

New Dolichopodidae from the Hawaiian Islands (Diptera)

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PREFACE

BY FRANCIS X. WILLIAMS

Little is known of the distribution and habits of Hawaiian dolichopodid flies. The family is very well represented here, and more collecting will undoubtedly bring to light many new species in addition to the 32 described below by Mr. M. C. Van Duzee. Dolichopodidae are common in damp forests to very considerable altitudes. Quite a number of forms occur in the cultivated areas where there is sufficient shade and moisture to suit their needs. Several species are found about soil in greenhouses. A few may be immigrant insects, but the great majority are peculiar to the Hawaiian Islands, and, as far as collections show, each species is usually restricted to one island of the group.

The few condensed notes that follow on the habits and early stages of some of these dainty flies have been gathered during several years of intermittent study of the water-loving insects of Hawaii, and upon which the writer soon hopes to publish.

The common *Dolichopus exsul* Aldrich is found in many damp situations; it occurs about leaky faucets out of doors, along ditches, water courses, etc. It seldom alights upon clear water, but makes brisk short flights low over the water and ground and diligently explores the margins of pools and wet rocks. It is carnivorous and has been observed feeding on a dead winged form of our mountain termite (*Neotermes connexus* Snyder). A good-sized dolichopodid larva occasionally found about filamentous green algae on the edge of a waterfall back of Honolulu, or in a floating mat of algae in a little pool there, may be this species.

The extensive genus *Campsicnemus*, consisting mainly of not very metallic looking to even somber little flies, is of considerable interest here since many of its species spend much of their existence as adults upon the surface of water. A large percentage of these insects ride the waters of tiny cañon or gully pools, or of

bogs, seeking soft dead insects and venturing at times to pursue—vainly so far as I have observed—the larger collembolous insects that are occasionally seen nimbly leaping on the water. Such Campsicnemus flies, commonest of which on Oahu appears to be the little *C. gloriosus* Van Duzee, are active runners upon the water, quickly turning about and often progressing with the help of their wings. Since many of the poollets patronized by these flies disappear at times through insufficient rains, these insects must get along well enough on the forest floor. Several kinds of Campsicnemus are found mile high on more permanent waters on the slopes of Mauna Kea, Hawaii. Here we sometimes found them on boggy puddles in the forest or else skating gracefully on poollets of clear water along the little Nauhi Gulch stream.

However, by far the best performers upon the surface of water observed among the Dolichopodidae, or among any other insects here, are two species (more will probably be found) of rather large sooty-looking Campsicnemus, *C. nigricollis* and *C. miritibialis*, both described here by Mr. M. C. Van Duzee. The former fly occurs in the uplands of Kauai (Kokee), the latter disports itself on the more permanent streams back of Honolulu. These insects employ the middle pair of legs and their wings in propelling themselves in their sometimes almost invisibly swift graceful gyrations on the surface of the water. They travel over a more or less regular “beat” or restricted area of water and, when two flies meet, there is usually an extremely rapid scuffle for a moment. Such a beat is usually where there is a gentle current, being frequently near the head of a little pool or below a small rapids, and the flies maintain their place—when not dashing about—by regular strokes of the middle pair of legs and flicking of the wings. Patrolling thus with speed and alertness, they are able to capture the large and active collembolan, *Salina maculata* Folsom (Proc. Haw. Ent. Soc., VIII, No. 1, p. 71, figs. 105-110, 1932) that is abundant about the haunts of *C. miritibialis* and is occasionally seen on the water, and that at least at times must form one of the chief foods of this fly.

Campsicnemus flies will sometimes lay their smooth, long-oval, pale-brownish eggs on the wet cotton stoppers of their vial prison. I found the young difficult to rear. By enclosing some adult *C. gloriosus* in jars containing very wet bog mud, moss and plant

stems, I secured over 5 weeks later a single male fly of this species.

The relatively large pale gray *Hydrophorus pacificus*, here described by Mr. Van Duzee, is an accomplished skater of lowland maritime marshes and also runs over the muddy shores. The adult fly has been observed pulling out of shallow water and devouring blood worms (the larvae of our *Chironomus hawaiiensis* Grimshaw). It lays a number of dark polished long-oval eggs; its larva, also carnivorous in its muddy environment, pupates in a cocoon that in due time yields the long-legged adult fly.

F. X. W.

The present paper was prepared from a collection of more than 220 specimens, nearly all of which were taken by Dr. F. X. Williams and Mr. O. H. Swezey, largely by the former. Thirty-two species are described as new; only two of the species previously described from the Islands were found among them, one being *Dolichopus exsul* Aldrich, described by Dr. Aldrich in 1922, Proc. U. S. National Museum, Vol. 61, Article 25, p. 15. This species has been taken on the islands of Oahu and Hawaii, and so far is one of the very few species of the family known to have been taken on more than one of the Islands; the known species of Dolichopodidae have been taken on only three of the Islands. Twenty-five species have been taken on Oahu, 10 on Hawaii, and 2 on Maui.

Mr. Percy H. Grimshaw in the Fauna Hawaiiensis, Vol. III, Part 1, published December 30th, 1901, recognized 9 species of the family, all but one he described as new. That one he determined as *Psilopus patellifer* Thomson, but as it differs considerably from Thomson's description of that species I am here describing it as *Chrysosoma fraternum* new species.

