

CERATOPOGONIDAE FROM THE MARQUESAS ISLANDS*

By

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The collection of Ceratopogonidae taken in the Marquesas by the Pacific Entomological Survey consists of 1461 specimens referable to 12 species, the majority of which appear to be hitherto undescribed. All the species belong to well-known genera, namely, *Forcipomyia* (2), *Atrichopogon* (5), *Styloconops* (1), *Dasyhelea* (3), and *Stilobezzia* (2). They do not call for any special comment except the note that one or two are widely distributed, perhaps cosmopolitan, forms. Some of the species are represented in the collection by very large numbers of specimens, for example *Atrichopogon jacobsoni* (890), one species of *Dasyhelea* (241), *Forcipomyia ingrami* (141), and *Styloconops albiventris* (137), but the majority by only a few. Whilst it may be assumed that the four species mentioned are abundant, it would probably be incorrect to infer from their proportional representation in the collection the general distribution of the other species in the islands, because the collection is largely composed of insects obtained by sweeping over vegetation. This may account, for instance, for the fact that no specimens of *Culicoides* are included.

As regards the terms used in the descriptions which follow, it should be explained that the antenna is regarded as composed of 15 segments, and that the parts of the hypopygia of the males are referred to by the names used in previous papers. The term "tarsal ratio" is used to express the ratio of the lengths of the first to the second tarsal segments of the hind legs. The measurements of radial cells are internal measurements, and do not include the thicknesses of the bordering veins. The unit used in the measurements is approximately 3.6 μ . Exact measurements when given refer to selected specimens examined after mounting in pure carbolic acid. They are therefore individual and not averages. The text figures are merely rough outline drawings made with the aid of a camera lucida from which all such details as hairs and bristles have been omitted.

I am indebted to Dr. F. W. Edwards of the British Museum, London, for the opportunity of examining this interesting collection, and I have pleasure in thanking him not only for this privilege, but also for much valuable assistance, and for permission to compare some of the species with specimens in his custody.

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Forcipomyia inornatipennis (Austen)?

Fatuhiva: Ahuava, altitude 1800 feet, August 19, 1930, sweeping over *Paspalum conjugatum*, 1 male (much damaged, so? this species), LeBronnec.

Forcipomyia ingrami Carter.

Hivaoa: Tapeata, east slope, Mount Ootua, altitude 2500 feet, May 25, 1929, 1 female; Tahauku, July 10, 1929, 4 males, 1 female, the female and one male labeled "near shore"; Mount Temetiu, northeast slope, altitude 2600 feet, September 13, 1929, sweeping, 1 female; Kopaaftaa, altitude 2800 feet, February 25, 1930, on tree, 1 female; Mumford and Adamson.

Fatuhiva: Ahuava, altitude 1800 feet, August 19, 1930, sweeping over *Paspalum conjugatum*, 1 male, 1 female, LeBronnec.

Uahuka: Matukuoha Pass, altitude 1550 feet, February 26, 1931, sweeping over grasses, 1 female; Penau Ridge, altitude 2010 feet, March 2, 1931, on ferns, 1 female; Hanahoua Valley, altitude 6 feet, March 9, 1931, beating on *Thespesia populnea*, 1 female; Tahoatikikau, altitude 780 feet, March 18, 1931, on *Sida* species, 39 males; Haave [Haavei] Valley, altitude 250 feet, March 19, 1931, 53 males, 14 females; LeBronnec and H. Tauraa; no other data, 21 males.

Uapou: altitude 3000 feet, December 8, 1929, on *Sclerotheca* species, 1 female, Adamson.

This species, originally described from specimens collected in West Africa, has also been taken in Samoa.¹

Atrichopogon jacobsoni (de Meijere).

Hivaoa: Anatikaue, altitude 1750 feet, August 1, 1929, 1 female, Mumford and Adamson.

