzerung dorsal und ventral glatt, jedoch grob granuliert; man könnte auch sagen: von unzähligen winzigen Grübchen übersät, die sich als helle Pünktchen abheben. Die Ansatzstellen der dorsal und ventral in mässiger Anzahl vorhandenen Haare und die ihnen benachbarten Poren treten sehr deutlich hervor. Die Haare sind dorsal und ventral nadelförmig und überwiegend glatt. Die Vertikalhaare sind so dicht aneinander gerückt, dass ihre Ansatzstellen sich berühren. Dieses Haarpaar und ferner das durch Länge ausgezeichnete hinterste Haarpaar auf dem Medium und ein dicht vor ihm stehendes Haarpaar sind befiedert. In dem Massstabe der fig. 10, *a* konnte diese Befiederung aber nicht zur Geltung gebracht werden. Jederseits ungefähr 13 radiär von dem Marginale abstehende Haare sind so kurz und dünn, dass sie in dem Gesamtbilde keine Rolle spielen. 5 Circumanalhaare, also auch ein unpaariges Postanalhaar (fig. 8, *b*). Der innere Abschnitt und der äussere Abschnitt der Lineae metapodicae sind mässig gebogen, bilden aber hinten einen ziemlich spitzen Winkel. Der äussere Abschnitt setzt sich nach rückwärts noch ein kurzes Stück über den Winkel hinaus auf der Ventralfläche fort, gleichsam als ob eine Abgrenzung der Analregion angedeutet werden sollte. Die Peritremata wenden sich gleich von den Stigmen aus mit einer schwachen Biegung erst nach aussen und dann nach innen (also in flach S-förmiger Schlängelung) der Randlinie zu, erreichen diese und wenden sich dann ziemlich scharf zurück. Ihr weiterer Verlauf bleibt unklar.

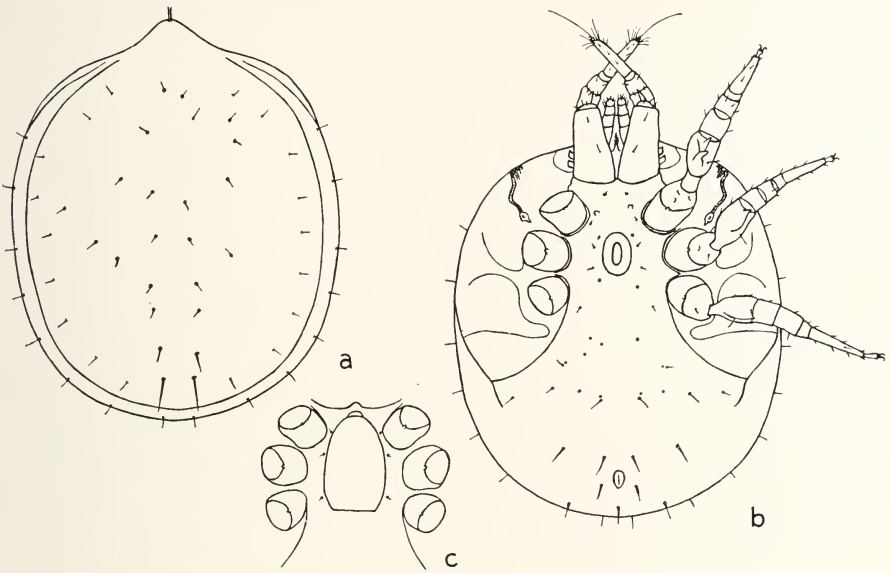
Weibchen

Länge 0.745 - 0.765 mm, Breite 0.560 mm. Die geradlinige Hinterkante des Epigyniums liegt in der Mitte zwischen den Coxae IV (fig. 8, *c*). Seine Seiten sind fast parallel, sein bis an die Coxae I heranreichendes Vorderende abgerundet. Hufeisen-

förmig kann man diese Gestalt kaum noch nennen. Das Vorderende hat einen unbedeutenden Fortsatz. Da dieser aber ebenfalls breit gerundet ist, ändert er an der Gesamtform des Epigyniums nichts. Die Kiele sind an den Femora aller Beine normal entwickelt und ungezähnt. Praetarsus I ungewöhnlich kurz.

Männchen

Länge 0.715 - 0.730 mm, Breite 0.545 - 0.560 mm. Die Genitalöffnung liegt zwischen den Coxae III (fig. 10, *c*), reicht aber bis zwischen die Hinterkanten der Coxae II. Sie ist elliptisch. Beine wie bei dem Weibchen. Jedoch bildet das Hinterende des Kieles am Femur II eine richtige kleine daumenförmige Apophyse, die sich ein wenig nach aussen neigt. Wegen dieses bei den Uropoden ungewöhnlichen sekundären Sexualcharakters wurde der Speciesname *masculinata* gewählt.



FIGUR 8.—*Uropoda masculinata,* species nova: *a,* Männchen, dorsal; *b,* Männchen, ventral; *c,* Weibchen, Sternale und Epigynium.

Hivaoa: Temetiu-Gipfel, 4160 englische Fuss über dem Meer, 20. Januar 1932, am Erdboden, Le Bronnec.

9. **Fuscuropoda hippocrepea** (Berlese) (fig. 9).

Hivaoa: Atuona-Tal, 300 englische Fuss über dem Meer, 1.5 englische Meilen von der Küste, 28. Februar und 6. Juli 1929, unter moderndem Holze.

1924 habe ich (43) versucht, unter dem Namen *Fuscuropoda* diejenigen Uropoden zusammenzufassen die in ihrem Habitus der Art entsprechen, die Berlese (1) *Uropoda obscura* nennt. Man darf aber nicht übersehen, dass die Berechtigung oder Nichtberechtigung dieses Namens davon abhängt, wie der Name *Uropoda* richtig anzuwenden ist, und gerade in diesem entscheidenden Punkte ist die Systematik der Uropoden durchaus noch nicht geklärt.

Als Latreille 1806 (27) die Gattung *Uropoda* aufstellte, umfasste diese Gattung nur eine einzige Art, die Latreille *Acarus vegetans* de Geer 1768 nannte. Demnach ist sie monotypisch, und Latreille hat auch späterhin diese Benennung der Typenart ausdrücklich beibehalten. Nun ist es aber schon an sich unwahrscheinlich, dass Latreille gerade die auch heute nur als Deutonympha bekannte, ausserordentlich seltene, wirkliche *Uropoda vegetans* gekannt hat, die de Geer im März an *Staphylinus rufipes* gefunden hat. Verwickelt wird die Sache dadurch, dass de Geer im August eine ähnliche, aber andere Art an *Leptura* gefunden hat, die er auch *Acarus vegetans* nannte. Es deutet alles darauf hin, dass Latreille diese Arten überhaupt nicht gekannt hat, sondern unter seiner Typenart *Uropoda vegetans* die weit verbreitete und allgemein bekannte Art verstanden hat, die Berlese *Discopoma romana* nennt. Es wird noch sehr genauer Literaturstudien bedürfen, bevor entschieden werden kann, welche Uropoden tatsächlich den Gattungsnamen *Uropoda* tragen dürfen. Um so mehr halte ich es für richtig, den Namen *Fuscuropoda* für die entsprechende Gruppe von Uropoden hier beizubehalten.

Berlese kannte *Fuscuropoda hippocrepea* aus Tahiti. Er beschreibt die Art folgendermassen:

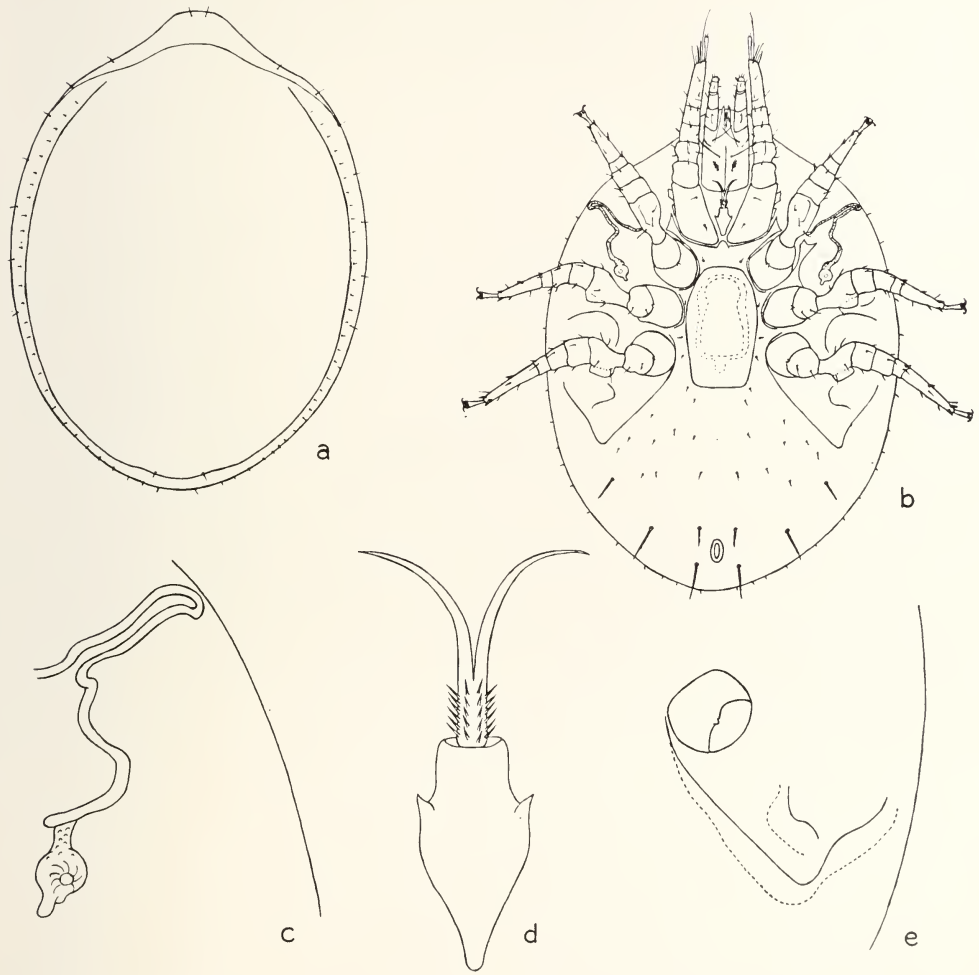
> Saturatius badio-fuliginea, ovata, postice rotundatior quam in congeneribus, pilis curtis et raris in dorso (bene convexo) et in marginibus ornata. In ventre quatuor sunt pili (utrinque duo) ad latera ani duoque paulo anteriores, sublaterales duplo caeteris longiores et robustiores. Peritremata dimidia parte sua plicam ad margines decurrentem conficienti; plica eadem strictiori, canaliculi partibus decurrenti et incurrenti contiguis. Linea metapodica angulum acutum sistens, scuto metapodico in medio linea chitinea apice arcuato signato. Foem. epigynio maximo (usque ad 0.230 mm long.; 0.150 mm lat.) postice sat ultra quartas coxas producto, ferri equini elongati instar configurato, margine tamen subrotundato-truncato, nulla appendicula aucto, qua re margo summus sterni est integer. Mas foramine genitali vix ovato, inter tertias coxas sculpto. Foem. ad 0.900 mm long.; 0.670 mm lat.; mas vix minor (18).

Berlese konnte nicht voraussehen, dass diese Beschreibung, trotz ihrer Ausführlichkeit, wörtlich auch auf die Art passt, die unten als *Fuscuropoda hippocrepoides* beschrieben wird. Professor Trägårdh, Stockholm, hat aber die Güte gehabt, in Florenz in der Berlese'schen Sammlung das Typenexemplar von *hippocrepea* mit *hippocrepoides* zu vergleichen, so dass gesichert ist, dass die beiden Arten hier unbedingt richtig unterschieden werden.

Figur 9, *a* zeigt die Rückenseite eines Exemplares. Die Behaarung des Scutum medium ist weggelassen. Denn jeder Punkt und jeder Strich wäre zu dick, um eine richtige Vorstellung von diesen winzingen und feinen Haaren zu geben. Bei nicht ganz genauer Betrachtung erscheint das Scutum medium unbehaart.

Figur 9, *b* zeigt die Ventralseite des Weibchens. Zu beachten ist die Form des Epigyniums, unter dem eine chitinöse Versteifung im Innern der Genitalöffnung erkennbar ist. Die männliche Genitalöffnung liegt kreisförmig

zwischen den Coxae III, genau so wie es unten für *hippocrepoides* dargestellt ist. Abgesehen von diesen selbstverständlichen Unterschieden stimmen das Männchen und das Weibchen vollkommen überein. Es sei nur hingewiesen auf die kräftigen Haare in der Analgegend, auf die Lineae metapodicae, auf das labiale Tritosternum (fig. 9, *d*), auf den Verlauf der Peritremata (fig. 9, *c*) und auch darauf, dass die gut entwickelten Kiele auf den Femora aller Beinpaare in beiden Geschlechtern eine glatte Kante haben.



FIGUR 9.—*Fuscuropoda hippocrepea*, species nova: *a*, Adultus, dorsal; *b*, Weibchen, ventral; *c*, Adultus, linkes Peritrema; *d*, Weibchen, Tritosternum; *e*, Linea metapodica von *Fuscuropoda hippocrepea*, Adultus (voll ausgezogene Linie) und *Fuscuropoda hippocrepoides*, Adultus (punktierte Linie).

10. **Fuscuropoda hippocrepoides,** species nova (fig. 10, 11).

Bei der Larva sind die Umrisse der Rumpfpanzerung zu unscharf, als dass danach eine zuverlässige Zeichnung angefertigt werden könnte. Der Rumpf ist stark aufgetrieben und nähert sich einer Kugelform. Daher ist auch der Rumpfumriss annähernd kreisförmig. Länge 0.375 mm; Breite 0.305-0.330 mm. Zu diesen Grössenverhältnissen stehen die Längen der 3 Beinpaare mit durchweg 0.245 mm in einem Missverhältnis; man hat den Eindruck, als seien diese Beine für das Tier viel zu lang. Der Praetarsus I hat bereits die beträchtliche Länge wie bei den Adulti (wie bei *hippocrepea,* fig. 9, *b*). Kiele auf den Femora fehlen, und Beingruben sind noch nicht im Geringsten angedeutet. Das Tritosternum besteht aus einem plumpen Basalstück, die einer einzigen Lacinia zum Sockel dient. Diese Lacinia ist ungefiedert und auch an der Spitze nicht gespalten. Auf der Rückenfläche fallen nahe dem Rumpfende zwei sehr starke Haare von 0.080 mm Länge auf. Die Analöffnung wird von zwei Haaren flankiert, die merklich länger und stärker sind als die sonstigen Härchen der Ventralseite.

Auch die Protonympha ist noch recht stark gewölbt. Länge 0.540 mm; Breite 0.460 mm. Die Länge aller Beinpaare beträgt 0.290 mm. Das bei der Larva vorhandene Missverhältnis ist hier also schon wesentlich gemildert.

Die Rückenfläche (fig. 10, *d*) wird in der bei den Protonymphen aller Uropoden üblichen Weise von 4 Panzerplatten bedeckt, deren Anordnung aus der Abbildung ersichtlich ist: ein grosses Hauptschild, ein Pygidialschild und zwei mehr seitliche Platten neben der hinteren Hälfte des Hauptschildes. Das Pygidialschild liegt wie eine Kappe auf dem Rumpfende und erscheint daher in der Abbildung stark perspectivisch verkürzt. Die Schilder sehen glatt aus. Doch wird da, wo sie sich an den Seiten und hinten nach unten ziehen, erkennbar, dass sie reichlich mit flachen Grübchen übersät sind. Auf dem weichhäutigen Streifen, der das Hinterende des Hauptschildes umgibt, zeichnen sich 2 Haarpaare durch Stärke und Länge aus. Das Hauptschild selbst trägt nur 4 Paare feiner Borsten. Die anderen Schilder sind unbehaart. Jederseits 11 feine Borsten stehen auf der Umrisslinie auf den Rumpfseiten. 8 stärkere Haarpaare umgeben die Rückenpanzerung; zu ihnen gehören die Vertikalhaare.

Auf der Bauchfläche (fig. 10, *e*) ist das Sternale nunmehr deutlich entwickelt. Es trägt die normalen, hier aber recht kräftigen 3 Sternalhaarpaare. 2 kürzere Haarpaare stehen auf der weichhäutigen Fläche hinter den Coxae IV. Auf dem querovalen Analschild wird die Analöffnung von zwei Haaren flankiert, die sich, schon ähnlich wie bei den Adulti, etwas durch Länge auszeichnen. Überraschender Weise aber hat sich zu ihnen noch ein winziges unpaariges Postanalhaar gesellt. Denn ein Postanalhaar fehlt bei der Larva und bei allen folgenden Entwickelungsstadien. Zwei grosse, bohnenförmige Schilder (Inguinalia?) liegen neben den Coxae IV und sind unbehaart. An den Femora der Beine ist noch nichts von Kielen zu bemerken. Desgleichen fehlt noch jede Andeutung von Beingruben. Die Stigmen liegen etwas vor der Linie der Vorderkanten der Coxae III. Da die Beingruben noch fehlen, so können sich die Peritremata noch ohne Schlängelung ausstrecken. Die reichen etwas hinter die Stigmen zurück und streben vor den Stigmen ohne jebe Biegung geradeaus, bis sie den Rumpfumriss erreichen. Dann biegen sie sich scharf zurück, jedoch nicht in der Richtung auf die Coxae II, sondern nach aussen. Sie werden dabei auch dünner und verlieren sich in einer Linie, die auf das Hinterende der Peritremata zurückläuft. Es lässt sich nicht entscheiden, ob diese Linie ein feiner Kanal ist oder ob sie den Aussenrand einer Schildfläche bedeutet.

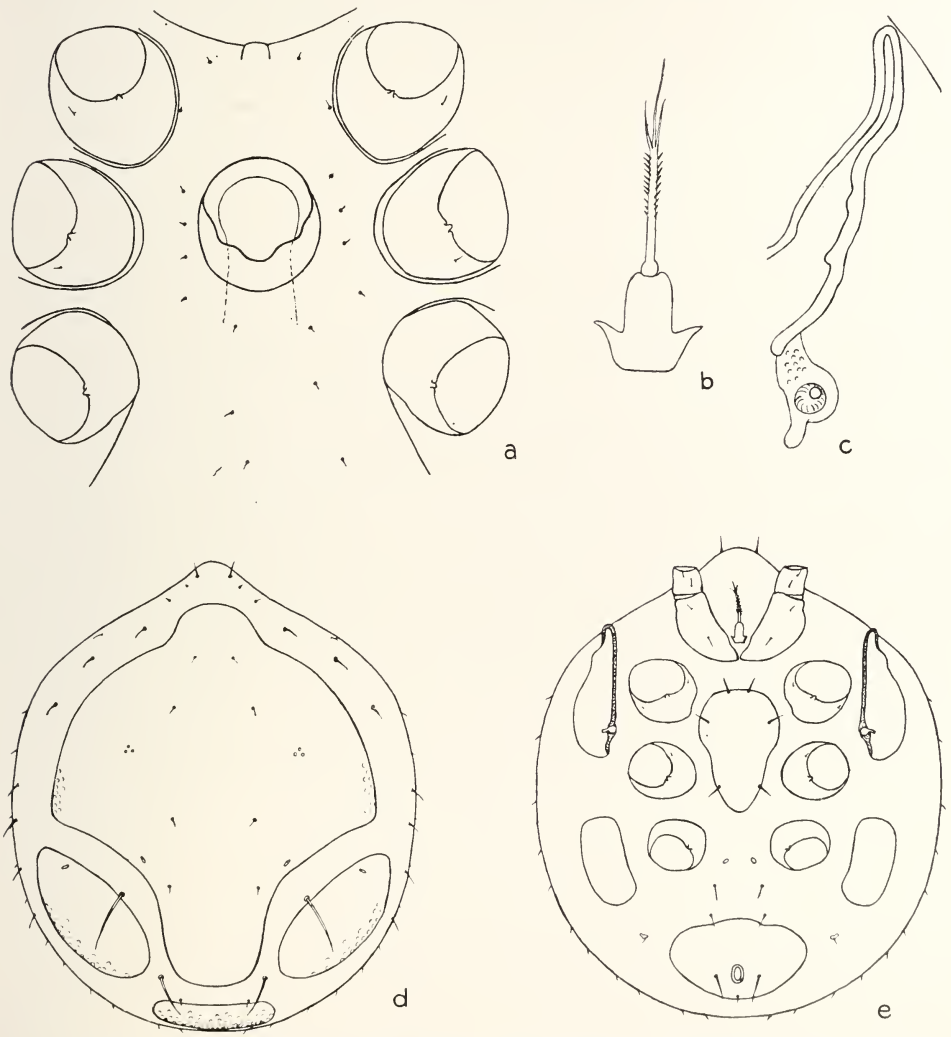
Das Tritosternum (fig. 10, *b*) ist noch ähnlich wie bei der Larva. Die Lacinia ist jetzt aber etwas befiedert und spaltet sich vorne in drei unbefiederte Spitzen.

Die Deutonympha hat den Habitus der zahllosen Deutonymphen, die man kennt, ohne sie mit den entsprechenden Adulti in Zusammenhang bringen zu können. Länge 0.775 mm; Breite 0.650 mm. Länge aller Beine 0.350 mm, womit ein Verhältnis erreicht ist, wie man es bei den Uropoden von solchem Habitus zu sehen gewöhnt ist.

Die Rückenfläche (fig. 11, *a*) wird in der Hauptsache von einem Scutum medium bedeckt. An seinen glatten Aussenrand legt sich der glatte Innenrand eines lückenlos ringsum verlaufenden Marginale an. Struktur der ganzen Rückenfläche glatt. Auf dem

Medium sowohl wie auf dem Marginale sind Härchen in reichlicher Menge vorhanden. Sie sind aber so winzig und fein, dass sie auf dem dunkelen Untergrunde nur mit Mühe zu entdecken sind. Leichter zu sehen, weil sie frei über den Rumpfumriss hinausragen, sind jederseits 11 Lateralhärchen, die selbe Zahl wie bei der Protonympha. Ein Kranz von Lateralplättchen fehlt, so dass diese Haare unmittelbar auf weichhäutiger Fläche stehen.

Auf der Bauchseite (fig. 11 *b*) sind nunmehr die Beingruben voll entwickelt. Genau das, was bei der Protonympha die bohnenförmigen Platten neben den Coxae IV waren, ist jetzt in die Tiefe gedrückt und bildet die Höhlung der Beingruben IV. Das Sternale trägt die ungewöhnliche Zahl von 9 Borstenpaaren. Sie sind bedeutend kürzer als die



FIGUR 10.—*Fuscuropoda hippocrepoides,* species nova: *a,* Männchen, Sternale und Genitalöffnung; *b,* Protonympha, Tritosternum; *c,* Adultus, linkes Peritrema; *d,* Protonympha, dorsal; *e,* Protonympha, ventral.

Sternalhaare der Protonympha. Auf dem Anale stehen in den Vorderecken 2 kurze und nahe der Mitte des Vorderrandes 2 etwas längere Borstenpaare. Die Analöffnung wird von zwei starken und ansehnlich langen Haaren flankiert. Auf dem Analverschluss selbst stehen 4 Borsten. Ein unpaariges Postanalhaar fehlt. Form und Umfang der Analöffnung deuten darauf hin, dass diese Deutonymphen dazu neigen, sich symphoristisch auf Insekten anzuheften. Die Stigmen liegen wie bei der Protonympha, also normal. Die rückwärtige Verlängerung der Peritremata ist so gut wie ganz verschwunden. Das Vorhandensein der Beingruben zwingt die Peritremata jetzt zu der aus der Abbildung ersichtlichen Schlängelung, die aber ganz anders ist als bei den Adulti (fig. 10, *c*).

Am Tritosternum ist das Basalstück stark verlängert und dafür die Lacinia verkürzt. Sie spaltet sich vorn in zwei unbehaarte Spitzen. Im Ganzen gleicht das Tritosternum dem der Adulti (wie bei *hippocrepea* fig. 9, *d*).

Nukuhiva: Teuanui, Tovii [Toovii], 2000 englische Fuss über dem Meer, 21. Oktober 1929, unter abgestorbenem Laube; 27. Oktober, ungefähr an derselben Stelle unter Steinen; Mumford und Adamson.

Hivaoa: Atuona-Tal, 300 englische Fuss über dem Meer, 1.5 englische Meilen von der Küste, 28. Februar 1929, unter moderndem Holze, Mumford und Adamson.

Uahuku: Hanahoua-Tal, 750 englische Fuss über dem Meer, in einem toten Stamme von *Inocarpus edulis*.

Eiao: 1800 englische Fuss über dem Meer, 30. April 1931, unter Rinde von *Aleurites moluccana*, Le Bronnec und H. Tauraa.

Diese Art is von *Fuscuropoda hippocrepea* kaum zu unterscheiden.

Figur 10, *a* zeigt die männliche Genitalöffnung und ihre Umgebung. Diese Abbildung könnte genau so gut auch für *hippocrepea* gelten. Es ist im Allgemeinen nicht möglich, bei den Uropoden mit Sicherheit zu erkennen, in welcher Weise die männliche Genitalöffnung verschlossen ist. Es kann sehr wohl sein, dass es in dieser Beziehung verschiedene Typen gibt. Im vorliegenden Falle (wie auch bei *hippocrepea*) besitzt das Sternale in der Umgebung der männlichen Genitalöffnung ein sehr zartes Muster einer rhombischen Felderung. Dieses Muster dehnt sich von vorne her ohne jede Unterbrechung über die Genitalöffnung aus und lässt klar erkennen, dass hier ein Deckel vorhanden ist, der sich von vorne her über die Öffnung legt. Nach hinten hin bricht das Muster plötzlich ab. Infolgedessen, und auch dadurch, dass das Muster weiter hinten verschwunden bleibt, wird der Hinterrand des Deckels deutlich sichtbar. Es handelt sich also um einen vorne befestigten Deckel, der in das Sternale nicht gelenkig eigefügt ist, sondern der sich nur durch eigene Elastizität öffnen und schliessen kann.

Die Unterschiede zwischen *hippocrepoides* und *hippocrepea* sind folgende:

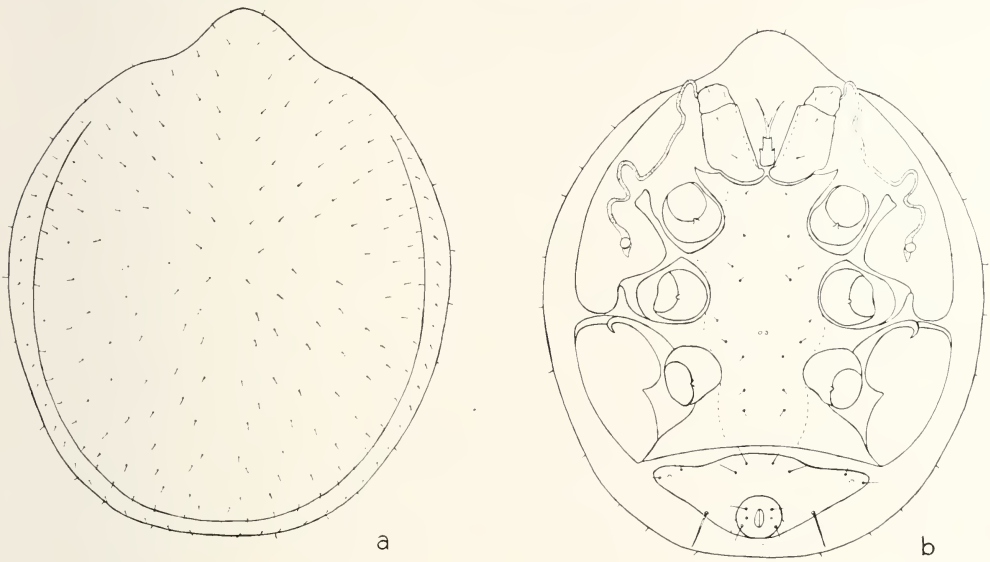
1. bei *hippocrepoides* strebt das Peritrema vom Stigma aus ziemlich direkt dem Rande des Rumpfes zu (fig. 10, *c*). Bei *hippocrepea* beschreibt das Peritrema, bevor es dem Rande des Rumpfes zustrebt, einen beträchtlichen, etwas eckigen Bogen nach aussen (fig. 9, *c*). Die Stelle, wo der rückläufige Abschnitt des Peritrema sich bei Berührung

des Rumpfrandes dem vorwärts verlaufenden Abschnitte eng anlegt, ist bei *hippocrepoides* nicht oder nur schwach nach vorne, bei *hippocrepea* deutlich etwas nach hinten gebogen.

2. der Verlauf der Linea metapodica ist bei beiden Arten nahezu gleich. Aber die Linie, die die von der Linea metapodica umgrenzte Grube für die Beine IV (Fovea pedalis IV) teilt, verläuft verschieden.

Die Linea metapodica ist in Figur 9, *c* für *hippocrepea* in voll ausgezogenem Striche, für *hippocrepoides* punktiert dargestellt.

3. bei *hippocrepea* haben die Kiele auf den Femora aller Beine in beiden Geschlechtern eine glatte Kante. Bei *hippocrepoides* sind diese Kanten nur bei dem Weibchen glatt, bei dem Männchen dagegen nach Art einer Säge gezähnelt.



FIGUR 11.—*Fuscuropoda hippocrepoides,* species nova, Deutonympha: *a,* dorsal; *b,* ventral.

An einer Stelle hat die entomologische Expedition eine grössere Anzahl von *Fuscuropoda hippocrepoides* ohne Beimischung anderer Uropoden gefunden, also sozusagen "in Reinkultur". Darum erscheint es unbedenklich, die dabei mitgefundenen Jugendstadien auf *hippocrepoides* zu beziehen. Es ist unwahrscheinlich, dass Jugendstadien von *hippocrepea* sich gerade in diese Ansammlung verirrt haben sollten.

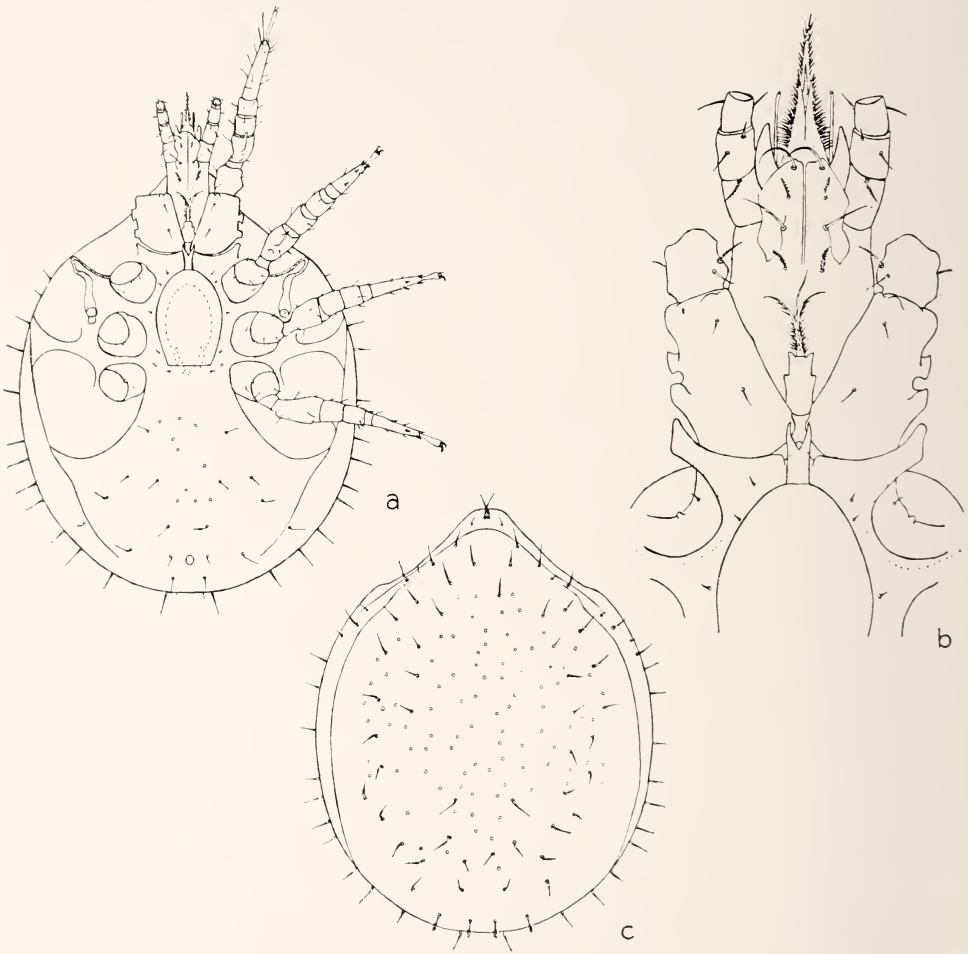
11. **Fuscuropoda furcigera,** species nova (fig. 12).

Wegen der Grösse, der Rumpfgestalt, der Farbe und des Charakters der Behaarung (verhältnismässig lange, radiär abstehende, nadelförnige, überwiegend glatte Haare mit dem bei Uropoden so häufigen Knick unmittelbar über dem Haaransatze) vollkommen von dem Habitus der allbekannten europäischen Art, die Berlese *Uropoda obscura* nennt.

Panzerung dorsal (fig. 12, *c*) und (jedoch weniger deutlich) ventral (fig. 12, *a*) mit weitläufig angeordneten Grübchen übersät, die sich als hell schimmernde Flecke abheben. Behaarung wie bei *obscura,* doch stehen die Vertikalhaare so dicht beisammen,

dass ihre Ansatzstellen sich berühren. Der Knick an ihrer Basis bewirkt, dass sie sich in der Regel kreuzen. Verlauf der Peritremata wie bei *obscura*. Nur ist das Stück der Peritremata zwischen dem Stigma und der Stelle, wo sie sich nach der Randlinie des Rumpfes hinwenden, ungewöhnlich breit.

Weibchen: Länge 1.065 - 1.080 mm; Breite 0.750 - 0.790 mm.



FIGUR 12.—*Fuscuropoda furcigera*, species nova, Weibchen: *a*, ventral; *b*, Hypostom, Tritosternum, Sternale und Epigynium; *c*, dorsal.

Männchen: Länge 1.025 - 1.080 mm; Breite 0.730 - 0.790 mm. Auf dem Scutum medium der Rückenseite nahe dem Hinterrande eine Querreihe von 4 distal etwas gefiederten Haaren.

Die geradlinige Hinterkante des Epigyniums liegt ungefähr in der Linie der Hinterkanten der Coxae III. Die Umrisslinie des Epigyniums gleicht einem Ei, dessen spitzeres Ende vorn liegt. Das Vorderende erreicht die Coxae I bei Weitem nicht, sondern liegt etwas vor der Mitte zwischen den Coxae II. Es trägt jedoch einen in

ganzer Länge gleich breiten Fortsatz, der sich sogar noch der Basis des Tritosternums auflegt. Dieser Fortsatz ist in seiner ganzen vorderen Hälfte gespalten. Er bildet also eine Gabel, deren "Griff" ebenso lang ist wie die beiden "Zinken." Dies ist das auffälligste Kennzeichen der Species (fig. 12, *b*).

Die männliche Genitalöffnung ist längsoval und liegt zwischen den Coxae III. Ihre hintere Hälfte ist von einer verstärkten Chitinisation in Gestalt eines ziemlich breiten, halbkreisförmigen Rahmens umgeben.

Uapou: 3. Januar 1930, an abgestorbenem Holze von *Erythrina indica*, R. R. Whitten.

12. **Cilliba bordagei** Oudemans.

Hivaoa: Atuona-Tal, 300 englische Fuss über dem Meer, 1.5 englische Meilen von der Küste, 28. Februar und 6. Juli 1929, unter moderndem Holze, Mumford und Adamson.

Die Art ist von Oudemans so genau beschrieben und vor allen Dingen so vorzüglich abgebildet, dass dem nichts hinzufügen ist (34). 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.

13. **Biscirus symmetricus** (Kramer).

Uapou: Teavanui-Tal, am Abhange nach Paaumea, 3000 englische Fuss über dem Meer, 20. November 1931, an *Cyathea* species; Hakahetau-Tal, 3020 englische Fuss über dem Meer, 20. November 1931; Le Bronnec.

Die Systematik der Bdellidae ist lange ein umstrittenes Gebiet gewesen, hauptsächlich deshalb, weil es schwer ist, die Typenarten der Gattungen *Bdella* Latreille 1795 und *Scirus* Hermann 1804 richtig zu erkennen. Sig Thor hat 1931 (37) diese Systematik richtig dargestellt, während mein (47) eigener Entwurf vom selben Jahre fundamentale Irrtümer enthält.

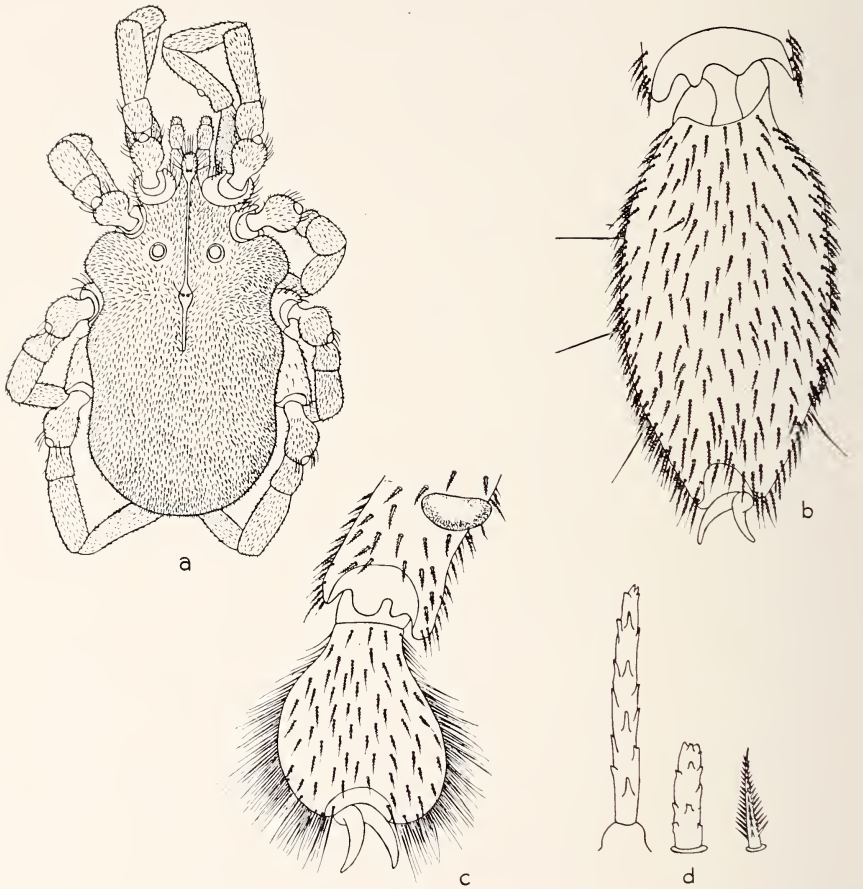
Die Art, die Kramer *Bdella symmetrica* nennt (25), gehört in die Gattung *Biscirus* Sig Thor 1913 (Typus: *Bdella silvatica* Kramer 1881). Das von Kramer studierte Material stammt zum Teil aus Uschuia an der Südküste des argentinischen Teiles von Feuerland, zum Teil aus Puerto Toro auf der von dieser Küste nur durch den Beagle-Canal getrennten chilenischen Insel Navarin.

Kramer hat von der Art nur den rechten Maxillarpalpus, von unten gesehen, abgebildet. Aber der Text seiner Beschreibung ist ausführlich und klar, so dass hier die Richtigkeit der Determination gesichert ist.

14. **Caeculisoma cordipes,** species nova (fig. 13).

Gestalt vom typischen *Caeculisoma*-Habitus: ganz seitlich eingelenkte Trochanteren, infolgedessen über den Coxae II und III stark eingeschnürt, stark vorgewölbte Schultern zwischen den Beinen II und III, Rumpfende breit abgerundet, der Vertex weit vorgestreckt (fig. 13, *a*). Farbe am conservierten Materiale nicht zu erkennen; im Leben wahrscheinlich düster graubraun.

Idiosomalänge, 1.710 mm; Breite in der Schultergegend, 0.995 mm; hinter den Beinen IV, 0.865 mm. Länge der Crista metopica 0.940 mm. Sie reicht also bis hinter die Mitte der Rückenfläche. Die vordere Area sensilligera auf dem Vertex, die hintere in der Linie zwischen den Einlenkungen der Trochanteren III. Abstand der hinteren pseudostigmatischen Organe von den vorderen 0.610 mm. Die Crista setzt sich also noch weit hinter der hinteren Area sensilligera fort. Augen auf niedrigem Sockel dicht neben der Crista ungefähr in der Linie der Schultern. Abstand der Mittelpunkte der Augen 0.280 mm.



FIGUR 13.—*Caeculisoma cordipes,* species nova: *a,* Adultus, dorsal; *b,* Adultus, Tarsus I, dorsal; *c,* Adultus, augenähnliches Organ auf Tibia III und Tarsus III dorsal; *d,* Adultus, Rumpfhaare: links Haar von Vertex, in der Mitte Haar vom Rücken, rechts Haar von der Bauchfläche.

Der ganze Rumpf ist dicht behaart, ventral auch auf den Coxalflächen. Auf dem Rücken und an den Rumpfseiten sind die Haare dick stabförmig (d. h. in ganzer Länge gleich dick und mit abgerundeter Spitze), ringsum, ähnlich wie bei *Erythraeus,* durch spitze Schuppen aufgerauht; man könnte sie mit einem jungen Spross von Asparagus vergleichen. Anders geformte Haare sind nicht vorhanden (fig. 13, *d* in der Mitte).

Ihre Länge beträgt 0.041 mm, ganz vereinzelt auch bis 0.055 mm. Nur die Haare auf dem Vertex die die vordere Area sensilligera umgeben, messen 0.085 mm (fig. 13, *d* links). Die Haare auf der Bauchseite sind dünn, konisch (das heisst von der Basis an bis zur Spitze gleichmässig zugespitzt) und mit 4 Längsreihen von kleinen Dornen besetzt (fig. 13, *d* rechts).

Die Längen der Beine konnten nicht gemessen werden. Ihr Verhältnis zum Rumpfe dürfte aber kaum anders sein als bei *Cacculisoma argus* (44). Tarsus I ziemlich schlank oval, 0.089 mm lang, 0.048 mm breit. Die Höhe konnte nicht gemessen werden. Fig. 13, *b* zeigt den linken Tarsus I von oben. Tarsus IV, der ebenso geformt ist wie II und III, 0.051 mm lang, 0.041 mm breit und ganz platt. Fig. 13, *c* zeigt den linken Tarsus III von oben. Da die Tarsi II, III, und IV an ihrer Basis schlank sind, sich nach vorne hin stark verbreitern und vorne eine Einsenkung besitzen, in die die Krallen zurückgeklappt werden können, so sind sie vollkommen herzförmig. Diese Gestalt der Tarsen kommt aber auch bei anderen *Cacculisoma*-Arten vor. Die augenähnlichen Organe dorsal auf den Enden aller Trochanteren und aller Tibien (fig. 13, *a, c*) sind gut entwickelt; auf anderen Beingliedern scheinen sie zu fehlen. Die Haare an allen Beingliedern sind überwiegend wie die Rumpfhaare der Ventralseite (fig. 13, *d* rechts). Sie werden nach den Tarsen hin immer feiner. Nur an den Enden aller Coxae und aller Trochanteren stehen einige Haare vom Charakter der Rumpfhaare auf der Dorsalseite. Ganz vereinzelt sind zwischen den befiederten Haaren glatte Haare eingestreut. Sie sind aber nur ausnahmsweise länger oder anders gerichtet als die übrigen Haare und spielen daher im Gesamtbilde keine Rolle. Nur die Ventralseite der Tarsi ist mit einer dichten Bürste von glatten Haaren bedeckt (fig. 13, *c*).

Uahuka: Hitikau, 2900 englische Fuss über dem Meer, 3. März 1931, Le Bronnec und H. Tauraa.

15. **Histiostoma granulatum,** species nova (fig. 14).

Hivaoa: Kaava-Gebirge, 2500 englische Fuss über dem Meer, 8. Januar 1932, unter der Rinde von *Cheirodendron* species in grosser Menge an dem Abdomen eines Nitiduliden, *Brachypeplus* species.

Die Gattungen *Anoetus* Dujardin 1842 (Typus: *Hypopus alicola* Dujardin 1849 = *Anoetus discrepans* Oudemans 1903) und *Histiostoma* Kramer 1876 (Typus: *Histiostoma pectinicum* Kramer 1876) sind lange für synonym gehalten worden. Infolgedessen sind sehr viele Arten unter dem Namen *Anoetus* beschrieben worden, die eigentlich zu *Histiostoma* gehören. Von den meisten Arten sind nur die (immer heteromorphen) Deutonymphen bekannt, die zu unterscheiden oft sehr schwer ist. Oudemans hat hier Ordnung geschaffen (32).