In Fauna Hawaiiensis, Vol. III, Part II, published in December, 1902, Mr. Grimshaw described two more species of dolichopods. For one of these species he erects the new genus *Emperoptera*, describing the species as *E. mirabilis*. The wings of this form are represented by dark-brown appendages, which in his drawing look as if they might be the costal vein only. He describes this genus and species from nine specimens taken on the island of Oahu.

Liancalus metallicus Grimshaw was described from one male and two females from Hawaii. His other species are all included in the tables of species in this paper. These are: one *Chrysosoma*, three *Chrysotus* and four *Campsicnemus*.

The material sent me by Dr. Williams brings the known species of Dolichopodidae up to 46, which are placed in the following eleven genera: *Chrysosoma*, two species; *Campsicnemus*, 27 species; *Chrysotus*, five; *Dolichopus*, one; *Emperoptera*, one; *Hydrophorus*, one; *Liancalus*, one; *Medetera*, three; *Sweziella*, one; *Syntormon*, one, and *Eurynogaster*, three. Two of these genera are new: *Eurynogaster* and *Sweziella*. All holotypes and allotypes are in the collection of the Hawaiian Entomological Society in Honolulu, except that of *Chrysosoma fraternum* new species. I wish to thank Dr. Williams very much for sending this material to me for study. The collection proved of special interest, especially the remarkable number of forms of the genus *Campsicnemus*, many of which are water skaters.

I also want to thank Dr. Aldrich for loaning me two pairs of *Chrysosoma* from the National Museum Collection and sending me a copy of Thomson's description of *Psilopus patellifer*, making it possible to describe *Chrysosoma fraternum* as new.

***Chrysosoma fraternum* new species.**

Male: Length 5 mm.; of wing 6 mm. Face wide, shining green, portion below the suture about as long as wide, cut off somewhat straight below with a small point in the middle and slightly emarginate on each side of this point; lower half of face with rather thick white pollen; palpi and proboscis yellowish brown, former with black hair, latter with an acutely pointed triangle in the center; front shining green; ocellar-tubercle projecting, almost short cylindrical; antennae (Fig. 1) black, third joint triangular with a bare arista, which is as long as the abdomen and has a small lamella at tip (Fig. 2) which is a very little whitish at apex and has a very short, black, pubescent projection in the center of the tip; the black orbital cilia reach down to about the middle of the eyes; beard white, moderately long, but not very abundant.

Thorax and abdomen shining green with bronze reflections, latter with narrow black incisions and black hair, lower edge of sides and the venter with rather long white hair; pleura largely black, three pairs of large acrostichals; two pairs of large dorsocentrals; scutellum semicircular, green, bluish in middle, with one pair of slender bristles; hypopygium (Fig. 3) black, with its appendages mostly reddish yellow, but partly reddish brown and blackish, lamellae-like organs extending downward, one pair of curved organs extending forward from upper corners and a longer pair (Fig. 4) extending forward from the middle of the lamella; from base of upper pair

is a small slender projection with two long fine hairs, and from the base of the hypopygium is a thick central organ.

All coxae and trochanters black; front coxae with long white hair and one or two black bristles near tip; all femora green with long white hair below, which are about one and one-third times as long as width of femora; anterior pair also have two long blackish bristles near base, which are about three and a half times as long as width of femora; all tibiae yellow, front and middle ones narrowly black at tip, posterior pair more widely black at tip and with a blackish, slightly swollen ring near basal fourth; fore tibiae above with one bristle of moderate size beyond the middle and two about half as large between that and base of tibia; middle tibiae with one bristle at the middle above and a larger one near base; hind tibiae without bristles of such size; all tarsi black, plain; length of front tibiae as 87, middle as 147, and hind as 173; joints of front tarsi as 70-22-14-8-8; of middle pair as 108-35-23-12-9; of posterior pair as 90-38-23-12-8. Calypteres yellow with black tip and white cilia; halteres with brown knob.

Wings grayish hyaline; costa with very short, recumbent hairs; second vein nearly straight, only gently bent back a little at tip, running close to the costa from tip of first joint to its tip; third vein considerably and evenly bent backward from a little beyond the forking of fourth vein to its tip; fork of fourth vein at a right angle with fourth, but broadly rounded almost from its start to the tip, becoming less arched on apical half or more; cross-vein oblique, sinuous; last section of fifth vein straight as far as it reaches, which is about half way to wing margin, but continued as a fold in wing membrane to a small notch in hind margin of wing, but not in a line with the first half of the last section of the vein; length of fifth vein from cross-vein to the notch on hind margin of wing as 25, of cross-vein as 49; last section of fourth vein from cross-vein to fork as 50, from fork to wing margin as 26, but the fourth vein ends a little beyond the fork.

Female: Antennae about as in the male, except that the arista is a little shorter and very slender towards its tip; all femora, tibiae and most of front and middle tarsi yellow, narrow tips of hind tibiae and their tarsi black; front femora with two very long black bristles below on basal third; front tibiae with three long slender bristles on lower posterior surface and four stouter ones above, those below four times and longest one above three times as long as width of tibiae; front tarsi with a large stout bristle above at apical third of first joint; middle tibiae with three long bristles on anterior surface, one near base on lower posterior edge, two on middle third of upper anterior edge, two large ones on upper posterior edge of basal half, and a small one near tip on posterior surface; posterior tibiae without bristles of much size; wings about as in the male, except that the cross-vein is nearly straight. Length of front tibiae of female as 84, middle as 115, and of hind as 110. Joints of front tarsi as 61-19-11-8-8; of middle as 76-22-18-8-9, and of posterior as 30-28-18-10-8. Halteres yellow, knobs more orange colored with tip brown.