Tahuata: Hanahevane Valley, sea shore, July 15, 1930, on leaves of *Citrus aurantifolium*, 146 males, 97 females, and sweeping on *Citrus aurantifolium*, 51 males, 19 females, LeBronnec and H. Tauraa.

Fatuhiva: Vaikoao, Omoa [Oomoa] Valley, altitude 1600 feet, August 27, 1930, 18 females, LeBronnec.

Mohotani: altitude 100 feet, February 2, 1931, 8 males, 14 females; altitude 300 feet, February 3, 1931, on *Coreopsis* species, 1 female; altitude 700 feet, February 2, 1931, 1 male; altitude 900 feet, February 3, 1931, sweeping on *Coreopsis* species, 2 males, 10 females; altitude 1300 feet, February 1, 1931, 24 males, 20 females; LeBronnec and H. Tauraa.

Nukuhiva: Tapuaoaa, altitude about 2500 feet, May 30, 1931, on *Weinmannia* species, 41 males, 15 females; altitude about 2750 feet, June 17, 1931, beating on *Metrosideros collina*, 18 males, 35 females and on *Hibiscus tiliaceus*, 22 males, 9 females; Keahaatiki, altitude about 2000 feet, June 6,

¹ Edwards, F. W., Nematocera: Insects of Samoa, pt. 6, fasc. 2, p. 51, 1928.

1931, beating on *Wickstroemia foetida*, 14 males, 51 females, and August 6, 1931, beating on *Metrosideros collina*, 2 males, 4 females; Ooumu Summit, altitude 3890 feet, July 20, 1931, on *Metrosideros collina*, 1 female; LeBronnec and H. Tauraa.

Uahuka: Penau Ridge, altitude 2170 feet, March 3, 1931, at light, 3 females, altitude 2000 feet, March 4, at light, 47 females, altitude 2200 feet, May 5, 1931, beating on *Weinmannia* species, 3 males, 2 females; Hitikau Crest, altitude 2950 feet, March 3, 1931, on *Hibiscus tiliaceus*, 31 males, 44 females; Vaikivi Valley, altitude 1000 feet, March 6, 1931, 16 males, 40 females; Hane Valley, altitude 150 feet, March 9, 1931, 1 female; Vaipae Valley, altitude 150 feet, March 10, 1931, on *Thespesia populnea*, 5 males, 5 females; Teanatuhiwa, altitude 300 feet, March 18, 1931, on *Waltheria americana*, 1 female; Haave [Haavei] Valley, altitude 250 feet, March 19, 1931, 2 males, 1 female; LeBronnec and H. Tauraa.

Uapou: Hapava, altitude about 500-600 feet, December 13, 1929, on leaves of *Xylosma suaveolens*, 23 males, 22 females, R. R. Whitten.

Eiao: altitude 1800 feet, April 22, 1931, 14 males, 6 females, LeBronnec and H. Tauraa.

The collections from the Marquesas and Society islands include nearly a thousand (989) specimens of this species, and it may therefore be inferred that it is abundant in these islands. They show a considerable range of variation in color. Some specimens are almost uniformly yellow (especially those preserved in alcohol); others are dusky brown. The abdomen is not always darker than the thorax. There are often traces of thoracic adornment. The last 2-3 tarsal segments of the legs are more or less infuscated in some specimens, but are never conspicuously black as they are in the allied but different species from Ceylon described by Edwards in 1913 and 1928.

***Atrichopogon pullatus*, new species (fig. 1).**

Male and Female

Length of wing, about 1.3 mm.; greatest breadth of wing about 0.4 mm.