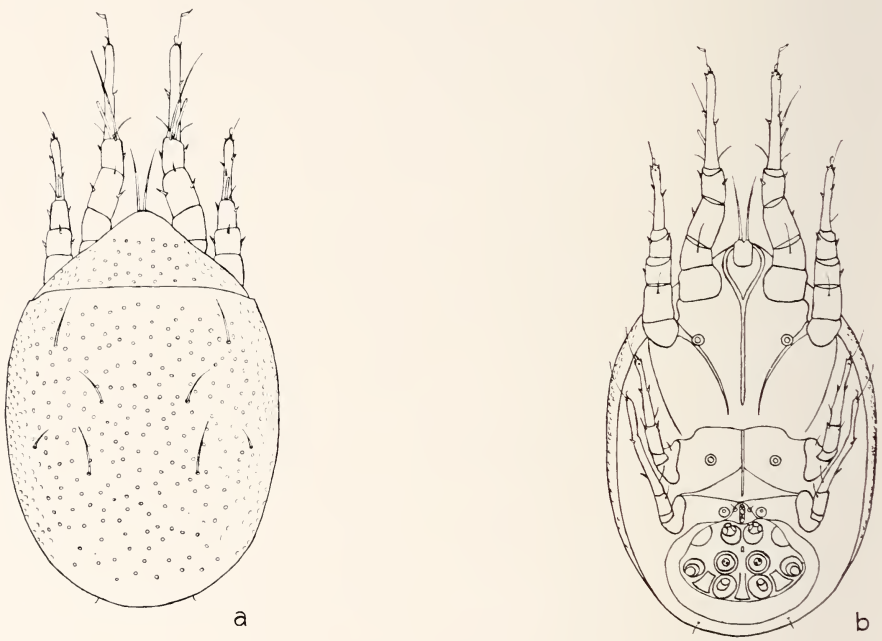
Die vorliegende Deutonympha gehört zu *Histiostoma*. Sie gleicht vollkommen der Deutonympha des europäischen *Histiostoma sapromyzarum* (Dufour 1839), die Oudemans 1914 unter dem Namen *Anoetus sapromyzarum* genau beschrieben und abgebildet hat (29), mit Ausnahme weniger Einzelheiten. Es genügt daher, wenn nur die Unterschiede angegeben werden. Sie bestehen darin, dass bei *Histiostoma granulatum:*

1. Die ganze Rückenseite (fig. 14, *a*)—aber nicht die Bauchseite (fig. 14, *b*)—deutlich mit winzigen Grübchen übersät ist. Bei *sapromyzarum* ist sie spiegelglatt.

2. Die Haare auf der Rückenseite zwar sehr fein, aber doch so lang sind, dass sie

einigermassen leicht wahrgenommen werden können. Bei *sapromyzarum* sind sie auch sehr fein, aber ausserdem so kurz, dass sie nur mit Immersion wahrgenommen werden können. In dieser Beziehung gleicht *granulatum* dem auch sehr ähnlichen *Histiostoma punctulatum* aus Malakka (42), auf dem Brenthiden *Cyphagogus eichhorni* Kirsch gefunden.

Dies ist die zweite Anoetiden-Deutonymphe, die aus der Südsee bekannt wird. Die andere ist *Histiostoma polynesiacum* von den Fiji-Inseln, auf dem Brenthiden *Eubactrus semiaeneus* Lacordaire gefunden (41).



FIGUR 14.—*Histiostoma granulatum,* species nova, Deutonympha: *a, d*orsal; *b,* ventral.

16. **Alloptes phaetontis** (Fabricius).

Acarus phaetontis, Fabricius: Ent., Seite 815, Nr. 25, 1775.
Dermaleichus phaetontis, Buchholz: Bemerkungen über die Arten der Gattung Dermaleichus, Koch, Seite 52 - 54, Taf. 6. Fig. 39, Taf. 7, Fig. 40 - 45, 1869.
Alloptes phaetontis, Trouessart: Soc. d'Etudes Sci., Angers, Bull., Seite 67, 1885. Wegen der älteren Literatur und Synonymik vergl. Oudemans, "Kritisch-historisch Overzicht der Acarologie," Band 2, Seite 694 - 695, 1929.

Hatutu [Hatutaa]: 28. April 1931, Le Bronnec und H. Tauraa.

Die Art ist von Buchholz zwar nicht schön, aber unmissverständlich abgebildet worden. Sie kann wegen der sonderbaren Anschwellung an den langen Haaren des Rumpfendes nicht mit anderen Arten verwechselt werden

und ist so allgemein bekannt, dass hier nicht näher auf sie eingegangen zu werden braucht. Sie lebt auf allen Phaeton-Arten und hat infolgedessen eine sehr weite Verbreitung. Ausserdem kommt sie in den Gebieten des nördlichen Atlantischen Oceans und der artischen Meere auf *Fratercula arctica* vor.

17. **Eriophyes premnae** Nalepa.

Hivaoa: 1300 englische Fuss über dem Meer, 10. Mai 1929, in Gallen von *Premna tahitensis.*

Nalepa beschrieb die Art 1914 nach Material, dass W. Docters van Leeuwen 1912 in Java mit Blättern von *Premna cyclophylla* gesammelt hatte (28).

Die hier beschriebene Milbensammlung mag wohl einen ersten Einblick in die Acarofauna der Marquesas gewähren und insofern nicht unbeachtlich sein. Aber man darf darin noch nicht einen Überblick über diese Fauna in ihrer Gesamtheit suchen. Dafür ist die Sammlung noch zu klein. Man muss sich immer vergegenwärtigen: sie ist nur ein Nebenergebnis der Arbeit des Pacific Entomological Survey. Daher enthält sie—um nur auf einige Lücken hinzuweisen—noch nichts von den verhältnismässig grossen, meist durch ihre leuchtend rote Farbe auffallenden Trombidien, nichts von deren parasitischen Larvenformen, nichts von der sicherlich nicht fehlenden spezifischen Acarofauna des Meeresstrandes, nichts aus den artenreichen koprophilen Gruppen, nichts an Myrmekophilen, nichts von den Parasiten kleiner Wirbeltiere, ausser *Histiostoma granulatum* nichts von den Insekten-Symphoristen, ausser *Alloptes phaetontis* nichts von den zahllosen Vogelepizoen, usw. Aber es ist ein Anfang gemacht, und man kann den Herren vom Entomological Survey nur dankbar sein für die darin verkörperte Mühewaltung.

Unter diesen Umständen ist es aber schwer, schon jetzt zu tiergeographischen Fragen Stellung zu nehmen. Wirklich endemische Arten wird man auf den pazifischen Inseln kaum erwarten dürfen. Es wird sich wohl immer um Arten handeln, die ursprünglich irgendwie vom australischen Continente, aus Ostasien oder von der amerikanischen Küste her eingeschleppt sind. Solcher Einschleppungsmöglichkeiten gibt es eine ganze Reihe. Bei den Oribatiden könnte man an Treibholz denken, zumal gewisse Arten ihre Jugendzeit in Holz eingebohrt verleben. Die Schiffahrt als solche und mit ihr auch der Import von Tieren und Pflanzen wird eine Rolle gespielt haben. Parasiten und Symphoristen werden durch ihre Wirte, zum Beispiel Vögel und fliegende Insekten, verschleppt worden sein. Dies gilt vor allem für Trombidiiden, Erythraeiden und Tyroglyphiden, so weit sie parasitisch oder

symphoristisch veranlagte Jugendstadien durchlaufen. Auch die Vogelepizoen wären hierher zu rechnen. Sogar die Seeschlangen kommen für die Verbreitung nicht nur von Zecken, sondern sogar von Tyroglyphen und Trombidiiden in Betracht, nachdem die indonesiche Expedition des damaligen Prinzen, jetzigen Königs Leopold von Belgien einen *Platurus colubrinus* gefangen hat, der ausser mit dem für ihn spezifischen *Amblyomma nitidum* Hirst 1910 auch noch mit Larven von *Trombicula wichmanni* (Oudemans 1905) und bis dahin unbekannten Deutonymphen von zwei Tyroglyphus-Arten behaftet war. Freilich bleiben da immer noch allzu zahlreiche Fragen ungelöst.

Ist die Einwanderung aber erst einmal geglückt, denn kann sich leicht der Faktor der geographischen Isolierung auswirken, der Formen heranzüchtet, die von der Stammform mehr oder weniger abweichen. Das hat Jacot schon für die Oribatiden hervorgehoben und überzeugend nachgewiesen.

Wieviel der australische Continent zur Besiedelung der pazifischen Inseln beigetragen hat, das lässt sich heute noch nicht erkennen, da dessen Acarofauna, trotz der erfolgreichen Bemühungen von Hirst und Womersley, erst allzu unvollkommen durchgearbeitet ist.

Wenn man die Gattung *Sessiluncus* so auffasst, wie Canestrini es ursprünglich formuliert hat, dann war sie bisher nur in ihrer Typenart und nur aus Neu-Guinea und Java bekannt, und wenn nun auf Tahiti eine zweite Art festgestellt wird, so wird man daraus folgern dürfen, dass die Gattung als solche von Westen her in das pazifische Gebiet eingewandert ist. Das Gleiche gilt für die Gattung *Epicroscius*. Vielleicht ist der *Epicroscius angelioides* aus Java und Sumatra erst auf den pazifischen Inseln zu dem *Episcroscius scurati* geworden, der er dort heute ist. Im Gegensatze hierzu sind die Gattungen *Cypholaelaps* und *Cercomegistus* von Osten her, aus Südamerika, gekommen.

Bei *Euzercon ovulum* und *Platyscius mollicomus* besteht kein Zweifel, dass sie aus dem Westen stammen. Man kann dies sogar für die ganze Gattung *Platyscius* annehmen, da sie in Amerika bisher noch nicht bemerkt worden ist. Die Gattung *Euzercon* ist allerdings auch in Argentinien vertreten.

Über die Macrocheliden mit ihrer unübersehbaren und über den ganzen Erdball verbreiteten Artenzahl lässt sich keine Vermutung begründen. Dagegen lässt die Gattung *Caeculisoma* erkennen, dass sie irgendwo auf einer Linie ihren Ursprung genommen hat, die von Sumatra, Java und Neu-Guinea über Nord-Australien und die Marquesas nach Argentinien und Paraguay verläuft. Wahrscheinlich hat sie die Marquesas von Westen her erreicht. Denn in Südamerika gibt es nur eine einzige Art, in Indonesien und Australien dagegen mindestens 5, und hier finden sich auch Übergangsformen, die in ihrem Habitus nicht so stark vom Habitus eines *Erythraeus* abweichen.

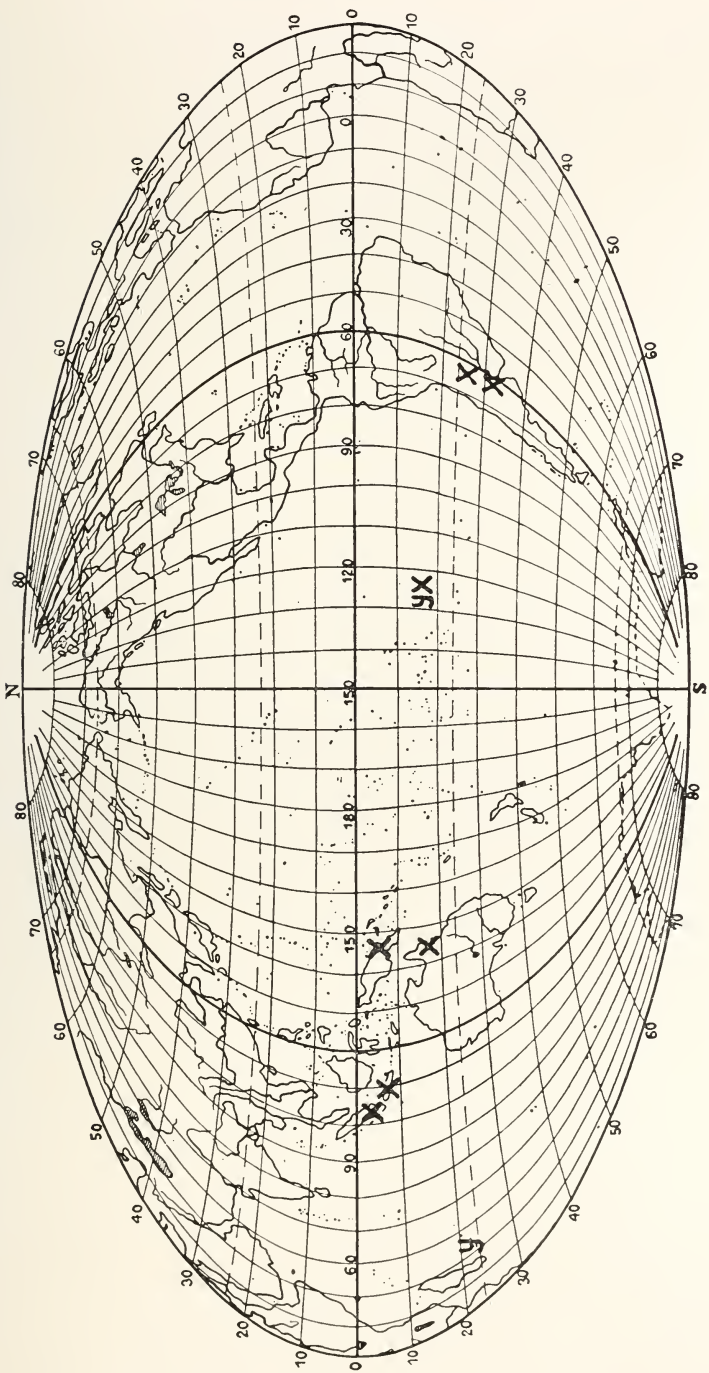


FIGURE 15.—Map showing the distribution of *Caecilisoma* (indicated by letter "X"), and of *Cilliba bordagei* Oudemans (indicated by letter "Y").

Wie soll man sich aber dazu stellen, wenn *Biscirus symmetricus* unmittelbar von der antarktischen Südspitze Südamerikas bis zu den tropischen Marquesas hinüberspringt?

Vorsicht ist auch bei den Uropoden geboten. Denn welche Verbindung könnte zwischen der *Cilliba bordagei* auf Reunion und der auf Tahiti und Hivaoa bestehen?

Allen diesen Acarinen kann man keine wirtschaftliche Bedeutung beimessen. Sicherlich ist *Eriophyes premnae* ein Schädling. Aber ernstlich wirtschaftlichen Schaden verursacht er doch wohl kaum. Alles in allem genommen kann man diese Acari eher als Nützlinge bezeichnen. Sie alle tragen unmittelbar oder mittelbar zur Humusbildung bei, vor allem die Uropoden und noch mehr die Oribatiden, wie es ja auch so viele andere Kleinlebewesen aus ganz anderen Ordnungen des Tierreiches tun (39, 40).

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SCOLYTIDAE OF THE MARQUESAS*

By

C. F. C. Beeson

Forest Research Institute, Dehra Dun, India

No Scolytidae have previously been reported from the Marquesas. The collection made by the Pacific Entomological Survey comprises more than 200 specimens representing 5 genera and 21 species which occur in one subfamily, the Cryphalinae, as defined by Hopkins in 1915. This subfamily is also the only one known to occur in the Society Islands, but no great significance should be attached to the fact at the moment. With the exception of one, the genera are of world-wide distribution; *Ptilopodius* Hopkins, represented by a new species, is known from the Philippines and India. Four species are widely distributed in the tropics, one occurs in North America and South America, and the remainder are new forms restricted to the Marquesas.

The Society Islands have in common with the Marquesas only three tropicopolitan species of *Xyleborus* and these are also the only links with Samoa.

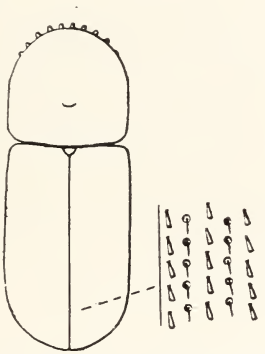


Figure 1.—*Ptilopodius marquesanus,* new species: dorsal view and details of elytral vestiture, × 40.

Ptilopodius marquesanus, new species (fig. 1).

Length 1.15 to 1.3 mm. Fuscous or piceous brown, legs testaceous brown, seminitid, squamose. Front closely reticulate, matt, punctate, impressed and more densely punctate behind the sinuate epistome on either side of a median carina, which extends to the vertex and bears a small shining tubercle opposite the lower edges of the eyes. Pronotum longer than broad, sides curved and very slightly convergent for two thirds, narrowed to center of apical margin which bears 4 larger and 2 smaller projecting well-separated

* Pacific Entomological Survey Publication 8, article 6.

teeth; basal and lateral margins marked with an incised line and a carina, the angle between them obtuse; anterior area moderately steep, its rugosities close but not contiguous; posterior area depressed behind the summit, rugulose granulate-punctate above, coriaceous at the sides. Scutellum rugose.

Elytra cylindrical, about 1.7 times as long as pronotum, with sides parallel and apex obtusely rounded, declivity convex; striae confused with interspacial punctures and only recognizable by the vestiture, punctures large, separated by more than their diameters, not impressed; interspaces irregularly rugose-punctate; sculpture of declivity similar.

Vestiture. Front with erect hairs near mouth; pronotum with short hairs between the rugosities, and semirecumbent, short, blunt setae directed forward in the posterior area; elytra with ground pubescence of recumbent linear microsetae, each interspace with a regular close series of semierect blunt scales becoming broader on the declivity and more linear toward the elytral base; abdominal segments with long scales.

Antenna oval, without sutures, anterior face pubescent toward margin, a few isolated hairs in median third; posterior face with transverse reticulation, sparsely pubescent near margin; funicle 4-segmented, segments 2, 3, and 4 transverse, the 4th widest. Anterior tibia and tarsus with branched appendages, the branches in a simple unilateral series, stem not laminate.

Eiao: uplands toward north end, east side, altitude 1,855 feet, September 29, 1929, on *Hibiscus tiliaceus,* 1 specimen, Adamson.

Hivaoa: Tahauku, July 10, 1929, near shore, 1 specimen, Adamson.

Uapou: Hakahetau Valley, altitude about 1,000 feet, December 14, 1929, under dead bark, 24 specimens, Whitten.

Abundantly distinct from *P. stephegynis* Hopkins (Philippine Islands).

Hypothenemus capitalis, new species (fig. 2).

Length 1.3 to 1.4 mm. Head, metasternum, and elytra fuscous or piceous, prothorax and abdomen brown, asperate area of pronotum lighter brown, legs testaceous; in immature beetles the head is the darkest part, dark brown even in testaceous specimens. Front broadly transversely impressed between epistomal margin and level of upper edge of eyes, the impression with rugose piliferous punctures at the sides, smooth, brilliant, with a few punctures in the median third and limited posteriorly by an obtuse carinula and a rugose-punctate zone; rest of front and vertex convex, finely reticulate. Antennal funicle 4-segmented.

Pronotum about as broad as long, rather depressed, sides feebly curved and broadly rounded apically; apical margin with 8 or 9 separated teeth of which 4 to 6 are larger; anterior area strongly convex with numerous, almost contiguous asperities forming in the center a rounded, somewhat elevated boss; posterior zone occupies about three eighths, transversely depressed above, and shining, finely aciculate-punctate, more coarsely and closely punctate laterally; base margined with a shallow sulcus and fine carinula not extending beyond the basal angles.

Elytra cylindrical, 1.8 times as long as pronotum, parallel, declivity convex, apex obtusely rounded; striae not impressed, punctures distant by at least their diameters; interspaces flat, finely rugulose or alutaceous, subnitid, punctures uniseriate, smaller but as numerous as strial punctures; sides rugose and more strongly punctate.

Vestiture. Pronotum with long hairs in the asperate area and at sides, scattered setae in the dorsal punctate area; strial punctures with fine decumbent white hairs; interspaces with a single series of erect white, narrowly triangular scales, no ground pubescence.

Uapou: Hakehetau Valley, altitude 1,000 feet, December 23, 1929, reared from dead wood, 8 specimens, Whitten.

Uahuka: Vaipaee Valley, Putatauua [Putataua], altitude 800 feet, September 20, 1929, dead banana leaves, 1 specimen, crushed, possibly *H. capitalis,* Adamson.

Closely allied to several oriental species (including undescribed Indo-Malayan species); in Hopkins' key runs down to section d_4 (American and African species).

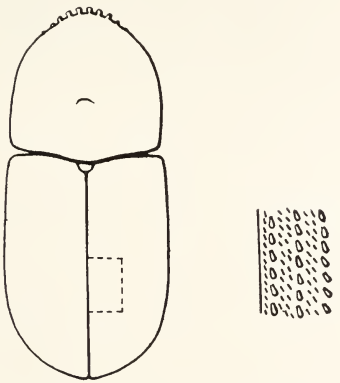


FIGURE 2.—*Hypothenemus capitalis,* new species: dorsal view and details of elytral vestiture, × 40.

Hypothenemus areccae Hornung.

Bostrichus areccae Hornung: Stett. Ent. Zeitschr., vol. 3, p. 117, 1842.

Eiao: above Vaituha, altitude 1,000 feet, October 2, 1929, on *Dodonaea viscosa,* 1 specimen, Adamson.

This species is recorded from Japan, Indo-Malayan region, Colombia, and Guinea, and is probably a composite. Known from areca nut, coffee seeds, and fungus.

The Eiao specimen is fully colored, has the pronotum wide at the base, and the six pronotal marginal teeth equal in size.

Hypothenemus species.

No useful purpose would be served by naming the following specimens until the numerous inadequately characterized species of *Hypothenemus,* based on unique specimens, have been revised and redescribed:

Hypothenemus species **A.**

Elytra brown, pronotum yellowish brown, apical margin with 4 plus 4 teeth. Front convex, rugose-punctate, median line weak. Strial hairs regularly uniseriate. Interspacial scales short triangular, no ground pubescence dorsally but a few additional hairs on the declivity.

Hivaoa: Tapeata, east slope of Mount Ootua, altitude 2,500 feet, May 25, 1929, 1 specimen, Mumford and Adamson.

Hypothenemus species **B.**

Elytra brown, pronotum light brown, apical margin with 4 teeth. Front convex, slightly depressed behind the mouth, the depression limited behind by a median, shining, subconical elevation. Strial hairs regular. Interspacial scales subtriangular with a few additional hairs on the declivity.

Hivaoa: Atuona Valley, altitude 325 feet, July 6, 1929, from dead *Erythina indica,* 1 specimen, Mumford and Adamson. A darker specimen of apparently the same species is from Hivaoa: Hanaheka [Tanaeka] Valley, altitude 1,100 feet, June 4, 1929, 1 specimen, Mumford and Adamson.

Hypothenemus species **C.**

Elytra dark brown, pronotum yellowish brown, apical margin with 4 teeth. Front convex, a feeble depression behind the mouth interrupted by a median elevated line, central subconical elevation absent. Strial hairs regularly alined. Interspacial scales uniseriate, no ground pubescence.

Eiao: uplands toward north end, east side, altitude 1,855 feet, September 29, 1929, *Hibiscus tiliaceus,* 1 specimen, Adamson. An immature testaceous specimen from Eiao, near center, altitude 1,655 feet, September 28, 1929, other data the same, is probably the same species.

Hypothenemus species **D.**

Elytra and pronotum concolorous dark brown, pronotal margin crushed. Front convex, rugose-punctate with a shining median elevated line. Striae with hairs and interspaces with scales uniseriate; declivity dirty.

Uapou: Hakahetau Valley, altitude 1,000 feet, December 23, 1929, reared from dead wood, 1 specimen, Whitten.

Hypothenemus species **E.**

Elytra and pronotum concolorous dark brown, pronotal margin with 4 teeth. Front convex, rugose-punctate, feebly impressed behind mouth with a feeble shining elevated median line. Strial hairs regular; interspaces with uniseriate scales with a few additional hairs on or before the declivity.

Uahuka: Vainui, altitude 600 feet, March 18, 1931, on *Sida* species, 1 specimen, LeBronnec and H. Tauraa.

Stephanoderes lebronneci, new species (fig. 3).

Length 1.35 to 1.5 mm. Head and elytra black or very dark brown, the pronotum especially the scabrate area, less dark; legs light brown. Front convex, behind epistome a flat shining area narrowing backward to an obscurely elevated point midway between the eyes; on either side of the shining area rugose-punctate and piliferous; the rest of the front and vertex finely reticulate, subopaque, with a few minute hairs. Antennal funicle 5-segmented.

Pronotum a little wider at the base than long (1.13 times), sides rounded and gradually narrowed to the broadly rounded apical margin, which has six separate equal-sized teeth; scabrate area with asperities numerous, well separated, occupying a triangular space beginning some way behind apical margin and not extending to sides; boss a little post-central, elevated; posterior area slightly transversely depressed behind boss, granulate-punctate, subopaque.

Elytra about 1.8 times as long as pronotum, cylindrical, apex obtusely rounded, declivity convex; striae impressed, straight, punctures large, close, almost contiguous on declivity; interspaces narrow, weakly convex, transversely rugose, with a series of squamiferous punctures smaller and closer than the strial punctures, regularly seriate dorsally and occasionally irregular mediolaterally. Declivity simply convex, the interspaces narrower and more prominent, the striae more impressed, the punctures more crowded.

Vestiture. Scabrate area of pronotum with setae, granulate area with short triangular scales mixed with fine short hairs directed forward; strial hairs very fine, recumbent; interspaces with erect, short, triangular scales from base to apex uniform in size and not larger on declivity; no ground pubescence.

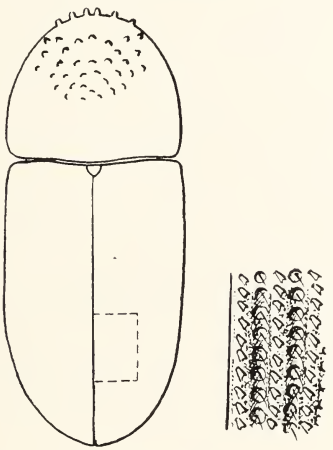


FIGURE 3.—*Stephanoderes lebronneci,* new species: dorsal view and details of elytral vestiture, × 40.

Tahuata: Hanatuuna Valley, altitude 150 feet, July 19, 1930, on *Psidium guayava,* 11 specimens, LeBronnec and H. Tauraa.

Uapou: Hakahetau, altitude about 500 feet, December 17, 1929, beating, 1 specimen, Whitten.

Runs down to section c_5 or d_5 in Hopkins' key and is allied to species from the south of the United States, as *S. georgiae* Hopkins.

Stephanoderes hivaoea, new species.

Very similar in color, form, sculpture, and vestiture to *S. lebronneci.*

Length 1.55 mm. Front convex with a shallow, brilliant, impunctate impression commencing at the middle of the epistome where there is a small elevation, and broadening backward to the middle of the frons, where it is appreciably concave and its posterior edge is a curved elevation with a faint trace of a median line continued backward from

its center; at the sides of the shining depression, rugose-punctate and piliferous, behind it reticulate, opaque. Pronotum about 1.1 times as wide at base as long; the six marginal teeth prominent. Elytra about 1.75 times as long as pronotum; striae rather less impressed and interspaces rather less rugose than in *S. lebronneci.*

Hivaoa: Tahauku, July 10, 1929, near shore, 1 specimen, Mumford and Adamson.

Differs from *S. lebronneci* in that the frontal impression broadens and deepens backwards; in *lebronneci* the shining area is narrowed behind and not impressed at its apex.

Ericryphalus trypanoides, new species (fig. 4, *a*).

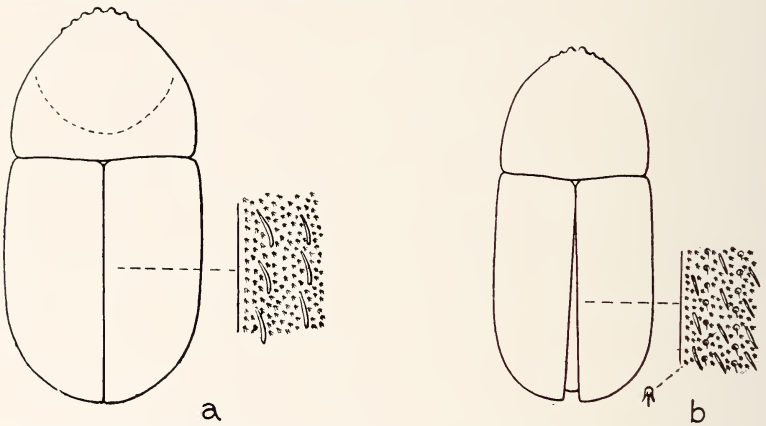


FIGURE 4.—*Ericryphalus,* new species, × 35: *a, E. trypanoides,* dorsal view of (?) male and details of elytral vestiture; *b, E. uapouensis,* dorsal view and details of elytral vestiture.

Length 1.85 mm. Testaceous yellow, the scabrate area of the pronotum, and head infuscate, under surface testaceous, legs darker. Front concealed, rugulose- or granulate-punctate behind epistome; from center of epistome an elevated, shining, median line broadens backward. Pronotum 1.2 times as wide as long, dorsal outline as in figure 4, *a*; apical margin with 6 or 7 prominent contiguous teeth decreasing in size from middle pair; scabrate area extending three quarters the length of the pronotum, the asperities not contiguous except in the row behind the apical margin; minutely granulate between the asperities and in the posterior zone; base very slightly sinuous, vaguely margined with a carinula which continues in a curve half way round the side; basal angle (lateral view) obtuse.

Elytra 1.5 times as long as pronotum, base transverse, margined with a carinula which continues around the humeral angle and is interrupted from the lateral margin; along the suture the convexity is broad and uniform from scutellum to apex; interspaces smooth, flat, minutely multipunctate; striae superficial, only distinguishable by the transparency of the elytra.

Vestiture. Pronotum with long erect hairs, ground-scaling obscured but apparently the same as on the elytra; elytra with close ground-scaling of minute recumbent scales and uniseriate rows of erect setiform hairs, stouter than those of the pronotum and margins (fig. 4, *a*).

Uapou: Hakahetau Valley, altitude 2,600 feet, December 6, 1929, Adamson. A unique specimen, probably a male.

Allied to the male of *E. trypanus* Sampson (Seychelles), which has the pronotum less produced and the apical teeth less prominent, the base of the elytra distinctly incurved to the scutellum, the declivity more convex and not continuously curved with the dorsum; the antennal club of *E. trypanus* is larger and more circular. *E. samoensis* Beeson (Upolu) is smaller with different sculpture and vestiture.

Ericryphalus uapouensis, new species (fig. 4, *b*).

Length 1.25 to 1.3 mm. Light brown, the pronotum and head darker, the legs testaceous-yellow. Front convex with a feebly elevated, median line, dull, finely reticulate, closely punctate behind epistome, sparsely punctate elsewhere. Antennal club with three more or less transverse sutures and one procurved apical suture feebly indicated on anterior face; three procurved sutures on posterior face. Pronotum 1.1 times as broad as long, planoconvex in front, not strongly declivous, apex with two large teeth flanked by two much smaller ones; asperities well separated, granulate-punctate between them and in the posterior zone; base subtransverse, margined with a carinula; basal angle (side view) broadly curved and marginate. Scutellum minute.

Elytra 1.6 times as long as pronotum, minutely densely multipunctate on a very finely rugulose ground; strial punctures scarcely visible but bearing exceedingly small hairs; elytral curve along suture just appreciable; declivity broadly convex.

Vestiture. Pronotum with dense ground-vestiture of minute branched (trifid) scales interspersed with numerous recurved hairs in the scabrate area and a few very short hairs in the posterior zone; elytra with a dense ground-vestiture of minute trifid scales and uniseriate rows of short recurved hairs which become shorter and stouter and setiform on the declivity. Tarsus with segment 3 weakly emarginate.

Uapou: Hakahetau Valley, altitude 1,000 feet, December 23, 1929, reared from dead wood, 3 specimens, Whitten.

Of the cylindrical form of a *Cryphalus* (for example, *C. piceus* Eggers, Ussuri, Japan), but with the pronotal apex more produced, and on antennal characters probably assignable to *Ericryphalus.*

Ericryphalus species **A.**

Fatuhiva: Uia [Ouia] Valley, near sea level, September 2, 1930, on *Sida* species, 1 male, unique, LeBronnec.

Very close to *Ericryphalus discretus* Eichhoff (Burma and Sunderbans, Bengal) but with apex of pronotum more produced and interspacial setae shorter and stouter.

Ericryphalus species **B.**

Mohotani: west side near plantation, altitude 975 feet, August 13, 1932, on *Miscantia floridulus,* 1 male, unique, Mumford and Adamson.

Allied to several undescribed Indian species near *discretus* Eichhoff.

Xyleborus confusus Eichhoff.

Xyleborus confusus Eichhoff: Berl. Ent. Zeitschr., vol. 11, p. 401, 1867.

Eiao: near center, altitude 1,300 feet, October 1, 1929, under bark of *Pisonia* species, 1 female, Adamson.

Fatuhiva: Ihiota, Hanavave Valley, altitude 600 feet, September 10, 1930, 1 female, LeBronnec.

Hivaoa: Avaoa Valley, altitude 1,350 feet, January 4, 1932, at light, 1 female, LeBronnec; Kopaafaa, altitude 2,800 feet, February 25, 1930, from dead twigs of *Crossostylis biflora,* 1 female, Mumford and Adamson.

Tahuata: Hanamiai Valley, altitude 300 feet, May 30, 1930, 1 female, LeBronnec and H. Tauraa.

Uapou: Hakahetau Valley, altitude about 1,500 feet, under bark of dying *Aleurites moluccana,* 11 females, Whitten.

For distribution in the Pacific and neotropics and for other food-plants, see Beeson, Insects of Samoa, pt. 4, fasc. 4, p. 245, 1929.

Xyleborus fuscatus Eichhoff.

Xyleborus fuscatus Eichhoff: Berl. Ent. Zeitschr., vol. 11, p. 400, 1867.

Hivaoa: Kopaafaa, altitude 2,800 feet, February 25, 1930, from dead twigs of *Crossostylis biflora,* 1 female, Mumford and Adamson.

I am unable to separate this specimen from *X. fuscatus* from the United States and South America.

Xyleborus kraatzi Eichhoff.

Xyleborus kraatzi Eichhoff: Berl. Ent. Zeitschr., vol. 12, p. 152, 1868.

Fatuhiva: Vaikoao, Omoa [Oomoa] Valley, altitude 1,600 feet, August 27, 1930, 1 female, LeBronnec.

Hivaoa: Mataovau, altitude 390 feet, June 5, 1929, 1 female, Mumford and Adamson; Atuona Valley, altitude 325 feet, July 6, 1929, from dead *Erythrina indica,* 3 females, Mumford and Adamson; Avaoa Valley, altitude 1,350 feet, January 4, 1932, at light, 11 females, LeBronnec; Anatuakina, altitude 1,520 feet, June 3, 1929, 1 female, Mumford and Adamson; Anatikaue, altitude 1,750 feet, August 1, 1929, *Xylosma suavolens,* 1 female, Mumford and Adamson.

Tahuata: Hanamiai Valley, altitude 300 feet, May 30, 1930, 23 females, LeBronnec and H. Tauraa.

Uahuka: Hane Valley, altitude 150 feet, March 9, 1931, at light, 1 female, LeBronnec and H. Tauraa; Penau Ridge, altitude 2,000 feet, March 4, 1931, at light, 7 females, LeBronnec and H. Tauraa.

For the distribution of this common oriental species see Beeson, Insects of Samoa, pt. 4, fasc. 4, p. 240, 1929.

Xyleborus torquatus Eichhoff subspecies **badius** Eichhoff.

Xyleborus torquatus Eichhoff: Berl. Ent. Zeitschr., vol. 12, p. 146, 1868.

Xyleborus badius Eichhoff: Berl. Ent. Zeitschr., vol. 12, p. 280, 1868.

Fatuhiva: Vaikoao, Omoa [Oomoa] Valley, altitude 1,500 feet, August 30, 1930, sweeping herbage, 1 female, LeBronnec.

Hivaoa: Atuona, February 16, 1929, at light, 2 females; July 12, 1929, sea level, 1 female; March 7, 1930, 1 female, at light, Mumford and Adamson; Avaoa Valley, 1,350 feet, January 4, 1932, at light, 1 female, LeBronnec.

Nukuhiva: Taiohae, October, 1929, 1 female, Mumford and Adamson.

Tahuata: Hanamiai Valley, altitude 300 feet, May 30, 1930, 6 females, LeBronnec and H. Tauraa; Vaitahu Valley, sea shore, June 18, 1930, at light, 1 female, LeBronnec and H. Tauraa.

Uahuka: Penau Ridge, altitude 2,000 feet, March 4, 1931, at light, 18 females, LeBronnec and H. Tauraa; Hane Valley, altitude 30 feet, March 13, 1931, at light, 1 female, LeBronnec and H. Tauraa.

An analysis of the range of pigmentation in this species is of interest. In the series of 18 from Penau Ridge, altitude 2,000 feet, March 4, all taken at light and therefore normal adult beetles (as opposed to immature beetles taken from brood tunnels) the color range is: *a,* testaceous, 2; *b,* ferrugineous-testaceous, 6; *c,* ferrugineous-brown, 6; *d,* elytra fuscous-brown, pronotum infuscate anteriorly, 4; *e,* elytra black or deep piceous-brown, none. The remainder, 14 specimens, from various localities are *a,* 3; *b,* 4; *c,* 4; *d,* 3; *e,* none. All the 32 specimens are referable to *X. badius* Eichhoff which I consider should rank as a subspecies of *X. torquatus* Eichhoff.

The fully pigmented typical *X. torquatus* apparently does not occur in the Marquesas or in the Society Islands. Hagedorn (Col. Cat., Ipidae, pp. 99, 112) records both *X. badius* and *X. torquatus* from Tahiti; the latter is an error due to uncritical transcription of the localities given by Blandford in 1898.

Eichhoff (Ratio Tomicinorum, pp. 378-380, 1878) separated beetles with black or fuscous-brown elytra found in South America and Cuba (*X. torquatus*) as specifically distinct from beetles with ferrugineous or ferrugineous-testaceous elytra found in Madagascar, Tahiti, and Cuba (*X. badius*) but with the qualification that *X. badius* might be a local variety of *X. torquatus.* Blandford (Biol. Centr. Amer., Col., vol. 4, pt. 6, pp. 214-215, 1898) found that Central American specimens range in a series from fuscous to light-colored examples and that dark and light forms are about equally common. He queried the validity of the Cuba record of *X. badius* and expected that a geographical distinction would eventually be demonstrated, *X. torquatus* being neotropical and *X. badius* palaeotropical. Nevertheless he extended the habitat of *X. torquatus* Eichhoff to include all the previously recorded *X.*

badius localities. Hagedorn (Col. Cat., Ipidae, pp. 99, 112, 1910) treated *X. torquatus* and *X. badius* as separate species recording the former from Madagascar, Mauritius and Tahiti as well as from Central America and South America, and confining *X. badius* to the Old World with the addition of Cuba. In 1913 (Madagas. Ip., in Voeltzkow Reise Ostafrika, vol. 3, p. 256) he stated *X. badius* to be widespread in the tropics. Sampson (Linn. Soc., Trans., vol. 16, p. 387, 1914) placed *X. badius* as a synonym of *X. torquatus* but with a query. Eggers, who has always treated the two as distinct species, stated (Rev. Zool. Afr., vol. 15, p. 195, 1927) that *X. badius* is widely distributed in the tropics (South America, Africa, Indo-Malayan Region). He also recorded *X. torquatus* from Sumatra and the Philippines (Treubia, vol. 7, p. 408, 1926). Schedl (Ann. Mag. Nat. Hist., 10th ser., vol. 8, pp. 346, 347, 1931) recorded *X. torquatus* from Argentina and *X. badius* from East Africa.

From an examination of South American and African series and of a few Malayan examples I am convinced that *X. badius* Eichhoff is (as he himself suspected) a color form of *X. torquatus* Eichhoff. A complete gradation occurs in the South American continent, but the extreme deeply pigmented form has not yet been recorded from many regions of the palaeotropics. Until typical *X. torquatus* is discovered in these regions the most practical arrangement is to use the name *badius* subspecifically.

Under the designation *X. torquatus* this species has been recorded from the trunk and leaf stalks of the coconut palm in Brazil (Bondar), from logs of timber in British Guiana (Cleare), from the sugar cane in Fiji (Veitch), and from coffee branchwood in Madagascar (Frappa).

Xyleborus mumfordi, new species (fig. 5).

Female

Length 3.9 to 4.1. mm. Light to dark brown, irregularly infuscate to almost entirely infuscate above and piceous below; head and under surface fuscous to piceous, appendages much lighter. The infuscation in the lighter examples appears first in the umbonation, median line from umbo to base, basal angles and apical asperate triangle of the pronotum; and in suture, apical half and declivity, lateral striae and borders of the elytra. Sparsely pubescent.

Front with a few rugose piliferous punctures on a finely coriaceous ground. Pronotum oblong, basal angles broadly rounded, sides subparallel, or irregular (? muscular contraction), apical margin broadly curved; slightly ascending from base to the umbonation which is considerably postcentral, thence obliquely planoconvex, and more steeply curved in the apical fifth; asperities small, weakly developed, almost obsolete in the apical fifth and anterolaterally, passing into inconspicuous aciculations in the middle zone; basal half with an alutaceous gloss, smooth, almost entirely impunctate.

Elytra compressed dorsoventrally, humeri prominent, sides subparellel to apical third and narrowed before declivity, which is obliquely truncate, its sides obtusely carinate from the 6th interspace to the sutural apex; striate-punctate, the strial punctures large, sharp, shallow, very close, the striae somewhat sinuous and impressed; interspaces sub-

convex on the disc, weakly rugulose, shining with very small, piliferous, granulate punctures, uniseriate at distances of 5 or 6 strial punctures.

Declivity smooth, brilliant, its surface rather undulating, the striae represented by minute irregular punctulation confused with still more minute and more numerous interspacial punctures bearing fine recumbent micro-hairs and some larger erect ones. At the upper edge of the declivity the sutural interspace bears a conical tubercle, mesad of which are one or two smaller tubercles; the 3rd interspace has 2 small tubercles, the 4th 2 small granules, the 5th explanate and bearing an acute tubercle at about the middle of the declivity.

Fore tibia broadened at apex and minutely serrate from the apical spur to the external margin.

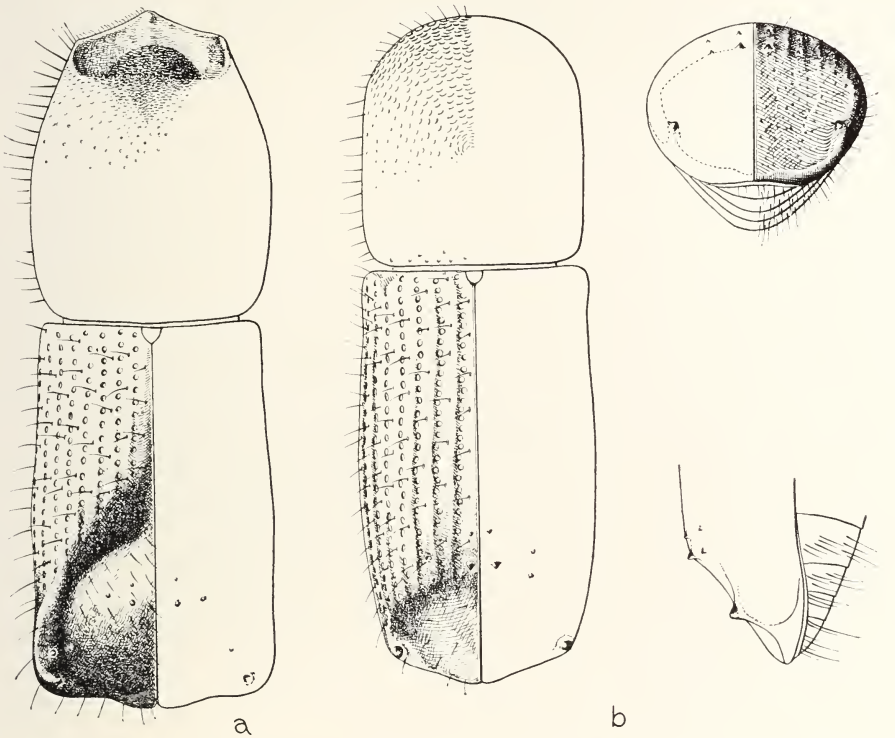


FIGURE 5.—*Xyleborus mumfordi,* new species, × 25: *a, male,* dorsal view; *b,* female, dorsal view, and terminal and lateral views of declivity.