Holotype, male, and allotype, female, taken by A. Busck, September, 1915, at Kona, Hawaii. Holotype and allotype in the U. S. National Museum.

There is no doubt that this is what P. H. Grimshaw determined as *Psilopus patellifer* Thomson. If we accepted Dr. Becker's synonymy of *patelliferum* as Grimshaw's species, it has been taken in Java, Sumatra and Borneo; the type location was the small island of Guam. Becker redescribes the species from specimens from Formosa, and they certainly were not the same species as Thomson had or that we have from Hawaii, and the Hawaiian species is not the same as *patellifer* Thomson, so we have three species very much alike; also Grimshaw compares it to *globifer* Wied., and Becker to *compressum* Becker. The following table will help to separate these forms and also *leucopogon* Wied., which also has a brown ring near base of hind tibiae, but the arista has no lamella at tip.

Table of Hawaiian Chrysosoma, together with several species related to *patellifer* Thomson, to which one Hawaiian species was referred.

1. Antennae, coxae, femora, and tibiae wholly pale yellow; arista as long as abdomen, without a lamella at tip; hypopygial lamellae a pair of long, slender, yellow filaments (Oahu) (Fig. 5) *pallidicornis* Grimshaw
Antennae, femora, and most or all of coxae black or green; hypopygial appendages not at all filiform.....2
2. Front coxae yellow; arista with an apical lamella, which is black on basal, white on apical half, apical half deeply incised, fringe-like (Formosa)*patelliferum* Becker (not Thomson)
All coxae wholly black; lamella at tip of arista, if any, not at all incised....3
3. Arista as long as the abdomen, without a lamella at tip; middle tibiae with a blackish ring near tip; hind tibiae with a blackish, swollen ring near base (India; Formosa).....*leucopogon* Wiedemann
Arista as long as abdomen, with a lamelliform tip; middle tibiae without a blackish ring near tip.....4
4. Lamella at tip of arista at least with apical half white.....5
Lamella at tip of arista wholly black or with extreme tip white.....6
5. Arista with its lamella wholly white or nearly so; scutellum with two pairs of large marginal bristles; front femora with two large black bristles at base below; front tibiae with three large bristles below (Guam Island).....*patellifer* Thomson
Lamella at tip of arista with basal half black, apical half white; nearly oval, but base and tip a little pointed (China).....*globifer* Wiedemann
6. Hypopygium with outer, outstanding appendages simple; hind tibiae without a black tip; lamella at tip of arista wholly black; middle tibiae with two bristles below (Bengal, India).....*compressum* Becker
Hypopygium with outer outstanding appendages forked at tip; hind tibiae with a rather narrow black tip; arista with its lamella white at extreme tip; front and middle tibiae without bristles below (Hawaiian Islands).....*fraternum* new species

Chrysotus vulgaris new species.

Male: Length 1.5 mm. Face wide, only a little narrowed below, dull black; palpi black, about as long as width of face, with whitish pollen and black hairs; front violet-blue; antennae blackish brown, third joint rounded, scarcely as long as wide; arista brown, apical; lower orbital cilia whitish.

Dorsum of thorax shining green, posterior part with bright coppery reflections; pleura black with slight blue reflections. Abdomen black with very slight blue reflections, black bristles and yellowish hair; hypopygium concealed.

All coxae almost wholly yellow, anterior pair with a few delicate yellow hairs, posterior pair without a bristle on outer surface; all femora, tibiae and tarsi pale yellow; fifth joint of all tarsi darkened, flattened and widened; front femora with a row of slender, black hairs on lower posterior surface; middle tibiae with a bristle above at basal fourth; middle and hind tibiae with bristles at tip; middle tarsi (Fig. 6) with the hairs below on first two joints a little more erect than those above; hind tarsi (Fig. 7) with the hairs below entirely erect on first two joints; length of fore tibiae as 33, of middle as 41 and of posterior pair as 49; joints of front tarsi as 15-6-5-4-4, of middle pair as 21-10-6-4-4, and of posterior pair as 10-12-6-4-5. Calypteres brown with yellowish cilia; halteres pale yellow.

Wings grayish, rather broad; third and fourth veins nearly straight, a little farther apart at tips than at the cross-vein, fourth ending in the apex of the wing; cross-vein near the middle of the wing; last section of fifth vein nearly straight; fifth vein from root of wing to cross-vein as 37, cross-vein as 8; anal angle of wing rounded, but rather prominent.

Described from one male, taken by F. X. Williams, on sugar cane, January 16, 1930, at Waialua, Oahu.

Chrysotus pallidipalpus new species.

Male: Length 1.2 mm. Face very narrow, black, eyes touching or nearly so in the middle of the face; palpi (Fig. 11) about one and three fourths times as long as the face, with white pollen and hairs; front blue-black, more violet in the middle; antennae (Fig. 10) wholly yellow, third joint rounded with long pubescence, arista brown with short pubescence; lower orbital cilia appear to be white (can scarcely be seen in the male, but white in the female).