Head almost black. Eyes hairy, broadly contiguous above in both sexes. Palpi darkish brown, lengths of last three segments in a male and a female about equal, namely 12, 8, and 9 units respectively, third only slightly inflated, with small pit in distal half. Antennae darkish brown. In male, segments 4-10 subequal in length, gradually narrowing, ranging in one specimen from 12 by 11 to 12 by 7 units, each bearing a whorl of hairs; 11-15 elongate, without whorls, 11-14 subequal, about 16 by 5 units in same male, 15 longer, about 26 (with stylet) by 6 units. In female, segments 4-10 subspherical, subequal, in one specimen about 7 by 7 units; 11-14 elongate, subequal, 16-18 by 6-7 units in same specimen; 15 longer, about 27 (with stylet) units. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen about 96, 50, and 62 units respectively.

Thorax almost black in dried insect, but showing when expanded the usual scutal adornment; bristles dark, stout, rather scanty. Scutellum and postscutellum almost black; the former bearing 4 bristles and a few (7 or 8) small hairs.

Wings unadorned, veins brownish. Macrotrichia very scanty: in male none, in female a very few at extreme periphery near tip and on end of vein M_1 . Costa extending about two-thirds of wing length. Venation as usual. Radial cells narrow, first slit-like; second about twice as long as first in female, scarcely longer than first in male. Petiole of M as long as cross-vein or longer. In female no line extending the petiole between the branches of M . Fork of Cu much distal to that of M , at about level of basal part of second radial cell. Angle formed by branches of Cu much less than right angle. Tip of Cu_1 well beyond level of end of costa. Halteres usually with brown knobs, but color varying from dark brown to creamy white according to the degree of infuscation.

Legs darkish brown, tarsal segments rather paler, and sometimes (especially in male) knees and tibio-tarsal joints narrowly yellowish. Segments, claws, and empodium normal. Tarsal ratio in both sexes about 3.

Abdomen dark brown, but not so dark as scutum. Spermatheca single, highly chitinized, not pitted, pyriform, total length about 67μ , and greatest breadth about 56μ . Hypopygium (fig. 1) darkish brown, but distal parts, claspers and end of ninth tergite, yellowish. Ninth sternite not excavated in middle line posteriorly, bearing in this position a transverse row of 6 bristles. Aedeagus somewhat of the usual form, not highly chitinized, with a large membranous expansion at its distal end.

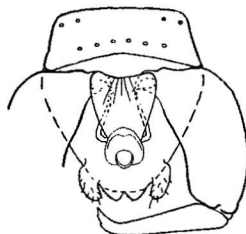


FIGURE 1.—Male hypopygium, ventral view, *Atrichopogon pullatus*, new species.

Nukuhiva: Ooumu, altitude 3200 to 4050 feet, November 12 and 13, 1929, beating on *Metrosideros collina*, beating on *Ascarina*? (F. no. 529), sweeping, and on shrub F. no. 587 and 580, 5 males, 7 females; Teivipakeka, altitude 2400 feet, October 16, 1929, beating on *Glochidion ramiflorum*, 1 female; Teuanui, Tovii [Toovii], altitude 2500 feet, October 25, 1929, 1 female; Mumford and Adamson. Ooumu, near summit, altitude 3890 feet, July 20, 1931, on *Cyrtandra* species, 1 female, LeBronnec and H. Tauraa.

Hivaoa: Matauuna, altitude 3760 feet, July 24, 1929, on shrub F. no. 497, 1 male; and August 1, 1929, 2 males, 3 females, some labeled "beating on *Rapanea* species," altitude 3700 feet, March 4, 1930, on *Vaccinium* species, 1 male, 1 female, and on *Sclerotheca* species, 1 male, 1 female; Teava Uhia i te Kohu, altitude 2100 feet, February 15, 1930, 2 males, 1 labeled "beating on *Hibiscus tiliaceus*"; Kopaafaa, altitude 2800 feet, February 25, 1930, on tree F. no. 1008, 4 females; Mumford and Adamson.

A very dark brown, almost black species, with almost black scutellum, brown halteres, legs mainly dark brown, and wings almost devoid of macrotrichia. The antennae of the male have the last five segments elongate, the whorls of the plume being restricted to segments 4 to 10.