Male

Length 4.0 mm. Head and prothorax dark brown, elytra and undersurface fuscopiceous, legs light brown. Head rostrate, front subrectangular with a median sulcus widening posteriorly from between the eyes, smooth, shining, a few hairs near the mouth; mandibles well developed. Pronotum (crushed) elongate-oval, produced apically beyond the head, base transverse; apical third excavate-retuse, impression with an irregular surface, weakly scabrate and piliferous, apical margin elevated and carinate with three obtuse teeth in the middle and on each side; posterior two thirds weakly convex, smooth, with scattered feeble punctures, glabrous.

Elytra with sides subparallel, apical edge transverse, sutural angle broadly obtuse; striae and interspaces as in female but more weakly sculptured; declivity beginning near the middle of the elytra as an oblique, slightly concave impression, bounded by obtusely carinate margins to just before the posterolateral angle, where there is a tubercle on a low conical elevation; in the middle of the declivity the surface is suddenly elevated into a convex blisterlike formation which extends transversely and is separated from the lateral carina by a deep sulcus; the summit of the blisterlike elevation bears a few large granules corresponding to those of the 1st and 3rd interspaces of the female; the apical slope brilliant, with minute irregular punctulation as on the female declivity.

Hivaoa: Mount Temetiu, northeast slope, altitude 3,620 feet, July 24, 1929, from dead wood of *Reynoldsia tahitensis,* 9 females, Mumford and Adamson; Mount Temetiu summit, altitude 4,160 feet, January 20, 1932, from wood of *Cyrtandra* species, 2 males, 21 females, LeBronnec; Feani Ridge, altitude 3,900 feet, January 19, 1932, on ferns, 1 female, LeBronnec.

Xyleborus mumfordi is a species of doubtful affinities. The displacement of the declivity by an oblique depression of the dorsum of the elytra before the true declivital summit is unique.

Xyleborus temetiuicus new species (fig. 6).

Female

Length 2.8 to 2.9 mm. Dark brown to black, shining. Front planoconvex, subnitid, finely reticulate, a closely punctate zone forming a fringe of long yellow hairs behind epistome, the rest of the front with sparse large punctures, some piliferous, and traces of a vaguely elevated median line. Pronotum subquadrate, as figured, apical margin very steep with the asperities much reduced, the boss transverse and postcentral, posterior half slightly depressed behind boss, very finely reticulate and with scattered fine punctures for the most part, glabrous. Elytra with the striae scarcely impressed, closely punctate with large shallow punctures uniform from base to apex; interspaces flat, smooth, with a single series of more distant aciculate punctures becoming granulate before declivity (fig. 6); viewed laterally the sutural line is broadly curved from scutellum to summit of declivity, which is steeply planoconvex, shining as on dorsal and lateral surfaces (figures of the declivity show light and shadow, not texture of the surface), and obtusely margined at sides, not carinate.

On the declivity the suture and other striae are impressed, the 1st interspace slightly elevated with three conical tubercles, larger than elsewhere, situated as in figure, the 2d interspace flatter with 2 or 3 granules, the 3d interspace with 3 or 4 small tubercles, the additional one near the apex, the 4th and conjoined interspaces with granules. Hairs on the pronotum, and elytral interspaces base to apex, yellow, long, fine, erect.

Hivaoa: Matauuna, altitude 3,700 feet, March 2, 1930, 1 female, H. Tauraa; Temetiu Ridge, altitude 3,900 feet, January 14, 1932, in logs of *Cheirodendron* species, 1 female, LeBronnec; Temetiu summit, altitude 4,160 feet, January 20, 1932, from wood of *Cyrtandra* species, 2 females, LeBronnec.

Allied to *Xyleborus posticus* Eichhoff (tropical America) and *X. rufipes* Eggers (Columbia; Guiana).

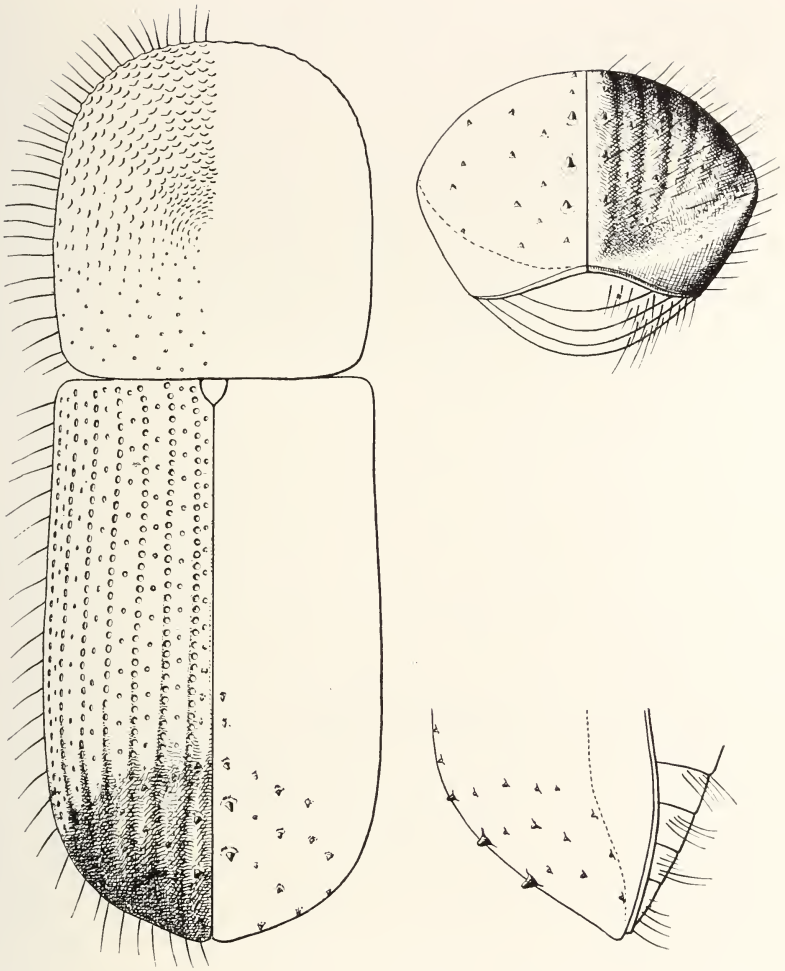


FIGURE 6.—*Xyleborus temetiuicus,* new species, female: dorsal view, and terminal and lateral views of declivity, × 35.

Xyleborus whitteni, new species (fig. 7, *a*).

Female

Length 2.2 mm. Testaceous, cylindrical, declivity shining, fairly steeply convex, 1st and 3d interspaces tuberculate, 2d immune. Pronotum a little longer than broad (about 1.2 times), sides straight or very slightly curved and divergent to the apical third, thence the apical margin broadly arcuate; rugosities of apical half larger toward the center; posterior half smooth, shining, very finely punctate.

Elytra narrower at base than the greatest width of pronotum, about 1.3 times as long as pronotum, sides parallel to beyond middle thence slightly convergent and eventually broadly rounded at apex; striae not impressed, straight, closely punctate; interspaces flat, not granulate; apical margin evident.

Declivity beginning behind middle, more abrupt and steeper than in *X. kraatzi* Eichhoff, slightly flattened and less convex than in *X. torquatus* Eichhoff; 1st and 3d interspaces each with 3 or 4 larger tubercles and a few minute granules as in *X. kraatzi*, 2d with granules at the summit.

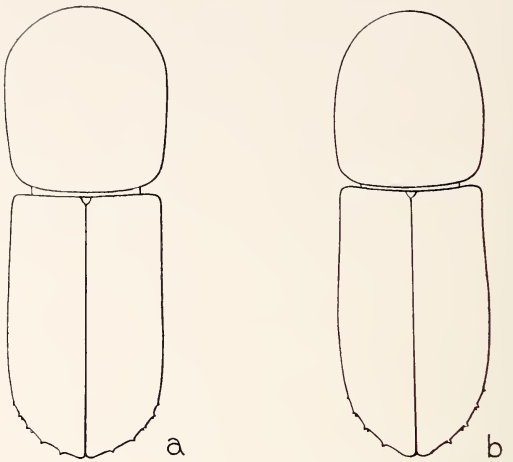


FIGURE 7.—*Xyleborus*, dorsal view of females: *a*, *X. whitteni*, new species; *b*, *X. kraatzi* Eichhoff from Ceylon.

Uapou: Hakahetau Valley, altitude about 1,500 feet, under bark of dying *Aleurites moluccana*, 4 females, Whitten.

Distinguished from *X. kraatzi* and *X. torquatus* by the wider pronotum and its broadly curved apical margin and by the relatively shorter elytra. Figure 7, *b*, shows the body outline compared with a specimen of *X. kraatzi* Eichhoff from Ceylon. Very closely allied to an undescribed species from Nilambur, Madras, and to an undescribed species from the Philippines (*X. proximus* Eggers in literature). Possibly allied to *X. ficus* Eggers (Congo) in which the declivity begins as a regular curve from before the middle.

PLATYPODIDAE AND SCOLYTIDAE OF THE SOCIETY ISLANDS*

By

C. F. C. Beeson
Forest Research Institute, Dehra Dun, India

PLATYPODIDAE

Crossotarsus externedentatus Fairmaire.

Platypus externedentatus Fairmaire: Rev. Mag. Zool., 2nd ser., vol. 2, p. 51, 1850.

Tahiti: Papenoo Valley, altitude 150 meters, October 25, 1928, 10 kilometers from sea, in dead *Calophyllum inophyllum,* 1 male, Adamson.

Moorea: Faaroa Valley, altitude 1,000 feet, December 4, 1928, 3 miles from sea, 2 females, Adamson.

Recorded from Hawaii, Fiji, Samoa, Formosa.

For food plants see Beeson, Insects of Samoa, pt. 4, fasc. 4, p. 218, 1929.

SCOLYTIDAE

There is only one previous record of Scolytidae from the Society Islands, *Xyleborus badius* Eichhoff, which, as I have shown,[1] should be considered as a subspecies of *X. torquatus* Eichhoff. No specimens were taken in Tahiti, though the species was found abundantly in the Marquesas by the Pacific Entomological Survey.

The present collection comprises 10 species in 5 genera of the subfamily Cryphalinae of which 4 species are described as new. Four of the genera are represented in the Marquesas; the fifth, *Thamnurgides,* extends from Hawaii to India. Four species of *Xyleborus* are widely distributed in the tropics. The new species of *Ptilopodius* was also collected by me in India.

Ptilopodius ramosus, new species (fig. 1).

Length 1.2 to 1.5 mm. Testaceous to elytra light brown, thorax and under side dark brown, head fuscous, legs yellowish. Front flat, opaque, finely reticulate, sparsely punctate with traces of an elevated, shining, median line below vertex. Eyes oblong oval, not emarginate. Pronotum outline as in figure 1, *b*, more acuminate in one sex, probably the male. Moderately shining, steeply declivous in front, scarcely depressed behind boss. Apical margin with 6 well-separated teeth of which the middle pair is largest, flanked by 2 smaller ones and 2 externals very small. Behind the apical margin is a zone in which the asperities are reduced to granules; in the middle third the asperities

[1] Beeson, C. F. C., Scolytidae of the Marquesas: B. P. Bishop Mus., Bull. 142, p. 110, 1935.

* Pacific Entomological Survey Publication 8, article 7.

increase in size toward the postcentral boss and are transverse with a tendency to coalesce into carinae between which are fine transverse striations or carinulae; round the boss the asperities are concentric and become granules and striations in the posterodorsal zone toward the basal margin; sides obsoletely coriaceous with subaciculate punctures. Base sinuate and margined with sulcus and carinula continued round the obtuse basal angle in a broad curve on the sides nearly to the apical margin. Scutellum large, rugose.

Elytra transversely rugulose; striae distinctly punctate, not impressed, punctures distant by their diameters; interspaces subgranulate-punctate in a single series as close as the strial punctures. Declivity convex, the interspaces narrower and definitely granulate, the striae with the punctures smaller and closer. Antenna oval, without sutures, anterior face sparsely pubescent, posterior face with transverse reticulation in basal half, sparsely pubescent anteriorly and at margins; funicle 4-segmented, segments 2-4 transverse, the 4th slightly wider. Tarsi of the fore legs with long plumose appendages, the stem not laminate and the branches in a single series of about 10-12. Vestiture of short fine hairs on front and pronotum, minute recumbent hairs in the strial punctures, interspaces with a uniform series from base to apex of erect, short, blunt setae.

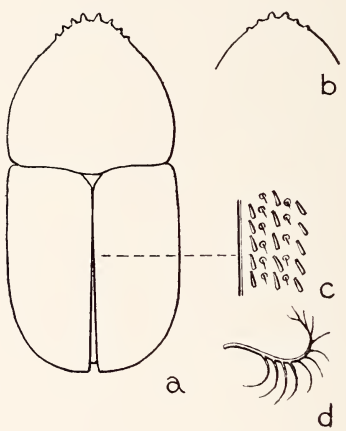


FIGURE 1. *Ptilopodius ramosus,* new species, × 30: *a,* dorsal view of (?) male; *b,* outline of apical margin of pronotum of (?) female; *c,* details of elytral vestiture; *d,* plumose appendage from fore tarsus.

Tahiti: Fautaua Valley, altitude 50 meters, 1 mile from sea, September 7, 1928, 1 specimen, Adamson.

India: Bengal, Sunderbans, bred from dead *Hibiscus tiliaceus* in February-April, 1915, C. F. C. Beeson. Nicobar Islands, Car Nicobar, under bark of *taukk,* March, 1930, Forest Entomologist; Little Nicobar, under bark of *inpaum,* March, 1930, Forest Entomologist. (Holotype and paratypes in the Forest Research Institute, Dehra Dun.)

Quite distinct from *Ptilopodius marquesanus* Beeson, which also lives in *Hibiscus tiliaceus.* The species is variable in size and pigmentation and the single specimen from Tahiti is a small fully colored individual.

Hypothenemus species **F.**

Elytra and pronotum unicolorous; front convex, not impressed behind mouth, rugose-punctate with vague, median, shining spot; pronotum with six marginal teeth; elytra with interspacial scales uniseriate and strial hairs uniform, declivity with a few additional interspacial hairs.

Tahiti: Fautaua Valley, altitude 50 feet, September 7, 1928. 1 mile from sea, 1 specimen, Adamson.

Hypothenemus species *A* to *E* are found in the Marquesas.

Stephanoderes, new species.

Tahiti: Papeari, altitude 900 feet, November 9, 1928, on *Freycinetia* (*icie* vine), 1 specimen, Adamson.

Falls into Hopkins' group C_{12} and is allied to *H. griseus* Blackburn (Hawaii) and *H. dissimilis* Zimmerman (United States). Not in good enough condition to describe.

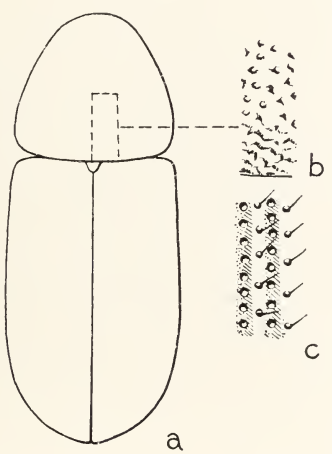


FIGURE 2. *Thamnurgides tahitensis*, new species, × 30: *a*, dorsal view; *b*, details of sculpture of pronotum; *c*, details of sculpture of 2d and 3d striae and interspaces.

Thamnurgides tahitensis, new species (fig. 2).

Length 1.87 mm. Piceous brown, the legs and antennae lighter brown. Front flat, with longitudinal carinate striation diverging posteriorly. Pronotum depressed, plano-convex from apical to basal margins, sides acutely margined, outline as in figure 2, *a*, a little wider near the base than long (1.06 times), shining and smooth dorsally with scattered subaciculate punctures irregular in size, and absent for a short space on the median line near its middle; the punctures become smaller, finer and closer on a smooth ground toward the apical margin; the side margins and posterolateral angles are closely aciculate-punctate on a coriaceous ground; the basal zone is somewhat imbricately coriaceous (fig. 2, *b*).

Elytra depressed, 1.9 times as long as the pronotum, not quite parallel-sided, horizontal from scutellum for about half the length, the declivity beginning just behind the middle in a broad regular convexity. The sides of the declivity acutely carinate and strongly narrowed to the obtuse apex; viewed directly from behind the elytral apex at the sutural angle is less rounded and more narrowed than in the figure.

Elytral surface striate-punctate and transversely rugose, the first stria very weakly impressed dorsally; strial punctures small, close, uniform from base to apex; interspaces narrow, not elevated, finely granulate in a single uniform series about three quarters as numerous as the strial punctures.

Vestiture of fine, long and short hairs on the pronotum, and of fine, short, erect setae on the interspacial granules.

Tahiti: Papenoo Valley, altitude 150 meters, October 28, 1928, 6 kilometers from sea, in dead fern leaves, 1 specimen, Adamson.

Distinct from its allies by the proportions and sculpture of the pronotum and the long declivity. Tahiti is the most easterly record for this genus, which extends from Hawaii to India.

Xyleborus confusus Eichhoff.

Xyleborus confusus Eichhoff: Berl. Ent. Zeitschr., vol. 11, p. 401, 1867.

Tahiti: Papenoo Valley, 6 kilometers from sea, October 25, 1928, 4 females; Papenoo Valley, 10 kilometers from sea, October 25, 1928, from dead *Calophyllum inophyllum,* 7 females; Papenoo Valley, 7 miles from sea, October 27, 1928, 4 females; Adamson.

Recorded from the Marquesas and other Pacific islands, also tropical Africa and America.

Xyleborus exiguus Walker.

Bostrichus exiguus Walker: Ann. Mag. Nat. Hist., 3d. ser., vol. 3, p. 260, 1857.

Xyleborus muriceus Eichhoff: Ratio Tomicinorum, p. 506, 1879.

Tahiti: altitude 150 meters, October 25, 1928, 6 kilometers from sea, 1 female, Adamson.

A small female with the elytra and declivity shining. Previously known from New Britain, New Guinea, Goodenough Islands, Philippines, Sumatra, Java, Ceylon, Andaman Islands, Burma.

Xyleborus kraatzi Eichhoff.

Xyleborus kraatzi Eichhoff: Berl. Ent. Zeitschr., vol. 12, p. 152, 1868.

Tahiti: Papenoo Valley, altitude 150 meters, October 25, 1928, 6 kilometers from sea, 4 females; 10 kilometers from sea, 3 females, 1 from *Calophyllum inophyllum*; October 27, 1928, 10 kilometers from sea, 3 females; altitude 350 feet, October 27, 1928, 7 miles from sea, 5 females; Adamson.

Hitiaa: December 10, 1928, at light, 1 female, A. M. Adamson.

Recorded from the Marquesas and other Pacific islands, and the tropics generally.

Xyleborus mascarensis Eichhoff.

Xyleborus affinis variety *B* (*mascarensis* Dohrni coll.) Eichhoff: Ratio Tom., p. 372, 1879.

Xyleborus affinis (not of Eichhoff), Beeson: Insects of Samoa, pt. 4, fasc. 4, p. 245, 1929.

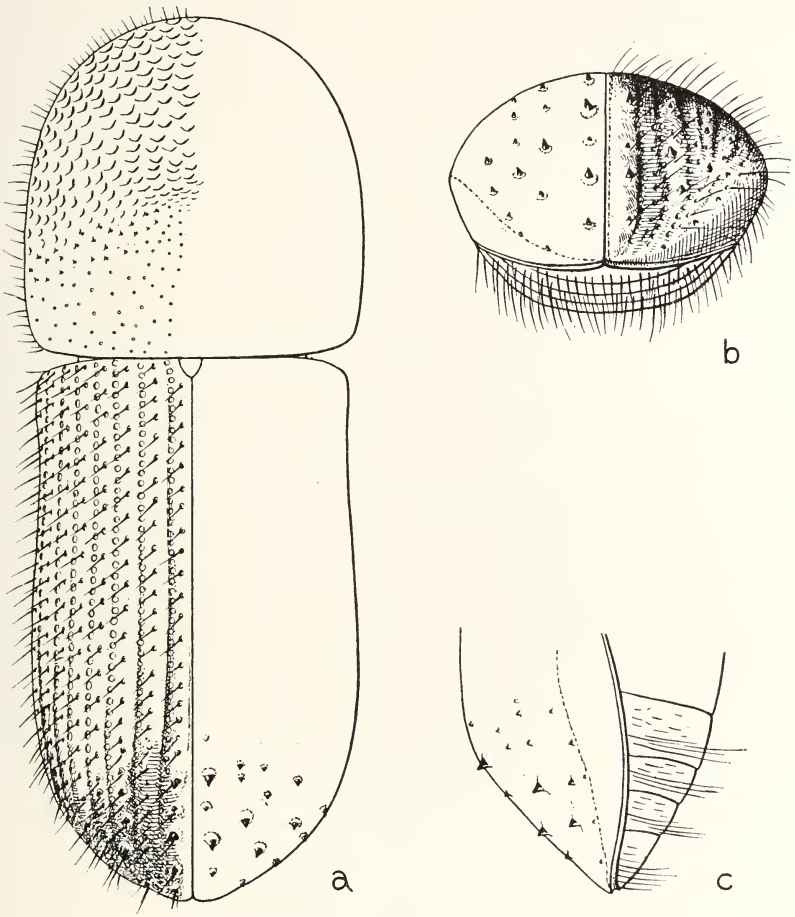


FIGURE 3. *Xyleborus adamsoni*, new species, female, × 45: *a*, dorsal view; *b*, terminal view of declivity; *c*, lateral view of declivity.

Tahiti: Papenoo Valley, altitude 150 meters, October 25, 27, 1928, 10 kilometers from sea, 2 females; altitude 350 feet, October 27, 1928, 7 miles from sea, 2 females; Adamson.

Eggers (Trav. Lab. Ent., Mus. Hist. Nat., Paris, pp. 3 and 37, 1933) has recently stated that *X. affinis* Eichhoff occurs only in the United States

and that specimens from the tropics that have previously been listed under this name belong to allied species including undescribed ones.

The four specimens from Papenoo Valley agree with those recorded from Upolu, Samoan Islands, (Beeson) and referred to *X. mascarensis*. Not taken in the Marquesas.

Xyleborus adamsoni, new species (fig. 3).

Female

Length 2.82 mm. Head and pronotum dark ferrugineous with the anterior scabrate area infuscate, elytra piceous with the declivity and base brownish piceous, legs testaceous brown with the joints and serrations darker. Shining, the declivity opaque. Front coarsely punctate with a smooth median area weakly elevated longitudinally. Pronotum, dorsal outline as in figure 3, *a*, lateral outline curved to the center, thence horizontal; posterior area smooth, very finely punctate except along the median line.

Elytral striae somewhat impressed, punctures large and close; interspaces flat, transversely rugulose with a single row of punctures nearly as large as the strial punctures but less impressed and more distant (fig. 3), all gradually becoming granulate towards the summit of the declivity.

Declivity oblique, planoconvex, opaque, apex obtuse and margined; striae irregularly sinuous, the punctures very shallow; 1st interspace broad, elevated, with 4 tubercles on the slope and 1 at the summit, the 2d and 4th being much larger than the others; 2d interspace flat, depressed, minutely and closely uniseriate-punctate; 3d interspace subconvex, with four tubercles, that in the middle of the declivity the largest, the one near the apex smaller and the two near the summit still smaller; 4th interspace narrow, its granules very small, joined by the 5th and 6th at about the middle of the declivity with a large granule at the apex of each interspace, and 2 or 3 on each at and before the edge; 7th interspace subcarinate and finely granulate forming the lower apicolateral margin of the declivity.

Vestiture. Interspacial punctures with erect, fine, flavous hairs longer from the tubercles of the declivity; strial punctures with very fine, minute, recumbent hairs which are more evident on the declivity.

Tahiti: Papenoo Valley, altitude 150 meters, 6 kilometers from sea, October 25, 1928, 1 female, Adamson.

Resembling *X. torquatus* Eichhoff in general habit. Distinct from members of the *X. affinis* group by its larger size and coarser sculpture.

Xyleborus societatis, new species.

Female

Closely allied to *X. mascarensis* Eichhoff. Length 2.35 mm.; width 0.9 mm. Testaceous-brown. Pronotum about as long as wide, sides slightly curved from base to apical third, apical margin broadly and uniformly arcuate, scabrate area moderately convex, nexus central, posterior half shining, not coriaceous with numerous evident punctures and a broad impunctate median line.

Elytra about one and one half (1.6) times as long as the pronotum, and one and one half times as long as wide. Striae closely punctate and rather irregular in alinement. Interspaces flat, somewhat rugulose on the dorsum, punctures aciculate from the base on the sutural interspace, and becoming granulate on all interspaces before the declivity.

Declivity opaque, not depressed or flattened, rather steeply curved, its apical margin obtusely rounded and minutely granulate. Granules on the 1st, 3d and 5th interspaces moderately large (but smaller than in *X. mascarensis* from Tahiti); 2d interspace with small granules at the summit.

Tahiti: Papenoo Valley, altitude 50 meters, October 25, 1928, 6 kilometers from sea, 1 female, Adamson.

Differs from Tahitian specimens of *X. mascarensis* Eichhoff in its stouter form, pronotum with more broadly arcuate apical margin, elytra relatively wider, elytral apex more obtusely rounded, declivity steeper and more convex, tubercles smaller.

Differs from *convexicauda* Eggers (Gold Coast) in the shorter elytra and absence of fine granules on 2d interspace on the declivity, and non-coriaceous pronotum.

A NEW SPECIES OF TIPULIDAE FROM THE MARQUESAS*

By

Charles P. Alexander
Massachusetts State College

In an earlier paper[1] I have listed the Tipulidae known from the Marquesas Islands. Recently I have received through the kindly interest of E. P. Mumford a still further species, collected by Messrs. G. Le Bronnec and H. Tauraa. I wish to express my deep thanks to the above-named entomologists for their continued efforts toward making known the crane-fly fauna of these islands. The type is preserved in Bernice P. Bishop Museum, Honolulu.

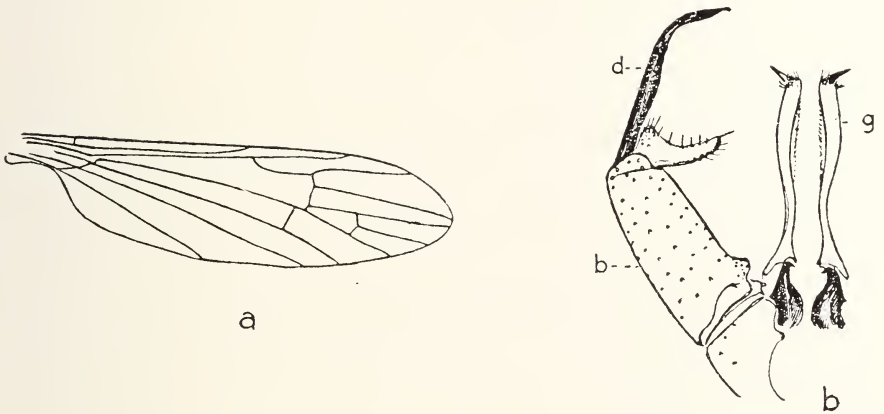


Figure 1.—*Gonomyia* (*Lipophleps*) *lyra*, new species: *a*, wing; *b*, male hypopygium. *b* = basistyle; *d* = dististyles; *g* = gonapophyses.

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

General coloration reddish yellow to yellow; antennal scape and pedicel yellow, the flagellum darker; thoracic pleura with a conspicuous black stripe; halteres pale yellow; legs yellow, the femoral tips broadly and conspicuously blackened; wings clear yellow, with a narrow brown seam on anterior cord; abdominal tergites bicolorous, reddish brown, the caudal margins narrowly more yellowish; lateral margins of abdomen blackened; male hypopygium with the gonapaphyses together appearing narrowly lyriform, each arm terminating in an acute spine but without a lateral branch.

Male: length about 5-5.5 mm; wing, 3.8-4.2 mm. Female: length about 5.5-6 mm; wing, 4-4.5 mm.

Rostrum and palpi black. Antennae with the scape and pedicel dull orange; flagellum yellowish brown. Head yellow.

[1] Alexander, C. P., New and little-known Tipulidae from the Marquesas: B. P. Bishop Mus., Bull. 114, pp. 87-92, 1932.

* Pacific Entomological Survey Publication 8, article 8. Issued May 15, 1935.

Pronotum yellow. Mesonotal praescutum reddish yellow, the lateral margins clear pale yellow; posterior sclerites of notum pale, the scutal lobes darker, especially near mesal borders. Pleura whitish, with a broad brownish black dorsal stripe that extends from the propleura to the abdomen, the ventral sternopleurite pale yellow. Halteres pale yellow. Legs with the coxae and trochanters pale yellow; femora yellow, the tips broadly and conspicuously blackened, the amount of darkening subequal on all legs; tibiae yellow, the tips very narrowly and vaguely darkened; tarsi yellow, the terminal segments darkened. Wings (fig. 1, *a*) clear yellow, the stigma pale; a narrow brown seam on anterior cord, best evidenced by a darkening of the veins traversed; remaining veins yellow. Venation: Sc_1 ending opposite or just before origin of Rs, the latter arcuated; cell 1st M_2 closed; m-cu at or some distance before the fork of M.

Abdominal tergites bicolorous, reddish brown, the caudal margins narrowly more yellowish; sternites obscure yellow, the basal segment and lateral borders broadly blackened. Male hypopygium (fig. 1, *b*) almost as in *G. adamsoni* but differing conspicuously in the gonapophyses, which here appear narrowly lyriform, each approximately at base, thence slightly divergent, the tip suddenly narrowed into an acute spine that is surrounded by numerous delicate setulae; mesal edge of arm of apophysis membranuos and fringed with delicate setulae.

Nukuhiva: Taiohae, June 4, 1930, at light (Le Bronnec and Tauraa); holotype, male; allotopotype, female; paratopotypes, several of both sexes.

Gonomyia (*Lipophleps*) *lyra* is very close to *G.* (*L.*) *adamsoni* Alexander (Marquesas: Eiao) which is most readily told by the more brownish yellow wings and by the structure of the male hypopygium, especially the lateral spine on each gonapophysis.

SCALE INSECTS (HEMIPTERA: COCCOIDEA) FROM THE MARQUESAS*

By

G. F. Ferris
Natural History Museum, Stanford University

INTRODUCTION

The collecting of scale insects is something of a specialized task and it is hardly to be expected that the general collector engaged in a reconnaissance or even in presumably intensive collecting will obtain any large proportion of the species actually present in any particular area. Too many of the species are minute in size, inconspicuous in coloring, concealed beneath bark, or live beneath the soil, and their discovery is too much a matter of prolonged and patient searching to permit any but the specialist to devote the necessary time to the work of uncovering them. For this reason, only the more conspicuous forms and those occurring on cultivated plants are ordinarily obtained. These are almost certain to be the common introduced and cosmopolitan species. Such is the case with the material collected by members of the Pacific Entomological Survey in the Marquesas. One species, which is here described as new, is possibly indigenous to these islands. One species is definitely known only from the South Seas region, but is probably of wider range, and the others are all forms of at least tropicopolitan distribution. In view of the lack of information concerning the scale insect fauna of the Marquesas these common forms may, however, merit recording.

Family PSEUDOCOCCIDAE

Genus PSEUDOCOCCUS Westwood

Pseudococcus swezeyi Ehrhorn (fig. 1).

Pseudococcus pandani (Cockerell): Doane and Hadden, Canad. Ent., vol. 41, p. 297, 1909. (Probably a misidentification.)

Pseudococcus swezeyi Ehrhorn: Hawaiian Ent. Soc., Proc., vol. 3, p. 240, 1916.

Unfortunately, the description of *P. swezeyi* will not permit the identification of the species, since it omits most of the features of any significance. Therefore, figures are here presented and certain notes are offered.

A typical species of *Pseudococcus,* with eight-segmented antennae, 17 pairs of cerarii and no tooth on the claw. Cerarii each with but two conical setae, except for those

* Pacific Entomological Survey, Publication 8, article 9. Issued May 29, 1935.

of the head region which may have three, and each with several slender auxiliary setae. Anal lobe cerarius (fig. 1, *c*) with the conical setae large and stout, one being slightly larger than the other, and set in a quite large, definitely sclerotized area in which are numerous triangular pores that are somewhat concentrated about the conical setae but are not arranged in a crowded mass. Penultimate cerarius likewise set in a sclerotized area of circular form, the conical setae somewhat smaller than those of the anal cerarii and unequal in size, the pores arranged much as in the anal cerarii. Remaining cerarii with the setae smaller and with but a slight indication of sclerotization, with several slender auxiliary setae and a small cluster of pores. Ventral side of the anal lobe (fig. 1, *f*) with a definite, sclerotic area.

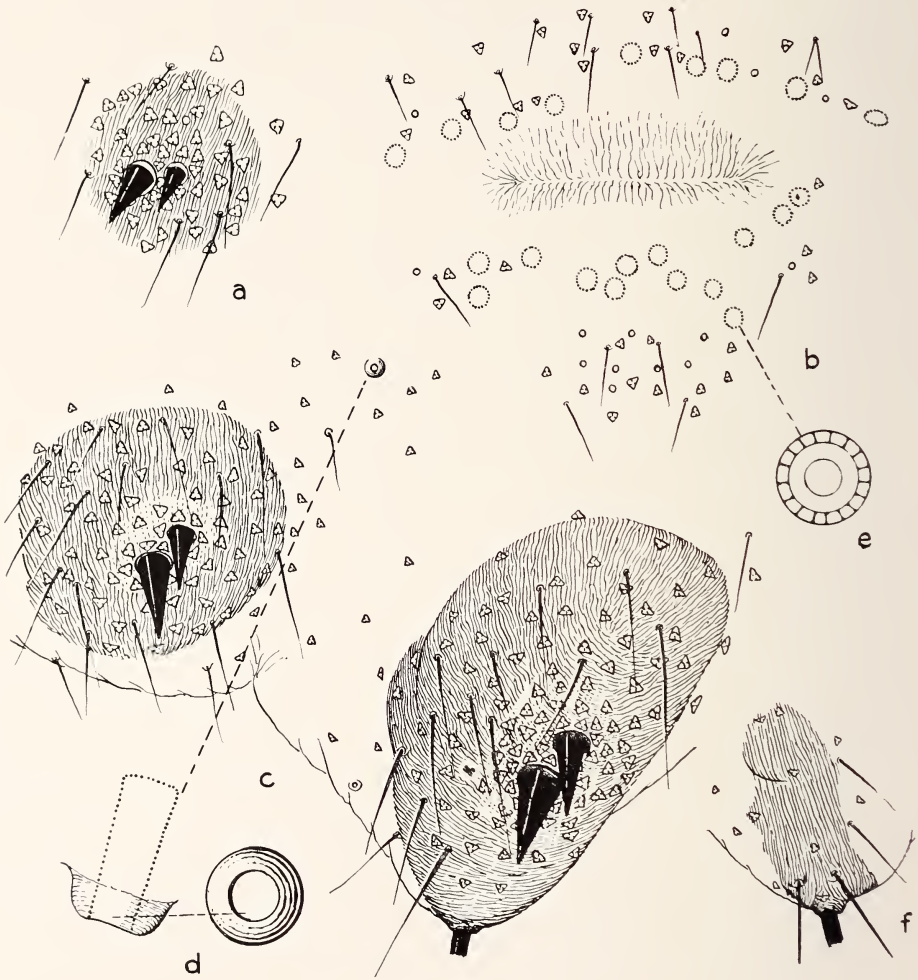


FIGURE 1.—*Pseudococcus swezeyi* Ehrhorn: *a*, cerarius, third from the posterior end of the body; *b*, peri-vulvar area; *c*, anal lobe and penultimate cerarii; *d*, large tubular duct; *e*, multilocular disc pore; *f*, sclerotized area on ventral side of anal lobe.

Tubular ducts of two sizes present. The larger ducts (fig. 1, *d*) each of which has a quite large, raised collar about the mouth, are very few, being confined to one dorsally and one ventrally associated with, but slightly removed from, each of a majority of the cerarii. Much smaller ducts, without a raised rim about the mouth, are present in small numbers on the ventral side in the genital region. Triangular pores presenting no distinctive features in their distribution. Multilocular disc pores (fig. 1, *c*) very few, confined strictly to the area about the vulva (fig. 1, *b*).

Anal ring presenting no distinctive features. Legs of ordinary form, without pores on any of the segments.

Hivaoa: Avaoa Valley, altitude 1,350 feet, January 4, 1932, on *Piper latifolium,* 1 female, LeBronnec; Temetiu Ridge, altitude 3,900 feet, January 14, 1932, on *Metrosideros collina,* LeBronnec; Matauuna, altitude 3,900 feet, March 3, 1930, 1 female, "in humus", Mumford and Adamson. In addition, 1 female from coconut or *Pandanus,* Tahiti, which is part of the material recorded by Doane and Hadden, and 1 female from Hawaii, apparently determined by Ehrhorn, are at hand.

This identification is based upon the single specimen from Hawaii. The species is probably one of the common mealy bugs of the South Seas region and may very well have been described under other names. It is probably not *P. pandani* (Cockerell), which was taken in quarantine at San Francisco on *Pandanus* from "Washington Island, Mendana or Marquesas group," since this species is said to have the "margin with stout cottony tufts as in *P. citri,*" while in *P. sweezyi* the tufts in the caudal region are undoubtedly much more conspicuous.

This species is very similar to *P. longispinus* (Targioni), but differs especially in not having the pores of the anal and penultimate cerarii arranged in a crowded and somewhat depressed mass about the conical setae. The result of this difference is that in life the caudal tassels are probably much shorter than in *P. longispinus.* It also somewhat resembles *P. gahani* Green and *P. comstocki* (Kuwana), but differs in having the multilocular disc pores confined to the region of the vulva, while in these other species they occur on practically all the ventral abdominal segments.

Pseudococcus citri (Risso).

Hivaoa: Atuona, May 4, 1929, on *Psidium guajava*; Avaoa [Avao] Valley, January 4, 1932, on *Glochidion ramiflorum* and *Psidium guajava;* Mumford and Adamson.

These specimens appear to be typical of this widely distributed and familiar species.

Pseudococcus bromeliae (Bouché).

Hivaoa: Atuona, May 4, 1929, on fruits of "Corrosole;" Vaitoepo, Papuaei [Papuei] Valley, July 29, 1929, on fruits of *Inocarpus edulis*; Mumford and Adamson.

This frequently described and widely distributed tropical and subtropical species needs no special note.

Genus FERRISIA Fullaway

Ferrisia virgata (Cockerell).

Uahuka: Vitiake, February 24, 1931, on *Melochia velutina,* LeBronnec and Tauraa.

Hivaoa: Atuona, May 13, 1929, on tomato, April 25, 1929, on maize, April 4, 1929, on *Ceiba pentandra*; Mumford and Adamson.

Tahuata: Kiinui Valley, November 14, 1930, on *Siegesbeckia orientalis,* LeBronnec and Tauraa.

Mohotani: February 4, 1931, on *Melochia velutina,* LeBronnec and Tauraa.

A species of world-wide distribution in the tropics and subtropics.

Family COCCIDAE

Genus SAISSETIA Deplanches

The three species of this genus recorded below are common forms of wide distribution in the tropics and need no special comment.

Saissetia hemisphaerica (Targioni).

Hivaoa: Mount Ootua, altitude 2,490 feet, May 8, 1929, on *Canthium barbatum,* Mumford and Adamson.

Saissetia nigra (Nietner).

Hivaoa: Atuona, May 4, 1929, on *Hibiscus* species; Hanamate, altitude 450 feet, May 11, 1929, on *Sapindus saponaria*; Punaei, May 11, 1929, on *Premna tahitensis*; Hanamenu, June 3, 1929, on undetermined host; Mumford and Adamson.

Saissetia oleae (Bernard).

Eiao: Vaituha, October 2, 1929, on *Abutilon graveolens,* Adamson.

Hivaoa: Hanamenu, June 3, 1929, on undetermined host, Mumford and Adamson.

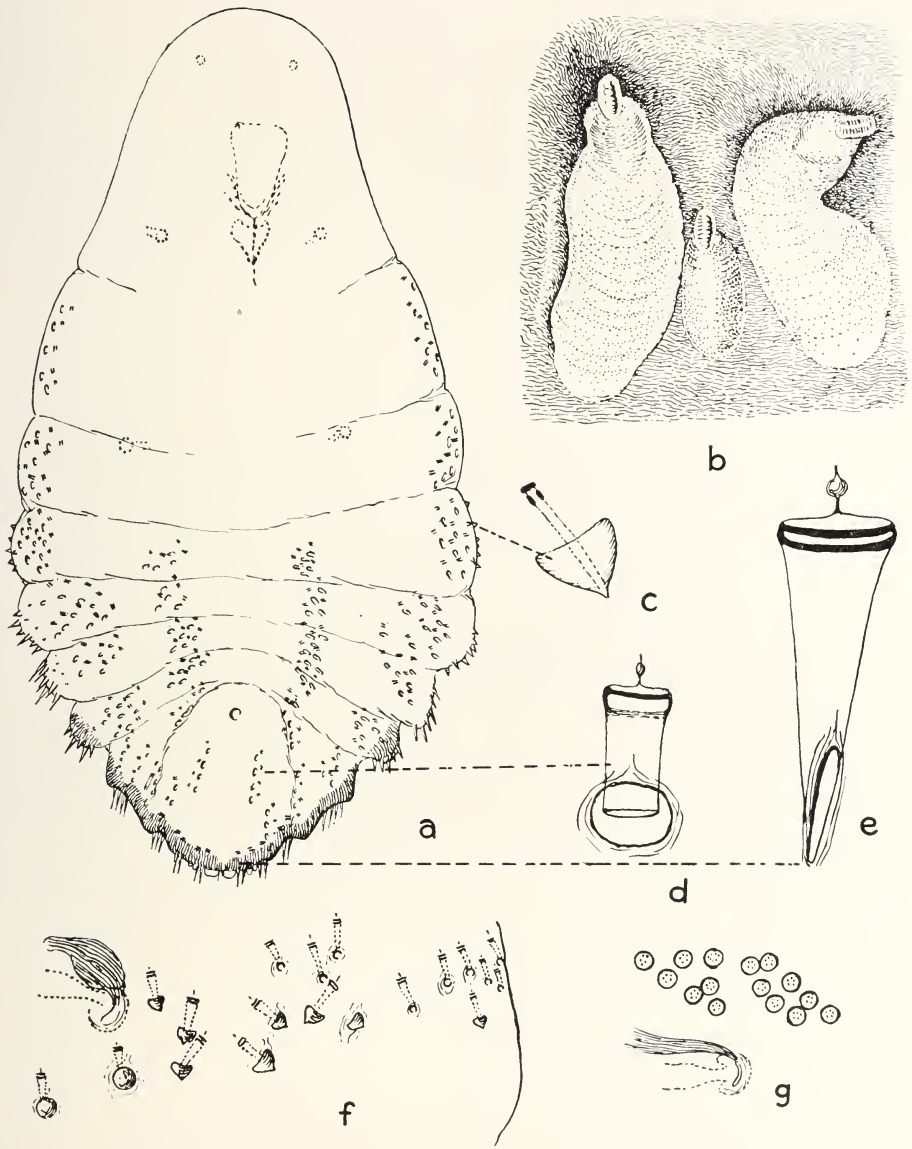


FIGURE 2.—*Lepidosaphes marginata* new species: *a*, general appearance of adult female; *b*, habit of scales; *c*, gland tubercle; *d*, dorsal tubular duct; *e*, tubular duct of pygidial margin; *f*, area near posterior spiracle; *g*, area near anterior spiracle.

Genus LEPIDOSAPHES Shimer

Lepidosaphes marginata, new species (figs. 2, 3).

Scale of the female (fig. 2, *b*) about 2 mm long, flat and of much the same width throughout, of a light straw color with silvery margins. Scale of the male similar in color, relatively more convex.

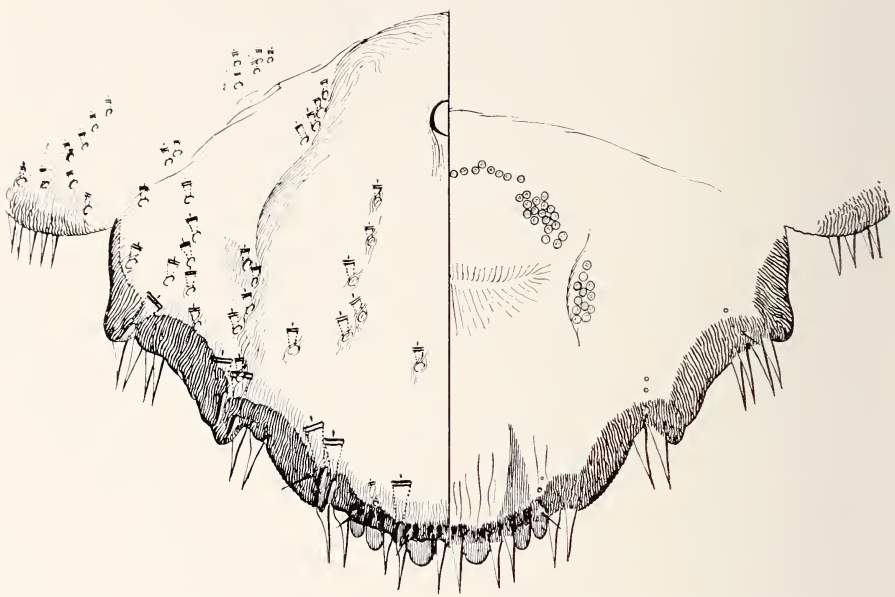


FIGURE 3.—*Lepidosaphes marginata* new species: pygidium of adult female.