Dorsum of thorax green, not very shining, its bristles black. Abdomen blue-black with yellowish hairs, these hairs appear more black in certain lights; hypopygium rounded, forming a rounded tip to the abdomen and more brown than blue-black, its lamella small, yellow, triangular, projecting below, fringed with moderately long hairs; central organ long, slender, inserted at lower posterior surface of hypopygium, curved under the abdomen.

Coxae, femora, tibiae and tarsi yellow; fore coxae with white hair; middle coxae blackish on basal half and tarsi a little darker toward their tips, middle pair with last three joints brown; fore femora with small hairs above and on lower part of posterior surface, where they are a little longer, below on basal three-fourths they have a few short delicate yellow hairs; hind femora with several moderately long black hairs below, one pair near tip more bristle-like; all tibiae without bristles of noticeable size, but pos-

terior pair with a row of bristle-like hairs on lower posterior edge extending their whole length, and as long as diameter of tibia; these are continued on their basitarsi, but are much shorter, all joints of hind tarsi have short, rather erect hairs below and longer recumbent hairs above; length of front tibiae as 30, of posterior as 41; joints of front tarsi as 15-6-5-5-4, of middle pair 18-8-6-3-3, of posterior pair as 9-11-7-4-3. Calypteres yellowish with black cilia, which appear pale in certain lights; halteres pale yellow.

Wings nearly hyaline, veins thin; third and fourth veins nearly straight and parallel beyond the cross-vein, fourth ending in the apex of the wing; last section of fifth vein about three times as long as cross-vein; anal angle of wing rounded, but somewhat prominent.

Female: Face black, the narrow part below grayish pollinose, face wide above, narrow and elongated below; palpi rather large, black; antennae about as in the male; posterior tibiae without the row of long hairs; middle tibiae as 40; joints of fore tarsi as 16-7-5-3-3, of middle as 19-10-6-3-3, posterior pair as 11-11-6-3-4; thorax shining green with coppery reflections; abdomen black with pale hairs.

Described from three pairs and two females, taken by O. H. Swezey, January 21, 1930, at Honolulu, Oahu, T. H., and one female, taken by F. X. Williams, on sugar cane, January 16, 1930, at Waialua, Oahu.

Table of the males of the species of *Chrysotus* known to be found in Hawaiian Islands.

1. Femora largely black, brown or green; antennae black.....2
Femora yellow; antennae sometimes black and sometimes yellow.....3
2. Face silvery white, narrow; middle femora with two preapical bristles, one above and one below, also seven stout bristles below, the second from base the longest, those beyond about half as large (Figs. 8 and 9) (Maui)*spiniger* Grimshaw
Face rather wide, shining green; fore femora with one preapical bristle on posterior surface and two rows of six short spines below; middle and hind femora each with one row of minute spines below (Oahu)*saxatilis* Grimshaw
3. Antennae wholly yellow, third joint rounded; palpi very large, pale yellow, leaf-like (Oahu).....*pallidipalpus* new species
Antennae wholly black4
4. Cilia of the calypteres and of posterior orbits black; fore coxae yellowish brown at base; fore femora with nine spine-like bristles below on apical two-thirds, basal two the longest; face narrow, silvery white (Hawaii).....*hawaiiensis* Grimshaw
Inferior orbital cilia white; cilia of the calypteres black in the males, yellow in the females; fore coxae wholly yellow with black hairs (Oahu).....*vulgaris* new species

***Campsicnemus brevipes* new species.**

Male: Length 1.7 mm. Eyes almost touching in the middle of the face; face white pollinose; palpi small, black or brown; front largely black or

brown, but shingling green on each side at vertex (the rest of front may be discolored); antennae (Fig. 12) wholly black, first joint gray with pollen, at least on outer surface, third joint twice as long as width of base, pointed at tip, arista basal, black; lower orbital cilia, white.

Dorsum of thorax bright, but dark shining green, with a little brown pollen and coppery reflections (its bristles broken off in type); scutellum blue with violet reflections in the middle; pleura black. Abdomen black, depressed, its hairs largely yellowish; hypopygium black, conspicuous, rounded, with black appendages.

Coxae black, posterior ones with a long, erect bristle on outer surface (cannot see the fore coxae very well); coxae, lower part of pleura and parts of femora with a peculiar silvery white pollen, which is visible in certain lights; front femora dark yellow, apparently blackened below; front tibiae and tarsi (Fig. 13) black, former with the tip yellowish; last joint of tarsi widened; middle femora yellow with little spines below, which give it a serrate appearance on apical half; middle tibiae and tarsi (Fig. 14) black, tibiae widened and with a small black hook at tip below, a long preapical bristle on one side and two short spines near apical fourth; first joint of tarsi less than half as long as second, with two fine, hair-like bristles below near base; hind femora, tibiae and tarsi yellow, but rather dark in color, femora with a pair of bristles below near basal third and one or two near tip; none very long; tibiae with small slender bristles above, which are recumbent, not at all outstanding; length of front tibiae as 32, middle 38 and posterior as 55; joints of front tarsi as 12-5-4-3-5; of middle pair 6-14-7-5-7; and of posterior pair as 15-17-9-7-8. Calypteres dark yellow with black cilia; halteres yellow.

Wings grayish (crumpled in type).