This insect appears to resemble in some respects *A. fortiserra* Kieffer, a European species which also is very dark in color, and has the wings almost (female) or quite (male) devoid of macrotrichia, and the second radial cell relatively short. In *A. fortiserra*, however, the legs are paler, "jaune clair," the petiole of *M* shorter than the cross-vein, and the antenna of the male of the usual form.

***Atrichopogon umbrosus*, new species.**

Male and Female

Length of wing about 1.3 mm.; greatest breadth of wing about 0.4 mm. Head almost black. Palpi darkish brown. Antenna of male darkish brown, plume blackish; segments of the usual type, 4-12 bearing whorls, 4-11 subequal in length but gradually narrowing, 12 drawn out distally, the length of the last five segments 10, 15, 32, 29, and 36 (with stylet) units respectively.

Throat, scutellum, and postscutellum almost black.

Wings unadorned. No macrotrichia. Costa extending about two-thirds of the wing length. Radial cells well formed; second fully three times as long as first. Petiole of *M* shorter than cross-vein. Line extending petiole of *M* between its branches present in both sexes. Fork of *Cu* distal to that of *M*, at about level of middle of first radial cell. Angle formed by branches of *Cu* less than right angle, acute. Tip of *Cu* slightly beyond level of end of costa. Halteres with brownish knobs.

Legs almost uniformly darkish brown, not so dark as scutum; last two tarsal segments darker than the rest. Segments, claws, and empodium normal. Tarsal ratio about 3.

Abdomen dark brown in the dried insect, but not so dark as scutum. Details of structure of spermatheca and hypopygium not examined as the specimens were not mounted.

Hivaoa: Kopaafaa, altitude 2770 feet, August 2, 1929, miscellaneous sweeping, 1 male, on *Tectaria* species, 1 female, Mumford and Adamson.

This very dark brown, almost black species resembles the preceding species, *A. pullatus*, new species, but the wings are devoid of macrotrichia in both sexes, the second radial cell is longer, the petiole of *M* is shorter than the cross-vein, and the antenna of the male is of the usual form.

***Atrichopogon rubidus*, new species.**

Male and Female

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

Head rather dark brown, almost blackish in the dried condition. Eyes hairy, contiguous above. Palpi darkish brown; lengths of last three segments in one male and one female similar, namely 13, 8, and 10 units respectively; third not much inflated in either sex, with a small pit near middle. Antennae darkish brown; in male rather unusual, with plume poorly developed, whorls small, composed of few (4-6) hairs, and distinctly present only on segments 4 to 9; segments 4 to 10 ranging from about 10 by 8 to 7 by 5 units; 11 and 12 subequal, about 8 by 5 units; 13 and 14 subequal, 22-23 by 5 units; and 15 longer, 32 (with stylet) by 6 units. In female segments 4-10 subspherical, subequal, in one specimen about 7 by 7 units; 11-14 elongate, increasing slightly in length, from 17 to 21 by 6 units; 15 longer, 29 (with stylet) by 7 units. The

combined lengths of segments 11-15, 4-10, and 3-10 in this specimen 103, 49, and 58 units respectively.

Thorax mahogany-brown. Scutellum similarly colored, bearing 4 dark bristles, and about 8-10 small hairs (rather more in female than in male). Postscutellum rather darker.

Wings unadorned but slightly smoky: in both sexes devoid of macrotrichia. Costa extending about two-thirds wing length. Radial cells well formed; second about three times as long as first. Petiole of *M* shorter than cross-vein, and not prolonged distally between the branches in either sex. Fork of *Cu* much distal to that of *M*, at about level of vein (R_2) separating radial cells. Angle formed by branches of *Cu* acute. Tip of Cu_1 slightly distal to level of costa in male, slightly proximal in female. Halteres with creamy or yellowish knobs.

Legs uniformly mahogany-brown, about same color as thorax. Segments, claws, and empodium normal. Tarsal ratio in both sexes about 2.5 or 2.6.