Female, on the slide, about 1 mm long, of the typical form and characters of the genus, distinguishable most conspicuously by the dark, sclerotic margin of the pygidium (fig. 3), and the next preceding abdominal segment. Pygidium with the normal arrangement of lobes, gland spines, and large marginal tubular ducts. Ducts of the dorsum of the pygidium few, definitely smaller than those of the margin (compare fig. 2 *d*, *e*) but not minute. Circumgenital pores in the usual five groups, the median and anterior lateral groups tending to fuse. Pre-pygidial segments with a lateral zone of ducts which tend to be slightly smaller than those of the dorsum of the pygidium, these extending to the metathorax, and the four pre-pygidial abdominal segments each with a cluster of similar ducts on each side of the meson. All the abdominal segments anterior to the pygidium beset laterally with gland spines, those of the first three segments tending to be very small and conical and occurring chiefly on the ventral side. Posterior spiracle (fig. 2, *f*) with a series of small, tubercle-like gland spines and minute tubular ducts leading to the lateral margin of the body. Anterior spiracle with an irregular cluster of accompanying disc pores. Antennae presenting no distinctive features. Margins of the abdominal segments entirely without sclerotized spurs. Cephalic region without sclerotized points or peculiar developments.

Nymphal female resembling the adult in possessing the sclerotized margin of the pygidium.

Hivaoa: Matauuna [Matuuna], altitude 3,700 feet, March 3, 1930; Mount Ootua, summit, altitude 3,050 feet, February 13, 1929, on *Reynoldsia (tahitensis?)*; Matauuna [Matuuna], altitude 3,000 feet, March 2, 1930, on *Cheirophyllum platyphyllum*, Mumford and Adamson. It causes a distinct pitting of the leaves. Type from the first-named host and locality.

It is difficult to select out of the many described species assigned to *Lepidosaphes* any which very closely resembles this, although it is a very typical member of the genus in the strictest sense. The heavily sclerotized pygidial margin is a conspicuous recognition character. Whether the species is peculiar to the Marquesan Islands remains to be determined; it is not impossible that it has already been recorded under some other name, many of the species of the genus being quite unrecognizable from the existing descriptions.

Genus ASPIDIOTUS Bouché

Aspidiotus lataniae Signoret.

Hivaoa: Punaei, May 2, 1928, on undetermined host, Mumford and Adamson. A familiar and widely distributed tropical and subtropical species which is generally recorded as *Aspidiotus cydoniae* Comstock.

Aspidiotus destructor Signoret.

Tahuata: Hanatetena Valley, June 1, 1930, on coconut, LeBronnec and Tauraa. The common pest of coconut throughout the eastern tropics.

AN APPARENTLY UNDESCRIBED MEALYBUG (HEMIPTERA: PSEUDOCOCCIDAE) FROM TAHITI*

By

G. F. Ferris

Natural History Museum, Stanford University

A few species of scale insects were obtained in Tahiti by Mr. A. M. Adamson of the Pacific Entomological Survey, but with two exceptions all are common, widely distributed species previously recorded from the Society Islands, and call for no report. One species of mealybug can not be connected with any named form and may be regarded as new, although it is possible that it will eventually prove to be a synonym of some species that is unrecognizable on the basis of the present literature. One other species, while widely distributed, has not yet been recorded from these islands.

Pseudococcus perforatus, new species (fig. 1).

Notes on appearance in life not available, but undoubtedly with 17 pairs of waxy tassels which become longer toward the posterior end of the body, the last two pairs probably being quite stout and long. It is probable that a quite distinct ovisac is formed.

Adult female about 3 mm long on the slide, of ordinary form. Antennae eight-segmented, presenting no unusual features. Legs slender, without pores on any of the segments. Seventeen pairs of cerarii present, these with but two conical setae except some of the cerarii in the head region with three, and all with several slender auxiliary setae. Conical setae of the anal lobe cerarii large and stout, set in an oval and—in the specimens at hand—rather weakly sclerotized area which bears numerous triangular pores, these being somewhat concentrated about the setae but not arranged in a crowded central mass (fig. 1, *a*), this sclerotized area being continuous with a small area on the ventral side (fig. 1, *c*). Penultimate cerarii with smaller conical setae, likewise set in a sclerotized area with pores arranged much as in the anal lobe pair. Remaining cerarii with smaller setae and with a slight concentration of pores and a slight tendency toward sclerotization of the derm immediately about the conical setae.

Multilocular disc pores (fig. 1, *f*) present about the vulva and also in a double or irregularly single row along the posterior border of the ventral abdominal segments as far forward as the fifth (the segment immediately anterior to the vulva being counted as the eighth), the fifth segment having but a few in the median region. Margins of the body, especially on the ventral side, with a considerable number of quite conspicuous, short, broad tubular ducts with a narrow raised rim about the mouth (fig. 1, *d, g*) in the region of each cerarius, most of the cerarii being associated with a few of these on the dorsal side as well. The dorsum of the body shows a few such ducts in the median region on each segment. Minute tubular ducts, slightly shorter and not more than a third of the diameter of these large ducts, are abundant in the median region near the vulva, a few of these occurring as far forward as the fifth abdominal segment on the ventral side (fig. 1, *d, e*). Small, triangular pores are abundant on both dorsal and ventral sides.

Derm, both dorsally and ventrally, beset with numbers of small, slender setae. Anal ring with no distinctive features.

* Pacific Entomological Survey, Publication 8, article 10. Issued May 29, 1935.

Tahiti: Papeari [Papeavi], altitude 900 feet, November 15, 1928, on *Pandanus,* 2 specimens, Adamson.

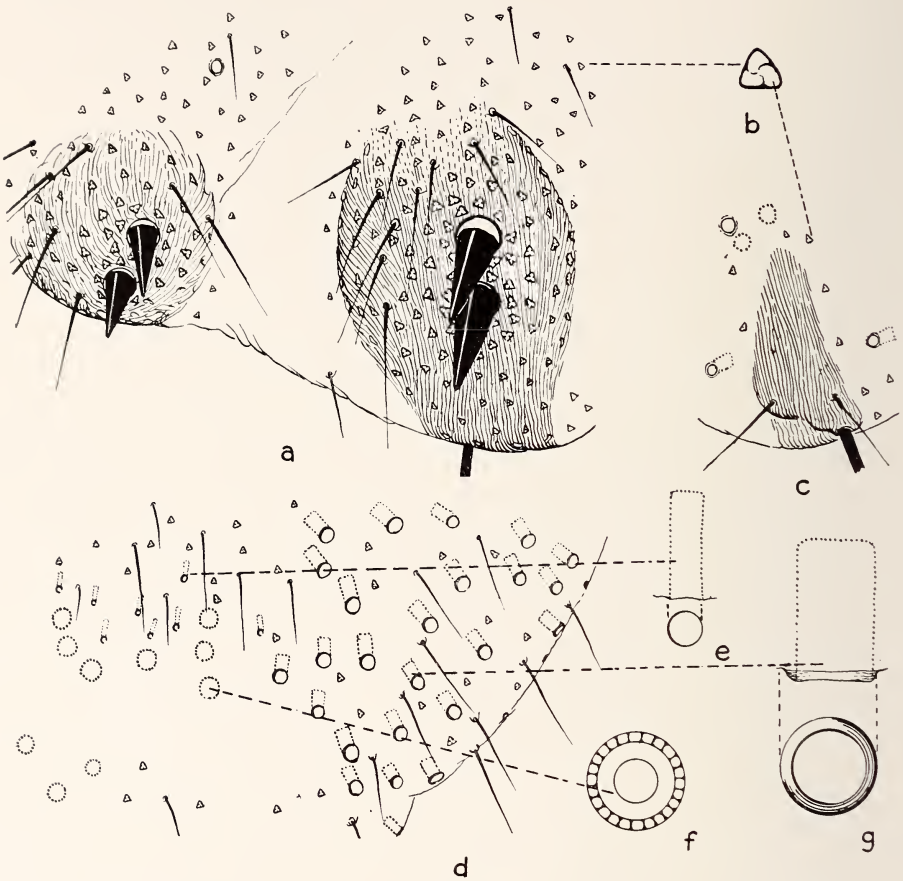


FIGURE 1.—*Pseudococcus perforatus,* new species: *a,* anal lobe and penultimate cerarii; *b,* triangular pore; *c,* ventral side of anal lobe; *d,* portion of derm between the vulva and the penultimate cerarius on the ventral side; *e,* smaller tubular duct; *f,* multilocular disc pore; *g,* larger tubular duct.

This species is very similar to *P. szezcyi* Ehrhorn, which was collected in the Marquesas by the Pacific Entomological Survey and of which a specimen is at hand from Tahiti. It differs, sharply, however, in having multilocular disc pores on several abdominal segments and not confined to the region about the vulva and in the large numbers of broad, tubular ducts about the cerarii. In the latter feature it differs also from such species as *P. gahani* Green, *P. comstocki* (Kuwana), and *P. longispinus* (Targioni), the last named of which also occurs in Tahiti. It should not be *P. pandani* (Cockerell),

which is described as having the waxy tassels as in *P. citri* and therefore should not have the well-developed cerarian structures that are present in *P. perforatus.*

Trionymus sacchari (Cockerell).

Trionymus sacchari (Cockerell), Morrison: Philippine Jour. Sci., vol. 17, p. 173, fig. 15, 1920.

Tahiti: Mataeia, December 19, 1928, Adamson, on sugar cane.

This species was originally described from the West Indies. It is positively known from the Philippine Islands and Hawaii and has been recorded from numerous other widely distributed points, always on sugar cane, although owing to confusion which has existed in regard to the mealybugs of sugar cane most identifications are open to question. The redescription of the species by Morrison makes its positive identification possible. It has not previously been recorded from Tahiti.

NEUROPTERA FROM THE SOCIETY ISLANDS*

By

P. Esben-Petersen
Silkeborg, Denmark

My best thanks are due to the Pacific Entomological Survey, for the opportunity to examine the neuropterous insects collected by Mr. A. M. Adamson in the Society Islands. As the knowledge of the Neuroptera of most of the Pacific islands is very limited and fragmentary, all information regarding them is of great value.

The following species were present in the collection:

Family CHRYSOPIDAE

Chrysopa oceanica Walker (fig. 1, *a*).

Chrysopa oceanica Walker: Cat. Neuropt. Ins., Coll. Brit. Mus., p. 238, 1853, Hawaii; Cheesman, Ent. Soc. London, Trans., vol. 75, p. 147, 1927, Society Islands; Esben-Petersen, Insects of Samoa, Neuroptera, pt. 7, fasc. 3, p. 102, pl. 3, fig. 7, 1928, Society Islands, New Hebrides.

Chrysopa V-rubrum Brauer: Reise Novara, Neuroptera, p. 39, 1866, Tahiti.

Tahiti: Papeari, altitude 600 feet, November, 1928, 1 female; Papenoo Valley, 10 kilometers from sea, altitude 150 meters, October 25, 1928, 5 females; Fautaua [Fataua] Valley, altitude 1,500 feet, September 11, 1928, 1 male, 2 females; Tuauru River, 1 mile from sea, altitude 50 feet, September 5, 1928, 1 male; Hitiaa, 3 miles from sea, altitude 1,500 feet, December 20, 1928, 1 male; Adamson.

The ten specimens have the characteristic reddish V-shaped marking on front part of vertex (mentioned by Brauer), also a reddish irregular spot in center of face. Only one specimen from Hitiaa lacks the red markings on vertex and face.

Miss L. E. Cheesman has mentioned the following localities: northwest Raiatea, taken on the coast and at light, May-June, 1925; Borabora, taken on the coast and at light, May-June, 1925.

Chrysopa basalis Walker (fig. 1, *b*).

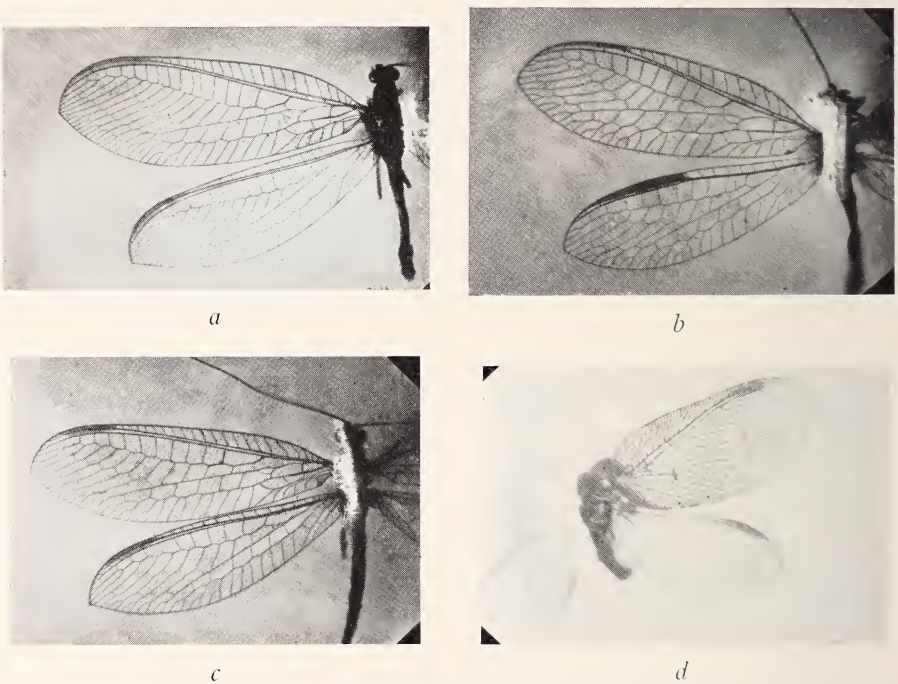
Chrysopa basalis Walker: Cat. Neuropt. Ins., Coll. Brit. Mus., p. 239, 1853, Loochoo Islands; Cheesman, Ent. Soc. London, Trans., vol. 75, p. 147, 1927, Tuamotus, Marquesas, Society Islands.

Chrysopa delmasi Navas: Pontific. Accad. Romana, Mem., p. 20, 1927, Marquesas.

* Pacific Entomological Survey, Publication 8, article 11. Issued June 8, 1935.

Chrysopa skottsbergi Esben-Petersen: Insects of Samoa, Neuroptera, pt. 7, fasc. 3, p. 104, pl. 3, fig. 4, 1928, Samoa, Ellice Islands.

Tahiti: Paea, altitude 600 feet, August 28, 1928, 1 specimen; Papeari [Papeavi], altitude 50 feet, November 9, 1928, over *Tradescantia,* 1 specimen; Faa, altitude 300 meters, 6 kilometers from sea, November 7, 1928, 1 specimen; Tuauru River, altitude 50 feet, 1 mile from sea, November 5, 1928, 4 specimens; Anaroii Plateau, altitude 500 meters, 12 kilometers from sea, October 31, 1928, 1 specimen; Hitiaa, altitude 1,000 feet, 4 miles from sea, November 20, 1928, 1 specimen, altitude 1,500 feet, 3 miles from sea, December 20, 1928, 1 specimen; Fautaua Valley, altitude 1,000 feet, August 23, 1928, 5 specimens, altitude 50 feet, September 6, 1928, 1 specimen, altitude 50 feet, September 7, 1928, 22 specimens; Adamson.



a *b* *c* *d*

FIGURE 1.—*Chrysopa*: *a, C. oceanica* Walker, from Papenoo Valley; *b, C. basalis* Walker, left fore and hind wing; *c, C. otalatis* Banks, left fore and hind wing; *d, Austromegalomus brunneus,* new genus, new species, right fore and hind wing.

Four specimens of a chrysopid-larva from Tuauru River, altitude 50 feet, September 3, 1928, on *Hibiscus tiliaceus,* Adamson, belong undoubtedly to the species *C. basalis* Walker.

Miss Cheesman has mentioned the following localities: Raiatea, on the coast and at light, May, 1925; Borabora, very numerous, March-August, 1925.

On account of Walker's brief and incomplete description of the species, I unfortunately introduced *skottsbergi* in the Pacific chrysopid-fauna. With the kind assistance of Mr. D. E. Kimmins of the British Museum, who has compared specimens of this material with the type, it may be decided that the material listed all belongs to Walker's species.

In my description of *Chrysopa skottsbergi* I called attention to the very conspicuous and large pterostigma, especially in the hind wings. In the male, the pterostigma is more distinct and more strongly colored than in the female.

Chrysopa otalatis Banks (fig. 1, *c*).

Chrysopa otalatis Banks: Psyche, vol. 17, p. 102, 1910, Queensland; Esben-Petersen, Insects of Samoa, Neuroptera, pt. 7, fasc. 3, p. 103, pl. 3, fig. 6, 1928, Samoa.

Chrysopa lemoulti Lacroix: Soc. Ent. France, Bull., p. 119, 1923, New Caledonia.

Tahiti: Papenoo Valley, altitude 300 meters, October 26, 1928, 1 male; Fautaua Valley, altitude 50 feet, 1 mile from sea, September 6, 1928, 1 male; Faa, altitude 300 meters, 6 kilometers from sea, November 7, 1928, 1 male; Adamson.

Family HEMEROBIIDAE

Genus AUSTROMEGALOMUS, new genus

Fore wing broad, broadly rounded at apex. Costal area very broad, especially at basal half; most of costal cross veins forked; a recurrent vein present at base of the costal area. *Sc* and *R* do not coalesce at their apex. Subcostal area with three cross veins; two near base and one near apex. Numbers of branches (*Rs*) from *R* varying (4-6). Near its origin the basal *Rs* gives off two or three branches, arising from its anterior side. *M* forks opposite second subcostal cross vein. Cu_2 and $1A$ forked; $2A$ forked several times. Four rows of cross veins present in the forewing. The basal row is represented by the basal subcostal cross vein and by a cross vein between the stem of *M* and that of Cu_1. The median row (by Krüger named "die Gabelreihe") is represented by four cross veins: the second subcostal cross vein, a cross vein between first *Rs* and M_1, one between M_2 and Cu_1, and one between Cu_1 and Cu_2. The pterostigmatical row starts from the basal end of pterostigma straight across the wing, and it ends at Cu_1; the two posterior cross veins in the row are placed a little more towards the base of the wing than the other. The apical row begins at the apical end of the pterostigma; it is running parallel to the apical margin of the wing down to Cu_2, and mostly following the forks of the veins.

Hind wing somewhat narrower than the fore wing and more pointed towards apex. Costal area narrow; its cross veins simple and unforked.

Subcostal area with three cross veins, placed as in the fore wing. Five ordinary branches (*Rs*) from *R*; *M* forked near base of the wing, and Cu_2 only present as a fine inconspicuous unforked vein. 1*A*, 2*A*, and 3*A* present. The basal and the median row of gradate veins only present with one or two cross veins. The pterostigmatical row indicated by one to three inconspicuous cross veins in the center of the wing. The apical series is complete. Genotype: *Austromegalomus brunneus*.

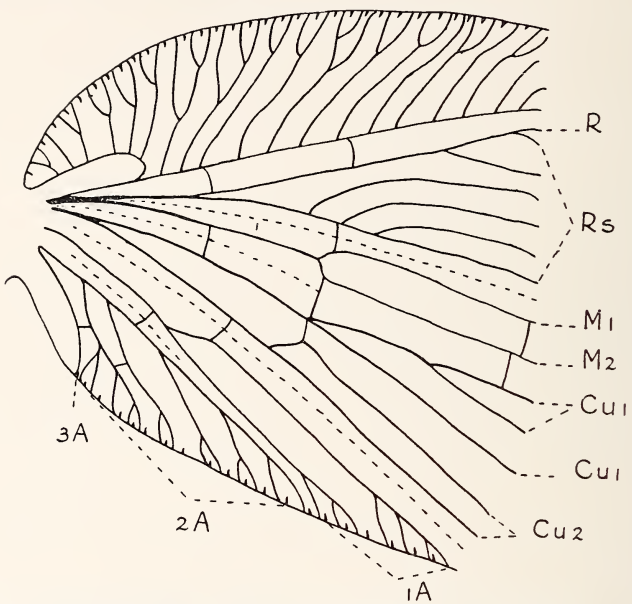


FIGURE 2.—*Austromegalomus brunneus*, new genus, new species, basal part of right fore wing, enlarged.

The new genus may be easily recognized by the peculiar forking of the basal *Rs* in the fore wing. In this respect it is allied to the Australian genus *Drepanacra* Tillyard, in which genus the apex of the wings, however, is more or less falcate. As to the shape and the venation of the wings, *Austromegalomus* has much likeness to the genus *Megalomus*, but the new genus is easily separated from that one by the unusual forking of the basal *Rs* in the fore wing.

Austromegalomus brunneus, new species (figs. 1, *d*; 2).

Antennae brown; the three basal joints a little paler. Face and vertex yellowish brown. Thorax and abdomen brown. Prothorax about four times broader than long. Legs yellowish brown. Fore wing with a strong brownish tinge, hind wing with a fainter one. Fore wing marked with not very conspicuous brown blotches, tending to form transverse fasciae. Venation brown and very conspicuous. Pterostigma rather long and dark brown; very conspicuous in the hind wings. Body yellowish haired.

Length of fore wing 5 mm; that of hind wing 4.5 mm.

Tahiti: Fautaua Valley, altitude 1500 feet, September 11, 1928, holotype male, 2 paratype males, Adamson.

Holotype and one paratype are placed in Bernice P. Bishop Museum; the second paratype in the author's collection.

Besides the above-mentioned Neuroptera, the following species, not present in the material before me, have been found in the Society Islands.

Family MYRMELEONTIDAE

Eidoleon bistrigatus (Rambur).

Myrmeleon bistrigatus Rambur: Hist. nat. Insects Névroptères, p. 391, 1842, Tahiti.

Distoleon bistrigatus, Banks, Ent. Soc. Amer., Ann., p. 43, 1910, Tahiti; Cheesman, Ent. Soc. London, Trans., vol. 75, p. 147, 1927, Tuamotus, Fakarava; Society Islands, Raiatea, Borabora.

Eidoleon bistrigatus, Esben-Petersen, Arkiv för Zoologi, Stockholm, Bd. 11, p. 15, 1918, Australia.

The species is also recorded from Hawaii and Fiji, and the author has seen it in numbers from New Hebrides (British Museum). Miss Cheesman states that it was very numerous among grass on the coast of Borabora.

Family CHRYSOPIDAE

Chrysopa filosa (Fabricius).

Hemerobius filosus Fabricius: Mantissa Insect., t. 1, p. 246, 1787, Tahiti; Ent. Syst., t. 2, p. 82, 1793, Tahiti.

This species has not been met with since the time of its discovery, and the description given by Fabricius is also so brief and incomplete that it may be impossible with certainty to refer specimens to the species.

Chrysopa ramburi Schneider.

Chrysopa ramburi Schneider: Symbolae, p. 107, tab. 34, 1851, Australia; Esben-Petersen, Insects of Samoa, Neuroptera, pt. 7, fasc. 3, p. 99, pl. 3, fig. 1, 1928, Tahiti (Galathea Exp., 1845-1847); Cheesman, Ent. Soc. London, Trans., vol. 75, p. 147, 1927, Raiatea.

The species is known from several localities on the Australian continent, from Samoa, Tasmania, and Tonga. Miss Cheesman took it on northwest Raiatea on the coast and in the interior at about 1500 feet, May 1925.

Chrysopa tahitensis Navas.

Chrysopa tahitensis Navas: Soc. sci. Bruxelles, Ann., t. 38, p. 95, 1913-1914, Tahiti, Papeete.

I do not know any other records concerning this species. It seems that the species has some likeness to pale colored specimens of *C. ramburi*.

Chrysopa flaveola Schneider.

Chrysopa flaveola Schneider: Symbolae, p. 75, tab. 11, 1851, Java; Cheesman, Ent. Soc. London, Trans., p. 147, 1927, Raiatea.

I do not know of any record of this species from Australia or Polynesia. The specimens from the Society Islands and the Marquesas, collected and mentioned by Miss Cheesman, belong probably to *Chrysopa basalis*.

Family HEMEROBIIDAE

Micromus species.

Micromus species: Cheesman, Ent. Soc. London, Trans, p. 147, 1927, north Tahiti.

One specimen taken at light two miles inland, March, 1925.

ADDITIONAL NOTES ON THE DERMAPTERA AND ORTHOPTERA OF THE MARQUESAS *

By

Morgan Hebard

A report on the Dermaptera and Orthoptera of the Marquesas was published in 1933[1]. The present paper is based on the small collections which had not been prepared for study at the time that contribution appeared.

Much the most interesting material in the present series is representative of the genus *Maretina,* an endemic genus of cockroaches. Not only is a new species represented from the island of Uapou, but additional material of the two previously described species shows that they are not each peculiar to a certain island, as might previously have been supposed. Not only does decided size variation occur, but none of these species are very constant in coloration, the extremes of intensification and recession being very different in superficial appearance. In the new species, moreover, certain tendencies toward the related genus *Ancurinita* are also found, though it shows widest divergence in having the dorsal surface of the male abdomen more specialized than in any of the other species.

All this material, unless otherwise noted, was secured by G. LeBronnec.

DERMAPTERA

Labiidae

Labiinae

Labia curvicauda (Motschulsky).

Hivaoa: Temetiu Ridge and summit, 3,900 to 4,160 feet, January 14 and 20, 1932 (under bark of *Reynoldsia* species and *Crossostyles bifolia*), 2 males, 2 females.

Uapou: Tekohepu summit, 3,000 feet, November 30, 1931 (in dead stipes of *Cyathea* species), 1 male.

Labia dubronyi Hebard.

Uapou: Tekohepu summit, 3,000 feet, November 30, 1931 (in dead stipes of *Cyathea* species), 1 female; Teavanui Pass, 2,900 feet, November 27, 1931 (the same), 1 male; Teavanui, Paaumea Valley, 2,900 feet (the same), 1 juvenile female.

[1] Hebard, Morgan, The Dermaptera and Orthoptera of the Marquesas Islands: B. P. Bishop Mus., Bull. 114, pp. 105-140, 1933.

* Pacific Entomological Survey Publication 8, article 12. Issued September 29, 1935.

CHELISOCHIDAE

CHELISOCHINAE

Chelisoches morio (Fabricius).

Hivaoa: Ootua Spring, February 13, 1929 (Mumford and Adamson; in dead flowers of *Zingiber* species), 1 female, 1 juvenile; Kaava Ridge, 2,500 feet, January 8, 1932, 1 male.

Uapou: Vaikokoo, Paaumea Valley, 1,850 feet, November 30, 1931, 1 male; Teoatea, Hakahetau Valley, 1,950 feet, November 21, 1931 (in dead *Cyathea* species), 1 male.

ORTHOPTERA

BLATTIDAE

ECTOBIINAE

Maretina uahuka Hebard.

Hivaoa: Feani Ridge, 3,900 feet, January 19, 21, 1932, 2 males, 1 large juvenile female, 3 small juveniles.

These males are decidedly larger than the type. Length of body 10 and 10.8, exposed length of tegmen 3.7 and 3.8, width of tegmen 3.2 and 3.2 mm.

Maretina hivaoa Hebard.

Hivaoa: Temetiu Ridge, 3,900 feet, January 14, 1932 (on ground), 2 large male juveniles.

Uapou: Tehokepu Summit, 3,200 and 3,300 feet, November 27, 1931 (from ferns and *Metrosideros collina*), 2 females; Vaihakaatiki, Hakahetau Valley, November 18, 1931, 1 male, 1 female.

Maretina marquesana, new species (fig. 1).

General coloration light red brown, maculate with darker brown, the pronotal disk with light brown patches latero-caudad (except in one male) and with symmetrically placed flecks and short streaks very faintly indicated and few in number, individually varying to more decided and moderately numerous. Head vaguely maculate but without definite transverse bands (possibly obliterated through discoloration). Tegmina with humeral trunk occasionally suffused. Abdomen with dorsal surface often dark laterad, that area inclosing pale flecks. Tibiae and tarsi with heavy flecks of dark brown. Rare individuals show greenish (indicating the presence of chlorophyll) in the antennae, lateral lobes of pronotum, tegmina and limbs, as noted above.

Male

Size (averaging) small, form broad for the group. Width between antennal sockets slightly more than three-quarters that between eyes. Palpi with third joint longer than fourth, which is equal in length to the fifth. Pronotum with lateral portions and mediastine fields of tegmina broad. Tegmina slightly overlapping, actually slightly longer than wide but their exposed portions appreciably shorter than the width of one of them, costal margin rounding only very slightly more broadly into the transverse distal margin than does the sutural margin, so that they appear definitely more nearly

quadrate than in the other species; venation and impressions between the veins and veinlets weak (to almost obsolete in some of the paratypes). Wings highly vestigial. Abdomen with second to sixth tergites weakly convex mesad forming a broad longitudinal very low ridge on each side of which is an equally shallowly concave longitudinal channel, the surface of these channels with numerous microscopic short spinulae on the fourth to sixth tergites, such spinulae being very few and only cephalad on the third tergite and absent from the second tergite. Cerci moderately stout meso-proximad, tapering thence to their acute apices, the distal joints normal and not conspicuously elongate. Subgenital plate very deeply cleft mesad; triangularly produced sinistrad with external margin convex and internal margin bearing a small node just beyond a median point; produced in a fingerlike process to an equal distance dextrad, which is twisted opposite the node on the sinistral production and from that point is curved outward to the small rounded apex which is very minutely microscopically shagreenous.

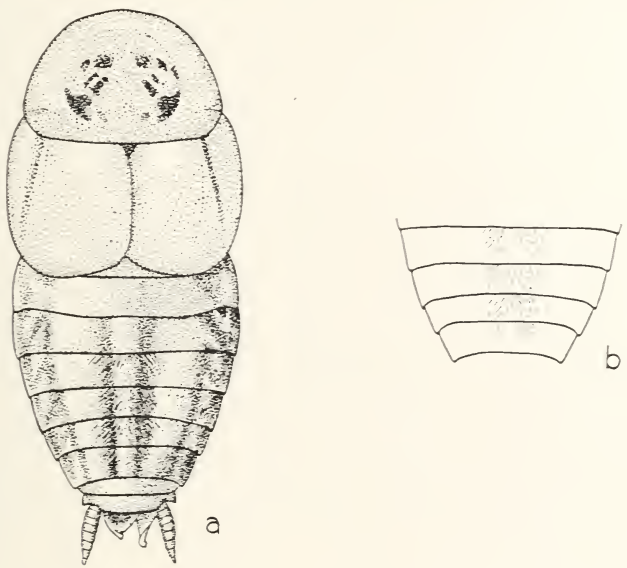


FIGURE 1.—*Maretina marquesana*, new species, type male: *a*, dorsal view; *b*, dorsal view of portion of abdomen to show the spinulae.—× 9.

Female

Agrees very closely with male. Interocular space and palpi similar. Supra-anal plate triangularly produced with lateral margins very feebly convex and apex (quite strongly to broadly and shallowly in paratypes) bilobate.

The type and allotype measure as follows: length of body, male 8.5, female 8.6; length of pronotum, male 2.2, female 2.5; width of pronotum, male 3.3, female 3.6; exposed length of tegmen, male 2.2, female 2.1; width of tegmen, male 2.6, female 2.6 mm. Little size variation is shown by the other adults at hand. Though apparently averaging considerably smaller than the other species of the genus, the adults of the others now known, though few in number, suggest that considerable size variation is to be expected in all the species.

Uapou: Teavaituhai, Hakahetau Valley, 3,020 feet, November 20, 1931 (beaten from *Sclerotheca* species), 1 male, type (Bishop Museum); Vaihakaatiki, Hakahetau Valley, 3,020 feet, November 18, 1931 (beaten from

Cyrtandra species), 2 females, allotype and paratype, 2 juveniles; Tekohepu Summit, 3,300 feet, November 27, 28, 1931 (beaten from *Metrosideros collina*), 2 males, 1 female, paratypes, 7 juveniles.

A large number of immature individuals from these and other localities are clearly referable to *Maretina* but their specific identity can not be determined.

The adults of *Maretina marquesana* at hand are small and quite similar in superficial appearance to those of *Aneurinita hivaoa* (Hebard). From that species they may be easily separated by the briefly overlapping tegmina, the specialized dorsal surface of the male abdomen, and the (usually) maculate pronotum.

From the present known species of *Maretina, M. marquesana* is distinguished by the more extensive dorsal specialization of the male abdomen and the more reduced tegmina in which the areas between the veins and veinlets are not at all defined in color and impressions there are very weak to subobsolete.

It is interesting to note that traces of chlorophyll are shown in the pronotum and limbs of one male and in the feet and antennal apices of the other male from Tehokepu Summit, this and the tegminal structure indicating markedly closer affinity to *Aneurinita* than the previously described species of the present genus, although the highest specialization of the dorsal surface of the abdomen for males of the species of *Maretina* is found, that area being entirely unspecialized in males of *Aneurinita*.

Genus ANEURINITA, new name

Aneurina Hebard (not of Lioy, 1864), B. P. Bishop Mus., Bull. 114, p. 111, 1933.

Aneurinita viridis (Hebard).

Uapou: Tehokepu Summit, 3,300 feet, November 27, 1931 (beaten from *Metrosideros collina, Cheirodendron* species, and *Freycinetia* species), 1 male, 1 female, 4 juveniles; Teavaituhai, Hakahetau Valley, 3,020 feet, November 20, 1931, 1 male, 2 females, 17 juveniles; Teoatea, Hakahetau Valley, 1,950 feet, November 16, 1931 (on *Metrosideros collina*), 1 male, 1 juvenile; Teavanui Pass, 3,300 feet, November 27, 1931 (beaten from *Freycinetia* species), 1 juvenile.

Aneurinita hivaoa (Hebard).

Hivaoa: summit of Mount Temetiu, 4,160 feet, January 20, 1932 (from *Metrosideros collina* and *Freycinetia* species), 1 female, 1 juvenile.

Graptoblatta notulata (Stål).

Uapou: Teoatea, Hakahetau Valley, 1,950 feet, November 16, 21, 1932

(in *Metrosideros collina* and dead fern, *Histiopteris* species), 2 females, 14 juveniles.

PSEUDOMOPINAE

Kuchinga remota Hebard.

Uapou: Vaikokoo, Paaumea Valley, 1,850 feet, November 30, 1931 (under fallen leaves), 1 female.

Loboptera dimidiata (Bolivar).

Hivaoa: Kaava Ridge, 2,750 feet, January 6, 1932 (under dead leaves), 2 males, 2 females.

Uapou: Teoatea, Hakahetau Valley, 1,950 feet, November 21, 1931 (in *Metrosideros collina*), 1 juvenile; Koputukea, Hakahetau Valley, 1,250 feet, November 16, 1931, 1 juvenile; Vaihakaatiki, Hakahetau Valley, 3,020 feet, November 18, 1931 (beaten from *Cyrtandra* species), 17 minute juveniles.

BLATTINAE

Periplaneta australasiae (Fabricius).

Uapou: Hakahetau Valley, 32 feet, November 25, 1931, 1 male; Vaikokoo, Paaumea Valley, 2,100 feet, November 28, 1931.

ACRIDIDAE

CYRTACANTHACRINAE

Patanga pinchoti Caudell.

Eiao: above Vaituha, 1,100 feet, September 28, 1929 (A. M. Adamson), 1 very small juvenile.

TETTIGONIIDAE

COPIPHORINAE

Euconocephalus roberti (Le Guillou).

Hivaoa: Avaoa Valley, 1,260 feet, January 8, 1932 (in grass, *Paspalum conjugatum*), 8 males, 3 females, 3 juveniles (4 males, 2 females, and 2 immatures brown, the others green); Kopaafaa, 2,770 feet, August 2, 1929 (Mumford and Adamson), 1 very small juvenile.

Uapou: Hakahetau Village, sea level, November 30, 1931, 2 males (one brown, one green).

CONOCEPHALINAE

Conocephalus tridens Hebard.

Hivaoa: Kakahopuanui, 2,610 feet, January 5, 1932 (beaten from *Weinmannia* species), 1 female; Kaava Ridge, 2,000 feet, October 27, 1931 (swept from herbage), 2 females.

Eiao: 1,700 feet, April 30, 1931 (LeBronnec and Tauraa), 2 females.

LISTROSCELINAE

Xiphidiopsis lita Hebard.

Hivaoa: Kakahopuanui, 2,610 feet, January 5, 1932 (beaten from *Weinmannia* species), 1 female; Kaava Ridge, 2,800 feet, January 7, 1932 (the same), 1 female; Avaoa Valley, 1,260 feet, January 8, 1932 (in grass, *Paspalum conjugatum*), 1 female.

Phisis marquesana Hebard.

Hivaoa: Kaava Ridge, 2,000 feet, October 27, 1931 (swept from herbage), 1 female.

Uapou: Teepotatoatetoiki, Hakahetau Valley, 120 feet, November 23, 1931, 1 female; Hapava, Hakahetau Valley, 1,000 feet, November 23, 1931, 1 small juvenile.

GRYLLIDAE

GRYLLINAE

Gryllus oceanicus Le Guillou.

Hivaoa: Kaava Ridge, 2,800 feet, January 6, 7, 1932, 1 female, 6 juveniles.

TRIGONIDIINAE

Metioche tahitensis (Saussure).

Hivaoa: Tenatinaei, Feani Crest, 3,970 feet, January 19, 1932, 1 female, 1 juvenile; Feani Crest, 3,900 feet, January 13, 1932 (from *Metrosideros collina*), 1 female.

Metioche flavipes (Saussure).

Hatutu: 1,500 feet, April 28, 1931 (LeBronnec and Tauraa; beaten from *Canthium barbatum*), 1 juvenile.

Uahuka: Putatauna, Vaipaee Valley, 880 feet, September 20, 1929 (A. M. Adamson), 1 juvenile.

Hivaoa: Tenatinaei, Feani Crest, 3,970 feet, January 19, 1932, 1 female; Kakahopuanui, 2,500 feet, January 5, 1932 (in herbage), 1 male.

Uapou: Tekohepu Summit, 3,200 feet, November 28, 1931 (from *Metrosideros collina, Weinmannia* species, *Cyathea* species, ferns, and five attracted to light), 1 male, 6 females, 6 juveniles; Paaumea side, Teavaituhai, 3,020 feet, November 19, 1931 (beaten from *Vaccinium* species and *Cyrtandra* species), 3 males, 1 female; Teoatea, Hakahetau Valley, 2,000 feet, November 19, 1931 (swept from herbage), 1 female.

MOGOPLISTINAE

Cycloptilum novarae (Saussure).

Uapou: Teoatea, Hakahetau Valley, 1,950 feet, November 20, 1931 (at light), 2 juveniles; Vaikokoo, Paaumea Valley, 1,850 feet, November 30, 1931 (under fallen leaves), 1 female.

SUPPLEMENTARY NOTES CONCERNING CERTAIN SPECIES OF RHYNCOGONUS (CURCULIONIDAE) FROM THE MARQUESAS*

By

Edwin C. Van Dyke

University of California

Since the Marquesan species of *Rhyncogonus* were last reviewed,[1] additional material has been received from several of the islands, and referred to me for study. During the meantime, I have also had the privilege, while studying in several of the museums abroad, of examining the types of all of the earlier described species. As a result of these recent studies, I find that certain additions as well as some changes need to be made to the paper mentioned above.

3. Rhyncogonus ochraceus Van Dyke.

Rhyncogonus ochraceus Van Dyke, B. P. Bishop Mus., Bull. 98, p. 35, 1932.

Rhyncogonus mumfordi Van Dyke, B. P. Bishop Mus., Bull. 98, p. 40, 1932.

Additional specimens of this species collected in the highlands of Hivaoa by LeBronnec during 1932, including many taken paired, shows that though the males are fairly constant as to pilosity, the females vary greatly. Some of the females are sparsely clothed with gray pile and thus closely resemble the males. A small series of these were received with the first lot and were described as *R. mumfordi.* Among the specimens later received were certain females like those mentioned above, while others were rather densely clothed with the gray pile and still others densely clothed with ochraceous pile. These densely pilose specimens were not only collected at the same time and place as the more sparsely clothed gray males, but specimens of all three types of females were taken in coitus with normal males. This would indicate that they were all of one species and a detailed examination confirmed this. Unfortunately the ocher-colored female, only a single specimen of which I had at first, was described as *R. ochraceus,* and this has page preference over *R. mumfordi.* The type of *R. ochraceus* was also abnormal in that the anterior tibiae appeared simple while all other females that I have examined have the anterior tibiae distinctly serrate along the inner edge. The dichromatism of this species as thus proven shows that it is even more closely

[1] Van Dyke, E. C., Microgonus, new genus, and Rhyncogonus, from the Marquesas: B. P. Bishop Mus., Bull. 98, pp. 23-53, 1932.

* Pacific Entomological Survey Publication 8, article 13. Issued December 10, 1935.

related to the other sexually dichromatic species than I at first thought and than I indicated in my key to species.

15. Rhyncogonus griseus Van Dyke.

Rhyncogonus griseus Van Dyke, B. P. Bishop Mus., Bull. 98, pp. 15-16, 1932.

This species was described from a single individual. Since this was studied a series of more than 40 specimens has been taken at Vaihakaatiki, Hakahetau Valley, Uapou, Marquesas Islands, and at an altitude of 3,000 feet, by LeBronnec, on various dates from November 18-27, 1931. The specimens are more or less uniform as to size and shape and quite similar to the type. The only additional fact that the series brings out is that the pile is somewhat variable as to color. Most of the specimens have a moderately sparse cinereous or gray pile, but others, chiefly the females, have the pile quite fulvous though not denser. The relationship of this species as suggested by this new evidence would be slightly changed. It should be placed close to *Rhyncogonus uniformis* Van Dyke.

19. Rhyncogonus otiorhynchoides (Fairmaire).

Elytrurus otiorhynchoides Fairmaire, Essai sur les Coléoptères de la Polynèse, Rév. et Mag. de Zool., pp. 62-63, June, 1849.

Rhyncogonus walkeri Perkins, Ent. Mo. Mag., vol. 25, p. 56, 1899.

Rhyncogonus walkeri Perkins, Ann. Mag. Nat. Hist., ser. 10, vol. 1, pp. 128-129, 1928.

Fairmaire's type of this species is in the British Museum. I examined this and compared it with Perkins' type of *R. walkeri* which is also in the British Museum, and found that they were one and the same species. I am indebted to Sir Guy Marshall for calling my attention to the possibility of Fairmaire's species of *Elytrurus* being *Rhyncogonus*.

NEW SERPHOID, BETHYLID, AND ANTEONID WASPS FROM THE MARQUESAS AND SOCIETY ISLANDS*

By

Robert Fouts

This paper is based upon material collected by the Pacific Entomological Survey in the Marquesas and the Society Islands. One new genus and eleven new species are described, two in the family Diapriidae, two in the Calliceratidae, two in the Scelionidae, two in the Bethylidae, and three in the Anteonidae. Type specimens are deposited in Bernice P. Bishop Museum.

Family DIAPRIIDAE

Phaenopria lebronnecii, new species (fig. 1, *a*).

Female

Length 1.54 mm. Head slightly wider than thick, a little narrower than the thorax, scarcely longer than thick, viewed from in front rounded above and below, decidedly wider below than above, the eyes large, extending half way to the top; viewed from the side the head is subquadrate, slightly longer below than above, the lower face forming a right angle with the upper, the antennal projection only slightly produced; antenna as in fig. 1, *a*, without elongated sense organs as in *P. insulana*; thorax 1.84 times as long as wide, 1.13 times as high as wide, convex above, flattened laterally, widest above, narrowed toward center; mesonotum convex, like the scutellum with a few scattered hairs; scutellum convex, with a low rounded keel down the middle, margined laterally, immargined posteriorly, without a fovea basally; propodeum with a sharp median keel down the middle; seen from the side this keel is raised about as high as the scutellum into a sharp triangular projection anteriorly; pronotum, propodeum laterally, and petiole thickly covered with short whitish pubescence; wings with a faint brownish tinge, extending about two-thirds the length of the abdomen past its apex; abdomen 1.85 times as long as wide, 1.1 times as wide as the thorax, convex dorsally, wider than high; petiole transverse, convex above; second tergite 1.27 times as long as wide, three times as long as the following segments combined; black; basal seven antennal joints yellowish-brown, apical joints dark brown; propodeum and legs a rich golden brown color.

Marquesas Islands: Hivaoa, Kaava Ridge, altitude 2,000 feet, October 27, 1931, on *Glochidion ramiflorum*, LeBronnec.

Phaenopria insulana, new species (fig. 1, *b*).