Holotype, male, taken by O. H. Swezey, May 2, 1920, at Waialae iki, Oahu.

***Campsicnemus ciliatus* new species.**

Male: Length 1.7 mm. Eyes contiguous; upper facial triangle, front, antennae, palpi and occiput black; lower orbital cilia whitish.

Dorsum of thorax black with brown pollen; acrostichal bristles forming one row in front and two irregular rows posteriorly; five pairs of dorso-centrals, the front pair very small; bristles of the thorax black, but appearing whitish in certain lights, especially towards their tips; scutellum with two large bristles and two pairs of very small hairs on the margin; pleura black, anterior half more dark reddish brown, a yellow spot at root of wing; abdomen black.

All coxae blackish at base for more than half their length, more reddish brown or reddish yellow on apical part, anterior pair a little more yellowish; femora dark yellow, anterior pair infuscated at base; tibiae and tarsi pale yellow; middle tibiae (Fig. 15) slightly widened, somewhat fusiform, a bristle below at tip and one near basal fourth on lower posterior edge, also a row of long bristly hairs below on most of apical half, these hairs are yellow, but appear more brown in certain lights; all joints of middle tarsi ciliated below with rather long yellowish hairs; hind femora with several bristles below near tip; hind tibiae slender, with four bristles on upper

anterior edge and three on upper posterior edge; hind tarsi with rather long, but not stout hairs; middle tibiae as 38, posterior as 65; joints of front tarsi about as 15-6-4-4-5; middle pair as 17-12-9-6-7; of posterior pair as 14-15-10-7-7.

Wings grayish; third and fourth veins nearly straight and parallel, fourth ending a little back of apex of wing; last section of fifth vein about as 22, cross-vein as 6.

Holotype, male, taken by O. H. Swezey, May 18, 1932, on Mt. Kaala, Oahu.

The only specimen of this species in the collection is in poor condition. I could not see the form of third antennal joint or much of the abdomen; the wings are crumpled some and the front legs are mostly buried in glue. The characters given will no doubt be sufficient to identify the species when taken again, although the color of the legs and front may be found to differ from that given here when fresh specimens are obtained.

***Campsicnemus concavus* new species.**

Male: Length 2 mm. Face narrow in the middle, wider above and below, its suture near lower fourth, face covered with yellowish gray tomentum, lower part with the tomentum wholly gray, somewhat heart shaped, as long as wide; palpi black, thickly covered with gray tomentum; proboscis black; front dark blue, somewhat shining; antennae wholly black, third joint somewhat conical in outline, slightly longer than wide, arista basal, pubescent; the cilia of the posterior orbits seem to be wholly black.

Dorsum of thorax dark blue, with several acrostichal bristles; four pairs of dorsocentral bristles of nearly equal length, except the posterior pair, which are longer; scutellum with one pair of marginal bristles; pleura blackish above, yellow below. Abdomen dark green with some blue reflections and black hair; hypopygium almost wholly concealed, but seems to be gray pollinose with stiff black hairs.

Fore coxae yellow with black hair, the hair near the tip long and stiff, a row of four or five rather small, slender bristles at tip; middle coxae mostly black; hind coxae largely yellow with one black, erect bristle on outer surface; all femora yellow, posterior pair (Fig. 16) flattened, wide when seen from above or below, when viewed from the side they are narrow and much curved, concave below, with a large preapical bristle and darkened tip; all tibiae dark yellow to brownish, almost brown; fore tibiae (Fig. 17) a little concave above, with a large bristle below just beyond the middle, and a small one at tip below; middle tibiae seem to have five bristles on upper anterior edge and two on upper posterior edge of basal half, below with two bristles on middle third; hind tibiae with four or five bristles above and four below, including those at tip; length of front tibiae as 37, of middle 59, and of posterior as 65; joints of fore tarsi as 20-8-6-5-5; of middle as 22-13-10-7-8; of posterior pair as 17-17-9-8-6. Knobs of halteres yellow.

Wings grayish; fourth vein ending in the apex of the wing; last section

of fifth vein a little curved, its length as 25, cross-vein about one-third as long as last section of fifth vein.

Described from one male, taken by F. X. Williams, in pool at Pauoa headwaters, Tantalus, Oahu, September 11, 1932, at 1,500 feet elevation. This is a water rider.

I should have taken this specimen to be a female, but as the fore tibiae and posterior femora are so decidedly modified it seems sure it must be a male, although the hypopygium is concealed.

***Campsicnemus flavicornis* new species.**

Male: Length 2 mm. Face narrow above, brown, lower half with yellow tomentum; front blackish green; occiput black with a little white pollen; antennae (Fig. 18) yellow, third joint triangular, acutely pointed at tip, second joint larger than the first; orbital cilia wholly black.

Dorsum of thorax reddish, blackened a little in the middle, especially on posterior slope; no acrostichal bristles; four pairs of dorsocentral bristles; scutellum yellow with one pair of large marginal bristles; prothorax partly blackened, with one large black bristle above each fore coxa; pleura black on upper half, lower half pale yellow. Abdomen dull black, narrowly yellow at base, its hair black, posterior margin of segments narrowly white pollinose; hypopygium mostly concealed with small silvery white hairs, small black appendages visible below; central organ projecting a little backward, yellowish white, its sheath darker yellow.

