

A FURTHER REPORT ON MARQUESAN MYRIOPODA*

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Of 8 species of myriopods listed by Adamson and identified by me¹ 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 endemism 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: Kopaaftaa, 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.

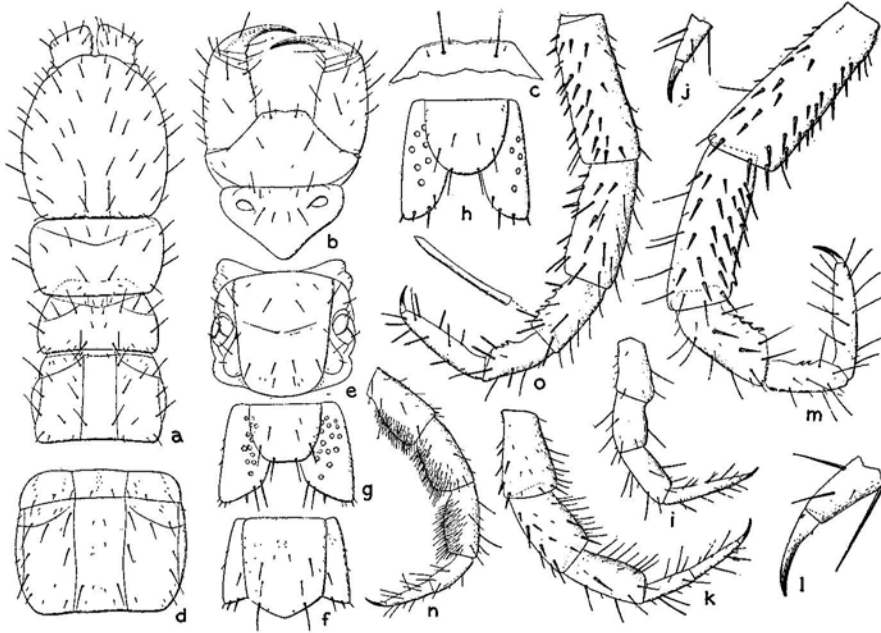


FIGURE 1.—*Cryptops notandus*: a, caput cum tergitis tribus pronum; b, pedes maxillares cum sterno segmenti sequenti; c, pedum maxillarium subcozarum margo anticus magis ampliatius; d, tergitem decimum; e, sternitem decimum; f, segmentum ultimum pediferum pronum; g, idem supinum; h, juvenis segmentum 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 subcozarum 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; tergitem 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 (praetarsu) 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 20¹ 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 entomological 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 *Cyathca* 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;