Female

Length 1.29 mm. Head shaped as in *P. lebronnecii* except that it is oval in front view, scarcely wider below than above; head 1.22 times as wide as thick, as wide as the thorax, as long (from middle of lower face to vertex) as wide; antenna as in fig. 1, *b*, with a strongly differentiated 3-jointed club, and with a row of elongated sense organs around each of the first and second club joints; the last joint has apparently a double row of similar sense organs, but, due to the darker coloration of the joint, they could

* Pacific Entomological Survey Publication 8, article 14. Issued December 12, 1935.

be discerned only on the outside edge as shown in the figure; thorax 1.72 times as long as wide, as high as wide, narrowed below and with the sides flattened as in *P. lebronnecii,* but distinctly flattened above and without a median keel as in *P. lebronnecii*; wings hyaline, extending to about the tip of the abdomen; abdomen 2.74 times as long as wide, elliptical viewed from above, pointed apically, widest at middle, 1.65 times as long as the thorax; petiole short, transverse; second tergite 1.6 times as long as wide, widest before the apex, 1.6 times as long as the following segments combined; pronotum, propodeum laterally and petiole densely covered with silvery pubescence; black; scape and last joint dark brown; other antennal joints lighter brown; propodeum reddish-brown; legs brown, the tibiae and tarsi lighter.

Society Islands: Tahiti, Mataiea, December 19, 1928, on sugar cane, Mumford and Adamson, five females.

Family Calliceratidae

Calliceras obscurus, new species (fig. 1, *c*).

Male

Length 0.54 mm. Head thick and wide, 1.42 times as wide as thick, 1.25 times as long as thick, a little wider than the thorax; frontal impression deep, circular, immargined, its surface smooth, without sculpture or pubescence; frons above impression, vertex, and occiput smooth, sparsely pubescent, without apparent sculpture; a median impressed line extends from the occipital foramen to the anterior ocellus; antennae 11-jointed (fig. 1, *c*); thorax 1.4 times as long as wide, 1.17 times as long as high, 1.25 times as wide as the abdomen; mesonotum convex with the median impressed line distinct, otherwise with a faint indeterminate sculpture; frena not reaching mesonotum; scutellum sub-convex, longer than wide, sparsely pubescent, finely reticulate, polished and narrowly rounded posteriorly; thorax laterally and abdomen smooth, without sculpture; metanotum with a short, acute tooth medially; wings hyaline, the posterior pair with long marginal cilia, the fringe more than half as long as the width of the wing; abdomen 1.83 times as long as wide; body dark reddish-brown; legs light brownish.

Marquesas Islands: Eiao, uplands toward north end, east side, altitude 1,855 feet, September 29, 1929, on *Hibiscus tiliaceus,* A. M. Adamson (type).

Calliceras robusta, new species (fig. 1, *d*).

Female

Length 1.16 mm. Head 1.83 times as wide as thick, as wide as the thorax; frons, vertex, genae, and malar space with impressed reticulation; occiput more finely reticulate, a sharply defined groove, interrupted by the blunt ridge separating vertex and occiput, extends from occipital foramen to anterior ocellus; the groove extends forward from the anterior ocellus to the upper margin of the frontal impression; it is deeper and wider here, as large as the median groove on the mesonotum; frontal impression deep and wide, occupying lower three-fifths of frons, mostly transversely rugulose, smooth below; lateral ocelli closer to anterior ocellus than to eye margins; eyes thickly set with short white hairs; thorax 1.12 times as long as wide, 1.10 times as wide as the abdomen, convex dorsally; pronotum visible from above only as a narrow collar; mesonotum, axillae, and anterior half of scutellum with impressed reticulation, the mesonotum anteriorly less strongly sculptured; a median impressed line extends the length of the mesonotum; scutellum subconvex, without distinct sculpture on posterior half; metanotum extended behind as a roughly sculptured triangular projection about one-fourth the

length of the scutellum; propodeum with a short acute tooth on each side posteriorly; abdomen twice as long as wide, a little wider than high, 1.6 times as long as the thorax, narrowed posteriorly from about the middle, terminating in a point; second tergite 1.17 times as long as wide, smooth, without sculpture except numerous longitudinal carinae on basal fourth; terminal segments united 0.64 the length of the second; head and thorax dorsally thickly set with short whitish hairs; abdomen ventrally with sparse white hairs; wings hyaline; black; scape reddish-brown; flagellum dark-brown, lighter proximally; legs light-brown, the coxae black.

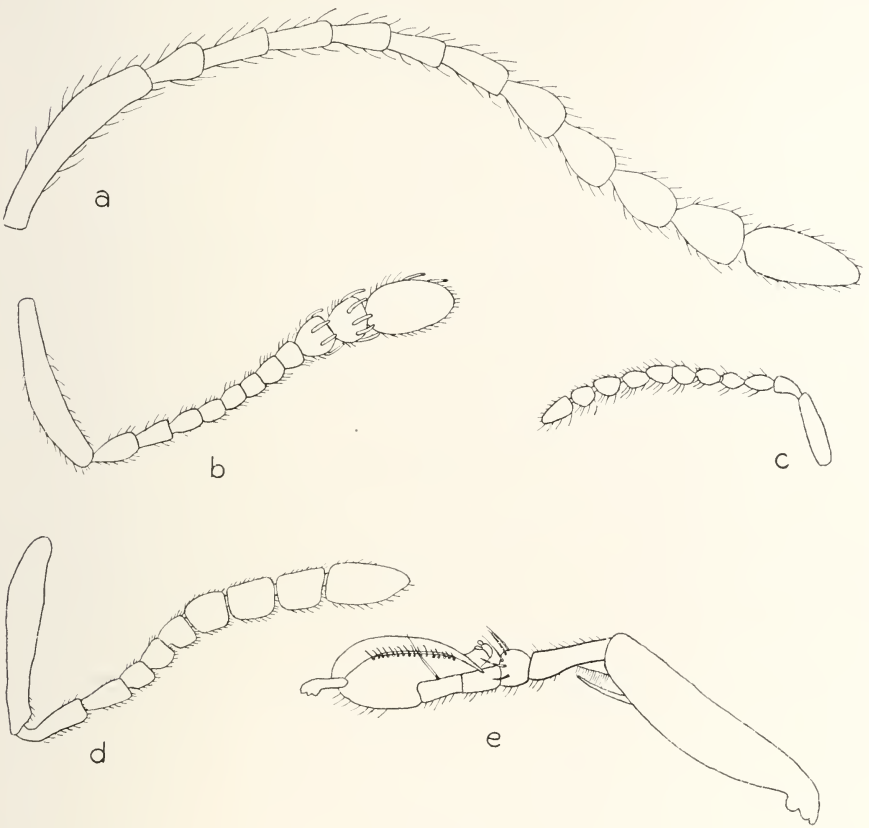


FIGURE 1.—Marquesan and Society Islands wasps: a, antenna of *Phaenopria lebronnecii* (female); b, antenna of *Phaenopria insulana* (female); c, antenna of *Calliceras obscurus* (male); d, antenna of *Calliceras robusta* (female); e, front tibia and chelate tarsus of *Anteon dubius* (female).

Marquesas Islands: Eiao, altitude 1,700 feet, April 16, 1931, on *Premna tahitensis,* LeBronnec and Tauraa (type); Uahuka, Hitikau Ridge, altitude 2,900 feet, March 3, 1931, on ferns, LeBronnec and Tauraa (paratype).

Figure 1, *d* presents a lateral view of the antenna in which the joints appear widest. The joints being somewhat compressed any other view would show, particularly for the terminal joints, a greater relative length. For example, a slide mount of the type antenna shows the last joint to be twice as long as thick. A mount of the paratype antenna, on the contrary, shows the same joint nearly three times as long as thick, a difference apparently due only to the fact that the flagellum has been twisted and does not present its broadest aspect. In view of the magnitude of the variation shown, depending on whether the antenna does or does not lie flat and the difficulty of determining whether either condition exists, it would seem that exact measurement, in microns for instance, would involve just so much wasted time and effort. I have encountered the same difficulty in other groups of Serphoidea and have been forced to the conclusion that a drawing or photograph of the antenna in such a position that the joints present what is presumably their greatest widths and lengths is the best that can be done. If all the joints were straight and cylindrical and were horizontally disposed then more exact measurement might be of considerable value in a study of variation and specific differentiation. In the males of many Belytines, e. g., in the genera *Xenotoma* and *Anectata,* the joints are very nearly cylindrical and approximately straight. More precise measurement might be of value in such a group.

Family SCELIONIDAE

Telenomus mumfordi, new species.

Female

Length 0.73 mm. Head 1.36 times as wide as thick, as wide as the thorax, a little wider than the abdomen, full behind the eyes, the genae broad, convex; frons polished, faintly aciculate below, with a few hairs laterally and below; vertex and occiput not separated by a carina, broad, subconvex, reticulate; lateral ocelli touching eye margin; genae polished, faintly reticulate above; antennae clavate, the club 4-jointed; scape a little longer than following three joints combined; pedicel nearly as long as joints three and four combined, twice as long as wide; third and fourth joints subequal, longer than the fifth, 1.5 times as long as thick; joints five, six and seven moniliform, subequal, about as thick as the fourth; eighth joint triangular, as wide as long, wider than the seventh, narrower than the ninth; joints nine and ten transverse; last joint as thick as the ninth, a little longer than thick, blunt at tip; all flagellar joints with short whitish pubescence; thorax 1.47 times as long as wide, convex above, evenly covered above with longitudinally disposed rows of short whitish hairs; thorax apparently reticulate above, but sculpture indistinct; scutellum convex, polished, transverse; abdomen 1.88 times as long as wide, widest at apex of second tergite, pointed apically, the ovipositor exserted; petiole transverse, with about seven longitudinal grooves on anterior two-thirds, polished posteriorly; second tergite as wide as long, widest apically, with short striae basally, these striae not as long as the petiole; otherwise the second tergite is polished, without sculpture, 1.63 times as long as the following tergites combined; wings fully developed, hyaline, extending nearly the length of the second tergite past the tip of the abdomen; black; antennae piceous; legs dark-brown; tibiae lighter brown; tarsi yellowish-brown.

Marquesas Islands: Hivaoa, Tahauku, July 10, 1929, Mumford and Adamson (type).

Telenomus mataieaensis, new species.

Female

Length 0.65 mm. Head twice as wide as thick, 1.15 times as wide as the thorax, 1.44 times as wide as the abdomen, viewed from above convex anteriorly, deeply and broadly concave posteriorly, the genae wide and flat but very oblique; head polished, without sculpture except a few faint aciculae on the occiput; scape about as long as the five following joints combined; pedicel as long as joints three and four combined, about 1.5 times as long as thick, thicker than any of the following four joints, about as thick as the seventh; joints three-five subequal in length and width, about as wide as long; joint six as wide as five but shorter, transverse; seven as wide as long, a little thinner than the following club joints; joints eight to ten subequal in width, the eighth shorter; nine as long as ten, a little thicker than long; last joint about 1.5 times as long as thick, longer than the tenth, acute apically, thickest basally; club 5-jointed; flagellar joints with short pubescence; thorax scarcely longer than wide, strongly convex above; mesonotum convex, distinctly although finely reticulate, rather thickly clothed with short whitish hairs posteriorly inclined; pronotum not visible from above; scutellum convex, smooth, without distinct sculpture; abdomen about twice as long as wide, subconvex above, without sculpture except longitudinal striae on petiole and very shortly at base of second tergite; second tergite about as wide as long, the striae at base extremely short and faint; abdomen pointed apically, widest before the middle, 1.5 times as long as the thorax; wings hyaline, with long cilia, extending a third the length of the abdomen past its apex; black; antennae dark-brown; legs also dark-brown, the trochanters, anterior tibiae, other tibiae proximally, and tarsi yellowish-brown; mandibles yellowish.

Male

Length 0.59 mm. Similar to the female. Scape and pedicel as in female; joints three-five about as long as wide, thinner than the pedicel; following joints about as thick as the pedicel, transverse, button-shaped; last joint longer than thick, about as long as the pedicel, pointed apically; abdomen a little shorter than the thorax, truncate apically, 1.47 times as long as wide; scape and legs, including coxae, yellowish-brown, tarsi paler.

Marquesas Islands: Eiao above Vaituha, altitude 800 feet, October 1, 1929, on *Melochia velutina,* A. M. Adamson, type, allotype, and paratype; Hivaoa, altitude 2,100 feet, February 15, 1930, on *Crossostylus biflora,* Mumford and Adamson.

Society Islands: Mataiea, sea level, December 19, 1928, on sugar cane, Mumford and Adamson, eight paratypes.

Anteromorpha dubiosa (Perkins).

Opisthacantha dubiosa Perk., Fauna Hawai., vol. 2, p. 623, 1910. Kieff., Das Tier., Lief. 48, p. 401, 1926.

Anteromorpha dubiosa, Dodd, Proc. Roy Soc. Queen., vol. 40, p. 38, 1928.

Originally described from Oahu. I have received specimens from Bernice P. Bishop Museum labeled as follows: Honolulu, Oahu, O. H. Swezey; Lahaina, Maui, December 5, 1922, Swezey. Society Islands, Tahiti, Mateaica.

December 19, 1928, sugar cane, Mumford and Adamson. Marquesas Islands: Mohotani Island, August 13, 1929, A. M. Adamson.

Dodd suggests that his species *A. australica* may be a synonym of this species. A comparison of his description and the specimens of *A. dubiosa* at hand indicates that he is correct.

Family BETHYLIDAE

Cephalonomia unicolor, new species.

Differs from *C. gallicola* Ashmead in having the head 1.48 times as long as wide, rounded behind on the sides, not subquadrate behind as shown in Ashmead's figures[1], and in having the propodeum narrowed medially. *Gallicola* has been reported by Bridwell[2] as having been found at Haiku, Maui, in rolled barley imported from California.

Female

Length 2 mm. Clypeus with a high, sharp, longitudinal carina; frons finely reticulate, the sculpture having a longitudinal trend, with a few small scattered punctures, finely longitudinally aciculate medially; eyes and ocelli absent; pronotum strongly convex, longitudinally reticulate; mesonotum faintly reticulate, impunctate; propodeum flat above, reticulate, the sculpture much stronger than that on head or pronotum, without a longitudinal trend, with several scattered punctures laterally; wings absent; femora strongly thickened; abdomen 0.85 of length of head and thorax combined, 1.3 times as wide as the head, flattened, pointed apically, polished, without sculpture; body smooth, shining, the sculpture as described above delicate, without pubescence except a few short hairs laterally on head and abdomen; body and appendages brownish, the head and tarsi yellowish-brown.

Marquesas Islands: Hivaoa, Mount Temetiu, altitude 3,660 feet May 27, 1929, Mumford and Adamson (type).

Genus BETHYLOPSIS, new genus

Head longer than wide; mandibles long, tridentate, the inner edge oblique, the outer tooth acute, much the longer; a low convex semicircular protuberance between antennae; frons above this protuberance with a short median carina extending as far up as base of eye; clypeus very short, scarcely visible in a front view of head; eye less than a third the length of the head, about half its length distant from the base of mandible; ocelli small but distinct; antennae 12-jointed; pronotum longer than wide; mesonotum transverse, without notauli and without furrows near the lateral margins; scutellum separated from the mesonotum by a straight suture; propodeum margined only laterally, without a median longitudinal elevation as in *Bethylus;* mesopleurae protuberant, with a large deep pit above; wings narrow, reaching a

[1] Ashmead, William H., A monograph of the North American Proctotrypidae: U. S. Nat. Mus., Bull. 45, pl. 3, fig. 6, 1893.

[2] Bridwell, John Colburn, Some notes on Hawaiian and other Bethylidae (Hymenoptera) with descriptions of new species: Haw. Ent. Soc., Proc., vol. 4, p. 33, 1919.

little beyond tip of propodeum, the venation not distinct; legs rather slender, the femora only moderately thickened; spine of front tibia simple, pubescent on inner side; claws simple, without teeth; abdomen somewhat swollen, broader than thorax, gradually narrowing to a point apically.

Bethylopsis fullawayi, new species.

Female

Length 3.54 mm. Head 1.35 times as long as wide, 1.31 times as wide as the thorax, seen from in front oblong in outline, slightly wider at base of mandibles, the sides straight nearly to top of head, almost parallel; head viewed from in front broadly rounded above at sides; head above eye a little longer than twice the length of eye; entire surface of head with dense impressed reticulation (occiput more finely reticulate) and covered with small scattered punctures; these small punctures are about 0.065 mm distant from one another (average) and this distance traverses five or six of the small areas on the reticulated surface; thorax 2.56 times as long as wide, widest across mesopleurae which are protuberant, visibly from above, convex above; pronotum sculptured like the frons but with the enclosed areas somewhat smaller and with the scattered punctures somewhat closer together; mesonotum reticulate like the frons and pronotum but with a few punctures only on posterior half; scutellum subconvex, more densely reticulate than the parts previously described, with about a dozen small scattered punctures; the enclosed areas are about half the size of those on the mesonotum; propodeum narrowed anteriorly, the sides curved, widest on posterior third of superior face; superior face of propodeum and mesopleurae uniformly reticulate like the frons but without punctures; pronotum laterally and propodeum laterally and behind reticulate like the superior face but the lines less strongly impressed; propodeum margined only laterally, the superior face separated from the inferior by a blunt angularity; no ridge extends from the posterior lateral angles down to the apex of the propodeum; wings narrow, extending a little past the apex of the propodeum, without distinct venation; abdomen 2.24 times as long as wide, 1.64 times as wide as the thorax, pointed apically, 0.90 the length of head and thorax combined, its entire surface reticulate, the lines not deeply impressed; black to brownish-black; antennae and legs dark-brown, the coxae black; mandibles rufous, darker basally.

Marquesas Islands: Nukuhiva, Oomnu, altitude 3,800 feet, September 10, 1928, Mumford and Adamson (type).

Family ANTEONIDAE

Anteon dubius, new species (fig. 1, *c*).

Female

Length (exclusive of extended ovipositor) 1.70 mm. Head viewed from above 1.7 times as wide as thick, slightly convex in front and as slightly concave behind, 1.20 times as wide as the thorax, entirely with dense impressed reticulation; head viewed from in front broadly elliptical, 1.18 times as wide as high (clypeus to vertex), only 1.66 times as high as eye is long, projecting in a wide curve very little above top of eye; clypeus convex, without a ridge; frons convex, with a low ridge extending from clypeus to anterior ocellus; frons and genae with short sparse silvery pubescence; ocellocular line equal to the post-ocellar, twice as long as the lateral ocellar, a little longer than the ocelloccipital; occipital carina sharp, extending to the mouth parts below; antennae filiform; scape three times as long as thick, seen from above of approximately equal width throughout, from the side strongly thickened distally, as long as two and three com-

bined, thicker than two or any joint following it; pedicel twice as long as thick, a little longer than three, about a third thicker than three; three and four subequal, about twice as long as thick, longer than five; following joints about 1.5 times as long as thick; last joint longer, acute at apex; thorax 1.5 times as long as wide, widest at the swollen episterna, 1.1 times as long as the abdomen; pronotum and mesonotum finely closely reticulate; notauli curved, present on anterior half of mesonotum; mesonotum about twice as long as the pronotum, 1.5 times as wide as long; propodeum with a low ridge separating the superior face from the inferior; this ridge is lost on the side in the rugose sculpture; superior face only about half as long as the inferior, irregularly traversed longitudinally by ridges, not reticulate; inferior face flat, sloping, its surface with dense impressed reticulation, the areas depressed below the separating lines (on the head and thorax the lines are impressed, the enclosed areas slightly elevated, convex); lateral ridges of propodeum not in evidence, the parts rounded; laterally the propodeum is rugose, the rugae having a longitudinal trend; wings hyaline, appearing whitish in certain illumination; second abscissa of radius a third the length of the first, the latter straight, as long as the inner surface of the stigma distad of it; ovipositor extended to a third the length of the abdomen; black; scape, mandibles (teeth red), and legs, except posterior femora, coxae, and last joint of each tarsus yellow; coxae dark-brown to black; posterior femora dark-brown; flagellum light-brownish, the second, third, and fourth joints darker.

Marquesas Islands: Nukuhiva, Teivipakeka; altitude 1,400 feet, October 16, 1929, Mumford and Adamson (type).

Pseudogonatopus rufus, new species.

Female

Length 4.2 mm. Head 1.37 times as wide as long, 1.55 times as wide as thick (lateral view), 1.63 times as wide as the pronotum; frons depressed below the eyes, with a low carina from clypeus to anterior ocellus, polished, without distinct sculpture; vertex reticulate; occiput concave, polished, without sculpture; genae above reticulate, otherwise without sculpture; antennae long and thin; scape about 2.5 times as long as thick, a little longer and thicker than the pedicel which is a little less than three times as long as thick; third joint about ten times as long as thick, 2.5 times as long as the pedicel, thickened knob-like at tip; following joints to the last becoming progressively shorter and thicker, the last one three times as long as thick, 1.4 times as long as the ninth; number of palpal joints not determined; pronotum 1.25 times as long as wide, without sculpture above and on anterior half laterally, posteriorly on the sides strongly reticulate; transverse constriction on pronotum very weak, shallow; surface of mesonotum minutely granular; metanotum transversely rugulose above, covered with minute thimble-like depressions laterally and with about a dozen strong vertical carinae laterally, these carinae broken for the most part, not regular; propodeum 1.6 times as long as wide, evenly rounded above and on the sides, with minute punctures as on the metanotum, with about a dozen transverse carinae on posterior 2/3, these carinae extending down on the sides, all of them weaker anteriorly on the segment; inner claw of chela curved, with a double row of lamellae; outer claw with a single row of six lamellae; abdomen 2.5 times as long as wide, 0.9 times as long as the thorax; frons and thorax rufous; scape white; flagellum brownish, the joints eight and nine paler; tenth joint dark-brown; head, legs, and abdomen, for the most part, yellowish-brown.

Marquesas Islands: Nukuhiva, Teivipakeka, altitude 2,400 feet, October 16, 1929, Mumford and Adamson (type).

Pseudogonatopus rugosus, new species.

Female

Length of head and thorax combined 2.2 mm. Closely allied to *P. rufus* from which it differs in its smaller size, lighter coloring of head and legs, and stronger sculpture of the thorax. Head 1.3 times as wide as long, 1.7 times as wide as thick, 1.8 times as wide as the pronotum; head and pronotum sculptured as in *P. rufus* except that the constriction on the latter is more pronounced; pronotum 1.26 times as long as wide, a little wider than the metanotum; mesonotum and median area between and on both metanotum and propodeum with small shallow thimble-like punctures as in *P. rufus;* otherwise the metanotum and propodeum are strongly transversely rugose, the ridges high and sharp; chelae as in *P. rufus*, the outer claw with a small tooth before tip; abdomen missing; thorax rufous as in *P. rufus;* lower frons, clypeus, mandibles (except tips), scape, and pedicel whitish; head, antennae and legs stramineous, the hind coxae basally and the swollen parts of femora brownish.

Marquesas Islands: Nukuhiva, Oomu, altitude 3,600 feet, Nov. 10, 1929, Mumford and Adamson (type).

SIX NEW SPECIES OF ARETAS (HEMIPTERA: MIRIDAE) FROM THE SOCIETY ISLANDS AND ONE FROM THE PHILIPPINES*

By

Harry H. Knight

Iowa State College, Ames, Iowa

The genus *Aretas* was founded by Distant[1] for a single species, *A. imperatorius* from Ceylon. The second species, *A. sanguinarius* Dist.[2] was described from the Seychelles Islands. In 1935,[3] I described a third species, *A. rubroscutellatus* from the Samoan islands, but placed it as a variety of *A. sanguinarius* Dist.

In working over a collection of Miridae from Bernice P. Bishop Museum, six additional species of *Aretas* have been recognized among material collected in the Society Islands by A. M. Adamson. Study of this material reveals that the male genital claspers furnish good characters for the separation of species within the genus. While the present series of specimens is rather limited, the material is sufficient to indicate that color characters are rather definite for each species, and may be used for separation of species in a key.

Among material from the Philippine Islands sent me some years ago by Professor C. F. Baker, a beautiful new species has been recognized and named *A. bakeri* in honor of that indefatigable worker. Judging by the records of known species, the genus *Aretas* is typically of island distribution in the Pacific Ocean. It is interesting to note that six species are recognized from the Society Islands, but not a single representative is to be found in the material on hand for study from the Marquesas Islands.

Aretas adamsoni, new species (fig.1,*a*).

Male. Length 3.2 mm., width 1.21 mm. *Head,* width .65 mm., vertex .30 mm. at front margins of eyes; top of head very slightly convex, without longitudinal sulcation although with a faint triangular impression on base of vertex. *Rostrum,* length 1.17 mm., reaching to middle of hind coxae. *Antennae*: segment I, length .43 mm., cylindrical or perceptibly thicker near base, dark reddish brown to blackish, pale pubescent with a few erect hairs in length equal to diameter of segment; II, 1.3 mm., slender, yellowish, tinged with reddish at base, with fine pale pubescence; III, .64 mm., slender, pale; IV, .52 mm., pale. *Pronotum,* length .34 mm., width at base .82 mm., slightly sinuately concave on basal margin, calli scarcely evident, disk slightly convex, pleura moderately inflexed.

*Pacific Entomological Survey Publication 8, article 15. Issued August 1, 1937.

[1] Distant, W. L., Ann. Mag. Nat. Hist., VIII, 4:451, 1909.

[2] Distant, W. L., Linn. Soc. London, Trans., **16**:175, pl. 13, fig. 12, 1913.

[3] Knight, H. H., Insects of Samoa, Hemiptera, (2), 206, 1935.

Color pale yellowish, head except vertex, lateral one fourth of pronotal disk and extending over the sides slightly, basal angles of clavus and corium, edge of embolium, diamond-shaped spot on apex of clavi, quadrate patch on apical area of corium, basal edge and apex of cuneus, veins in membrane, bright red; first antennal segment dark reddish brown to blackish. Sparsely clothed with fine pale pubescence. Genital structures distinctive, male claspers as shown in the figure.

Female. Length 3.4 mm., width 1.25 mm. *Head,* width .61 mm., vertex .34 mm. *Antennae,* segment I, length .44 mm.; II, 1.25 mm.; III, .66 mm.; IV, .61 mm. Slightly larger and more robust than the male but very similar in structure, color, and pubescence.

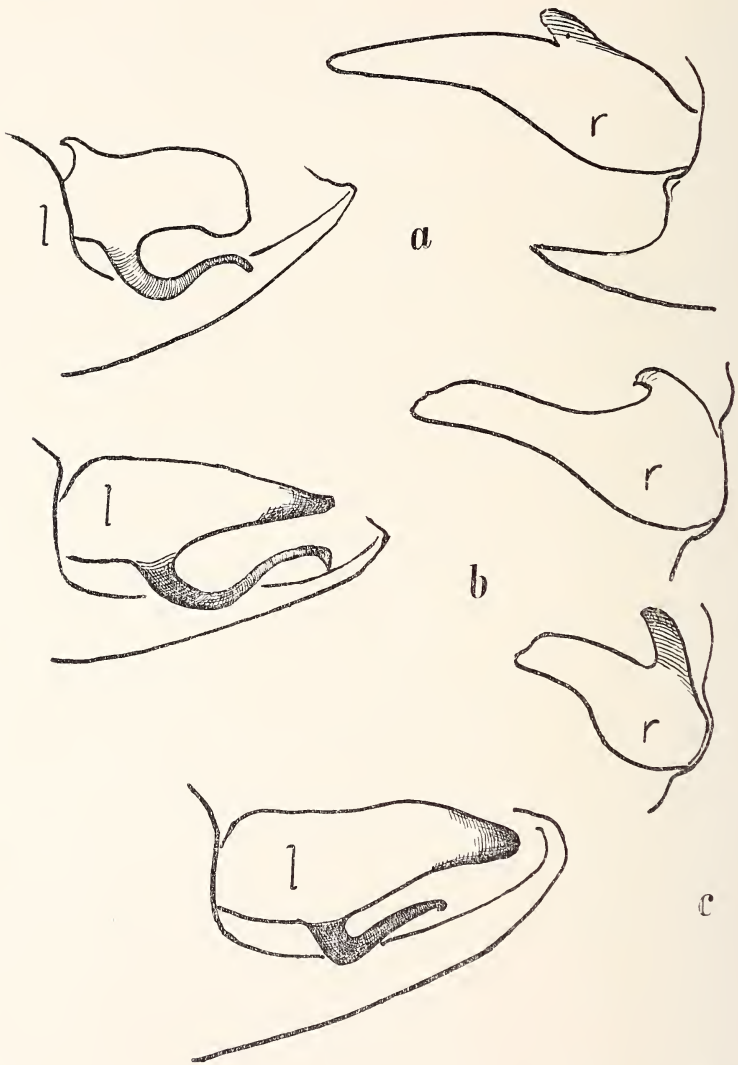


FIGURE 1.—Male genital claspers of new species of *Arctas: a, A. adamsoni; b, A. rubroclavus; c, A. nigribasicornis* (*l*=left and *r*=right clasper).

Coloration suggestive of *A. imperatorius* Dist. but smaller in size and with different arrangement of red color pattern; genital structures distinctive.

Tahiti, Society Islands. Holotype male (Bishop Museum), allotype female, one male and two female paratypes collected by A. M. Adamson, Papenoo Valley, 10 km. from sea, alt. 150 m., Oct. 23, 1928.

Aretas tahiticus, new species (fig. 2, *b*).

Male. Length 2.9 mm., width 1.17 mm. *Head,* width .62 mm., vertex .26 mm.; top of head scarcely convex, impressions not evident. *Rostrum,* length 1.13 mm., extend-

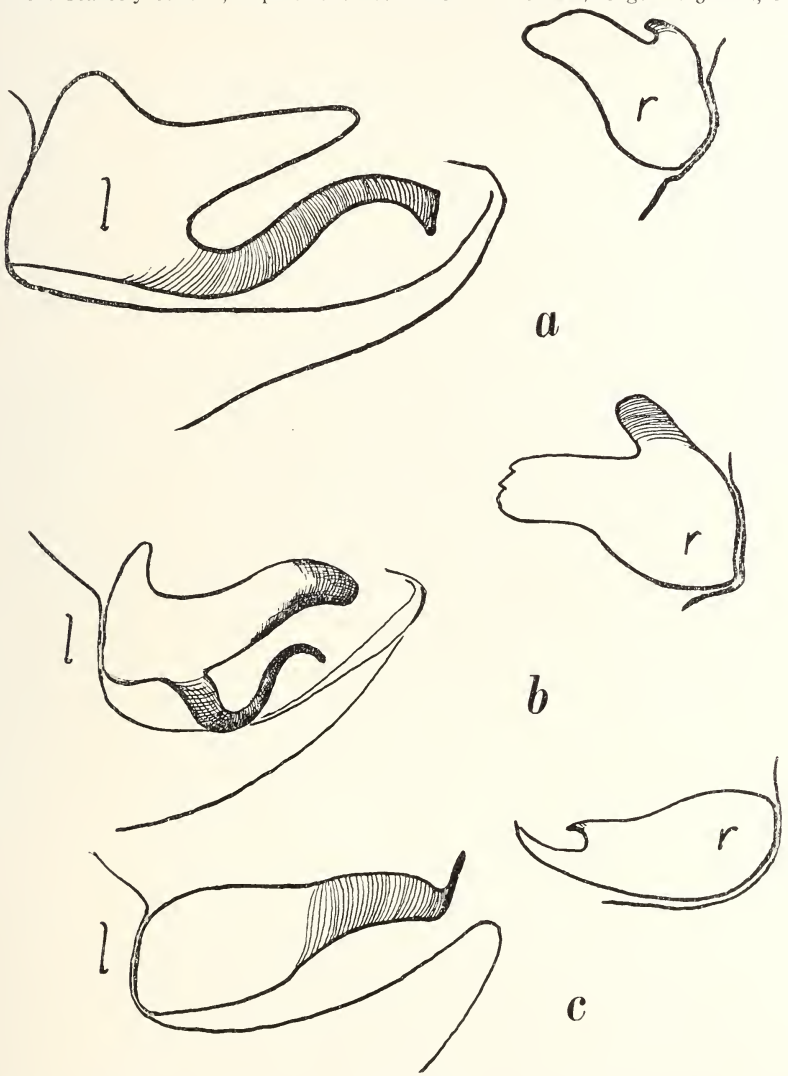


FIGURE 2.—Male genital claspers of new species of *Aretas: a, A. flavus; b, A. tahiticus; c, A. bakeri* (*l* = left and *r* = right clasper).

ing slightly beyond hind coxae. *Antennae:* segment I, length .43 mm., nearly cylindrical, dark red, pale pubescent, two or three erect, pale bristles on inner margins, length of bristles greater than diameter of segment; II, 1.17 mm., cylindrical, more slender than segment I, pale with reddish tint; III, .56 mm., pale; IV, .48 mm., pale. *Pronotum,* length .35 mm., width at base .84 mm., only slightly sinuate at base, disk nearly flat, front margin slightly elevated, calli outlined by an impressed margin.

Color pale yellowish, head except on vertex and lower face, lateral one fourth of pronotal disk and extending slightly over sides, basal angles of clavus and corium, tip of clavus, spot on inner apical angles of corium, and veins in membrane, bright red; first antennal segment dark red, the cuneus uniformly yellowish, membrane pale brownish. Sparsely clothed with fine pale pubescence. Genital structures distinctive, male claspers as shown in figure.

Female. Length 3.1 mm., width 1.21 mm. *Head,* width .58 mm., vertex .30 mm. *Antennae:* segment I, length .43 mm.; II, 1.17 mm.; III, .60 mm.; IV, broken. Slightly larger and more robust than the male but very similar in structure, color, and pubescence.

Allied to *A. adamsoni,* and coloration very similar but differs distinctly in structure of the male genital structures; distinguished by its smaller size, longer rostrum, and cuneus without a red apex.

Tahiti, Society Islands. Holotype male, allotype female, collected by A. M. Adamson, Hitiaa, alt. 1,000 ft., 3 miles from the sea. In Bishop Museum.

Aretas tahiticus var. **rubromarginatus,** new variety.

Male. Length 3.5 mm., width 1.26 mm. *Head* width .65 mm., vertex .30 mm. *Rostrum,* length 1.12 mm., reaching to middle of hind coxae, therefore shorter than in *A. tahiticus. Antennae*: segment I, length .45 mm.; II, 1.34 mm.; III, .60 mm.; IV, .52 mm. *Pronotum,* length .143 mm., width at base .91 mm. Male genital structures nearly identical with those of *A. tahiticus,* not sufficiently different to erect a species on this basis.

Red coloring more extensive than in *A. tahiticus;* embolium and outer margin of corium except apex, from thence extending across on inner apical angles of corium, and apex of cuneus, bright red. Antennal segment I dark red, base of II reddish, the pronotum and head with red as in *A. tahiticus.*

Structurally very near if not identical with *A. tahiticus* but color pattern strikingly different; perhaps only a color variety; however it may represent a good species. With the study of large series of specimens and knowledge of host plants we may be able to determine the correct status of such forms.

Tahiti, Society Islands. Holotype male, collected by A. M. Adamson, Hitiaa, 4 miles from sea, alt. 1,000 ft., Nov. 20, 1929.

Aretas nigribasicornis, new species (fig. 1, *c*).

Male. Length 3.5 mm., width 1.34 mm. *Head,* width .74 mm., vertex .38 mm. at front margins of eyes, top of head rather flat, frons abrupt above base of tylus. *Rostrum,* length 1.17 mm., extending slightly beyond hind coxae. *Antennae:* segment I, length .52 mm., black, pale pubescent, length of a few hairs equal to diameter of segment, slightly thicker (.086 mm.) on basal third and tapering apically; II, 1.66 mm., cylindrical, .06 mm. thick, yellow, sometimes tinged with red, clothed with fine pale pubescence; III, .78 mm., slender, pale; IV, .74 mm., pale. *Pronotum,* length .45 mm., width at base 1 mm., slightly sinuately concave on basal margin, calli evident as slight swellings, disk only very slightly convex, pleura moderately inflexed.

Color uniformly pale yellowish, antennal segment I black, eyes dark, tip of cuneus fuscous; clothed with simple pale pubescence; tibial spines pale. Membrane clear, veins pale yellowish. Genital structures distinctive, male claspers as shown in figure.

Female. Length 4.3 mm., width 1.5. *Head,* width, .73 mm., vertex .43 mm. *Antennae:* segment I, length .58 mm.; II, 1.64 mm.; III, .90 mm.; IV, broken. Large and more robust than the male but very similar in structure, color, and pubescence.

Distinguished by the pale yellowish color and black first antennal segment; probably greenish yellow in life.

Tahiti, Society Islands. Holotype male in Bishop Museum, collected by A. M. Adamson, Papeari, Nov. 9, 1928. Allotype female, collected by A. M. Adamson, Papeari, alt. 500 ft., Nov. 9, 1928, in "dead leaves of *Musa fehi*". Paratype female, collected by A. M. Adamson, Papeari, alt. 600 ft., Nov. 9, 1928.

Aretas flavus, new species (fig. 2, *a*).

Male. Length 4.02 mm., width 1.38 mm. *Head,* width .75 mm., vertex .34 mm.; vertex with a median longitudinal sulcation, widened a bit just before the basal edge. *Rostrum* (embedded in glue), reaching upon hind coxae. *Antennae:* segment I, length .52 mm., slightly thicker near base, pale pubescent, set with eight or more erect clear bristles, the length of each equal to or exceeding thickness of segment, color uniformly pale, a touch of reddish on extreme tip; II, 1.69 mm., slender, cylindrical, pale, very finely pale pubescent; III, .82 mm., pale; IV, .56 mm., pale. *Pronotum,* length .45 mm., width at base 1.04 mm.; basal margin slightly concave, lateral margins distinct, straight, disk very slightly convex, calli appear as slight swellings outlined by an impressed line; mesoscutum broadly exposed.

Color uniformly pale yellowish, perhaps with greenish tint in life; cuneus with apex fuscous, a minute point of red at tip of embolium. Body and legs clothed with rather long pale hairs and pubescence, more prominent on embolium and lateral margins of pronotum. Membrane and veins pale, perhaps tinged with dusky. Genital structures distinctive, male claspers as shown in figure.

Allied to *A. nigribasicornis,* but distinguished by the uniformly pale antennae and by structure of the male genital claspers.

Tahiti, Society Islands. Holotype male in Bishop Museum, collected by A. M. Adamson, Papenoo Valley, 10 km. from sea, alt. 150 m., Oct. 23, 1928.

Aretas rubroclavus, new species (fig. 1, *b*).

Male. Length 3.5 mm., width 1.3 mm. *Head,* width .69 mm., vertex .31 mm.; top of head rather flat, a fine longitudinal groove on median line; frons abrupt above base of tylus. *Rostrum,* length 1.18 mm., barely extending to posterior margins of hind coxae. *Antennae*: segment I, length .52 mm., black, clothed with fuscous pubescence; II, 1.57 mm., slender, cylindrical, pale yellowish, more or less reddish near base, pale pubescent; III, .69 mm., pale; IV, .56 mm., pale. *Pronotum,* length .45 mm., width at base .92 mm.; basal margin broadly concave, lateral margins slightly concave, disk moderately convex, calli outlined by an impressed line, slightly convex, pleura moderately inflexed.

Color pale yellowish, antennal segment I black, eyes brown, face reddish before eyes, lora and spot above base of antennae blackish; lateral margins of pronotal disk and extending slightly over sides, clavus except bordering scutellum, corium bordering clavus, base of embolium, apical half of cuneus, spot on paracuneus, and veins of membrane sanguineous to dark red; membrane dusky, distinctly fuscous within areoles and

bordering veins. Body clothed with prominent, erect, pale pubescent hairs, almost bristle-like on margins above. Genital structures distinctive, male claspers as shown in figure.

Structurally rather closely allied to *A. flavus,* but easily distinguished by red on pronotum, clavus, and cuneus.

Moorea, Society Islands. Holotype male in Bishop Museum, collected by A. M. Adamson, Opunohu Valley, two miles from sea, Nov. 30, 1928. Three male paratypes taken with the type.

Aretas rubrocuneatus, new species.

Female. Length 3.85 mm., width 1.43 mm. *Head,* width .78 mm., vertex .39 mm.; yellowish, median line of vertex and margins of lora red, eyes brown. *Rostrum,* length 1.34 mm., just attaining posterior margins of hind coxae. *Antennae*: segment I, length .47 mm., clothed with erect, pale pubescent hairs, pale yellowish, a touch of red on apex; II, 1.56 mm., slender, cylindrical, pale yellowish, reddish on extreme tip; III, broken. *Pronotum,* length .45 mm., width at base 1.04 mm.; basal margin broadly sinuate, leaving mesoscutum broadly exposed, lateral margins straight, disk moderately convex, anterior margin and calli slightly elevated. Coloration pale to yellowish, cuneus, paracuneus, veins of membrane, basal half of scutellum except median line, spot on base of clavus, and more or less on mesoscutum, sanguineous. Membrane clear with tinge of brownish.

Allied to *A. flavus* but distinguished by the red on cuneus, paracuneus, scutellum, and base of clavus.

Tahiti, Society Islands. Holotype female in Bishop Museum, collected by A. M. Adamson, Tuauru River, one mile from sea, alt. 50 ft., Sept. 5, 1928.

Aretas bakeri, new species (fig. 2, *c*).

Male. Length 4.7 mm., width 1.7 mm. *Head,* width .87 mm., vertex .35 mm.; vertex nearly flat, slightly impressed on median line, sanguineous, vertex and middle of frons pale, eyes reddish brown. *Rostrum,* length 1.5 mm., reaching to hind margins of posterior coxae. *Antennae*: segment I, length .47 mm., slightly thicker (.13 mm.) near base, sanguineous, more yellowish on apex, clothed with several erect, dusky, bristle-like hairs; II, 2.05 mm., cylindrical, honey yellow, pale pubescent; III, .69 mm., yellow; IV, .47 mm., dusky yellow. *Pronotum,* length .56 mm., width at base 1.29 mm.; basal margin very slightly sinuate, lateral margins distinct, nearly straight, disk moderately convex, calli outlined by an impressed line, slightly convex, depressed between; mesoscutum broadly exposed.

Ground color yellowish, first antennal segment, sides of head, broadly on lateral margins of pronotal disk, middle of mesoscutum, median basal triangle on scutellum, clavus except apically, a large spot on apex of corium and base of cuneus, tip of cuneus and veins in membrane, sanguineous; spot on apex of corium becoming dark red to fuscous. Membrane pale, rather evenly tinged with dusky, anal area and vein fuscous. Genital structures distinctive, male claspers as shown in figure.

Female. Length 4.8 mm., width 1.7 mm. *Head,* width .80 mm., vertex .43 mm. *Antennae*: segment I, length .48 mm.; II, 1.99 mm., slightly thicker apically, bearing a few erect pale hairs; III, .65 mm.; IV, broken. *Pronotum,* length .52 mm., width at base 1.25 mm. Slightly more robust than the male but very similar in structure and coloration.

This species keys out in the couplet with *A. rubroscutellatus* Knight by virtue of having reddish on the scutellum, but it is easily distinguished from

all other known species by the larger size, color aspect, and structure of the male genital claspers.

Baguio, Benguet, Luzon, Philippine Islands. Holotype male in my collection, collected by C. F. Baker. Allotype taken with the type. Paratypes: male, taken with types; female, Dapitan, Mindanao, Philippine Islands, collected by C. F. Baker.

Key to Species

1. Antennal segment I predominantly pale 2
   Antennal segment I red or black 4
2. Cuneus distinctly red 3
   Cuneus pale, dusky on apex; antennae and body chiefly pale ..... **A. flavus**
3. Lateral margins of pronotum, inner margins of corium, embolium, and tip of clavus sanguineous ..... **A. imperatorius** Dist.
   Lateral margins of pronotum, corium, and embolium except apex and clavus base, pale yellowish ..... **A. rubrocuneatus**
4. Scutellum pale 6
   Scutellum red or marked with red 5
5. Scutellum, clavus, and pronotum red ..... **A. rubroscutellatus**
   Scutellum pale, red only on middle of base; median one third of pronotum and apex of clavus pale ..... **A. bakeri**
6. Antennal segment I reddish to dark red, lateral margins of pronotum red 7
   Antennal segment I black, pronotum and hemelytra pale, tip of cuneus fuscous ..... **A. nigribasicornis**
7. Cuneus pale or with apex only red 9
   Cuneus red on apical half, or at least on inner membrane margin 8
8. Cuneus red on inner margin bordering membrane; basal half of corium red, apical area only pale ..... **A. sanguinarius** Dist.
   Cuneus with apical half red; corium red bordering the red clavus but with pale on basal half bordering embolium ..... **A. rubroclavus**
9. Cuneus red on apex 10
   Cuneus uniformly pale ..... **A. tahiticus**
10. Corium with red on base extending along outer margin, thence transversely to apex of clavus, tip of clavus red ..... **A. tahiticus** var. **rubromarginatus**
    Corium pale, base only and a quadrate spot bordering tip of clavus, red; a diamond-shaped red spot on apical area of clavus ..... **A. adamsoni**

TWO NEW SPECIES OF BARICHNEUMON (HYMENOPTERA: ICHNEUMONIDAE) FROM THE SOCIETY ISLANDS*

By

R. A. Cushman

Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

The two Tahitian species described below were submitted to me for study by Edward P. Mumford of the Pacific Entomological Survey. Both are closely related to the Marquesan *Barichneumon veo* Cheesman. These three species are by no means typical of the genus because of the somewhat convex scutellum, striate postpetiole, and the absence of the ventral abdominal plica. However, I cannot reconcile them with any of the genera described from the Australian region by Heinrich.