Abdomen mahogany-brown, about same color as thorax. Spermatheca single, highly chitinized, not pitted, oval, in one specimen about 50 μ by 45 μ ; the commencement of the duct chitinized for only a short distance, about 3-4 μ . Hypopygium without distinctive features. Ninth sternite only slightly excavated in middle line posteriorly, and bearing in this region a group of about 18 bristles. Aedeagus with the basal arch shallow.

Uapou: Teavaituhai, altitude 3000 feet, December 8, 1929, on *Sclerotheca* species, 1 male, 3 females, Adamson.

An almost entirely mahogany-brown species, with the wings in both sexes devoid of macrotrichia, and the petiole of *M* shorter than the cross-vein.

Atrichopogon, species.

This abnormal specimen, with both male and female characters, is almost uniformly yellowish-brown, the head rather darker than the rest, and the scutum adorned with darker markings as usual. Palpi with lengths of last three segments 12, 7, and 9 units respectively; third not much inflated. Antennae yellowish-brown basally, darker apically, of the feminine form: segments 4-10 subspherical, without whorls, subequal, about 9 by 9 units; 11-12 darker, elongate, subequal, about 14 by 8 units; 13-15 missing. Scutellum about same color as scutum, bearing 4 bristles, and about 5 small hairs. Wings devoid of macrotrichia. Length about 1 mm., and greatest breadth rather less than 0.4 mm. Costa extending about two-thirds wing length. Radial cells slit-like, second about twice length of first. Petiole of *M* shorter than cross-vein, not prolonged distally between the branches. Fork of *Cu* much distal to that of *M*, at about level of base of second radial cell. Angle formed by branches of *Cu* acute. End of Cu_1 much distal to level of end of costa. Halteres with pale, creamy knobs. Legs uniformly yellowish-brown. Tarsal ratio about 3. Abdomen yellowish-brown. No spermathecae. Hypopygium with ninth sternite not deeply excavated, but bearing on its posterior margin a row of bristles.

Fatuhiva: ridge east of Omoa [Oomoa] Valley, altitude 3000 feet, August 28, 1930, 1 specimen, LeBronnec.

Compare *F. allocera* Kieffer. Edwards² has drawn attention to the occurrence of this and another type of intersex in Chironomidae.

Styloconops albiventris (de Meijere).

Hivaoa: Tahauku, July 10, 1929, 107 females, some labeled "sea shore" or "near sea," Mumford and Adamson.

² Edwards, F. W., Ent. Soc. Lond., Proc., vol. 6, pp. 40-41, 1931, vol. 7, p. 32, 1932.

Nukuhiva: Taiohae, January 24, 1929, 30 females, Mumford and Adamson.

The collectors note that the native name for this insect is *nono purutia*.

Dasyhelea pacifica, new species (fig. 2, a).

Male and Female

Length of wing, 0.9-1.2 mm.; greatest breadth of wing, 0.3-0.4 mm.

Head almost black. Eyes densely hairy. Palpi dark brown, segments subcylindrical, third without pit, length of last three segments about 15, 8, and 8 units respectively. Antennae dark brown, segments sculptured. In male, plume very dark: segments 4-11 in one specimen ranging from 10 by 11 units to 10 by 8 units; 12-14 binodose, 12 and 14 subequal, about 21 units, 13 longer, about 25 units; 15 about 21 units, without stylet. In female, segments 4-10 subspherical to oval, in one specimen ranging from 7 by 8 to 9 by 5-6 units; 11-14 slightly longer, subequal, about 11-12 by 5-6 units; 15 about 15 by 6 units, without stylet. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen 61, 57, and 64 units respectively.

Thorax almost black. Scutellum usually almost black, scarcely or not at all paler than scutum, but sometimes paler brown in middle; bearing about 14-17 bristles and hairs.