All coxae and femora and anterior and posterior tibiae and tarsi pale yellow, outer surface of middle coxae with a large black spot, anterior surface with stiff black hair; front coxae with silvery white pollen, a few delicate hairs on upper part and three stiff black bristle-like hairs on lower half; hind coxae with one large, erect, black bristle on outer surface; all femora, tibiae and tarsi with rather short, black hair; front femora (Fig. 19) nearly bare below with only a few rather short hairs towards the tip; middle femora (Figs. 20 and 21) much thickened at base, slender towards tip, with two rows of long bristly hairs below; hind femora with a row of rather long hairs on lower posterior edge; front tibiae (Fig. 19) without bristles; middle tibiae (Figs. 20 and 21) black, without bristles, except at tip and a small one near base; they have a row of long stiff hairs above and below, those above becoming longer towards the tip; front basitarsi slender (Fig. 19) thicker at base; middle tarsi (Figs. 20 and 21) wholly black with long hair above, first joint with about sixteen very long, nearly erect hairs, which have their tips bent; hind tibiae with seven bristles above, below with a small bristle beyond the middle and one at tip; hind tarsi with first joint one-fifth shorter than second; length of front tibiae as 35, middle 53 and posterior as 70; joints of front tarsi as 25-10-10-6-6; of middle as 25-14-14-9-6; and of posterior as 20-25-15-10-9. Calypteres yellowish brown with dark yellowish cilia; halteres wholly pale yellow.

Wings brownish, in poor condition in the type.

Female: Front shining blue-green; third antennal joint very small; dorsum of thorax more blackish; two acrostichal bristles form the starting of a single row on the front of the thorax; four pairs of dorsocentrals; scu-

tellum yellowish, but darker than in male; pleura, coxae, femora, tibiae and tarsi colored about as in the male, except that the middle tibiae and tarsi are yellow like the rest; fore tibiae without a bristle; middle tibiae above with one bristle at basal sixth, one at basal third, and one at apical third, below with one at basal third, tip with three bristles; hind tibiae above with one bristle at basal and one at apical third, below with one at apical third; length of front tibiae as 38, middle as 64 and posterior as 82; joints of front tarsi as 23-10-8-7-5; of middle 30-14-12-7-5; posterior pair as 22-27-16-10-7. Front basitarsi straight; all tibiae and tarsi with short hair.

Holotype, male; allotype, female, and one female paratype, taken by F. X. Williams, April 19, 1931, on Mt. Kalena, Waianae Mountains, Oahu, at 3,500 feet elevation.

Another badly broken specimen may be the same as *flavicornis*, but the bent hairs on middle basitarsi are continued on the whole length of the tibiae, and the first joint of front tarsi seems to be straight, but are buried in the glue. It was taken by O. H. Swezey at Opaepala, Oahu, July 19, 1925.

***Campsicnemus gloriosus* new species.**

Male: Length 1.7-2 mm. Face brownish black, sometimes metallic black, moderately wide below, eyes approximated above, coming closest at upper third, lower part nearly round and covered with golden yellow tomentum; palpi black with white hair; proboscis brown with a row of minute yellow hairs on the edge; front blue-green, steel-blue or violet, wide but short; ocellar-tubercle prominent; antennae (Fig. 22) wholly black, third joint triangular, long and rather slender; arista basal, pubescent; orbital cilia black, two or three hairs below yellowish white.

Dorsum of thorax shining black, pleura pale yellow on lower half or more; no acrostichal bristles; four pairs of dorsocentrals; scutellum shining dark blue-green, or blue with one pair of marginal bristles and three or four very minute hairs between them on the apical margin; prothorax with one large black bristle above each fore coxa. Abdomen depressed, dull black with a few pale yellow hairs on the dorsum and black hairs on lower edge of the sides; venter black; hypopygium mostly concealed.

Fore coxae wholly yellow with black hair and several small bristles; all tarsi and middle and hind coxae black, coxae with yellow tips, posterior pair with one black erect bristle on outer surface; all femora yellow with black hair, hind ones a little brown at tip; fore femora with three small black bristles near tip on lower anterior side and another small one close to the tip; hind femora nearly straight, scarcely thickened, with one preapical bristle on posterior surface and a row of about ten slender, black bristles below, the longest nearly as long as width of femora, also a black bristle near tip below; front tibiae yellow, without bristles; middle tibiae (Fig. 23) black, flattened and widened, curved, so as to be considerably concave on upper edge, below with slender bristles on basal half and long fine hair on apical half, its tip (Figs. 24 and 25) projecting beyond base of tarsi and with seven curved bristles above on tip, the apical ones very long, but rapidly becoming shorter, also a straight bristle below near apical fifth;

base of tibiae (Fig. 26) with a large, pale yellow, thumb-like projection near base; hind tibiae black, straight, moderately slender, above with a pair of bristles near basal fourth, three bristles on middle third, one at tip and a row of hairs on both upper and lower edges of posterior surface, which are as long as diameter of tibia; length of front tibiae as 45, of middle pair as 56 and of posterior pair 64; joints of front tarsi as 21-12-11-6-7; of middle as 28-18-10-8-8; posterior pair as 18-16-11-7-8. Calypteres brown with black cilia; halteres yellow with the knob black or more or less blackened.