The following key will distinguish the three species:

1. Abdomen entirely black (coxae entirely black, hind coxa densely hairy ventrally) ..... **B. veo** Cheesman
   Abdomen not black beyond fourth tergite 2
2. Fifth tergite brown, sixth and seventh whitish; front and middle coxae whitish below; hind coxae densely hairy below; scutellum rather strongly convex and sparsely punctate ..... **B. bicoloranus**, n. sp.
   Tergites 5-7 brown; all coxae entirely black; hind coxae glabrous below; scutellum weakly convex, mat ..... **B. brunneicauda**, n. sp.

Barichneumon bicoloranus, n. sp.

Similar in size and form to *B. veo* Cheesman, but at once distinguishable by the bicolored apex of the abdomen and the ventrally whitish front and middle coxae and trochanters.

Female.—Length 13 mm.

Head coarsely and densely punctate, except on face, clypeus, and cheeks, which are sparsely punctate and polished; median welt of face nearly impunctate; a few oblique striae below each antenna; clypeus broadly truncate, not medially produced; basal joint of flagellum, exclusive of anellus, fully a half longer than thick.

Thorax laterally, coarsely ruguloso-punctate, pronotum more striately so below, more finely punctate above, speculum polished; mesoscutum finely and densely punctate, the punctation running into striation posteriorly; scutellum rather strongly convex, shining, rather sparsely punctate; propodeum somewhat irregularly striato-punctate laterally and apically, more evenly and obliquely striate in lateral areas, longitudinally striate in areola, costulae weak; hind coxae coarsely rugulose above, punctate on sides, densely hairy beneath.

Postpetiole longitudinally striate; tergite 2 densely punctate, medially striate especially at base; tergite 3 more finely and sparsely punctate; other tergites virtually impunctate; ovipositor slightly exserted.

Black; frontal orbits and margins about base of mandible reddish; front and middle coxae and trochanters whitish below, their femora and tibiae brown in front; wings slightly infumate, venation black; tergite 5 brown, tergites 6 and 7 whitish.

* Pacific Entomological Survey Publication 8, article 16. Issued February 28, 1938.

Society Islands: Tahiti, Papenoo Valley, one female taken October 25, 1928, A. M. Adamson (type no. 52110, U. S. National Mus.).

Barichneumon brunneicauda, n. sp.

Differs from description of *B. bicoloranus* as follows:

Female.—Length 11 mm.

Basal joint of flagellum barely a third longer than thick; pronotum finely ruguloso-punctate laterally throughout; mesoscutum finely ruguloso-punctate and dull; scutellum weakly convex, densely and rather coarsely rugulose; pleura more rugulose than ruguloso-punctate; propodeum reticulato-punctate; hind coxa not hairy beneath.

Legs entirely black except front tibia, which is brownish anteriorly; apical three tergites brown.

Society Islands: Tahiti, Anaroii Plateau, one female taken October 31, 1928, A. M. Adamson (type no. 52111, U. S. National Mus.).

A NEW SPECIES OF ECHTHROMORPHA (HYMENOPTERA: ICHNEUMONIDAE) FROM THE MARQUESAS ISLANDS*

By

R. A. Cushman

Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

Among some specimens of Ichneumonidae, submitted to me for study by Edward P. Mumford of the Pacific Entomological Survey, was the species of *Echthromorpha* described below.

Echthromorpha opaca, n. sp.

In the keys of both Krieger and Morley this species runs best, but not satisfactorily, to *Echthromorpha atrata* Holmgren because of the dense punctation and the lack of the infumate spot at the apex of the wing; but it differs in many respects from the descriptions of *E. atrata*, notably in its red mesoscutum and red legs.

Female.—Length 15 mm.; antenna 15 mm.

Head smooth and polished, with only the sides of face sparsely punctate; face as long as broad; malar space hardly as long as basal width of mandible; junction of occipital and hypostomal carinae a little more than twice the length of malar space from lower articulation of mandible; antennae very slender.

Thorax largely mat; pronotum laterally striate, longitudinally so below, more finely and obliquely so above; mesoscutum very finely and densely reticulate-punctate; notauli very weakly indicated anteriorly; scutellum polished and sparsely punctate; mesopleurum densely punctate, subalar tubercle and a very small speculum polished, and a somewhat swollen area below, tubercle sparsely punctate; metapleurum, except a small smooth area anteriorly, finely striato-punctate, mat; propodeum basally reticulate-punctate, posteriorly transversely striate medially, rugose laterally, without apophyses.

Abdomen finely reticulate-punctate, apices of tergites smooth, first tergite shining, impunctate, but faintly transversely striate; ovipositor sheath a little more than half as long as abdomen, cylindrical except the depressed apex.

Black; face, clypeus medially, and under side of scape pale ferruginous; orbits yellow, pronotum dorsally and anteriorly, mesoscutum except in middle of prescutum, a subcircular spot on swelling of mesopleurum with upper part of prepectus, a small spot before middle coxa, mesosternum, a large spot on each side of apex of propodeum, apices of tergites 1-6, and 7 and 8 entirely brownish ferruginous; faint indications of notauli, scutellum, and subalar tubercle yellowish; legs ferruginous, front coxa and trochanter and middle coxa with indefinite yellow spots; hind coxa laterally and mesally, all tarsi, and hind tibia black; wings hyaline, venation black.

Male.—More shining and less densely sculptured than female, the most notable sculptural difference being found on the mesoscutum, which in the male is alutaceous, sparsely punctate laterally and densely punctate only medially.

Entire face and clypeus, under side of scape, tegula, and subalar tubercle yellow; apical margins of tergites 2-6 more yellowish; front and middle coxae and trochanters, streaks on anterior surfaces of all femora, and a large spot dorsally on the otherwise black hind coxa yellow; front and middle tibiae and front tarsus infuscate yellowish.

Marquesas Islands: Tahuata, Hanahevane Valley, one female (holotype) and one male (allotype) taken at sea level, July 16, 1930, Le Bronnec and Tauraa (type no. 52112, U. S. National Mus.).

* Pacific Entomological Survey Publication 8, article 17. Issued February 28, 1938.

FOUR NEW SPECIES OF CYRTOPELTIS (HEMIPTERA: MIRIDAE) FROM THE MARQUESAS ISLANDS[1]

By

Harry H. Knight

Iowa State College, Ames, Iowa

The genus *Cyrtopeltis* Fieber appears to have a world-wide distribution, but most of the species are found in warm parts of the world. Counting the four species described here, the total number of known species is 27. Of special interest is *C. tenuis* Reuter which breeds on tobacco leaves and which appears to have been carried with this plant to various parts of the world. It is now known from the southern United States, Madeira, Egypt, Java, Sumatra, and the Fiji Islands. Kirkaldy (1908) described this species as *nicotianae* from tobacco in Fiji; Koningsberger (1922) gave it the same name in Java, while Fulmek (1925) named it *nocivus* in Sumatra. Other species of *Cyrtopeltis* known from the Pacific islands are *hawaiiensis* Kirk. (1902) and *confusa* Perkins (1911) from Hawaii, *indicus* Popp. from Ceylon, *javanus* Popp. and *pulchricornis* Popp. from Java, and *obscuricornis* Popp. and *plebejus* Popp. from Formosa.

It is interesting from the point of view of distribution that four species of *Cyrtopeltis* should be found in the Marquesas Islands, whereas none were present among the 32 species of Miridae recorded from the Samoan islands[2].

The best characters for distinguishing the various species of *Cyrtopeltis* are in the form of the male genital segment rather than in the flexible claspers. The remarkable modification of the segment wall into horns and processes suggests the taking over of certain functions generally performed by the claspers in other genera.

Cyrtopeltis marquesanus, new species (fig. 1, *a*).

Distinguished from allied species by the form of the male genital segment; color uniformly pale lemon yellow, tibiae and ventral surface paler.

Male. Length 3.3 mm., width 1 mm. Head: width 0.69 mm., vertex 0.22 mm., eyes set near collar, removed from it by a space equal to less than width of collar. Rostrum, length 1 mm., reaching to middle of intermediate coxae. Antennae: segment I, length 0.24 mm., not equal to half the width of head across eyes; II, 1 mm., cylindrical; III, 1 mm.; IV, 0.62 mm.; clothed with fine pale pubescence, pale yellowish, last two segments becoming dusky. Pronotum: length 0.47 mm., width at base 0.82 mm., basal margin sulcate, transverse on middle and curving back to basal angles; calli moderately prominent. Hemelytra moderately translucent, membrane uniformly pale translucent, veins yellowish. Clothed with sparsely set, erect, pale pubescent hairs, tibial spines pale. Genital segment distinctive of the species.

[1] Pacific Entomological Survey Publication 8, article 18. Issued April 18, 1938.

[2] Knight, H. H., Insects of Samoa, Hemiptera, (2), 193-228, 1935.

Female. Length 3.4 mm., width 1.08 mm. Head: width 0.56 mm., vertex 0.26 mm. Antennae: segment I, length 0.24 mm.; II, 0.91 mm.; III, 0.91 mm.; IV, 0.52 mm. Pronotum: length 0.48 mm., width at base 0.82 mm. Very similar to the male in color and pubescence.

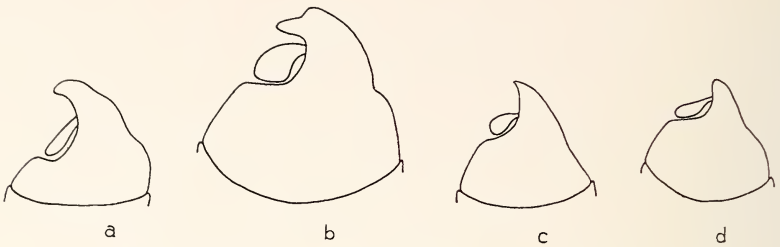


FIGURE 1.—*Cyrtopeltis* species, male genital segments, ventral aspect: *a, C. Marquesanus*; *b, C. tuberculatus*; *c, C. acuminatus*; *d, C. minutus.*

Marquesas Islands: Nukuhiva, Tapuaooa, altitude 2,500 feet, June 30, 1931, on *Weinmannia parviflora,* LeBronnec and H. Tauraa, holotype male in Bishop Museum.

Paratypes as follows:

Nukuhiva: Tovii, 2,500 feet, August 4, 1931, beating on *Metrosideros collina,* 4 specimens, LeBronnec and H. Tauraa. Muake, c. 3,000 feet, August 3, 1931, beating on *Metrosideros collina,* 4 specimens, LeBronnec and H. Tauraa. Oomaka, 2,350 feet, August 6, 1931, beating on *Metrosideros collina,* 2 specimens, LeBronnec and H. Tauraa. Tapuaooa: c. 300 feet, June 18, 1931, on *Metrosideros collina*; c. 2,500 feet, May 30, 1931, on *Weinmannia parviflora*; 3,500 feet, July 20, 1931, 1 specimen on *Metrosideros collina*; c. 3,000 feet, June 16, 1931, 1 specimen on *Metrosideros collina*; c. 3,000 feet, June 18, 1931, 2 specimens on *Weinmannia parviflora*; 3,100 feet, November 13, 1929, beating on *Weinmannia parviflora*; LeBronnec and H. Tauraa. Tekao Hill, 3,020 feet, July 23, 1931, on *Cyathodes tameiamiae,* 1 specimen on shrub-fam. Myrsinaceae (*Rapanea* sp. ?), and on *Metrosideros collina,* LeBronnec and H. Tauraa. Tauamaka, 2,900 feet, November 10, 1929, 1 specimen on *Metrosideros,* 2 specimens on *Metrosideros collina,* Mumford and Adamson. Oomu, May 28, 1931: 3,000 feet, 1 specimen on *Weinmannia parviflora* and 4 on *Metrosideros collina*; 3,200 feet, 1 specimen beaten from *Weinmannia Parviflora,* LeBronnec and H. Tauraa. Vaihakameama: c. 2,700 feet, June 19, 1931, on *Weinmannia parviflora,* 2 specimens, LeBronnec and H. Tauraa; 2,700 feet, July 21, 1931, miscellaneous sweeping, LeBronnec and H. Tauraa. Ridge north of Teuanui, 2,800 feet, October 26, 1929, on *Metrosideros collina,* 1 specimen, Mumford and Adamson.

Hivaoa. Kaava Ridge: 2,800 feet, January 7, 1932, 6 specimens beaten from *Weinmannia* sp., 2 specimens beaten from *Metrosideros collina*; 2,750

feet, January 6, 1931, 1 specimen beaten from *Weinmannia* sp. Kakahopuanui: 2,500 feet, January 5, 1932, sweeping on ferns; 2,600 feet, October 27, 1931, beating on *Weinmannia* sp.; 2,800 feet, October 27, 1931, beating on *Weinmannia* sp., 2 specimens. Matauuna, 3,700 feet, March 2, 1930, beating on *Cyrtandra* sp., Mumford and Adamson.

Fatuhiva. Teavaipuhiau, 2,150 feet, August 25, 1930, sweeping over *Paspalum conjugatum.*

Uapou. Hakahetau Valley, 1,200 feet, December 6, 1929, A. M. Adamson. Tekohepu Summit: 3,300 feet, November 27, 1931, beating on *Cheirodendron* sp.; 3,200 feet, November 28, 1931, beating on ferns and beating on *Metrosideros collina.* Teavanui, Paaumea Valley, 2,900 feet, November 27, 1931, beating on *Cyathea* sp.; Teavanui Pass, 2,900 feet, November 27, 1931, beating on *Freycinetia* sp.

Uahuka. Putatauua, Vaipaee Valley, 880 feet, September 20, 1929, 2 specimens, A. M. Adamson.

Cyrtopeltis tuberculatus, new species (fig. 1, *b*).

Allied to *C. marquesanus* but distinguished by the longer first antennal segment and in structure of the genital segment.

Male. Length 3 mm., width 0.9 mm. Head: width 0.5 mm., vertex 0.216 mm.; eyes removed from collar by a space equal to width of collar. Rostrum, length 0.99 mm., reaching to middle of intermediate coxae. Antennae: segment I, length 0.34 mm., equal to two thirds the width of head across eyes, yellow; II, 0.95 mm., pale; III, 1.25 mm.; IV, 0.47 mm.; last two segments pale to dusky. Pronotum: length 0.41 mm., width at base 0.73 mm., basal margin broadly sulcate, basal angles rounded but projecting posteriorly.

Coloration rather uniformly pale greenish yellow, hemelytra translucent, membrane nearly clear, veins yellow. Clothed with sparsely set, suberect, pale pubescent hairs, tibial spines pale. Genital segment distinctive, the apex with distinct tubercle directed transversely to the left side.

Female. Length 3.4 mm., width 1.1 mm. Head: width 0.52 mm., vertex 0.25 mm. Antennae: segment I, length 0.35 mm.; II, 0.95 mm. Pronotum: length 0.43 mm., width at base 0.78 mm. Very similar to the male in color and pubescence.

Marquesas Islands: Hivaoa, Kakahopuanui, altitude 2,500 feet, January 5, 1932, "sweeping on ferns", LeBronnec, holotype male in Bishop Museum.

Paratypes as follows:

Hivaoa. Mount Temetiu, northeast slope: 2,615 feet, July 24, 1929, 1 specimen; 2,500 feet, July 24, 1929, miscellaneous sweeping, 5 specimens; 2,600 feet, September 13, 1929, miscellaneous sweeping, 2 specimens, and on grass; 3,200 feet, September 13, 1929, miscellaneous sweeping, 2 specimens; 2,800 feet, August 3, 1929, 1 specimen; 2,800 feet, July 24, 1929, 2 specimens; 2,500 feet, July 24, 1929, 5 specimens; 2,800 feet, August 3, 1929, 2 specimens; 2,600 feet, September 13, 1929, 5 specimens. Kopaafaa, 2,770 feet, August 2, 1929: on *Tectaria* sp., 6 specimens; on *Freycinetia,* 1 specimen; miscellaneous sweeping; beating on *Scaevola* sp.; on *Tectaria* sp., 8

specimens. Kakahopuanui, 2,500 feet, January 5, 1932: sweeping herbage; sweeping on ferns, 15 specimens. Mount Tapeata, east slope, Ootua, 2,500 feet, May 25, 1929, on *Paspalum conjugatum*. Kaava Ridge, January 6, 1932: 2,820 feet, 7 specimens; 2,750 feet, beating on ferns. Vaiepoepo, 2,300 feet, June 2, 1929, 1 specimen on *Piper latifolium*. All collected by E. P. Mumford and A. M. Adamson (P.E.S.).

Uapou. Hakahetau Valley, 1,500 feet, December 26, 1929, 6 specimens, R. R. Whitten (P.E.S.).

Cyrtopeltis acuminatus, new species (fig. 1, *c*).

Allied to *C. marquesanus* but smaller; distinguished by the shorter second antennal segment which in length exceeds width of head very slightly.

Male. Length 2.5 mm., width 0.86 mm. Head: width 0.45 mm., vertex 0.216 mm.; eyes removed from collar by a space about equal to width of collar. Rostrum, length 1.04 mm., reaching to middle of intermediate coxae. Antennae: segment I, length 0.17 mm.; II, 0.48 mm., only slightly greater than width of head; III, 0.43 mm.; IV, 0.30 mm.; uniformly pale yellowish. Pronotum: length 0.39 mm., width at base 0.78 mm.; broadly sulcate on basal margin, the basal angles rounded, median line of disk slightly impressed, calli apparent as slight swellings. Hemelytra with embolar margins nearly straight and parallel.

General coloration pale greenish yellow, sometimes a slight infuscation developing on inner apical angles of corium, membrane uniformly pale.

Female. Length 2.6 mm., width 0.91 mm. Head: width 0.47 mm., vertex 0.26 mm. Antennae: segment I, length 0.17 mm.; II, 0.47 mm.; III, 0.44 mm.; IV, 0.34 mm. Pronotum: length 0.43 mm., width at base 0.82 mm. Very similar to the male in pubescence and coloration.

Marquesas Islands: Uapou, Hakahetau Valley, Teavaituhai, altitude 3,020 feet, November 20, 1931, beating on *Sclerotheca* sp., LeBronnec, holotype male in Bishop Museum.

Paratypes as follows:

Uapou. Hakahetau Valley, 3,020 feet: Teavaituhai, November 20, 1931, 3 specimens beaten from *Cyrtandra* sp., 2 specimens beaten from *Sclerotheca* sp.; Vaihakaatiki, November 18, 1931, 2 specimens beaten from *Cyrtandra* sp., 1 specimen beaten from *Vaccinium* sp. Tekohepu Summit: 3,200 feet, November 28, 1931, 1 specimen beaten from *Cyathea* sp.; 3,000 feet, November 30, 1931, 1 specimen beaten from *Cyrtandra* sp., 1 specimen beaten from *Cyathea* sp. All collected by LeBronnec.

Cyrtopeltis minutus, new species (fig. 1, *d*).

Allied to *C. acuminatus*, but distinguished by the longer antennal segments and form of the genital segment.

Male. Length 2.5 mm., width 0.73 mm. Head: width 0.43 mm., vertex 0.216 mm.; eyes removed from collar by a space greater than width of collar. Rostrum, length 0.82 mm., reaching to near hind margins of middle coxae. Antennae: segment I, length 0.23 mm.; II, 0.75 mm.; III, 0.86 mm.; IV, 0.48 mm. Pronotum: length 0.35 mm., width at base 0.60 mm.

Coloration uniformly pale greenish yellow, hemelytra somewhat translucent, membrane nearly clear, veins yellowish. Genital segment distinctive.

Marquesas Islands: Uahuka, Putatauua, Vaipaee Valley, 880 feet, September 20, 1929, A. M. Adamson, holotype male in Bishop Museum.

Paratypes as follows:

Hivaoa: Temetiu Ridge, 3,790 feet, January 14, 1932, beating on *Weinmannia* sp., male, LeBronnec.

Nukuhiva: Teuanui, Tovii, 1,900 feet, October 1, 1929, male, Mumford and Adamson.

ELEVEN NEW SPECIES OF CAMPYLOMMA (HEMIPTERA: MIRIDAE) FROM THE MARQUESAS ISLANDS*

By

Harry H. Knight

Iowa State College, Ames, Iowa

The genus *Campylomma* Reuter appears to be world-wide in distribution, 17 species having been described, although there are no records from South America. Adding 11 species described in the present paper we have a total of 28 species. Insects of this genus are very small and hence not often saved by the general collector, which may account for the lack of records from the Neotropical region and other parts of the world. Only one species, *Campylomma verbasci* Mey., has been recognized from North America, and this form is also common in Europe. That 11 new species of *Campylomma* should be recognized from the Marquesas Islands is surprising information for one interested in the distribution of Hemiptera. Here, in a few islands, we find more species of *Campylomma* than have elsewhere been recorded from whole continents. It is also noteworthy that in my study of the Miridae of Samoa[1] only two species of *Campylomma* were recognized from those islands. Here again, more careful collecting for small forms may reveal a few more.

The characters used for separating the several species of *Campylomma* may be mentioned for the benefit of later students. A few species are distinguished by definite rings and dots on the antennae, but not so the Marquesan species. The best structural characters are found in the relative lengths of the rostrum, second antennal segment, width of head across eyes, vertex or space between eyes, and width and length of pronotum. It would help greatly in sorting species if future workers would use an eyepiece micrometer and give definite measurements. The type of pubescence is often distinctive and should be carefully noted. Color characters are helpful when used in combination with the above-mentioned features, particularly the black setigerous dots found on the hind femora. Since this spotting of the femora is difficult to describe accurately in a few words, illustrations are provided for the species herein described.

In the study of small Miridae like *Campylomma,* nothing contributes so much to the accurate determination of specimens as careful mounting of perfect material. The rostrum and legs provide important characters, therefore should not be covered with adhesive. The mounting point should be small and the tip bent to fit the right side of the thorax only, thus preventing the rostrum from being covered.

* Pacific Entomological Survey Publication 8, article 19. Issued October 15, 1938.

[1] Knight, H. H., Insects of Samoa, Hemiptera (2), 197, 1935.

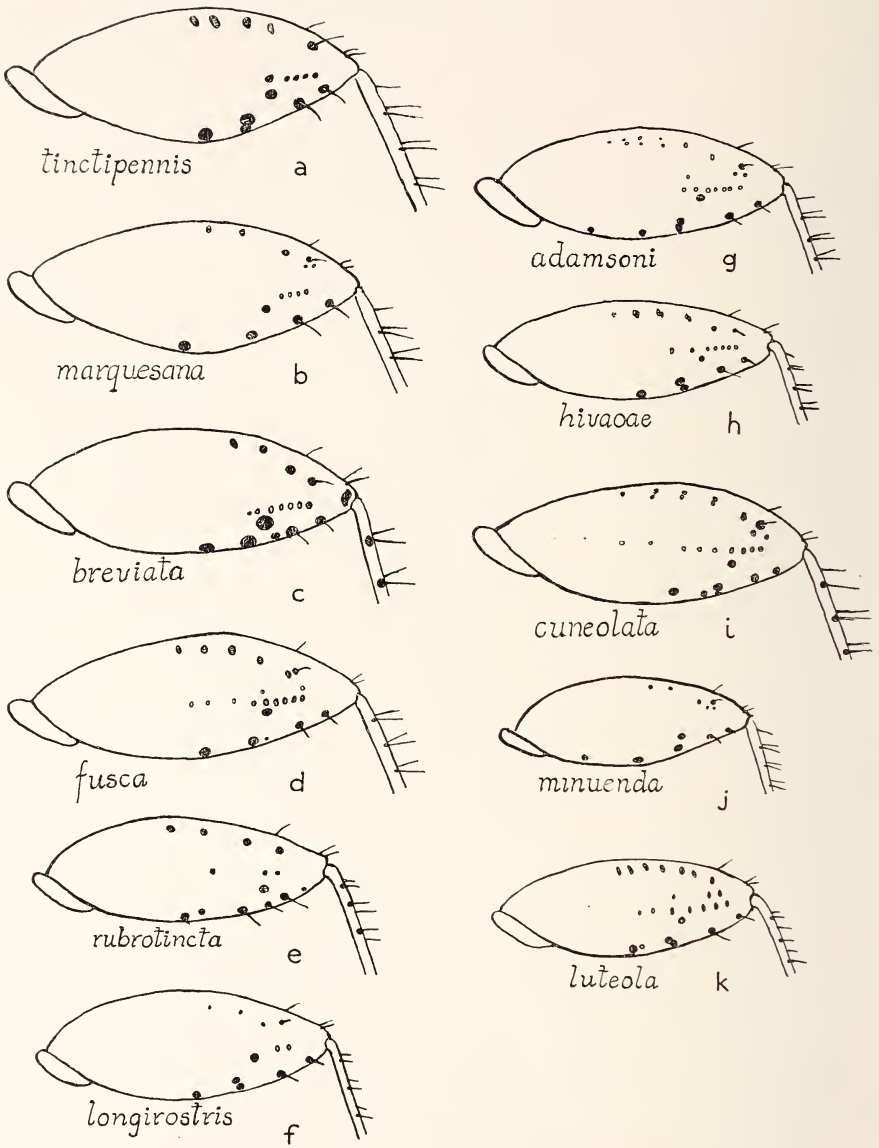


FIGURE 1.—Anterior aspect of left hind femur of species of *Campylomma*: *a*, *C. tinctipennis*; *b*, *C. marquesana*; *c*, *C. breviata*; *d*, *C. fusca*; *e*, *C. rubrotincta*; *f*, *C. longirostris*; *g*, *C. adamsoni*; *h*, *C. hivaoae*; *i*, *C. cuneolata*; *j*, *C. minuenda*; *k*, *C. luteola*.

Key to Known Species of *Campylomma* from the Marquesas Islands

1. Rostrum not extending beyond posterior trochanters 2
   Rostrum extending to middle of venter or genital segment 10
2. Rostrum extending upon posterior coxae 5
   Rostrum not extending beyond middle coxae 3
3. Pubescence simple, without sericeous pubescence 4
   Clothed with black, bristlelike pubescence and intermixed with a small amount of sericeous, pale pubescence; body reddish ..... **rubrotincta** Knight
4. Hind femora with heavy black dots (fig. 1, *c*); cuneus pale, inner margin slenderly, bright red ..... **breviata** Knight
   Hind femora with moderate black dots (fig. 1, *i*); cuneus roseate, outer margin paler ..... **cuneolata** Knight
5. Length of second antennal segment not or very slightly exceeding width of head across eyes 6
   Length of second antennal segment greater than width of head across eyes 7
6. Uniformly yellowish in color; posterior femora with distinctive dots (fig. 1, *g*) ..... **adamsoni** Knight
   Hemelytra distinctly reddish; hind femora with distinctive spots (fig. 1, *h*) ..... **hivaoae** Knight
7. Tylus distinctly projecting 8
   Tylus not very prominent 9
8. Hemelytra fuscous, embolium and cuneus paler (♂); female uniformly pale, membrane only infuscated; length 3.1 mm. ..... **fusca** Knight
   Hemelytra uniformly yellowish, membrane pale; length 2.4 mm. ..... **luteola** Knight
9. Color uniformly yellowish; rostrum reaching to middle of hind coxae; length 2.6 mm. ..... **marquesana** Knight
   Hemelytra roseate, female roseate on apical area of corium only; length 2.9 mm. ..... **tinctipennis** Knight
10. Rostrum extending beyond middle of venter or upon genital segment; length 2.7-2.9 mm. ..... **longirostris** Knight
    Rostrum only reaching to middle of venter; length 2 mm. ..... **minuenda** Knight

Campylomma marquesana, new species (fig. 1, *b*).

Distinguished by the uniformly yellowish color, characteristic dots on hind femora, and rostrum reaching to middle of hind coxae.

Male. Length 2.5 mm. Head: width 0.78 mm., vertex 0.30 mm. Rostrum: length 1.08 mm., reaching to middle of hind coxae. Antennae: segment I, length 0.17 mm.; II, 0.95 mm., equal in thickness to segment I, slightly more slender near base; III, 0.60 mm.; IV, 0.26 mm.; yellowish to brownish, last two segments blackish. Pronotum: length 0.91 mm., width at base 1.08 mm. Clothed with suberect, bristlelike, black, pubescent hairs, intermixed on hemelytra with a few more recumbent, fine, pale, pubescent hairs.

General coloration pale yellowish, probably greenish yellow in life, eyes dark brown; hind femora with black dots on anterior face as shown in figure 1, *b*; tibial spines black, with very small dot at base of each. Membrane fuscous, veins slightly paler.

Female. Length 2.6 mm. Head: width 0.69 mm., vertex 0.33 mm. Antennae: segment I, length 0.17 mm.; II, 0.73 mm.; III, 0.56 mm.; IV, 0.30 mm. Pronotum: length 0.52 mm., width at base 1.08 mm. Very similar to the male in coloration and pubescence.

Marquesas Islands. Hivaoa: Kaava Ridge, alt. 2,460 ft., Jan. 6, 1932, collected at light by LeBronnec; holotype male in Bishop Museum.

Paratypes as follows:

Hivaoa: thirty-five specimens taken with the type. Kaava Ridge, alt. 2,000 ft., two specimens, Oct. 27, 1931, on *Glochidion ramiflorum*; Kakahopuanui, alt. 2,460 ft., one specimen, Jan. 5, 1932, taken at light; Kakahopuanui, alt. 2,800 ft., one specimen, Oct. 27, 1931, beating on *Glochidion ramiflorum*, collected by LeBronnec. Avaoa Valley, alt. 1,350 ft., 28 specimens, Jan. 4, 1932, taken at light by LeBronnec. Feani Ridge, Tenatinaei, alt. 3,970 ft., five specimens, Jan. 12, 1932, collected by LeBronnec.

Uapou: Teavanui Pass, alt. 2,900 ft., three specimens, Nov. 26, 1931, collected at light by LeBronnec. Teoatea, Hakahetau Valley, alt. 1,950 ft., one specimen, taken at light, Nov. 17, 1931; one specimen, alt. 2,000 ft., Nov. 19, 1931, beating on *Metrosideros collina*, collected by LeBronnec.

Tahuata: Vaitahu Valley, seashore, two specimens, June 17, 1930, collected at light by LeBronnec and H. Tauraa.

Fatuhiva: Ouia Valley, near sea level, one specimen, Sept. 2, 1930, collected on *Sida* sp. by LeBronnec.

Campylomma adamsoni, new species (fig. 1, *g*).

Allied to *C. marquesana* but smaller, the second antennal segment not (♀) or slightly exceeding (♂) width of head across eyes; arrangement of spots on hind tibiae also distinctive (fig. 1, *g*).

Male. Length 2.4 mm. Head: width 0.69 mm., vertex 0.30 mm. Rostrum, length 0.91 mm., reaching to middle of hind coxae. Antennae: segment I, length 0.17 mm.; II, 0.71 mm., very slightly exceeding width of head across eyes, thickness equal to segment I but more slender near base; III, 0.49 mm.; IV, 0.21 mm.; uniformly yellowish, last two segments fuscous. Pronotum: length 0.43 mm., width at base 0.92 mm. Dorsum clothed with prominent, suberect, fuscous, pubescent hairs and intermixed with more recumbent, fine, pale pubescence; a prominent, black, bristlelike hair set each side on lateral margin of disk just behind the anterior angle.

General coloration pale yellowish, probably more greenish yellow in life, membrane pale to dusky; hind femora with black dots on anterior face as shown in figure 1, *g*; tibial spines prominent, black, a slight dot at base of each.

Female. Length 2.4 mm. Head: width 0.66 mm., vertex 0.30 mm. Antennae: segment I, length 0.16 mm.; II, 0.64 mm., scarcely equal to width of head across eyes; III, 0.45 mm.; IV, 0.25 mm.; uniformly yellowish, last two segments fuscous. Slightly more robust than the male but very similar in pubescence and coloration.

Marquesas Islands. Eiao: uplands towards N. end, east ridge, alt. 1,855 ft., Sept. 29, 1929, collected by A. M. Adamson; holotype male in Bishop Museum.

Paratypes as follows:

Eiao: nine specimens taken with the type. Vaituha, alt. 1,100 ft., five specimens, Oct. 2, 1929, on *Dodonaea viscosa*; three specimens taken at light, Oct. 2, 1929, collected by Adamson. Above Vaituha, alt. 800 ft., one specimen, Oct. 1, 1929, taken on *Melochia velutina*, by Adamson. Near center of island, alt. 1,665 ft., ten specimens taken on *Hibiscus tiliaceus*, Sept. 28, 1929, by Adamson; one specimen, alt. 1,700 ft., April 16, 1931, on *Premna taitensis*; one specimen, alt. 1,500 ft., April 22, 1931, on *Dodonaea viscosa*, collected by LeBronnec and Tauraa.

Hatutu: one specimen, middle of east side, alt. 800 ft., Sept. 30, 1929, on *Melochia velutina,* by Adamson.

Uahuka: Penau Ridge, alt. 2,200 ft., one specimen, March 5, 1931, on *Weinmannia parviflora,* collected by LeBronnec and Tauraa.

Hivaoa: Kakahopuanui, alt. 2,500 ft., one specimen, Jan. 5, 1932, collected by LeBronnec. Tahauku, one specimen taken near seashore, July 10, 1929, collected by Mumford and Adamson. Teava Uhia i te kohu, alt. 2,100 ft., eight specimens, Feb. 15, 1930, beating on *Hibiscus tiliaceus,* collected by Mumford and Adamson.

Tahuata: Vaitahu Valley, seashore, one specimen taken at light, Aug. 8, 1930, by LeBronnec.

Fatuhiva: Ouia Valley, near sea level, Sept. 2, 1930, three specimens taken on *Ocimum basilicum,* by LeBronnec.

Campylomma luteola, new species (fig. 1, *k*).

Allied to *C. adamsoni* but smaller, distinguished by the more prominent tylus and different spotting of the femora.

Male. Length 2.3 mm. Head: width 0.65 mm., vertex 0.30 mm.; tylus distinctly more prominent than in allied species, *C. fusca* excepted. Rostrum: length 0.95 mm., reaching to middle of posterior trochanters. Antennae: segment I, length 0.17 mm.; II, 0.70 mm., nearly cylindrical, slightly more slender than segment I; III, 0.52 mm.; IV, 0.25 mm.; yellowish, last two segments fuscous. Pronotum: length 0.41 mm., width at base 0.91 mm.; disk much flattened. Dorsum clothed with prominent, suberect, black pubescence, intermixed with a few very fine, pale hairs.

General coloration pale to yellowish, deeper yellow on head and pronotum; hind femora with many fuscous dots as shown in figure 1, *k*; tibial spines prominent, black, a very small dot at base of each.

Female. Length 2.4 mm. Head: width 0.62 mm., vertex 0.27 mm.; tylus prominent as in the male. Antennae: segment I, length 0.14 mm.; II, 0.64 mm.; III, 0.46 mm.; IV, 0.24 mm.; yellowish, last two segments fuscous. Pronotum: length 0.39 mm., width at base 0.90 mm. Very similar to male in pubescence and coloration.

Marquesas Islands. Fatuuku: alt. 860 ft., Nov. 19, 1930, beating on *Morinda citrifolia* by Tauraa; holotype male in Bishop Museum. Paratypes: twelve specimens taken with the type.

Campylomma tinctipennis, new species (fig. 1, *a*).

Distinguished from allied species by the roseate color of the hemelytra which is paler along claval suture, apex of embolium and on cuneus; rostrum attaining apices of hind coxae.

Male. Length 2.9 mm. Head: width 0.82 mm., vertex 0.35 mm. Rostrum: length 1.23 mm., attaining apices of hind coxae. Antennae: segment I, length 0.19 mm.; II, 0.91 mm., cylindrical, nearly as thick as segment I, clothed with fine, short, dusky pubescence; III, 0.65 mm.; IV, 0.34 mm.; yellowish brown, last two segments fuscous to black. Pronotum: length 0.52 mm., width at base 1.17 mm. Dorsum clothed with rather prominent, black, bristlelike pubescence, hairs stronger and more erect on clavus, pronotum, and scutellum.

General coloration yellowish, sides of body tinged with roseate and brownish; hemelytra roseate; cuneus except inner margin, tip of clavus, and more or less broadly along claval suture, pale to yellowish. Membrane fuscous, veins reddish. Scutellum roseate to fuscous. Legs pale to yellowish, hind femora spotted on anterior face as shown in

figure 1, *a*; front and middle femora with three dots beneath; tibial spines prominent, black, basal dots scarcely evident.

Female. Length 3 mm. Head: width 0.82 mm., vertex 0.39 mm. Rostrum attaining posterior margins of hind coxae. Antennae: segment I, length 0.19.; II, 0.86 mm.; III, 0.69 mm.; IV, 0.32 mm. Pronotum: length 0.56 mm., width at base 1.21 mm. Slightly more robust than the male and paler in color; the roseate color much reduced, sometimes apparent only on apical area of corium.

Marquesas Islands. Nukuhiva: Tekao Hill, alt. 3,020 ft., July 25, 1931, taken on *Metrosideros collina* by LeBronnec and Tauraa; holotype male in Bishop Museum.

Paratypes as follows:

Nukuhiva: Tekao Hill, alt. 3,020 ft., 11 specimens, July 23, 1931, collected on *Metrosideros collina* by LeBronnec and Tauraa. Oomu, alt. 3,000 ft., 12 specimens on *Weinmannia parviflora,* May 27, 1931; and 27 specimens, May 28, 1931, on *Metrosideros collina* and *Weinmannia parviflora,* collected by LeBronnec and Tauraa. Muake, north side, 24 specimens, alt. 2,500 ft., and 12 specimens, alt. 3,000 ft., Aug. 3, 1931, collected on *Metrosideros collina* by LeBronnec and Tauraa. Oomaka, alt. 2,350 ft., seven specimens, Aug. 6, 1931, on *Metrosideros collina,* collected by LeBronnec and Tauraa. Tapuaooa, alt. about 2,500 ft., eight specimens, May 30, 1931, on *Weinmannia parviflora*; one specimen, about 2,750 ft., June 17, 1931; eight specimens, June 16, 1931; two specimens, June 18, 1931; two specimens, July 20, 1931; all taken on *Metrosideros collina* by LeBronnec and Tauraa. Toovii, alt. 2,500 ft., 15 specimens, Aug. 4, 1931, by beating *Metrosideros collina,* collected by LeBronnec and Tauraa. Tauamaka, alt. 2,900 ft., three specimens, Nov. 10, 1929, beating on *Metrosideros collina* by Mumford and Adamson. Ridge north of Teuanui, alt. 2,800 ft., two specimens, Oct. 26, 1929, collected on *Metrosideros collina* by Mumford and Adamson. Vaihakameama, about 2,700 ft., four specimens, June 19, 1931, on *Weinmannia parviflora* by LeBronnec and Tauraa. Vaiotekea, alt. 2,200 ft., one specimen, Aug. 6, 1931, beating on *Metrosideros collina* by LeBronnec and Tauraa.

Uapou: Teoatea, Hakahetau Valley, alt. 1,950 ft., one specimen, Nov. 20, 1931; alt. 2,000 ft., nine specimens, Nov. 19, 1931; alt. 1,950 ft., three specimens, Nov. 16, 1931; all collected on *Metrosideros collina* by LeBronnec. Teavanui Pass, alt. 2,900 ft., three specimens taken at light, Nov. 26, 1931, collected by LeBronnec.

Hivaoa: Kopàafaa, alt. 2,800 ft., one specimen, Feb. 25, 1930, collected on *Weinmannia parviflora* by Mumford and Adamson. Tepuna, alt. 3,010 ft., one specimen, Aug. 1, 1929, collected on *Metrosideros collina* by Mumford and Adamson.

Tahuata: Vaitahu, seashore, one specimen, June 17, 1930, taken at light by LeBronnec and Tauraa.

Campylomma breviata, new species (fig. 1, *c*).

Allied to *C. tinctipennis* and resembling it in color, but distinguished at once by the shorter rostrum which extends only to middle coxae.

Male. Length 2.7 mm. Head: width 0.86 mm., vertex 0.30 mm. Rostrum: length 0.91 mm., just reaching to middle of intermediate coxae. Antennae: segment I, length 0.17 mm.; II, 0.91 mm., cylindrical, slightly more slender than segment I; III, 0.65 mm.; IV, 0.30 mm.; yellowish, last two segments fuscous. Pronotum: length 0.48 mm., width at base 1.08 mm. Dorsum clothed with prominent, black, bristlelike pubescence, intermixed on hemelytra with a few very fine, recumbent, pale, pubescent hairs.

General coloration pale yellowish; pleura, sternum, and sides of venter fuscous; hemelytra tinged with red, embolium and tip of cuneus more strongly red; cuneus pale yellowish, apex and inner margin slenderly, bright red; membrane fuscous, veins bright red. Legs pale to yellowish, femora strongly marked with black spots as shown in figure 1, *c*; tibial spines prominent, black; setigerous dots large and prominent.

Female. Length 2.8 mm. Head: width 0.86 mm., vertex 0.30 mm. Antennae: segment I, length 0.17 mm.; II, 0.82 mm.; III, 0.65 mm.; IV, 0.30 mm. Pronotum: length 0.52 mm., width at base 1.12 mm. More robust than the male and paler in color; reddish coloration apparent only on apex of cuneus and mere traces on corium. Pubescence similar to that of the male.

Marquesas Islands. Hivaoa: Kaava Ridge, alt. 2,000 ft., Oct. 27, 1931, beating on *Glochidion ramiflorum,* collected by LeBronnec; holotype male in Bishop Museum.

Paratypes as follows:

Hivaoa: one specimen taken with type; Kakahopuanui, alt. 2,460 ft., one specimen, Jan. 5, 1932, taken at light by LeBronnec. Kopaafaa, alt. 2,770 ft., one specimen, Aug. 3, 1929, collected by Mumford and Adamson.

Uapou: Teoatea, Hakahetau Valley, alt. 2,000 ft., one specimen, Nov. 19, 1931, collected by LeBronnec. Teavanui Pass, alt. 2,900 ft., one specimen, Nov. 26, 1931, taken at light by LeBronnec.

Uahuka: Tauheeputa, alt. 1,770 ft., one specimen, March 23, 1931, collected on *Glochidion ramiflorum* by LeBronnec and Tauraa.

Campylomma rubrotincta, new species (fig. 1, *c*).

Distinguished from allied species by a small amount of sericeous, pale pubescence intermixed with the suberect, black, bristlelike pubescence on the hemelytra; the whole body colored by reddish in the hypodermis.

Male. Length 2.7 mm. Head: width 0.74 mm., vertex 0.26 mm. Rostrum: length 0.78 mm., just reaching to middle of intermediate coxae. Antennae: segment I, length 0.19 mm.; II, 1.08 mm., scarcely equal to thickness of segment I, more slender on basal half; III, 0.57 mm.; IV, 0.26 mm. Pronotum: length 0.47 mm., width at base, 1.08 mm. Clothed with prominent, suberect, blackish pubescence and intermixed on hemelytra with a small amount of pale sericeous pubescence.

General coloration dusky to reddish, cuneus dark ruby red but pale at the fracture, membrane fuscous; femora dusky red, dotted with black as shown in figure 1, *c*; tibiae pale, more or less reddish on basal half, armed with prominent black spines, a dark spot at base of each.

Female. Length 2.5 mm. Head: width 0.73 mm., vertex 0.30 mm. Antennae: segment I, length 0.17 mm.; II, 0.93 mm.; III, 0.60 mm. Pronotum: length 0.47 mm., width at base 1.12 mm. More robust than the male but very similar in pubescence and coloration.

Marquesas Islands. Nukuhiva: Vaiotekea, alt. 2,000 ft., Aug. 6, 1931, collected by LeBronnec and Tauraa; holotype male in Bishop Museum.

Paratypes as follows:

Nukuhiva: nine specimens taken with type; Oomaka, alt. 2,350 ft., Aug. 6, 1931, beating on *Metrosideros collina,* one specimen collected by LeBronnec and Tauraa.

Campylomma cuneolata, new species (fig. 1, *i*).

Distinguished from allied species by the short rostrum and the roseate cuneus.

Male. Length 2.7 mm. Head: width 0.69 mm., vertex 0.30 mm. Rostrum: length 0.82 mm., just reaching to middle of intermediate coxae. Antennae: segment I, length 0.19 mm.; II, 0.91 mm.; III, 0.60 mm.; IV, 0.34 mm.; brownish yellow, last two segments blackish. Pronotum: length 0.43 mm., width at base 0.95 mm. Clothed with prominent, suberect, black pubescence with very little finer pubescence intermixed.