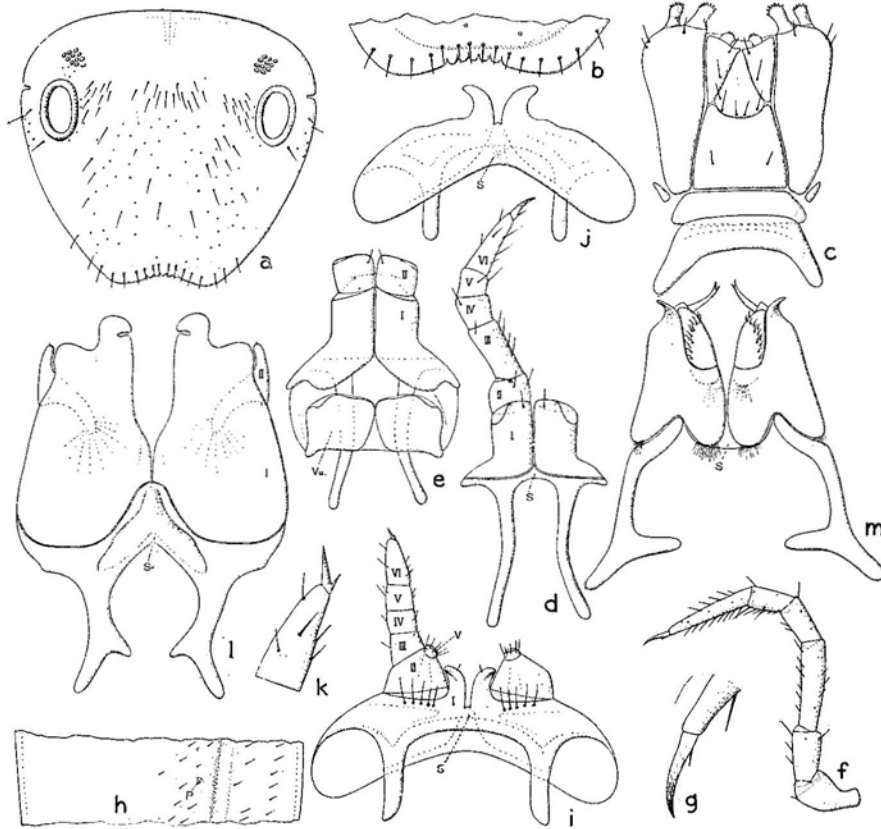


FIGURE 2.—*Hypocambala helleri*: a, caput pronum (aliquantum depressum); b, clypei pars antica; c, hypostoma; d, feminae pedes paris secundi antice inspecti: S, sternum, I-VI articuli primus ad sextum; e, feminae pedum paris secundi pars proximalis postice inspecta cum vulvis, Vu; f, pes paris decimi; 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; 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.

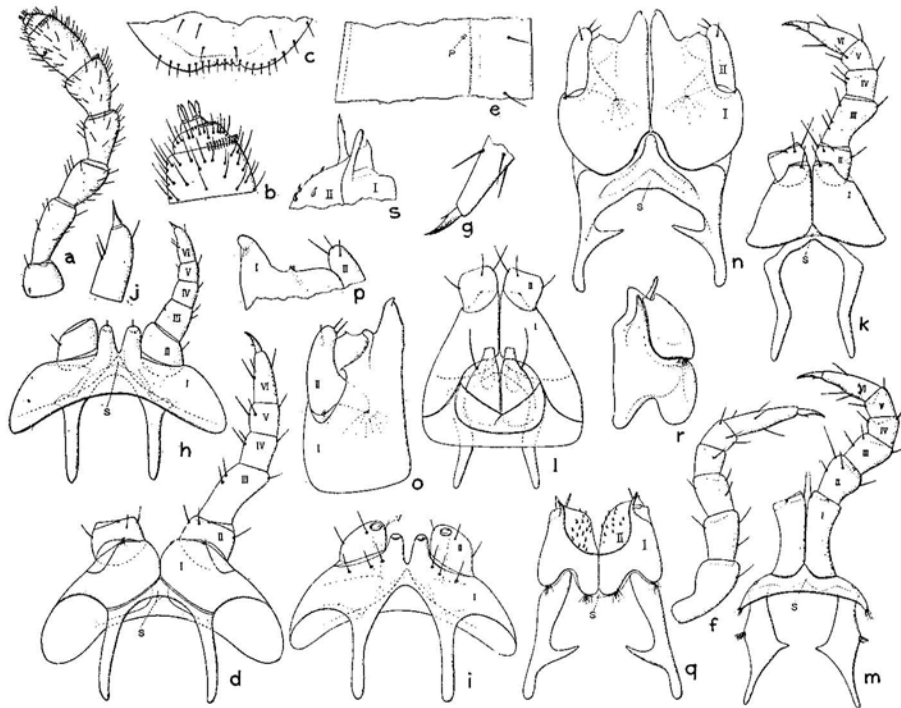


FIGURE 3.—*Hypocambala anguina*: a, antenna; b, eiusdem antennae pars distalis magis ampliata; c, clypei pars antica; d, feminae sternum cum primi paris pedibus antice inspectum (litterae ut in fig. praecedente); e, segmenti decimi metazonae pars dextera; f, pes paris decimi; g, eiusdem pedis tarsi apex 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 praeternotali sternum secundum cum pedibus antice inspectum; l, sternum idem cum pedum articulis primis et secundis 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, eorundem 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.