Wings uniformly tinged with brown; third vein slightly bent back at tip; last section of fourth vein nearly straight, about parallel with third, ending just back of the apex of the wing; last section of fifth vein as 25, cross-vein as 9; posterior margin of wing evenly rounded.

Female: Face formed about as in the male, wholly brown, scarcely paler below; third antennal joint (Fig. 27) about half as long as in the male; all femora, tibiae and tarsi plain; front tibiae (Fig. 28) brownish with a bristle above and below near the middle; middle and hind tibiae black; middle tibiae (Fig. 29) above with one bristle at basal fourth, one before and one after the middle (sometimes the latter missing), and one above and below at tip, also one at first and second third below; hind tibiae above with one bristle at basal sixth, one just before the middle and one a little beyond apical third, below with a small bristle a little before and one a little after apical third; length of front tibiae as 45, middle 61 and hind ones as 73; joints of front tarsi as 23-9-8-7-7; of middle 26-14-11-8-9; of posterior pair as 20-17-11-10-7. Wings with the cross-vein one-third as long as last section of fifth vein; lower part of pleura sometimes yellowish brown; knobs of halteres vary from dark yellow to blackish, and hind coxae vary in color about the same.

Described from 94 specimens of water riders; holotype, male; allotype, female, and five paratypes, taken by F. X. Williams at Pauoa headwaters, Tantalus, Oahu, on water, at 1,400 feet elevation, on February 14, 1932; 15 paratypes, taken on pools at Pauoa headwaters, Tantalus, Oahu, September 11, 1932, at 1,400 feet elevation; two paratypes, at Pupukea, Oahu, March 6, 1932, at 1,800 feet elevation, and four paratypes at Pauoa headwaters, Oahu, March 15, 1931, on water. The other paratypes were taken at these locations, in the same months; all specimens were taken on the Island of Oahu. It may be found on the other Islands, but I have not seen specimens from them.

***Campsicnemus grimshawi* new species.**

Male: Length 2 mm. Eyes broadly contiguous, lower facial triangle brown with white tomentum on the rounded lower part; front shining blue-green; antennae (Fig. 30) wholly black, third joint triangular, slightly longer than wide, obtuse at tip, arista basal, long with long pubescence occiput black with brown pollen; orbital cilia wholly black.

Dorsum of thorax black, dulled with brown pollen; acrostichal bristles in two irregular rows; five dorsocentrals in each row; scutellum blue with one pair of bristles and a few minute hairs between them on the posterior margin; lower part of pleura yellow or yellowish brown. Abdomen dull black, depressed, with pale hairs and black bristles, seen from the side the hair appears more black; hypopygium mostly concealed with white hairs on outer part.

Fore coxae yellow with black hairs on anterior surface and a row of bristles on outer edge of apical half and across the tip; middle and hind coxae black, latter with one large, black, erect bristle on outer side; all femora yellow, front pair (Fig. 31) with a few short, black hairs below; middle femora (Fig. 32) with long, delicate hairs below, ending in a few short stiff ones and one bristle near tip; hind femora narrowly black at tip, a large black bristle above near tip and short black hairs below; front tibiae (Fig. 31) yellow on basal half, apical half blackish, above with one rather small bristle just before the middle and one below just beyond middle; middle tibiae (Fig. 32) black, a conspicuous, somewhat triangular projection below near base, beyond this with a row of moderately short, erect, black hairs, which become long yellowish and numerous on apical half, ending in a long black bristle at tip, and with one moderately long bristle on the side at basal third; hind tibiae black with rather long black hair above and below, upper surface with six bristles and one at tip above and below; all tarsi black, plain, with moderately long black hair, on lower surface of middle ones the hair is as long as diameter of joints, those on fourth joint erect and bent at tip. Length of front tibiae as 45, middle 62 and posterior as 90; joints of front tarsi as 27-12-12-9-8; of middle as 35-16-10-8-8; of posterior pair as 23-20-12-8-9. Calypteres and their cilia black; halteres yellow or yellowish brown.

Wings tinged with blackish brown, darker in front; fork of second and third veins nearly opposite apical third of first vein; third and fourth veins nearly straight and parallel, fourth ending in apex of wing; last section of fifth vein straight, its length as 26, cross-vein as 8; wings rather wide, not elongated, anal angle rounded, but a little prominent.

Described from four males, all taken by Swezey and Williams in October, 1931, at Nauh Gulch, Hawaii, at an elevation of about 5,000 feet on a forest pool; one female paratype was taken at the same time.

***Campsicnemus nigricollis* new species.**

Male: Length 3 mm. All parts of head, the thorax, abdomen, legs, feet and all hairs and bristles black; wings uniformly blackish, only the scutellum green and shining.

Antennae (Fig. 33) black, third joint about as long as wide, rounded, arista basal; eyes contiguous, lower facial triangle large; orbital cilia wholly black; dorsum of thorax with several rather long acrostichal bristles near the middle of the thorax; three pairs of dorsocentrals; scutellum with one pair of large bristles and several small hairs near apical margin; front coxae (Fig. 34) with long hair; front femora with two rows of long hairs below and one preapical bristle; front tibiae (Fig. 34) with long hairs below

and two long bristles above on middle third; first joint of front tarsi with three bristles below near base, other joints with bristles above; middle femora (Fig. 35) with two large bristles near tip, one above and one below, also with long hair on lower part of apical third, middle tibiae with five bristles above, a row of blunt bristles on the side of basal two-thirds, continued to tip by slender, acutely pointed bristles and long hairs below on whole length, their basitarsi with long hair above, which is a little shorter towards tip; hind tibiae, femora ~~and~~ their hair mostly white, with seven bristles above and three at tip, two above and one below; their tarsi with long hair; length of front coxae as 36, trochanters 10, femora 62 and tibiae as 50; middle tibiae as 86 and hind tibiae 100; joints of front tarsi as 25-12-12-10-9; of middle pair 20-25-16-13-10; of hind pair as 23-25-16-6-9. Calyp-teres, their cilia, and the halteres black.