General coloration pale to brownish yellow, clavus and corium becoming dusky, cuneus distinctly roseate, outer margin paler, genital segment fuscous on base; hind femora with black spots as shown in figure 1, *i*; tibial spines prominent, black, with distinct fuscous spot at base of each.

Female. Length 2.6 mm. Head: width 0.67 mm., vertex 0.32 mm. Antennae: segment I, length 0.18 mm.; II, 0.78 mm.; III, 0.56 mm.; IV, 0.27 mm. Pronotum: length 0.43 mm., width at base 0.97 mm. More robust than the male but very similar in pubescence and coloration.

Marquesas Islands. Uapou: Tekohepu Summit, alt. 3,000 ft., Nov. 28, 1931, collected by LeBronnec; holotype male in Bishop Museum.

Paratypes as follows:

Uapou: Teavanui Pass, alt. 2,900 ft., two specimens, Nov. 28, 1931, beating on *Bidens lantanoides*; one specimen, alt. 3,200 ft., Nov. 28, 1931, beating on *Angiopteris* sp., collected by LeBronnec. Teavavanui, alt. 3,200 ft., one specimen, Nov. 28, 1931, beating on *Angiopteris* sp. by LeBronnec. Teavaituhai, Paaumea Valley, alt. 3,020 ft., one specimen, Nov. 20, 1931, beating on *Bidens lantanoides* by LeBronnec.

Campylomma minuenda, new species (fig. 1, *j*).

Distinguished from allied species by the small size, pale color, and the long rostrum which extends to middle of the venter.

Male. Length 1.9 mm. Head: width 0.57 mm., vertex 0.27 mm. Rostrum: length 0.92 mm., reaching to middle of venter. Antennae: segment I, length 0.13 mm.; II, 0.60 mm., nearly equal in thickness to segment I but tapering, more slender on basal half; III, 0.38 mm.; IV, 0.21 mm.; pale, last two segments dusky. Pronotum: length 0.37 mm., width at base 0.82 mm. Dorsum clothed with prominent, suberect, black pubescent hairs, and intermixed with an equal amount of more recumbent, pale yellowish pubescence.

Color uniformly pale testaceous, membrane lightly infuscated; hind femora with distinct black dots on anterior face as shown in figure 1, *j*; tibiae armed with prominent black spines; those on basal half with small black dot at base of each.

Female. Length 2 mm. Head: width 0.56 mm., vertex 0.30 mm. Antennae: segment I, length 0.13 mm.; II, 0.52 mm.; III, 0.35 mm.; IV, 0.21 mm. Pronotum: length 0.35 mm., width at base 0.82 mm. Slightly more robust than the male but very similar in pubescence and coloration.

Marquesas Islands. Uahuka: Teavamataiki, alt. 730 ft., March 24, 1931, taken on *Melochia velutina* by LeBronnec and Tauraa; holotype male in Bishop Museum.

Paratypes as follows:

Uahuka: Teavamataiki, alt. 730 ft., 16 specimens, March 24, 1931, collected on *Melochia velutina* by LeBronnec and Tauraa. Teanatuhiva, alt. 300 ft., 16 specimens, March 18, 1931, on *Waltheria americana* by LeBronnec and Tauraa.

Tahuata: four specimens, alt. 100 ft., June 7, 1930, on *Sida* sp.; Vaitahu, seashore, one specimen, June 17, 1930; Hanahevane Valley, seashore, one specimen, July 16, 1930; Motopu, alt. 15 ft., 20 specimens, July 17, 1930, on *Sida* sp., all collected by LeBronnec and Tauraa.

Fatuhiva: Ooia Valley, alt. 500 ft., five specimens, Sept. 9, 1930, beating on *Melochia velutina* by LeBronnec.

Mohotani: two specimens, northern part of island, alt. 400 ft., Feb. 4, 1931, on *Melochia velutina.*

Campylomma longirostris, new species (fig. 1, *f*).

Distinguished from allied species by the long rostrum which reaches beyond middle of venter or upon genital segment.

Male. Length 2.7 mm. Head: width 0.75 mm., vertex 0.37 mm.; tylus more prominent than in *C. marquesana.* Rostrum: length 1.21 mm., reaching upon base of genital segment. Antennae: segment I, length 0.18 mm.; II, 0.86 mm., cylindrical, slightly more slender at base, thickness slightly less than segment I; III, 0.57 mm.; IV, 0.30 mm.; yellowish, last two segments fuscous. Pronotum: length 0.43 mm., width at base 1.08 mm. Dorsum clothed with prominent, suberect, bristlelike pubescence, base of vertex and anterior margin of pronotum set with a few stronger bristles.

General coloration uniformly yellowish, cuneus without indication of deeper color, membrane fuscous. Legs pale yellowish, hind femora with fuscous dots as shown in figure 1, *f*; tibial spines black, prominent, without indication of setigerous dots.

Female. Length 2.9 mm. Head: width 0.82 mm., vertex 0.38 mm. Rostrum: length 1.48 mm., reaching upon base of ovipositor. Antennae: segment I, length 0.17 mm.; II, 0.91 mm.; III, 0.65 mm.; IV, 0.34 mm. Pronotum: length 0.56 mm., width at base 1.25 mm. More robust than the male but very similar in pubescence and coloration.

Marquesas Islands. Nukuhiva: ridge north of Teuanui, alt. 2,800 ft., Oct. 26, 1929, on *Metrosideros collina,* collected by Mumford and Adamson; holotype male in Bishop Museum.

Paratypes as follows:

Nukuhiva: one specimen taken with type; Tauamaka, alt. 2,900 ft., one specimen, Nov. 10, 1929, beating on *Metrosideros collina,* collected by Mumford and Adamson.

Fatuhiva: Tahuna, alt. 2,050 ft., one specimen, Sept. 3, 1930, beating on *Metrosideros collina,* collected by Mumford and Adamson.

Campylomma hivaoae, new species (fig. 1, *h*).

Distinguished from allied species by the short second antennal segment and reddish coloration of the hemelytra.

Male. Length 2.8 mm. Head: width 0.82 mm., vertex 0.34 mm.; tylus moderately prominent. Rostrum: length 1.12 mm., reaching upon base of hind coxae. Antennae: segment I, length 0.17 mm.; II, 0.78 mm., cylindrical, nearly equal in thickness to segment I, length not equal to width of head; III, 0.56 mm.; IV, 0.30 mm.; brownish yellow, last two segments blackish. Pronotum; length 0.52 mm., width at base 1.12 mm. Dorsum clothed with suberect, bristlelike, black, pubescent hairs, intermixed on pronotum and clavus with a few erect bristles.

General coloration yellowish to salmon pink, hemelytra distinctly reddish, apex of embolium and outer base of cuneus paler; membrane uniformly blackish, veins bright red. Legs pale yellowish, hind femora with black spots as shown in figure 1, *h*; tibial spines black, prominent, a very small spot at base of each.

Female. Length 2.6 mm. Head: width 0.73 mm., vertex 0.35 mm. Antennae: segment I, length 0.17 mm.; II, 0.69 mm., more slender than in the male; III, 0.56 mm.; IV, 0.30 mm. Pronotum: length 0.46 mm., width at base 1.04 mm. Very similar to the male but hemelytra pale reddish, cuneus and embolium paler.

Marquesas Islands. Hivaoa: Kakahopuanui, Kaava Ridge, alt. 2,800 ft., Oct. 27, 1931, beating on *Glochidion ramiflorum,* by LeBronnec; holotype male in Bishop Museum.

Paratypes as follows:

Hivaoa: Tenatinaei, Feani Ridge, two specimens, alt. 3,970 ft., Jan. 12, 1932, and one specimen, Jan. 13, 1932, collected by LeBronnec; Kakahopuanui, Kaava Ridge, alt. 2,800 ft., one specimen, Oct. 27, 1931, on *Glochidion ramiflorum,* and one specimen, Jan. 7, 1932, by beating *Weimannia* sp., collected by LeBronnec.

Campylomma fusca, new species (fig. 1, *d*).

Distinguished from allied species by the longer and more prominent tylus, rostrum attaining posterior margins of hind coxae; hemelytra fuscous, embolium and cuneus pale.

Male. Length 3.1 mm. Head: width 0.82 mm., vertex 0.36 mm. Rostrum: length 1.34 mm., attaining posterior margins of hind coxae. Antennae: segment I, length 0.21 mm.; II, 0.91 mm., cylindrical, thickness slightly less than segment I; III, 0.60 mm.; IV, 0.39 mm.; yellowish, last two segments blackish. Pronotum: length 0.52 mm., width at base 1.12 mm. Dorsum clothed with suberect, bristlelike, black pubescent hairs, with stronger, more erect hairs on base of clavus and pronotum.

General coloration pale greenish yellow, hemelytra distinctly infuscated, embolium and cuneus paler; hind femora with black dots on anterior face as shown in figure 1, *d*; tibial spines black, with small fuscous dot at base of each.

Female. Length 3.1 mm. Head: width 0.82 mm., vertex 0.43 mm.; tylus distinctly more prominent than in *C. marquesana.* Antennae: segment I, length 0.21 mm.; II, 0.95 mm.; III, 0.65 mm.; IV, 0.39 mm. Pronotum: length 0.82 mm., width at base 1.21 mm. More robust than the male but pubescence very similar; color uniformly pale with tinge of yellow, membrane only infuscated.

Marquesas Islands. Uapou: Vaihakaatiki, Hakahetau Valley, alt. 3,020 ft., Nov. 18, 1931, collected by LeBronnec, beating on *Vaccinium* sp.; holotype male in Bishop Museum.

Paratypes as follows:

Uapou: Vaihakaatiki, Hakahetau Valley, alt. 3,020 ft., two specimens by beating *Vaccinium* sp. and six specimens by beating *Cyrtandra* sp., Nov. 18, 1931, collected by LeBronnec. Teoatea, Hakahetau Valley, alt. 2,000 ft., five

specimens, Nov. 16, 1931; alt. 1,950 ft., 10 specimens, Nov. 19, 1931, and one specimen, Nov. 21, 1931; all collected on *Metrosideros collina* by LeBronnec. Teavaituhai, Hakahetau Valley, alt. 3,020 ft., one specimen, Nov. 20, 1931, beating on *Sclerotheca* sp., by LeBronnec. Teavaituhai, alt. 3,020 ft., three specimens, Nov. 20, 1931, beating on *Cyrtandra* sp., by LeBronnec. Teavaituhai, alt. 3,000 ft., one specimen, Dec. 8, 1929, on *Sclerotheca* sp., collected by Adamson. Tekohepu Summit, alt. 3,200 ft., seven specimens, Nov. 28, 1931, beating on *Cyrtandra* sp., and one specimen on *Metrosideros collina*; alt. 3,300 ft., one specimen, Nov. 27, 1931, beating on *Sclerotheca* sp., collected by LeBronnec.

Hivaoa: Kaava Ridge, alt. 2,800 ft., six specimens, Jan. 7, 1932, beating on *Reynoldsia* sp.; one specimen, Oct. 27, 1931, beating on *Ageratum conyzoides* by LeBronnec. Avaoa Valley, alt. 1,350 ft., one specimen, Jan. 4, 1932, taken at light, by LeBronnec. Feani Ridge, Tenatinaei, alt. 3,970 ft., two specimens, Jan. 13, 1932, by LeBronnec. Matauuna, alt. 3,800 ft., one specimen, March 3, 1930, taken on *Sclerotheca* by Mumford and Adamson.

Tahuata: Amatea, alt. 2,600 ft., one specimen, June 28, 1930, collected by LeBronnec and Tauraa.

A NEW SPECIES OF CAMPYLOMMA (HEMIPTERA: MIRIDAE) FROM THE SOCIETY ISLANDS*

By

Harry H. Knight

Iowa State College, Ames, Iowa

In a previous paper[1], I described eleven new species of *Campylomma* from the Marquesas Islands, as well as enumerating some of the characters used for separating the several species of this genus. I now describe a new species from Tahiti in the Society Islands.

Campylomma tahitica, new species (fig. 1).

Distinguished from allied species by the uniformly pale color, pale pubescence, and characteristic spotting of the hind femora.

Male. Length 2.4 mm. Head: width 0.69 mm., vertex 0.30 mm.; tylus slightly prominent. Rostrum extending upon hind coxae (imbedded in glue). Antennae: segment I, length 0.16 mm.; II, 0.65 mm., not equal to width of head; III, 0.47 mm.; IV, 0.26 mm.; yellowish, last two segments fuscous. Pronotum: length 0.43 mm., width at base 0.91 mm. Dorsum clothed with simple, recumbent, pale yellowish pubescence, sometimes a few fuscous hairs appearing on base of clavus.

General coloration uniformly pale or pale yellowish, cuneus uniformly pale like the corium, membrane pale fuscous. Legs pale, hind femora with characteristic spots as shown in figure 1; tibial spines prominent, black, sometimes with small setigerous dots.

Female. Length 2.7 mm. Head: width 0.73 mm., vertex 0.34 mm. Antennae: segment I, length 0.17 mm.; II, 0.69 mm.; III, 0.47 mm.; IV, 0.28 mm. Very similar to the male in pubescence and coloration.

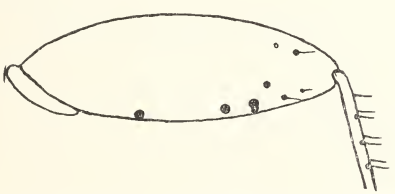


Figure 1.—Anterior aspect of left hind femur of *Campylomma tahitica.*

Society Islands. Tahiti, Papeete, at sea level Sept. 9, 1928, taken at light by A. M. Adamson; holotype male in Bishop Museum.

Paratypes as follows:

Tahiti, Fautaua Valley, alt. 1,500 ft., Sept. 11, 1928, on *Hibiscus tiliaceus,* six specimens; 1 mile from sea, Sept. 9, 1928, one specimen; Sept. 11, 1928, four specimens; all collected by A. M. Adamson. Papenoo Valley, alt. 150 m., 10 km. from sea, Oct. 25, 1928, on *Hibiscus tiliaceus,* two specimens; Hitiaa, alt. 1,000 ft., 4 miles from sea, Nov. 20, 1928, on *Metrosideros* sp., one specimen; all collected by A. M. Adamson; Paea, Aug. 29, 1928, on *Hibiscus tiliaceus,* one specimen collected by A. M. Adamson.

* Pacific Entomological Survey Publication 8, article 20. Issued October 15, 1938.

[1] B. P. Bishop Museum, Bull. 142, article 19.

NEW FIGITIDAE FROM THE MARQUESAS ISLANDS[1]

By

ALFRED C. KINSEY

INDIANA UNIVERSITY[2]

The collections made by the Pacific Entomological Survey include perhaps nine species of cynipoids from the Marquesas Islands and two from Tahiti. All are parasitic forms belonging to the family Figitidae.

Any systematic data from oceanic islands as remote as the Marquesas should be of considerable importance in evolutionary analyses; but, unfortunately, only one of the eleven species which the Survey has forwarded for my study is represented by a series large enough to allow me to distinguish individual from group variation. Without such series there is no sound basis for recognizing the slight differences which ordinarily separate insular species. Having to depend on such small series (in half the present instances on single specimens of each species) one may be misled into believing the material from each island distinct because of characters which larger series might show up as individual variation on a single island. Or, if one ventures to recognize identity in scant collections from two different islands, it is at the risk of overlooking minute variations or differences in averages which are often the most significant differences between island races.

With these things in mind, it seems necessary to conclude that the cynipoid material now available from the Marquesas Islands can add little to our knowledge of insular species, although it may serve as a preliminary check against which additional collections from these and other parts of Oceania may be compared.

Perhaps 800 "species" of parasitic cynipoids are "described" in the literature; but in all the collections of the world there are probably not more than five or ten thousand specimens of this group. If all this material were brought together at one place, it would provide no sound understanding of such a long list of forms. On the other hand, many of the species of gall-making Cynipidae are represented by thousands of individuals, one species by over 100,000 individuals in my collection. It is from such series that data of evolutionary significance are to be derived. However, most of the species of parasitic cynipoids are known from single specimens or from perhaps half a dozen specimens per species, scattered in museums and private collections all over the world. From a number of these collections material has been sent

[1] Pacific Entomological Survey Publication, article 21. Issued October 20, 1938.

[2] Contribution from the Department of Zoology, Indiana University, no. 273 (Entomological Series no. 23).

me, during the last twenty years, for determination and description. I have usually pronounced such material inadequate for study and returned the collections to the far-spread museums. In no single place is it possible to find a collection of parasitic cynipoids large enough to warrant serious taxonomic treatment. If collectors who find these insects would forward them to me or to some other specialist for study at such future time as the accumulated material might warrant, or if collectors would forward their material to such central depositories as the U. S. National Museum, or for Oceania to the Bishop Museum in Honolulu, enough material might be gathered to allow us to straighten out the chaos into which the book descriptions have already thrown our knowledge of this group.

Under the circumstances I describe here only the one species of Marquesan cynipoids which is represented by a fair series of specimens, and three other species which are so closely related to the first that they may be evaluated to some extent by comparison with the first. There remain eight specimens, representing possibly seven species, all in the tribe Eucoilinae if not in the genus *Eucoila* itself, which I refrain from describing until more material is available. Types of the new species and the undescribed material will be deposited in the Bishop Museum where it may prove significant when additional material is collected from Oceania.

The species described below belong to a single group which is possibly a single complex of closely related species. Two of the species are from the island of Uapou and two from Hivaoa, but the apparent occurrence of the first species on both islands, and the occurrence of more than one species on each island suggests that these are not island races. As parasitic insects they may prove to be isolates occurring on distinct hosts.

The generic relations of the complex are not precisely determinable. Three of the species run to *Aglaotoma* in the Dalla Torre and Kieffer key (Das Tierreich, 1910), but the new complex is distinct in several respects from the descriptions of the species assigned to *Aglaotoma*. One of the species of the complex, because of the terminal segments of the antennae, runs to some undetermined subgenus of the genus *Eucoila* (fig. 1, *c, d*). Until material is available for a sound evolutionary redefinition of these groups, it would merely add to the confusion to describe a new genus here. The new species are, therefore, put into the already over-flowing genus *Eucoila,* without any opinion as to their relationship with the type of that genus.

Holotypes are stored in Bishop Museum, paratypes in the Kinsey collection. Some paratypes of *Eucoila* (*marquesiana*) *marquesiana* are also in Bishop Museum.

EUCOILA

Marquesiana Complex

The characters common to all four of the species described below are as follows:

Female. Body almost entirely black, smooth, and shining. Head almost entirely black, naked, smooth, and shining, rufo-piceous to black on mouth parts; fully as wide as thorax, with eyes rather large, slightly protuberant, making front profile somewhat triangulate; with a very fine but distinct malar furrow. Antennae of moderate length, slender, with 13 segments; light yellow to dark brown; finely pubescent especially on terminal segments; first segment short, vase-shaped, second nearly globular, third distinctly long and slender, but fourth longer than third, the remaining segments increasingly shorter to the last which is shortest, with only a suggestion of a club in the terminal segments.

Thorax rather narrow, slender, considerably elongate back of scutellum, well rounded on dorsal surface; entirely black, entirely smooth, naked, and shining except on scutellum; dorsally without lines or grooves; scutellum definitely marked off from rest of mesonotum by its lower level, but without a scutellar ridge to separate the two parts, anteriorly with two large, rounded, shallow but well defined, finely separated foveae which are smooth at bottom, the median line which separates the two foveae connected posteriorly with a well-raised area which has an elongate oval center, the depressed area in the oval and the steeply sloping sides of the oval being roughened, with stray hairs about the margin of the scutellum; pronotum very narrow dorsally, but very broadly triangulate laterally, entirely smooth and naked; propleuron very narrow, almost linear; mesopleuron almost as broad as high, with a fine, deep groove, about as deep as grooves between other thoracic segments, extending across the mesopleuron parallel to and rather near the lower margin, with a few faint aciculations paralleling the anterior end of this groove; metapleuron similarly divided by a horizontal groove which is, however, nearer the middle of the segment.

Abdomen no larger than thorax, somewhat triangulate, only short petiolate, rather compressed laterally, with second segment covering nearly the whole area, exposing only tips of posterior segments and nothing of ventral segments; entirely black, smooth, shining, and naked except for a narrow ring of short, matted hairs on very anterior margin; hypopygium usually not visible, with a very short, hardly noticeable, blunt spine which bears a few stray hairs.

Legs long and slender, finely punctate and finely hairy; with two short, inconspicuous spines at terminal end of tibiae; tarsal claws fine, very weak, simple.

Wings a little longer than body, the wing-body ratio from 1.08 to 1.12, averaging nearer 1.10; well rounded at tip; only slightly tinged yellowish; finely hairy, rather long ciliate on margin, especially on outer hind margin; veins fine, light honey brown, subcosta, basalis, and veins bounding radial cell most evident; terminal portion of cubitus faint to obsolete, cubitus from areolet to basalis practically obsolete but with suggestion enough of its position to indicate its origin at ventral tip of basalis; discoideus similarly gone; subcosta depressed at its union with basalis, without any break between there and point of union with radius; terminal portion of subcosta long, straight; first abscissa of radius nearly straight but with downward curve near areolet; second abscissa of radius long but curved upward so radial cell is distinctly short, broad, and rather triangulate; radial cell closed; marginal vein sometimes extending a bit on either side of radial cell, areolet closed; hind wing with subcostal vein only.

Very small insects, 1.3 to 2.2 mm. long.

Male. Hardly different from female except in having antennae longer and more slender, with 15 segments; abdomen slightly smaller; wing slightly longer, with wing-body ratio nearer 1.15. The third and fourth segments of antennae are as in the female, and the abdomen is not more petiolate and hardly more pointed posteriorly, although the hypopygium is not so well developed.

Eucoila (marquesiana) marquesiana, new species (fig. 1, *a-b, d-e*).

Female and *male.* Antennae light golden rufous, dark brown on first segment, browner on terminal third to half, with last 3 to 7 segments (the number varying even in the two antennae of one individual) more moniliform and distinctly shorter; legs largely rich rufous, dark piceous on coxae and rarely on centers of femora; whole insect 1.5 to 2.2 mm., averaging near 2.0 mm. long

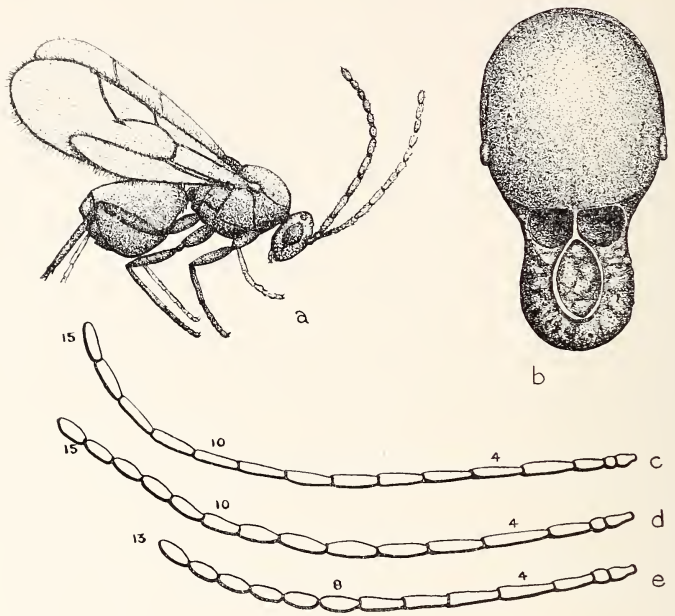


FIGURE 1.—New *Eucoila* species from the Marquesas: *a, E. marquesiana,* female; *b, E. marquesiana,* detail of mesonotum showing sculptured scutellum typical of generic group (×15); *c, E. negatrix,* antenna, male; *d, E. marquesiana,* antenna, male; *e, E. marquesiana,* antenna, female; *c-e* show differences in terminal segments of antennae used as a basis for distinguishing "genera" in current classifications of *Eucoila*; the species shown clearly belong to one complex of closely related species.

Uapou: holotype female, Tekohepu Summit, alt. 3,000 ft., beaten from *Weinmannia* sp., Nov. 30, 1931; 2 female and 4 male paratypes from same locality, beaten from *Metrosideros collina, Weinmannia* sp. and *Cyrtandra* sp., Nov. 28, 30, 1931; 3 female paratypes from Teavanui, alt. 2,900 ft., on *Bidens lantanoides* and *Angiopteris* sp., Nov. 27, 28, 30, 1931; 1 female and 3 male paratypes, Paaumea Valley, Teavanui, alt. 2,900 ft., beaten from *Bidens lantanoides* and *Freycinetia* sp., Nov. 27, 1931; 2 female and 1 male paratypes, Teavaituhai, Hakahetau Valley, alt. 3,020 ft., beaten from *Freycinetia* sp., Nov. 20, 1931; 3 male paratypes, Teavaituhai, Paaumea side, alt. 3,020 ft., beaten from *Vaccinium* and *Cyrtandra* spp., Nov. 19, 20, 1931. All collected by Le Bronnec.

Hivaoa: 1 female specimen, Matauuna, alt. 3,760 ft., on *Weinmannia* sp., July 24, 1929, Mumford and Adamson; 1 female specimen, Kaava Ridge, alt. 2,800 ft., beaten from *Weinmannia* sp., Jan. 7, 1932, Le Bronnec.

The two females from Hivaoa appear identical with the type insects from Uapou, but the series is too small to make the identity of the material from the two islands quite certain.

Eucoila (marquesiana) mellosa, new species.

Female and *male.* Antennae light yellow-brown, light yellow basally, light golden yellow on basal segments, terminal segments still rather elongate, not moniliform; legs entirely light rufo-yellow; whole insect very small, about 1.3 mm. long.

Uapou: holotype female, Teavaituhai, Hakahetau Valley, alt. 3,020 ft., beaten from *Freycinetia* sp., Nov. 19, 1931; paratype male, Tekohepu Summit, alt. 3,200 ft., beaten from *Freycinetia* sp., Nov. 28, 1931; both collected by LeBronnec.

Eucoila (marquesiana) negatrix, new species (fig. 1, *c*).

Male. Antennae distinctly brown on all but first three segments, these basal segments rufo-yellow, the terminal segments more slender, cylindrical, not moniliform; legs entirely light golden yellow to light rufo-yellow, even on coxae; whole insect 1.7 to 1.9 mm. long.

Hivaoa: holotype male and 1 male paratype, Kopaafaa, alt. 2,770 ft., miscellaneous sweeping, Aug. 2, 1929, Mumford and Adamson.

In the collections now on hand, there is one male from the island of Uapou (Tekohepu Summit) which is very close to the present species from Hivaoa, but the legs are somewhat more rufo-yellow, the antennae a bit heavier, and the whole insect a bit larger. This may represent an island isolate of *E. negatrix,* but the material is too scant to warrant naming.

Eucoila (marquesiana) orta, new species.

Female. Antennae almost entirely rich, dark brown, touched more rufous only on basal segments; legs entirely amber rufous, even on coxae; whole insect small, about 1.3 mm. long.

Hivaoa: holotype female, Teava Uhia i te Kahu, alt. 2,100 ft., beaten from *Hibiscus tiliaceus,* Feb. 15, 1930; 1 female paratype, Mt. Temetiu, northeast slope, alt. 2,500 ft., miscellaneous beating, July 24, 1929; both collected by Mumford and Adamson.

In addition to the two females from Hivaoa, there is a single female from Fatuhiva which is very similar, but it has the base of the antennae more amber rufous. More adequate material might show it to be an island isolate of *E. orta.*

UNA NUOVA SPECIE DI BLASTOPHAGA DELLE ISOLE MARQUESAS[1] [2]

per

Guido Grandi

Direttore dell'Istituto di Entomologia della R. Università di Bologna

Ho ricevuto dal Signor E. P. Mumford 6 Agaonidi raccolti nelle Isole Marquesas. Il materiale, conservato a secco, comprende solo femmine e si trova in condizioni poco buone e poco adatte ad uno studio moderno e preciso. Mi è stato tuttavia possibile di individuare in esso una nuova specie di *Blastophaga* che qua sotto viene descritta ed illustrata.

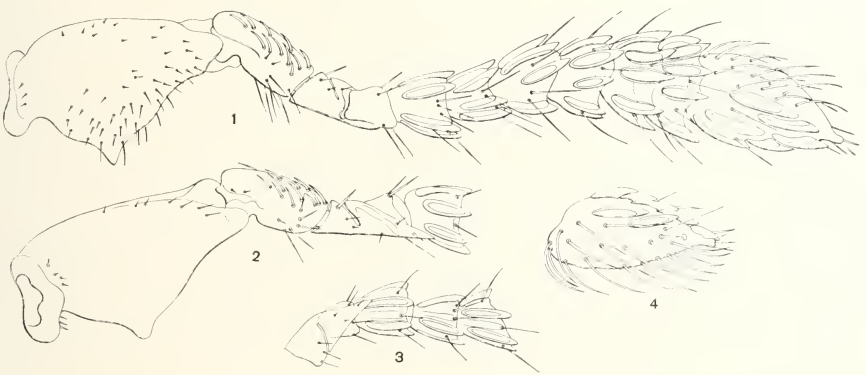


Figura I.—*Blastophaga mumfordi*, n. sp.: 1, antenna di un individuo di Uahuka; 2, i primi cinque articoli della stessa veduti dalla faccia opposta; 3, articoli 3-7 dell'antenna di un esemplare raccolto a Hivaoa; 4, l'ultimo articolo della stessa.

Blastophaga (Valentinella) Mumfordi, n. sp.

Femmina. *Colore* fondamentale umbrino castagno, con la porzione anteriore del capo, i primi 3 articoli delle antenne, le mandibole con le loro appendici, le regioni pleurosternali del torace e le zampe isabellini slavati di melleo (esemplari conservati a secco e semiimmersi nella gomma).

Capo. Cranio (fig. II, 1) distintamente più largo (occhi compresi) che lungo. Il maggior diametro delle orbite è evidentemente più lungo delle rispettive guance. Tricotassi e chetotassi come nella figura citata.—*Antenne* (fig. I, 1-4) di 11 articoli liberi. Lo scapo è più lungo che largo e sporge, più indietro della metà della sua lunghezza, in una prominenza odontoide assai vistosa. Esso è fornito di numerosi peli brevi, e, prossimamente dopo la strozzatura, si allarga in una porzione di notevole ampiezza. Il 2° articolo, un po' più lungo di due volte la sua larghezza, è poco sporgente sullo scapo. Setole come nella figura. Il 3° articolo è distintamente, ma parzialmente, diviso in due parti, delle quali quella bratteiforme sorpassa l'estremità distale del 4° articolo, che è circa tanto lungo quanto largo. Il 5° articolo non è molto più voluminoso del precedente

[1] Pacific Entomological Survey Publication 8, article 22. Issued November 10, 1938.

[2] 41° Contributo alla conoscenza degli Insetti dei Fichi.

e risulta fornito di una serie di sensilli celoconici modestamente sporgenti oltre il suo margine distale. Se ne vedono, più o meno completamente, 4 per ogni faccia. Il 6° articolo assomiglia al precedente, ma è un po' più stretto. Il 7° si avvicina talora al 6° e talora al 5°. Gli articoli 8°, 9° e 10° sono simili fra loro, più larghi che lunghi, e forniti di una serie (4-5 per faccia) di sensilli celoconici sensibilmente prominenti oltre il margine distale di ciascun articolo. L'11° è grande, a forma di pina, lungo circa come i tre precedenti, non peduncolato, coi sensilli che si vedono nella figura. Chetotassi come nelle figure.—*Mandibole* (fig. II, 2 e 3) fornite di numerose e lunghe setole distribuite come lo mostra la figura, e col dente apicale di notevoli dimensioni. Il processo prossimale è un po' più lungo della mandibola e presenta 8-10 laminette rilevate trasverse. —*Mascelle* come nella fig. II, 4, e con 2 setole subdistali. *Labbro inferiore* con 2 setole distali.

Torace. Pronoto fornito di numerosi peli distribuiti particolarmente nelle zone laterali. —*Mesonoto* provvisto dei seguenti peli lunghetti (negli esamplari esaminati, naturalmente): 2 (1 per parte) laterali e subposteriori nello scuto; 8-9 in ogni scapola; 7-9 in ogni ascella; 7-8 nello scutello. Vi sono inoltre 5 microchete spiniformi presso il margine interno di ciascun processo alare anteriore. La *regione sterno—pleurale mesotoracica* mostra quattro gruppi di setoline: 2 submediali di 5-6 elementi ciascuno e 2 sublaterali e subanteriori di 10 elementi circa ciascuno; le due espansioni laterali del prepetto hanno 2-3 brevi peli ciascuna; l'espansione di ogni mesopleura, adiacente all'epimero e connessa intimamente con l'area che differenzia il processo alare mesopleurale, presenta 4 peli brevissimi in una serie marginale.—*Metanoto* con 2 serie (1 per lato) anteriori e laterali di 4-5 minuti peli ciascuna, e con 3-4 peluzzi in ogni processo alare.

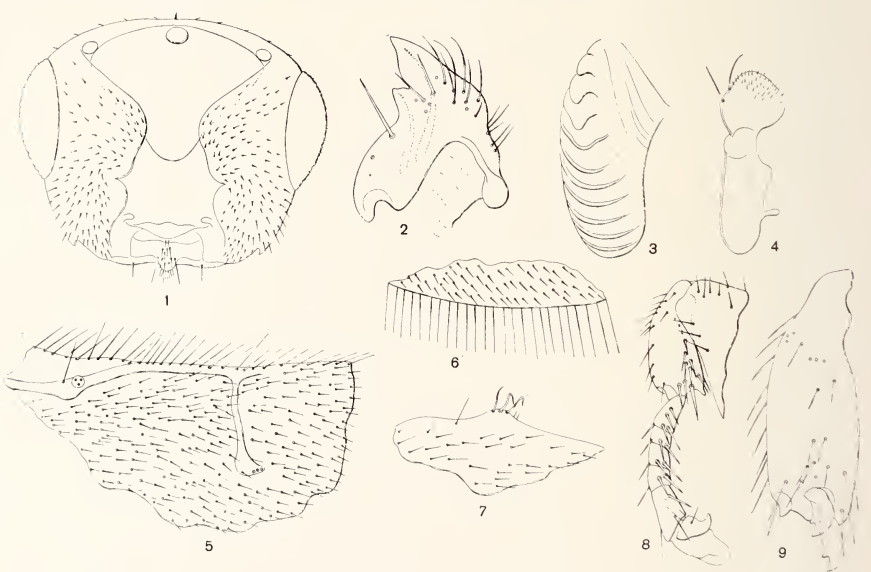


FIGURE II.—*Blastophaga mumfordi*, n. sp: 1, cranio veduto di faccia (es. di Hivaoa); 2, mandibola senza processo prossimale veduta dal dorso (es. di Hivaoa); 3, processo prossimale della stessa mandibola; 4, una mascella veduta di lato (es. di Nukuhiva); 5, porzione di un'ala anteriore (es. di Uahuka); 6, porzione della regione marginale posteriore della stessa ala; 7, porzione di un'ala posteriore per mostrare gli *hamuli* (es. di Nukuhiva); 8, porzione del femore, tibia, tarso e pretarso di una zampa anteriore (es. di Uahuka); 9, tibia di una zampa posteriore veduta dalla faccia esterna (es. di Uahuka).

Ali anteriori (fig. II, 5-6). La venatura marginale è circa tanto lunga quanto la stigmatica, che è quasi normale al margine costale dell'ala e fortemente espansa alla sua estremità distale, ove possiede 3 sensilli. Della v. postmarginale è accennato solo un breve tratto. Peli della cuticola alare fitti e di sensibile lunghezza; quelli della frangia come nella figura. — *Ali posteriori* (fig. II, 7). Setole ed "hamuli" come nella figura.

Zampe. Quelle anteriori (fig. II, 8) e quelle posteriori (fig. II, 9) hanno le caratteristiche rappresentate nelle figure.

Addome. La porzione sporgente della terebra è un po' più lunga del gastro.

Cinque esemplari femmine conservati a secco, delle Isole Marquesas (Oceano Pacifico): 3 esemplari raccolti da LeBronnec & H. Tauraa ad Uahuka, Penau Ridge, 2,010 ft., il 2 marzo 1931; 1 esemplare raccolto da Mumford & Adamson a Nukuhiva, Tunoa Ridge, 3,485 ft., il 22 ottobre 1929; 1 esemplare raccolto pure da Mumford & Adamson ad Hivaoa, Matauuna, 3,760 ft., il 24 luglio 1929.

Un sesto esemplare, pervenutomi senza testa e con grande approssimazione riferibile alla medesima specie, è stato catturato nella stessa località citata per i primi tre (Uahuka, Penau Ridge).

Nelle Isole Marquesas vegeta un *Ficus* endemico, il *Ficus marquesensis* F. Brown. Molto probabilmente la *B. mumfordi* si evolve nei suoi ricettacoli.

Sono stato un po' incerto se inscrivere la specie ora descritta nel sottogenere *Valentinella,* ma ho finito col decidermi in senso affermativo, riservandomi di ritornare sulla questione allorchè sarà possibile studiare altri individui in migliori condizioni e il sesso maschile. Questa *Blastophaga* è, ad ogni modo, bene distinta da tutte le altre conosciute.

I 2 esemplari raccolti a Nukuhiva e a Hivaoa hanno 7 peli alle ascelle anzichè 9 come quello esaminato di Uahuka. L'esemplare raccolto a Hivaoa presenta il 7° articolo delle antenne simile al 6° e non al 5° come si verifica negli esemplari di Uahuka e di Nukuhiva. Detti reperti fanno supporre l'esistenza di varietà insulari, delle quali si potrà trattare solamente quando avremo a disposizione materiale più abbondante.

TAHITIAN AND OTHER RECORDS OF HAPLOCHERNES FUNAFUTENSIS (WITH)[1] [2] (ARACHNIDA: CHELONETHIDA)

By

J. C. Chamberlin

Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Corvallis, Oregon

Since my statement of January 1934 [B. P. Bishop Mus., Occ. Pap. 10 (22), 1934] that no false scorpions had been recorded from the Society Islands, I have had the opportunity of examining some specimens of *Haplochernes funafutensis* (With) collected in Tahiti by A. M. Adamson. This species, hitherto known in the literature from a single female collected on the island of Funafuti in the Ellice Islands, has also been taken by E. H. Bryan, Jr., in Fiji.

Haplochernes funafutensis (With) (fig. 1).

Chelifer funafutensis With, Linn. Soc. London, Jour. Zool. 30:57, 1907.

Haplochernes funafutensis (With) Beier, Das Tierreich 58:113, 1932.

Haplochernes funafutensis (With) Chamberlin, Ann. Mag. Nat. Hist., XI, 2: 275, 1938.

Diagnosis (emended). For both male and female unless otherwise noted. Carapace 1.2-1.3 times as long as broad; eye spots present but indistinct; anterior carapacal furrow well defined, distad of median; posterior furrow typical in position, less prominent than anterior furrow. Carapace, tergites, and palps smooth and almost "polished" except for lateral margins of carapace and anterior face of femur, which are weakly and sparsely granulate (a few scattered granules may occur on tibia as well). Tergites 1 and 11 entire, 2-4 generally partially divided (in some specimens 2 and 3 entire), 5-10 with an obscure linear impression and complete (sometimes partial) scutal division; tergites 1-3 uniseriate bordered by 8-10 setae, tergites 4-10 biseriate with 4 discal and 10-14 marginal setae. Sternites 4-10 with partial to complete linear division; median sternites biseriate with 4 discal and 14-18 marginal setae; tergite 10 with a submedian discal pair of unusually slender but scarcely pseudotactile setae; tergite 11 with a shorter median and longer lateral pair of discal pseudotactile setae; sternite 10 with a median and lateral semitactile discal seta on each scutum; sternite 11 with a median pseudotactile and a lateral pair of pseudotactile setae. Chelicerae normal; setae es, sb, and b terminally denticulate; serrula exterior with 17-20 ligulate teeth (generally 18), serrula interior with 3 dentate subapical lobes; galea variable but terminally 6-branched and equally developed in both sexes (fig. 1, *C-H*); flagellum with anterior blade denticulate, the others nearly acuminate, at most with 1 or 2 denticulations. Palps moderately attenuate (fig. 1, *A*); trochanter with a moderately developed sub-dorsal conical protuberance, 1.5-1.8 times as long as broad and only a little shorter than breadth of chela; femur 1.5-1.6 times as long as trochanter, slightly but distinctly shorter than tibia and 2.4-2.6 times as long as broad; tibia 2.25-2.34 times as long as broad; chela 1.6-1.9 times as long as tibia and 2.9-3.2 times as long as broad; chela slightly but distinctly broader than

[1] Pacific Entomological Survey Publication 8, article 23. Issued March 15, 1939.

[2] For the privilege of studying this material I am indebted to E. P. Mumford of the Pacific Entomological Survey, and to E. H. Bryan, Jr., Curator of Bishop Museum.

deep; hand 1.1-1.2 times as long as fingers, which are much shorter than femur; chela as illustrated (fig. 1 *B*); fixed finger with 58-67 and movable finger with 61-73 marginal teeth; accessory teeth poorly developed interiorly, with only a single terminal accessory tooth on fixed finger; exteriorly each finger bearing a series of 5-8 evenly spaced teeth (fig. 1, *B*); pattern of chaetotaxy as illustrated; two accessory pseudotactile setae on movable finger, one slightly ventrocaudad of T, the other submedian between T and finger tip; ISB and IB caudad of ESB and EB; EST nearly opposite IST; IT slightly proximad of median and slightly closer to EST than EST is to ESB; nodus ramosus submedian between T and ST; duct of venom apparatus normal, not inflated. Linear cluster of 7-11 sense spots extending interiorly on fixed finger from between setae ISB and IB to distad of seta IST. One or two sense spots sometimes occurring exteriorly on fixed finger near setae ESB and EB and a similar pair occurring interiorly on movable finger opposite and distad of setae IB and ISB, none exteriorly on movable finger. Tibia of leg I with a subterminal sense dome; tarsus of leg IV with a sense dome proximad of tarsal pseudotactile seta, which is placed 0.29 to 0.33 of tarsal length from its base (fig. 1, *J*). Tibia of leg IV with a weakly differentiated, denticulate, submedian and subterminal pseudotactile seta (fig. 1, *J*). Leg I: femur (dorsal length of both subsegments) 2.8-3.0 as long as its greatest depth and 1.36-1.44 times as long as tibia; tibia 1.07-1.19 times as long as tarsus and 3.12-3.33 times as long as deep; tarsus 3.84-4.12 times as long as deep. Leg IV: femur (greatest length of both subsegments)

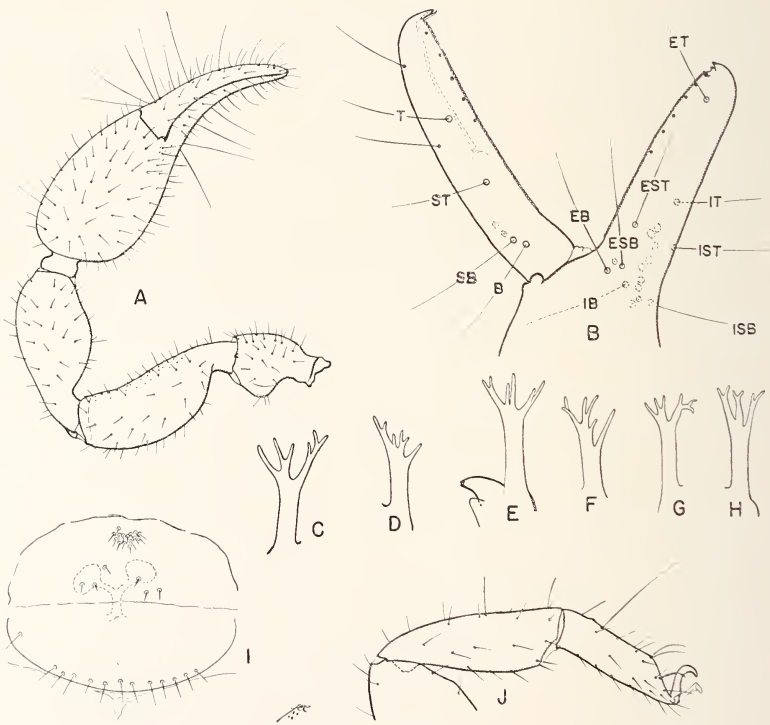


FIGURE 1.—*Haplochernes funafutensis* (With): *A*, ventral aspect of right palp, female; *B*, extero-lateral aspect of left chela, female; *C-H*, variations in galeal development (*C,E,F,H*, female; *D,G*, male); *I*, genital area, female; *J*, lateral aspect of tibia and tarsus IV, male. (*A,B,E,I*, JC-222.02001; *C*, JC-818.01001; *D*, JC-234.01001; *F*, JC-223.01001; *H*, JC-222.01002; *G*, JC-811.01001; *J*, JC-222.01001.)