Wings with veins forming second radial cell infuscated so as to give the appearance of a dark spot. Macrotrichia numerous, covering almost entire surface excepting radial areas and narrow zones on each side of veins, and extending practically to base between *M* and *Cu*. Costa extending about half wing length. First radial cell obliterated, second quite small, oblong, but in male shorter than in female and almost square. Petiole of *M* shorter than cross-vein. Fork of *Cu* at (female) or slightly distal to (male) level of end of costa. Halteres with brown to dark brown or almost black knobs.

Legs dark brown excepting first 3-4 segments of tarsi, which are paler, whitish. Tarsal ratio in both sexes about 2.5. Segments and claws normal.

Abdomen almost black in dried insect. Spermatheca (fig. 2 a) single, highly chitinized, subspherical, diameter about 40 μ ; duct narrow, arising obliquely, chitinized for about 5 μ . Hypopygium very similar to that of the West African species *D. inconspicua* Carter, Ingram, and Macfie, apparently indistinguishable from it.



FIGURE 2.—Spermatheca of *Dasyhelea*: a, *D. pacifica*, new species; b, *D. fulvicauda*, new species.

Hivaoa: Tapeata, eastern slope of Mount Ootua, altitude 2150 feet, May 25, 1929, sweeping over *Paspalum conjugatum*, 1 female; Tahauku, July 10, 1929, 1 male, 4 females, two labeled "near shore"; Matauuna, altitude 3760 feet, July 24, 1929, on *Weinmannia marquesana* variety *glabrum*, 1 female; Kopaaafa, altitude 2770 feet, August 2, 1929, 1 male, 1 female, on *Tectaria* species, and miscellaneous sweeping; northeast slope of Mount Temetiu, altitude 2600 feet, September 13, 1929, miscellaneous sweeping, 2 females; Mumford and Adamson.

Fatuhiva: Hanavave Valley, altitude 50 feet, September 8, 1930, sweeping over *Paspalum conjugatum*, 1 male, 3 females, LeBronnec.

Nukuhiva: Ooumu, altitude 4050 feet, November 12 and 13, 1929, 1 male, 7 females, miscellaneous sweeping, Mumford and Adamson.

Uahuka: Penau Ridge, altitude 2000 to 2200 feet, March 2-5, 1931, 17 males, 196 females, mostly on *Weinmannia* species, some on ferns; Hanahoua Valley, altitude 6 feet, March 9, 1931, 1 female, beating on *Thespesia populnea*, LeBronnec and H. Tauraa; Putatauuu, Vaipae Valley, altitude 880 feet, September 20, 1929, 1 male, A. M. Adamson.

Uapou: Hakahetau, altitude 3000 feet, December 27, 1929, 2 females, R. R. Whitten.

Eiao: Vaituha, altitude 200 feet, October 3, 1929, 1 female, A. M. Adamson.

Also taken by the Pacific Entomological Survey in the Society Islands.

An almost black species, with scutellum almost black, halteres dark brown, and legs dark brown excepting the proximal segments of the tarsi which are somewhat paler.

Resembles closely the African species *D. inconspicua* Carter, Ingram, and Macfie, which differs, however, in being not so black, with femora and tibiae much paler, and in having the scutellum yellowish-brown and armed with only 6 bristles. As the hypopygium of the male is almost if not quite indistinguishable from that of *D. inconspicua*, it should perhaps be regarded as the Pacific race of that species. Further support is given to this view by the fact that a re-examination of the West African species shows that in some males, at any rate, the 13th antennal segment is slightly longer than the 12th, 14th, or 15th (which are subequal), and that the duct of the spermatheca arises obliquely.

***Dasyhelea pacifica* variety *pallida*, new variety.**

Male

Head dark brown; palpi almost colorless; plume and terminal segments of antenna rather dark. Thorax dark brown above, paler, yellowish-brown at sides; scutellum paler than scutum, yellowish-brown, paler in middle than at sides. Wings without dark spot due to infuscation of veins bordering second cell. Legs pale brown, almost colorless; the joints (especially knees) appearing as small dark spots. Abdomen darkish brown dorsally. Hypopygium mostly pale brown, but claspers dark brown; structure as in *D. inconspicua* or the species just described.