1.39-1.46 times as long as tibia and 2.7-2.9 times as long as deep; tibia 1.28-1.43 times as long as tarsus and 3.2-3.5 times as long as deep; tarsus 1.17-1.29 times as long as fore tarsus and 3.7-4.0 times as long as deep. Genital area of male typical lamprochernetine type, almost as in *Lamprochernes samoanus* Chamberlin. Genital area of female typical, characterized by a compact median cluster of 14-16 microsetae (fig. 1, *I*).

Measurements (in millimeters). Below are listed the extremes of measurements in the smallest[3] and largest specimens, respectively, of 3 males and 4 females:

Males (JC-811.01001 and JC-222.01001): Total length, indet. to 2.6. Abdominal breadth, 0.90*-0.98. Carapace, 0.72-0.84 long and 0.59-0.64 broad posteriorly. Palps: trochanter, 0.385-0.410 × 0.243-0.259; femur, 0.620-0.656 × 0.238-0.261; tibia, 0.640-0.677- × 0.273*-0.294; chela, 1.092-1.188 × 0.361-0.394 broad, and indet. to 0.369 deep; hand, 0.640-0.672 long; fingers 0.523-0.616 long. Leg I: femur (dorsal length of combined subsegments), 0.422-0.445 × 0.144*-0.155; tibia, 0.295-0.312 × 0.096*-0.099; tarus, 0.262-0.288 × 0.067*-0.070. Leg IV: femur (greatest length of combined subsegments), 0.622*-0.653 × 0.221*-0.236; tibia, 0.424-0.453 × 0.127*-0.138; tarsus, 0.312-0.351 × 0.085*-0.092.

Females (JC-223.01001 and 222.02001): Total length, 2.90-3.25. Abdominal breadth, 1.15-1.31. Carapace, 0.82-0.95 long by 0.66-0.77 broad posteriorly. Palps: trochanter, 0.394-0.459 × 0.310-0.295; femur, 0.590-0.740 × 0.243-0.300; tibia, 0.609-0.770 × 0.268-0.332; chela, 1.150-1.340 × 0.362-0.465 broad and 0.339-0.443 deep; hand, 0.656-0.762 long; fingers, 0.538-0.670 long. Leg I: femur (as in male), 0.426-0.508 × 0.144-0.177; tibia, 0.312-0.370 × 0.099-0.114; tarsus, 0.276-0.314 × 0.072-0.077. Leg IV: femur (as in male), 0.630-0.779 × 0.228-0.276; tibia, 0.445-0.539 × 0.132-0.166; tarsus, 0.324-0.375 × 0.088-0.099.

Society Islands. Tahiti: Papeari, altitude 900 feet, November 9, 1928, on pandanus, male (JC-811.01001); Fautaua Valley, 2 miles from sea, September 13, 1928, on *Hibiscus tiliaceus,* 2 females and 1 nymph (JC-818.01001-3), A. M. Adamson. (Specimens JC-222.01001, JC-811.01001, JC-818.01002 in Bishop Museum; others in author's collection.)

Fiji. Viti Levu: Colo-i-Suva, June 29, 1924, male and female (JC-222.-01001-2); June 21, 1924, female (JC-222.02001). Lau: Naitaumba, September 30, 1924, male (JC-234.01001); Yathata, October 1, 1924, female (JC-223.01001). All collected by E. H. Bryan, Jr.

The palpal proportions and other measurements given by With (Linn. Soc. London, Jour. Zool. **30**: 57, 1907) for the type specimen fall well within the limits of variation found in the present material.

[3] Measurements indicated by the asterisk are indeterminable for the smallest specimen (JC-811.-01001); hence corresponding measurements from specimen JC-234.01001 are substituted.

NEW AND LITTLE-KNOWN FALSE SCORPIONS FROM THE MARQUESAS ISLANDS[1] [2] (ARACHNIDA: CHELONETHIDA)

By

J. C. Chamberlin
Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Corvallis, Oregon

It is doubtful whether anything like true insular endemism occurs in most species of false scorpions, because of the ease with which they are distributed by commerce, both primitive and modern, and by such natural carriers as birds, strong flying insects, and drift. Although the records are too few to permit a conclusive statement, there is no indication that any of the species herein described are truly local in distribution. Thus, as I have pointed out elsewhere [B. P. Bishop Mus. Bull. 142 (23) : 1939], *Haplochernes funafutensis* (With), which had been known from a single female collected on Funafuti Island in the Ellice group, has been found in both the Society and Fiji islands. *Oratemnus samoanus* Beier, originally described from Samoa, is here recorded from the Marquesas Islands and from shipments originating in Jamaica and St. Kitts of the West Indies and intercepted at quarantine in Boston and New York.

In view of the foregoing facts and the incompleteness of our knowledge, it is evident that great caution should be exercised in drawing conclusions as to the original distribution of any chelonethid species. Likewise, the use of these data for the support or nonsupport of any hypothesis as to the origin and distribution of a given fauna should be carefully considered.

About the most that can be said, at present, about the relationship of the false scorpions of these south Pacific archipelagos is that they belong to a group of genera derived from Asiatic, Neotropical, and holarctic faunas. In addition, certain nearly tropicopolitan genera are represented.

All species treated here are considered in serial taxonomic order. These records may be considered as a supplement to my "Check list of the false scorpions of Oceania" [B. P. Bishop Mus. Occ. Pap. 10 (22) : 1-14, 1934].

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[1] Pacific Entomological Survey Publication 8, article 24. Issued March 20, 1939.

[2] My acknowledgments are due to E. P. Mumford, of the Pacific Entomological Survey, and to H. E. Morrison and C. F. W. Muesebeck, of the Bureau of Entomology and Plant Quarantine of the U.S. Department of Agriculture, for the privilege of studying the material upon which this report is based.

Suborder DIPLOSPHYRONIDA Chamberlin

Superfamily GARYPOIDEA Chamberlin

Family GARYPIDAE Hansen

Subfamily GEOGARYPINAE Chamberlin

Geogarypus (Geogarypus) marquesianus, sp. nov. (fig. 1).

Medium-sized species for the genus, the adult female measuring 2.0-2.2 mm. long. Carapace shorter than posterior breadth (0.8-0.9 as long as broad) and 4.0 times as long as the well developed cucullus, which is typical in appearance and with a distinct longitudinal furrow; medianly on each lateral half of the cucullus a single seta which is much longer and stouter than the other vestitural setae. Eyes typically developed, nearly contiguous. Carapace and palps unicolorous throughout and evenly granular, the granules uniform in size and moderately large. Tergites squamotessellate, the median tergites with 14-16 marginal setae and about 6 large discal lyrifissures as well as other smaller ones. Vestitural setae of palps, carapace, and abdomen minute, acuminate, and apparently completely nondenticulate (fig. 1, *F*). No abdominal or pedal pseudotactile setae. Abdomen scarcely longer than broad; broadly ovate (0.98-1.15 times as long as broad). Tergites 4-10 each with a pair of darker, more sclerotic areas on each scutum (4 per tergite); tergites 1-2 with a darker patch on each side and a larger median one; tergite 3 with only the small, lateral, darker patches. Chelicerae of usual structure; galea of female a simple unbranched stylet (fig. 1, *C*); serrula exterior with 18 teeth. Palps of usual form and moderately slender (fig. 1, *A*); trochanter with a rather narrow but strongly marked subventral process (fig. 1, *B*); trochanter 1.60-1.65 times as long as broad; femur 4.2-4.5 times as long as broad, 2.3-2.5 times as long as trochanter, and 1.37-1.45 times as long as the tibia, which is 2.96-3.01 times as long as broad; chela 3.9-4.0 times

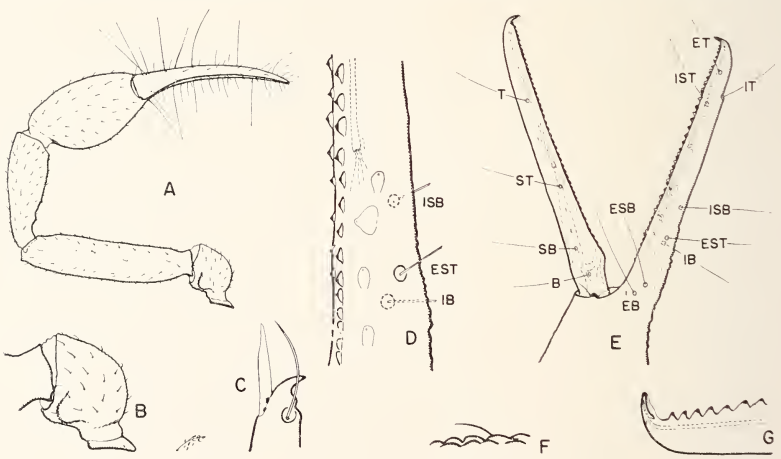

Figure 1.—*Geogarypus* (*Geogarypus*) *marquesianus*, sp. nov.: *A*, ventral aspect of right palp, female; *B*, ventral aspect of palpal trochanter; *C*, tip of fixed finger of chelicera showing galea, female; *D*, median portion of fixed finger of chela showing marginal and accessory teeth, sense spots, etc., female; *E*, extero-lateral aspect of left chela, female; *F*, vestitural seta and granulations from trochanter of palp, female; *G*, tip of movable finger of chela showing venedens and lamina defensor. (*A-C*, *F*, JC-820.01001; *D*, JC-816.01001; *E*, JC-813.01001.)

as long as broad and 4.30-4.45 times as long as deep; hand 1.1 times as broad as deep; contour of chela evenly rounded dorsally and laterally, without a markedly angular depression at finger base; fingers 1.14-1.22 times as long as hand and its pedicel (hand without pedicel 0.76-0.82 as long as fingers). Chaetotaxy and dentition of chela as illustrated (fig. 1, *D-E*). Well developed but basally obsolescent teeth occurring on both fingers, those of the movable finger nearly contiguous (fig. 1, *E*) and numbering between 37 and 43; teeth of fixed finger distinctly spaced medianly by about their own width (fig. 1, *D-E*); marginal series numbering 31-35 and with a closely parallel series of 12-13 "accessory" teeth (fig. 1, *D*); no accessory teeth on movable finger; venom duct elongate, extending nearly to seta ST and ISB on movable and fixed fingers respectively; nodus ramosus proximad of median (fig. 1, *E*). With or without a single basal sense spot at base of movable finger; fixed finger with a series of about 4-6 sense spots exteriorly and 3 or 4 interiorly, these occurring about medianly on finger and lying between setae IB and IST (fig. 1, *D-E*). Dorsum of fixed finger granulate to a point just distad of seta EST (fig. 1, *D-E*). Leg I: femur pars basalis 2.7-3.0 times as long as deep; femur pars tibialis 1.7-1.9 times as long as deep; femur pars basalis 1.6-1.7 times as long as pars distalis; tibia 3.3 times as long as deep and 0.70-0.73 times as long as combined length of two tarsal segments; metatarsus 0.98-1.07 times as long as telotarsus. Leg IV: femur (greatest length of both subsegments) 3.5-3.7 times as long as deep and 1.57-1.60 times as long as tibia; tibia 4.1-4.3 times as long as deep and 0.92-0.95 as long as total length of both tarsal segments; metatarsus 1.02-1.07 times as long as telotarsus.

Measurements (in millimeters). Holotype female (JC-820.01001). Total length, 1.95. Carapace, 0.629 long, 0.77 broad; cucullus, 0.156 long. Abdomen, 1.30 long; 1.33 broad. Palps: trochanter, 0.295 × 0.187; femur, 0.730 × 0.167; tibia, 0.525 × 0.176; chela, 1.122 × 0.288 broad and 0.256 deep; hand, 0.500 long (with pedicel 0.541); fingers, 0.656 long. Leg I: femur pars basalis, 0.320 × 0.111, pars tibialis, 0.192 × 0.101; tibia, 0.239 × 0.072; metatarsus, 0.164 × 0.057; telotarsus, 0.164 × 0.420. Leg IV (greatest length of combined subsegments): 0.575 × 0.162; tibia, 0.364 × 0.085; metatarsus, 0.208 × 0.069; telotarsus, 0.202 × 0.044.

Paratype female (JC-816.01001). Total length, 2.04. Carapace, 0.606 long, 0.755 broad posteriorly; cucullus, 0.151 long; eyes, diameter of anterior pair 0.074, of posterior pair 0.055. Abdomen, 1.44 long and 1.30 broad. Palps: trochanter, 0.296 × 0.181; femur, 0.714 × 0.164; tibia, 0.521 × 0.146; chela, 1.089 × 0.270 broad and 0.244 deep; hand, 0.437 long (with pedicel 0.525); fingers, 0.642 long. Leg I: femur, pars basalis, 0.309 × 0.103, pars tibialis, 0.180 × 0.096; tibia, 0.226 × 0.068; metatarsus, 0.155 × 0.052; telotarsus, 0.155 × 0.039. Leg IV: femur (as above), 0.562 × 0.156; tibia, 0.357 × 0.087; metatarsus, 0.210 × 0.060; telotarsus, 0.204 × 0.044.

Paratype female (JC-813.01001). Total length, 2.15. Carapace, 0.705 long and 0.820 broad posteriorly; cucullus, 0.176 long. Abdomen, 1.51 long and 1.44 broad. Palps: trochanter, 0.344 × 0.208; femur, 0.809 × 0.194; tibia, 0.590 × 0.197; chela, 1.240 × 0.320 broad and 0.288 deep; hand, 0.567 long (with pedicel, 0.606); fingers, 0.693 long. Leg I: femur, pars basalis, 0.338 × 0.125, pars tibialis, 0.210 × 0.114; tibia, 0.256 × 0.077; metatarsus, 0.167 × 0.057; telotarsus, 0.162 × 0.040. Leg IV: femur (as above), 0.655 × 0.181; tibia, 0.415 × 0.099; metatarsus, 0.230 × 0.065; telotarsus, 0.215 × 0.047.

Uahuka: Putatauua, Vaipaee Valley, altitude 800 feet, September 21, 1929, from dead banana leaves, holotype female (JC-820.01001) and 3 topotype females (JC-820.01002-4), A. M. Adamson.

Hivaoa: Pouau, altitude 1,500 feet, March 5, 1929, 1 paratype female (JC-816.01001). Mumford and Adamson.

Nukuhiva: Teuanui, Tovii, altitude 2,000 feet, October 27, 1929, from dead stipes of *Angiopteris* sp., paratype female (JC-813.01001), Mumford and Adamson.

Holotype (JC-820.01001) and paratypes (JC-820.01003 and 813.01001) in Bishop Museum; others in author's collection.

This species is quite close to *G. elegans* (With), a Malayan species, to which it runs in Beier's key (Das Tierreich, 57: 227, 1932). It differs in the broader carapace and abdomen and the more robust chela. From *G. longidigitatus* (known from Funafuti) it differs in having the femur much longer than, rather than subequal to, the fingers. From *G. personatus* (Simon), an inadequately described Hawaiian species which has not been available for study, it differs in its larger size and in the carapace being broader than long instead of longer than broad.

The single individual from Nukuhiva (JC-813.01001) differs in certain details from the other available specimens, but the material is inadequate to permit its separation as a subspecies. All points of difference found in my studies are contrasted in the following couplet:

Fingers 1.22-1.23 times as long as hand with its pedicel; femur 4.36-4.48 times as long as broad; fingers 3.69-3.72 times as long as tibial breadth; movable finger with 37-39 marginal teeth.....typical form from Uahuka and Hivaoa.

Fingers 1.14 times as long as hand and its pedicel; femur 4.17 times as long as broad; fingers 3.52 times as long as tibial breadth; movable finger with 43 marginal teeth .....Nukuhiva specimen.

Suborder MONOSPHYRONIDA Chamberlin

Superfamily CHELIFEROIDEA Chamberlin

Family CHERNETIDAE Chamberlin

Subfamily LAMPROCHERNETINAE Beier

Lamprochernes kanaka Chamberlin (fig. 2).

Lamprochernes kanaka Chamberlin, Ann. Mag. Nat. Hist., London, XI, 2: 279, 1938.

Carapace distinctly longer than broad (1.15 times); anterior groove prominent and nearly median; posterior groove obscure but present; ocular spots obscure but present; carapace, palps, and tergites smooth and polished except for a few scattered and rounded granules on anterior face of femur. All but eleventh tergites and sternites longitudinally divided by a nearly linear suture (tergites 3-5 of holotype show only an obscure division). Tergal chaetotaxy tending toward a biseriate type; medianly with 4 discal and 14-16 marginal setae; posteriorly with 6 discal and 12 marginal setae; sternal chaetotaxy similar; tergites 1-3 markedly narrowed; segment 11 with a lateral and a submedian pair of pseudotactile setae both dorsally and ventrally; lateral marginal setae of segment 11 elongate and perhaps semitactile in function. Pleural membrane smoothly plicate. Vestitural setae almost truly acute, at most with an extremely minute denticule which causes a typical angular curve of seta (fig. 2, *E*). Setae esb, eb, and es of chelicera, each with a single minute subapical denticle; lamina interior with 3 dentate, subapical lobes; serrula exterior with 18-20 ligulate teeth; galea (fig. 2, *B*) well developed, with a single large shaft and 6 subapical, small, and slightly recurved simple branches. Palps robust (fig. 2, *D*); trochanter dorsally with a distinct conical protuberance twice as long as broad and subequal in length to breadth of hand; femur clearly shorter than length

of carapace but about equal to its breadth, scarcely as long as tibia, 2.1-2.2 times as long as broad; tibia 2.1 times as long as broad; chela 2.5 times as long as broad, very slightly broader than deep; hand and fingers of equal length, shorter than femur; fixed finger of chela with 26 and movable finger with 27 marginal teeth; movable finger exteriorly with 3 evenly spaced, accessory teeth anterior to nodus ramosus, interiorly with a large subterminal pair which are nearly contiguous; fixed finger interiorly with 2 almost terminal accessory teeth (fig. 2, *A*); general pattern of tactile setae of chela generically typical (fig. 2, *A*); setae SB and B almost contiguous, less than an areolar diameter apart, ST median between T and SB, IST and IB much farther apart than ESB and EB, which are scarcely more than an areolar diameter apart, seta T opposite nodus ramosus of venom apparatus, the basal accessory tooth, and the fourteenth and fifteenth marginal teeth; a median and distal pseudotactile seta on the movable and a single median one on the fixed finger (fig. 2, *A*). Chela exteriorly with a loose longitudinal

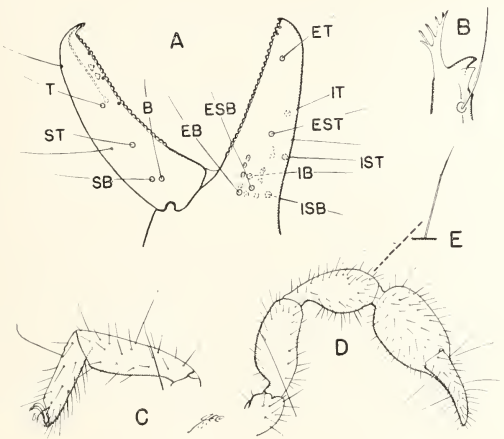

FIGURE 2.—*Lamprochernes kanaka* Chamberlin (male holotype): *A*, extero-lateral aspect of left chela; *B*, tip of movable finger of chelicera showing galea; *C*, lateral aspect of tibia and tarsus of leg IV; *D*, ventral aspect of right palp; *E*, vestitural seta from palpal tibia.

cluster of about 8 sense spots extending from base of fixed finger to slightly caudad of seta EST; interiorly 2 or 3 sense spots occurring basally on the fixed finger; no sense spots noted on movable finger (fig. 2, *A*). Leg I: femur (dorsal length of both subsegments) shorter than fingers of chela, 1.31 times as long as tibia and 2.7 times as long as deep; tibia no longer than tarsus and 3.3 times as long as deep; tarsus 4.7-4.8 times as long as deep. Leg IV: femur (greatest length of both subsegments) longer than palpal femur, 1.29 times as long as tibia, and 3.06 times as long as deep; tibia as long as, or slightly longer than, palpal fingers, 1.24 times as long as tarsus and about 3.4 times as long as deep; tarsus much shorter than tibia and 4.1 times as long as deep. Pseudotactile seta of fourth tarsus about one fourth (0.27) of tarsal length from its base; fourth tibia with a short basal and distal seta and a long median tactile seta (fig. 2, *C*). Both fore and hind tarsi with a sub-basal sense dome. Genital area of male of typical lamprochernetine facies, much as in *L. samoanus* Chamberlin.

Measurements (in millimeters). Holotype. Total length, 1.68. Abdominal breadth, 0.70. Carapace, 0.514 × 0.445. Palps: trochanter, 0.299 × 0.150; femur, 0.420-0.440 × 0.198; tibia, 0.454 × 0.215; chela, 0.729 × 0.278 broad and 0.267 deep; fingers, 0.368 long; hand, 0.368 long (with pedicel 0.417). Leg I: femur (dorsal length of both subsegments), 0.343 × 0.127; tibia, 0.262 × 0.080; tarsus, 0.264 × 0.055. Leg IV: femur (greatest length of both subsegments), 0.483 × 0.160; tibia, 0.376 × 0.111; tarsus, 0.303 × 0.074.

Uapou: Tekohepu Summit, altitude 3,200 feet, November 28, 1931, from dead stipes of *Cyathea* sp., holotype male (JC-823.01001), Le Bronnec (in Bishop Museum).

In many respects this form seems close to the North American species *L. oblongus* (Say). This species was diagnosed, but not fully described in the reference above cited, in a key segregating it from another species (*L. samoanus* Chamberlin).

Lamprochernes (?) sp.

In some characters this tritonymph seems close to *Lamprochernes samoanus* Chamberlin. The following observations may ultimately permit a definite generic and specific assignment to be made.

Carapace 1.28 times as long as broad; eye spots distinct; carapacal grooves well developed. Tergites 1-3 uniseriate with 11 or 12 marginal setae, the rest biseriate with 4 discal and 11-13 marginal setae; sternite biseriate with 4 discal and 12 or 13 marginal setae. Chelicerae typical, setae b, sb, and es terminally denticulate; serrula exterior with 17 teeth; galea with 5 terminal and subterminal branches; anterior blade of flagellum marginally serrate. Palps moderately robust; facies much as in *L. kanaka,* smooth and polished; trochanter 1.88 times as long as broad; femur 1.37 times as long as trochanter and 2.1-2.2 times as long as broad; tibia almost as long as femur and 1.97 times as long as broad; chela 1.97 times as long as tibia and 2.64 times as long as broad; hand about as broad as deep and 1.17 times as long as fingers; chela with typically reduced chaetotaxy (IST and SB absent); disposition of other tactile setae much as in *L. kanaka*; with two weakly developed pseudotactile setae on movable finger placed as in *L. kanaka*; fixed finger with 35 and movable finger with 31 or 32 marginal teeth; about 5 evenly spaced accessory teeth exteriorly on distal half of each finger; no sense spots noted; nodus ramosus slightly proximad of seta T. Tibia and tarsus of leg IV with acuminate pseudotactile setae as in *L. kanaka.* Leg I: femur (dorsal length of both subsegments) 2.8-2.9 times as long as deep and 1.3 times as long as tibia; tibia 1.06 times as long as tarsus and 3.2-3.3 times as long as deep; tarsus about 4.0 times as long as deep. Leg IV: femur (greatest length of combined subsegments) 3.3 times as long as deep and 1.3 times as long as tibia; tibia 1.3 times as long as tarsus and 3.5 times as long as deep; tarsus 1.15-1.17 times as long as tarsus I and 3.6-3.7 times as long as deep.

Measurements (in millimeters). Total length, 2.18. Abdominal breadth, 0.77. Carapace, 0.59 × 0.46. Palps: trochanter, 0.287 × 0.155; femur, 0.392 × 0.184; tibia, 0.386 × 0.195; chela, 0.757 × 0.287 broad and 0.285 deep; hand, 0.420 long; fingers, 0.359 long. Leg I: femur (dorsal length of combined subsegments), 0.320 × 0.110; tibia, 0.246 × 0.077; tarsus, 0.231 × 0.057. Leg IV: femur (greatest length of combined subsegments), 0.467 × 0.140; tibia, 0.349 × 0.099; tarsus, 0.270 × 0.071.

Hivaoa: Matauuna, altitude 3,900 feet, March 4, 1930, under dead leaves on ground, tritonymph (JC-815.01001), Mumford and Adamson.

Family Atemnidae Chamberlin

Subfamily Atemninae Beier

Oratemnus samoanus Beier, (fig. 3).

Oratemnus samoanus Beier, Zool. Jahrb., Abt. Syst., Oekol, ü. Geogr. Tiere, 62: 593, fig. 16, 1932.

Oratemnus samoanus Beier, Das Tierreich 58:61, fig. 78, 1932.

(Diagnosis addenda and emendata.) Medium-sized species, female 3.6-3.7 mm., male

2.5-3.0 mm. long (not KOH-treated). Carapace, tergites, sternites, and palps polished; carapace without transverse furrows; eye spots distinct; tergites 1-3 narrowed, nearly or quite entire; tergites and sternites 4-10 completely (or nearly) divided into subrectangular scuta by a more or less linear suturelike stripe; tergite and sternite 11 entire. Carapace 1.2-1.3 times as long as broad, with subparallel sides. Abdomen elongate, with subparallel sides and scarcely wider than cephalothorax; entire animal 3.2-4.4 times as long as broad. Abdominal chaetotaxy of male: tergites 1-3 uniseriate with about 8 marginal setae, tergites 4-9 biseriate with 6 more or less distinct discal and 8-10 marginal setae; sternites uniseriate except for a lateral discal seta on each scutum, with 11 to 13 marginal setae; chaetotaxy of female essentially similar except that there are slightly more marginal setae than in the male, (9-11 instead of 8-10 on the tergites and 14 or 15 instead of 11-13 on the sternites). In one of the West Indian specimens the median discal seta of each scutum is almost marginal but still more or less differentiated from the marginal setae. Scuta of sternite 10 each with a lateral and a submedian pseudotactile seta; scuta of sternite 11 with a lateral and a median pair of pseudotactile setae (4 in all); tergites with the lateral distal setae becoming progressively longer toward the terminal segments, being semitactile in form on segment 9 and pseudotactile on 10 and 11; a median pair of pseudotactile setae on tergites 10 and 11 (fig. 3, *M*). Serrula exterior

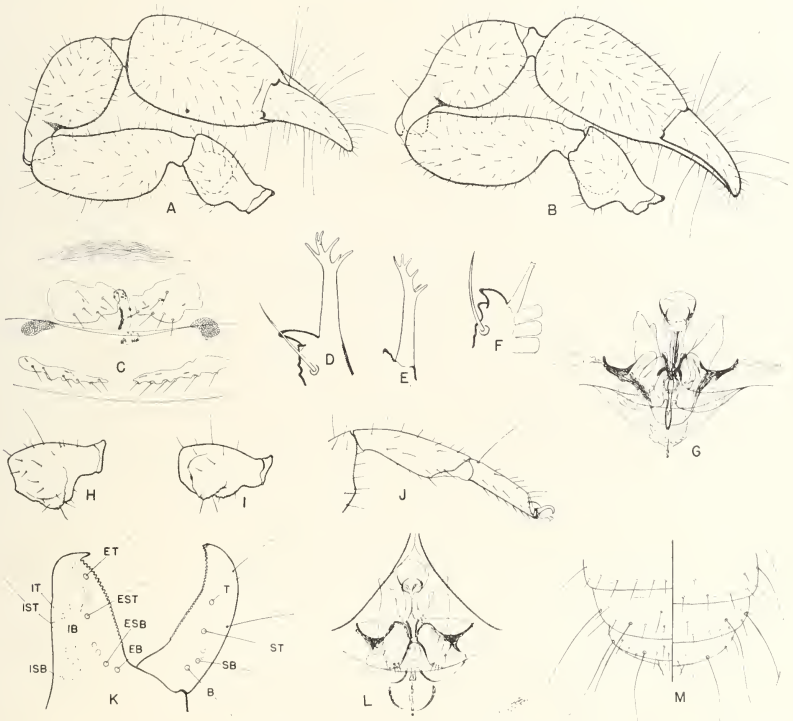

FIGURE 3.—*Oratemnus samoanus* Beier: *A*, ventral aspect of right palp, female; *B*, ventral aspect of right palp, male; *C*, genital area of female; *D*, galea of female; *E*, galea of female; *F*, galea of male; *G*, sketch of male genitalia, cleared and stained specimen; *H*, dorsal aspect of palpal trochanter, male; *I*, dorsal aspect of palpal trochanter, female; *J*, tibia and tarsus of leg IV, female; *K*, extero-lateral aspect of right chela, female; *L*, sketch of male genitalia, unstained specimen; *M*, terminal abdominal segments showing chaetotaxy, left sternal, right dorsal, male. (*A*, *D*, *I*, JC-821.01002; *B*, *H*, *L*, *M*, JC-821.01001; *C*, *E*, JC-835.01001; *F*, *J*, *K*, JC-817.01001; *G*, JC-817.01002.)

of chelicera with 18-20 teeth; anterior blade of flagellum with 8-10 deep serrations anteriorly; setae es and b terminally denticulate, galea sexually differentiated, with 6 short terminal branches in female (fig. 3, *D, E*) and only obsolete traces of branching in male (fig. 3, *F*). Palps smooth and polished except for small and scattered but distinct granulations exteriorly on trochanter, interiorly on femur and tibia, and exteriorly and interiorly at base of fingers; appearance as shown in figure 3, *A-B*; only slightly differentiated sexually but slightly less robust in male; trochanter strongly bigibbose in both sexes, but more strongly so in male (fig. 3, *H-I*); femur stoutly pedicellate, 1.6-1.7 times as long as trochanter, subequal to tibia, and 2.2-2.4 times as long as broad; tibia rather slenderly pedicellate (pedicel much longer than narrowest breadth) and 1.9-2.1 (where accurately dorsoventrally oriented about 2.0) times as long as broad; chela robust, 1.5-1.6 as long as tibia and 2.4-2.6 times as long as broad; hand deeper than broad (breadth 0.85-0.95 as great as the depth); fingers short, slightly longer than breadth of chela (1.00-1.07 times), shorter than its depth (0.93-0.95) and 0.60-0.70 as long as hand; chela 1.2-1.3 times as broad as tibia; hand subequal to tibial length in female and slightly shorter than tibial length in male; chaetotaxy, dentition, and sense spots of chela as illustrated (fig. 3, *K*); with 25 or 26 marginal teeth on fixed and 33-36 on movable fingers; two pseudotactile setae on movable finger. Two or three sense spots exteriorly on both fixed and movable fingers immediately anterior to basal tactile setae, and a group of 5 to 7 sense spots interiorly between setae IB and ISB and extending distad nearly to seta IST (fig. 3, *K*). Legs of usual form. Leg I: femur (dorsal length of combined subsegments) 1.27-1.32 times as long as tibia, which is 1.15-1.25 times as long as tarsus; femur 2.48-2.63 times as long as deep; tibia 3.34-3.42 times as long as deep; tarsus 4.3-4.6 times as long as deep. Leg IV: femur (greatest length of combined subsegments) 1.0-1.1 times as long as palpal femur and 1.35-1.45 times as long as tibia, which is 1.3-1.4 times as long as tarsus; femur 2.6-2.7 times as long as deep; tibia 3.2-3.4 times as long as deep; tarsus 3.9-4.1 times as long as deep. Pseudotactile seta of fourth tarsus long and slender and only 0.09-0.10 of tarsal length from its base (fig. 3, *J*). No tibial tactile seta. Pattern of male and female genital areas as shown in figure 3, *C, G, L*.

Tritonymph. Facies like adult. Chaetotaxy of chela characteristically reduced, IST and SB absent, otherwise essentially as in the adult; sense spot distribution as in adult but only about half as numerous; venom apparatus as in adult. About 25 marginal teeth on movable finger and 22-23 on fixed finger, of which all but the distal 7 are reduced and nearly obsolete. Serrula exterior with 16-17 teeth; galea essentially as in female, with 5 short, recurved terminal branches. Flagellum and chaetotaxy of chelicera as in adult. Fourth tarsal tactile seta as in adult. Palps with chela normally sclerotic and colored, the other segments lighter in color; both tibial and femoral pedicels broader than long; trochanter as long as breadth of chela and 1.90 times as long as broad; not noticeably bigibbose; femur 1.34 times as long as trochanter, slightly shorter than tibia, and 2.1 times as long as broad; tibia nearly twice as long as broad; chela 1.7 times as long as tibia and 2.4 times as long as broad; hand only slightly deeper than broad and slightly longer than tibia; fingers 1.07 times as long as breadth of hand and 0.71 times as long as its length.

Measurements (in millimeters). Male (JC-821.01001). Total length, 2.84. Abdominal breadth, 0.83. Carapace, 0.82 long and 0.64 broad posteriorly. Palps: trochanter, 0.415 long; femur, 0.692 × 0.301; tibia, 0.685 × 0.333; chela, 1.045 × 0.398 broad and 0.454 deep; hand, 0.654 long; fingers, 0.421 long. Leg I: femur (dorsal length of combined subsegments), 0.484 × 0.190; tibia, 0.365 × 0.108; tarsus, 0.312 × 0.068. Leg IV: femur (greatest length of combined subsegments), 0.696 × 0.262; tibia, 0.518 × 0.155; tarsus, 0.377 × 0.091.

Female (JC-821.01002). Total length, 3.76. Abdominal breadth, 0.84. Carapace, 0.85 long and 0.65 broad posteriorly. Palps: trochanter, 0.398 long; femur, 0.639 × 0.287; tibia, 0.639 × 0.319; chela, 1.019 × 0.400 broad and 0.426 deep; hand, 0.646 long; fingers, 0.406 long. Leg I (as above); femur, 0.458 × 0.179; tibia, 0.358 × 0.105; tarsus, 0.296 × 0.068. Leg IV: femur (as above), 0.715 × 0.263; tibia, 0.511 × 0.152; tarsus, 0.365 × 0.091.

Tritonymph (JC-814.01001). Total length, 2.42. Abdominal breadth, 0.67. Carapace, 0.59 long and 0.43 broad posteriorly. Palps: trochanter, 0.277 × 0.146; femur, 0.370 × 0.177; tibia, 0.385 × 0.195; chela, 0.651 × 0.268 broad and 0.275 deep; hand, 0.402 long; fingers, 0.285 long.

Eiao: altitude 1,600 feet, April 23, 1931, from dead wood of *Pisonia* sp., tritonymph (JC-810.01001), Le Bronnec and H. Tauraa; plateau above Vaituha, altitude 1,150 feet, October 2, 1929, under stone, male and female (JC-817.01001-2), A. M. Adamson; near center of island, altitude 1,450 feet, October 1, 1929, under bark of *Thespesia populnea,* 2 males (JC-819.01001-2), A. M. Adamson; altitude 1,600 feet, April 16, 1931, on *Thespesia populnea,* male, female and tritonymph (JC-821.01001-3), Le Bronnec and H. Tauraa.

Hatutu (Hatutaa), April 28, 1931, 1 tritonymph (JC-814.01001), Le Bronnec and H. Tauraa.

Specimens JC-810.01001, 817.01001-2, 821.01001, 821.01003 in Bishop Museum, others in author's collection.

Female (JC-834.01001) intercepted at quarantine in New York City by Inspectors Fitzgerald and Woodbury in a parcel post shipment of 38 *Bryophyllum* cuttings from Jamaica, British West Indies, January 15, 1935 (N.Y. entry No. 33594). Female and tritonymph (JC-835.01001) intercepted at quarantine at Boston, Mass., June 18, 1935, by Inspector O. H. Hardy on a pineapple in a parcel post shipment from St. Kitts, British West Indies (Boston entry No. 10,708). Both lots of material submitted for determination by the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture. Author's collection.

There is some doubt as to the tritonymphal determinations noted, but the facies is so similar to that of the adult that it probably belongs to this species.

Although Beier's description lacks important details and is based entirely upon a single female from "Samoa", I am unable to find any points of significant difference.

The material intercepted by quarantine inspectors at New York and Boston in parcel post shipments from the British West Indies seems to agree in every essential respect with the Marquesan material. Later studies may prove the West Indian form distinct, but no characters yet employed in discriminating chelonethid species suffice to distinguish them at present.

Since the genus *Oratemnus* is primarily Asiatic (representatives have heretofore been recorded only from Sumatra, India, the Philippine Islands, the Dutch East Indies, and Samoa), it seems probable that *O. samoanus* is either a species that was introduced into the West Indies or has an exceedingly wide range. There is, of course, the possibility that the West Indian shipments were secondarily infested, while in transit, from specimens originating from other shipments from Samoa or the Marquesas Islands.

TWO NEW GENERA OF HYDROMETRIDAE FROM THE MARQUESAS ISLANDS (HEMIPTERA)[1] [2]

By

H. B. Hungerford

Department of Entomology, University of Kansas

In 1934 Mr. E. P. Van Duzee [B. P. Bishop Mus., Bull. **114**(26) : 326], described a curious new hydrometrid from the Marquesas Islands which he named *Hydrometra pacifica*. He kindly sent me for study the male paratype of this species and another strange Marquesan species which came to the attention of Mr. Robert L. Usinger. These two specimens are most unusual and cannot be assigned to any previously described genera. Mr. Van Duzee was not certain that the two specimens of *H. pacifica* were mature, but the male paratype which I have seen is fully developed.

The general facies of Mr. Usinger's specimen reminded me of *Limnobatodes paradoxus* Hussey [Brooklyn Ent. Soc., Bull. **20**(3) : 115-118, pl. 4, 1925], so I re-examined the type of this species. *L. paradoxus* is only about as long as the head and thorax of the hairy Marquesan species and its thorax is no broader than the front of the head of the new species. It is not as hairy as the insular species, although it has some hairs that are fairly long and unlike the spinules, and has conspicuous small black spinules on the head and pronotum which are entirely lacking in the new species. The tarsus of *L. paradoxus* has the terminal segment a little longer and decidedly thicker than the preceding and very inconspicuous claws. On the head of Hussey's type I find the four long hairs arising from pale spots and can find no indication of the usual anterior pair common to other hydrometrids. The drawing given by Dr. Hussey shows the spinules as light instead of black.

Genus TRICHOMETRA, new genus

Hairy, stout-bodied hydrometrids; head stout, longer than thorax but shorter than abdomen, three pairs of head setae located as in *Hydrometra*, both dorsal and ventral interocular grooves absent, eyes of moderate size but about half the diameter of that of head, antennae probably 4-segmented, first segment shortest and stouter than those following, third longest; rostrum elongate, tip may attain anterior margin of prothorax. Thorax short, width across meta-acetabula about three-fourths the median length, the middle coxae

[1] Pacific Entomological Survey Publication 8, article 25. Issued March 25, 1939.

[2] Contribution from the Department of Entomology, University of Kansas, Lawrence, Kansas.

almost equidistant between anterior and posterior coxae, scutellum minute, sternum neither sulcate nor longitudinally sutured; omphalium absent. Abdominal segments broader than long. Legs stout, hairy, first tarsal segment half as long as second which equals third in length; tarsal claws apical, stout.

Genotype, *Trichometra robusta* Hungerford.

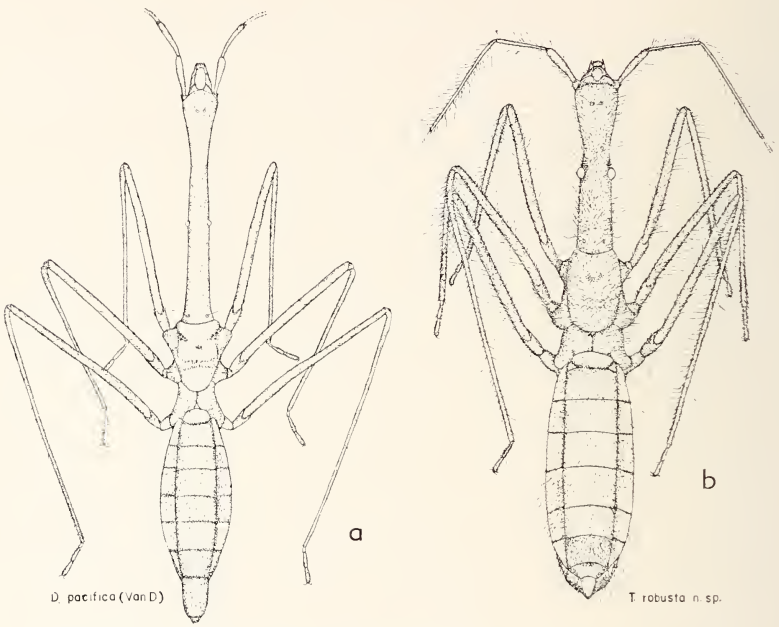

FIGURE 1.—*a, Dolichocephalometra pacifica; b, Trichometra robusta.*

Trichometra robusta, new species (fig. 1, *b*).

Size and color: length 6 mm.; greatest width of abdomen 1.11 mm. General color dark brown; median longitudinal stripe on pronotum, caudal half silvery; silvery spots on anterior half of second, third, fourth and fifth connexival sections and faint spots on sixth. Venter lightly frosted.

Structural characteristics: stout and hairy.

Head: length 73 units; breadth across antenniferous tubercles 18 units; across eyes 14 units; across postocular portion 11 units; ratio of anteocular to postocular portion of head is 39 to 28; the eye 6 units in diameter and about midway between antenniferous tubercle and anterior margin of prothorax; interocular grooves absent; clypeus longer than broad, somewhat inflated, setiferous, truncate apically; rostrum barely attaining front margin of prothorax; beginning with the basal segment the ratio of the lengths of the antennal segments is expressed by the formula: 15:22:49.7:x. (the antennae in type are broken.)

Thorax: prothorax short, compact, distance between first and second coxae is to that between the second and third as 18:20. Unpitted except for four pits on venter of prothoracic collar. Length of pronotum 30 units which is three-fourths length of thorax measured on median dorsal line; acetabula without pits; legs short, stout and hairy;

coxae and trochanters relatively longer than in species of *Hydrometra*; hind coxa and trochanter together one-fourth the length of hind femur. Leg measurements as follows: anterior femur 56 units, tibia 64 units, tarsus 15 units; posterior femur 85 units, tibia 110 units, tarsus 15 units. Anterior femur just attaining antenniferous tubercle; posterior femur surpassing apex of abdomen by 15 units.

Abdomen: length 90 units, greatest width 37 units. Tergites broader than long, less hairy than connexivum which is broadest in the middle, tapering to narrow ridge on both ends. First dorsal genital short, tapering and truncate at tip; second dorsal genital declivant, conate. Ventral abdominal segments more or less hairy; last one roundly produced apically.

Described from a single wingless female found on Hivaoa, Marquesas Islands, Temetiu Summit, alt. 4,160 ft., on ferns, Jan. 20, 1932, by LeBronnec. Holotype in Bishop Museum.

Genus **DOLICHOCEPHALOMETRA,** new genus

Body clothed with appressed pubescence. Head elongate, nearly as long as thorax and abdomen together, three pairs of head setae located as in *Hydrometra,* both dorsal and ventral interocular grooves absent, eyes reduced to about a dozen coarse facets and half or less than half the diameter of head, antennae probably 4-segmented, relatively stout, first segment slightly shorter than second, third segment longest. Rostrum extremely long, considerably surpassing anterior margin of prothorax. Thorax short, width across meta-acetabula a little more than three-fifths the median length; the middle coxae almost equidistant between anterior and posterior coxae, scutellum invisible, sternum neither sulcate nor longitudinally sutured, omphalium absent. Abdominal segments broader than long. Legs moderately stout and covered like the body with appressed pubescence, first tarsal segment less than half as long as second which is subequal in length to third, tarsal claws apical, moderate in size.

Genotype, *Dolichocephalometra pacifica* (Van Duzee). [*Hydrometra pacifica* Van Duzee, B. P. Bishop Mus., Bull. 114(26) : 326, 1934.]

These two new genera have many characteristics in common. However, as shown in figure 1, the body vestiture and the proportional size of the head, eyes and rostrum are of generic value. Both genera belong to the Hydrometrinae and are distinguished from *Hydrometra* by the short thorax with the middle coxae about equidistant between the other two and by having the abdominal tergites at least as broad as long.

The genera of Hydrometridae may be separated as follows:

A. Antennae 5-segmented, omphalium present, body more or less clothed with minute but stout black spinules and some erect pubescence..... **Limnobatodes** Hussey

AA. Antennae 4-segmented, omphalium absent, body not clothed with minute but stout spinules.
  B. Sternum neither sulcate nor longitudinally sutured.
    C. Thorax compact, short, median coxae about equidistant between the other two, abdominal tergites at least as broad as long.
      D. Body clothed with hair, eyes of moderate size on a head of moderate length ..... **Trichometra** Hungerford
      DD. Body clothed with appressed pubescence, eyes reduced on a head nearly as long as the body..... **Dolichocephalometra** Hungerford
    CC. Thorax elongate, the median coxae nearer the anterior than the posterior coxae. Abdominal tergites longer than broad..... **Hydrometra** Lamarck
  BB. Mesosternum sulcated along median longitudinal line, mesosternum with two distinct longitudinal sutures..... **Bacillometra** Esaki