Hivaoa: Matauuna, altitude 3760 feet, August 1, 1929, 1 male, beating on *Rapanea* species, Mumford and Adamson.

This insect, of which there is only a single male in the collection, does not appear to differ from the preceding in any structural character, but is generally much paler in color.

Dasyhelea fulvicauda, new species (fig. 2, *b*).

Female

Length of wing, 0.85 mm.; greatest breadth of wing, 0.35 mm.

Head dark brown. Eyes densely hairy. Palpi pale, yellowish; segments subcylindrical, third not inflated, without definite pit, length of last three about 10, 7, and 9 units respectively. Antennae dark brown, segments 4-14 forming an almost continuous series: segments 4-10 oval, in one specimen ranging from about 10 by 8 to 10 by 6 units; 11-14 subequal, about 12 by 5 units; 15 about 16 by 5 units, without stylet. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen 64, 70, and 80 units respectively.

Thorax yellowish-brown, but the scutum is adorned in the usual way with broad bands which are dark brown so that it appears dark with paler, yellowish-brown areas at the shoulders and immediately in front of the middle of the scutellum. Scutellum yellowish-brown, bearing 2 lateral and 4 centro-marginal bristles. Postscutellum dark brown.

Wings with distribution of macrotrichia and venation as in *D. pacifica* but with less infuscation of veins bordering second radial cell. Halteres pale, yellowish.

Legs uniformly yellowish-brown. Tarsal ratio about 2.3.

Abdomen with tergites dark brown, with posterior margins narrowly yellowish-brown, and with similarly colored semilunar basal markings on each side of the middle segments, and the rest (including the entire post-extremity) yellowish-brown. Spermatheca (fig. 2, *b*) single, highly chitinized, retort-shaped, the main part oval, about 55 μ by 33 μ , the duct oblique, tapering, chitinized for about 18 μ .

Hatutu [Hatutaa]: altitude about 800 feet, April 28, 1931, 2 females (one damaged), LeBronnec and H. Tauraa.

One female was also taken in the Society Islands by the Pacific Entomological Survey.

A mainly yellowish-brown species, with dark brown bands on the scutum, dark brown tergites, yellowish scutellum, and uniformly yellowish-brown legs.

This insect resembles in some respects the West African species *D. fuscipleuris* Carter, Ingram, and Macfie, and *D. flaviformis* Carter, Ingram, and Macfie, but may be distinguished from either, among other things, by the oval shape of the basal segments of the antenna, and by the form of the spermatheca.

Stilobezzia tenebrosa, new species (fig. 3).

Male and Female

Length of wing about 1 to 1.2 mm.; greatest breadth of wing about 0.4 mm.

Head very dark brown. Eyes bare, separated above by a narrow space. Mandibles of female armed with seven strong teeth. Palpi dark brown, segments subcylindrical; third segment not inflated, without a definite pit, the length of the last three segments in one male and one female similar, namely about 10, 7, and 12 units respectively. Antennae dark brown. In male, segment 3 large, binodose, more than twice as long as 4; 4-12 subequal in length but gradually narrowing, measuring in one specimen from 9 by 6 to 9 by 3 units; 13-15 elongate, measuring in the same specimen 28, 35, and 50 units by 3-4 units respectively (but last segment not always quite so long). In female segments 4-10 subequal, measuring in one specimen from 10 by 5 to 10 by 4

units; 11-15 elongate, measuring in the same specimen 20, 22, 24, 27, and 36 units by 4-5 units respectively. The combined lengths of segments 11-15, 4-10, and 3-10 in this specimen about 130, 70, and 80 units respectively.

Thorax very dark brown. Scutellum and postscutellum almost black, the former bearing in both sexes 4 bristles, but no small hairs.

Wings unadorned, in both sexes without macrotrichia. Venation as usual: first radial cell well formed, rhomboidal, second about three times as long as first; cross-vein and distal part of R_1 not in line; petiole of M much longer than cross-vein; fork of Cu almost at level of R_2 in female, slightly more distal in male. Halteres with dark brown knobs in specimens from Society Islands; pale, almost colorless knobs in those from the Marquesas Islands.

Legs almost uniformly dark brown, but proximal tarsal segments and (especially in males) bases of tibiae paler than the rest. Segments normal. Tarsal ratio about 2 in both sexes. First tarsal segment of hind legs without a basal spine. Claws normal.

Abdomen uniformly very dark brown. Spermathecae two (and a rudimentary third), highly chitinized, very unequal in both specimens examined, the one sacular, about 74μ by 48μ , and the other subspherical, diameter about 25μ . The duct of the large spermatheca chitinized for only a short distance. Hypopygium (fig. 3) very dark, similar to that of *S. limnophila* but with shorter and stouter harpes.

Hivaoa: Matauuna, altitude 3760 feet, August 1, 1929, miscellaneous sweeping, 1 male, 1 female, Mumford and Adamson.

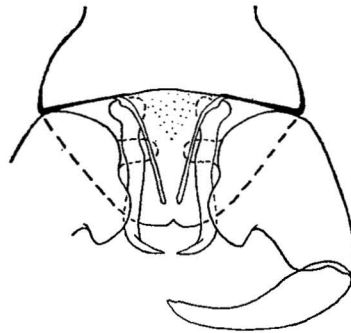


FIGURE 3.—Hypopygium of male, ventral view, *Stilobezzia tenebrosa*, new species.

Nukuhiva: Ooumu, altitude 3600 to 4050 feet, November 12 and 13, 1929, 4 males, 2 females, some labeled beating on *Weinmannia* species, beating on *Ascarina*? (F. no. 579), miscellaneous sweeping, and shrub no. 580, Mumford and Adamson.

Uahuka: Penau Ridge, altitude 2010 feet, March 2, 1931, on *Fragaria berteriana*, 1 female (? because paler colored), LeBronnec and H. Tauraa.

Also taken by the Pacific Entomological Survey in the Society Islands.

An almost entirely very dark brown species resembling in some respects *S. limnophila* Ingram and Macfie, but without trace of green coloration in the dried state.

Stilobezzia maculipes, new species.

Female

Head dark brown. Palpi dark brown, segments subcylindrical, third without definite pit, lengths of last three about 14, 9, and 13 units respectively. Antennae mainly dark brown, but basal portions of segments 3-10 yellowish; 4-10 ranging from 11 by 6 to 13 by 5 units; 11-14 subequal, 26-28 by 4-5 units; 15 longer, 35 by 5 units. The combined lengths of segments 11-15, 4-10, and 3-10 about 144, 82, and 100 units respectively.

Thorax darkish yellow-brown. Scutellum similarly colored, bearing 4 bristles only.

Wings as in preceding species, but rather larger, length about 1.3 mm., and greatest breadth over 0.4 mm. Second radial cell three times as long as first. Halteres with brownish knobs.

Legs mainly yellowish-brown; but femora of forelegs slightly infuscated in middle, those of middle and hind legs with infuscated spot a little above knees; tibiae of four anterior legs dark brown excepting at bases, and those of hind legs with a dark brown zone covering apical quarter; terminal tarsal segments also somewhat infuscated. Tarsal ratio, 2. First segment of hind tarsus without basal barb.

Abdomen dark brown above and below. Spermathecae as in the preceding species.

Upou: Hakahetau, altitude 3000 feet, December 27, 1929, 1 female, R. R. Whitten.

This species, of which there is only a single female in the collection, resembles the preceding species structurally, but is rather larger and lighter in color, the thorax and legs being mainly yellowish brown instead of very dark brown.