Wings (Fig. 36) with the first and base of second vein apparently coalescent; sixth vein straight; apex of wing between the tips of third and fourth veins; last section of fifth vein straight, its length as 40, cross-vein as 15.

Holotype, male, taken by F. X. Williams, November 15, 1931, on running water at Kokee, Kauai, at 3,500 feet elevation, with a note, "active water skater."

***Campsicnemus obtusus* new species.**

Male: Length 2.6 mm.; of wing 3 mm. Eyes almost touching in the middle of the face, face black, lower part covered with golden yellow tomentum; palpi black with pale hairs and black bristles; front black, vertex dark blue; antennae (Fig. 37) black, third joint rounded at tip, a little longer than wide, not at all pointed at tip; arista basal, long, one-sixth shorter than front tibia; orbital cilia and bristles under the head wholly black.

Dorsum of thorax shining blue-black, but somewhat dulled with brown pollen, which leaves a median stripe that is more black and shining; can see several acrostichals and five pairs of dorsocentral bristles; scutellum with one pair of large marginal bristles; front of thorax and front and lower part of pleura are dark yellowish brown to reddish brown, humeri a little more yellowish. Abdomen black with black hairs, first segment covered with brown pollen; hypopygium forming a rather large, rounded tip to the abdomen, covered with gray pollen and white hairs on posterior surface, its appendages small, reddish yellow.

Coxae black to dark reddish brown, anterior pair with black hair on outer anterior surface, longer delicate pale hairs on inner part, a row of five long, slender, black bristles on the edge of the tip; femora yellow, their extreme tips a little blackened; all tibiae and tarsi black; front femora with one large and one very small bristle near tip on lower posterior surface; front tibiae (Fig. 38) with a large bristle at basal third of upper anterior surface, a larger one beyond the middle on lower posterior edge, one at middle on anterior surface and one near tip on posterior edge, also a row of little golden yellow scales at tip; front basitarsi with three or four little spines below; middle tibiae (Fig. 39) with three large bristles on upper posterior surface, two on lower posterior edge of basal half and two near tip on upper and lower sides of posterior surface; their tarsi with rather long hair

on both upper and lower edges of posterior surface; middle femora with one large bristle near tip on lower posterior edge; hind femora bowed outward and with a large preapical bristle on anterior surface and a smaller one on posterior side; hind tibiae with four pairs of large bristles on upper surface, the last pair near tip; below with two small bristles nearly on middle third and a larger one at tip; all tarsi with more or less white hair; length of front tibiae as 60, middle as 90 and posterior as 105; joints of front tarsi as 33-14-11-8-10; of middle pair 44-19-15-10-10; of posterior pair as 30-32-14-8-7. Calypteres and their cilia black; halteres black, basal half of their petiole yellow.

Wings uniformly a little tinged with brown; third and fourth veins straight and nearly parallel beyond the cross-vein, apex of the wing between their tips; fifth vein straight for its whole length, last section as 40, cross-vein as 16; sixth vein strong, straight, but not reaching the wing margin; anal angle of wing rounded off, not prominent.

Female. Antennae, color of face, front and palpi as in the male; coxae, femora, tibiae and tarsi colored about as in the male, except that the basal half of hind femora is sometimes a little blackened; length of front tibiae as 60, middle as 85 and posterior as 124; bristles of front tibiae about as in the male, but much shorter; joints of front tarsi as 42-15-11-7-7; of middle as 40-18-14-8-8; of posterior pair as 30-30-16-9-7.

Holotype, male; allotype, female, and four female paratypes, all taken by F. X. Williams, January 17, 1932, on Kaala, Waianae Mts., Oahu, on boggy poollet, at 4,000 feet elevation.

The females, if all are correctly placed, sometimes have all femora almost wholly yellow; dorsum of thorax with two distinct reddish-brown stripes, extending their whole length, the humeri quite yellow and fore coxae sometimes dark yellow. There seems to be some variation in the bristles of front tibia, but usually they are about as in the male, except smaller, in the others some of the bristles may be broken off.

***Campsicnemus octosetosus* new species.**

Male: Length 2.7 mm. Face rather narrow and dull black above, wider and brown below, lower part with yellow tomentum (or large scales of yellow pollen), a little irregular on lower edge; palpi and proboscis brown with hairs which appear pale in certain lights; antennae (Fig. 40) black, rather long, third joint a little longer than wide and somewhat rounded at tip; front blue-black, mostly shining; orbital cilia black.

Dorsum of thorax shining black, reddish in front and rather widely along the sides. prothorax reddish yellow with one large black bristle above each front coxa; pleura wholly reddish yellow, only a little darkened near the dorso-pleural suture; cannot see any acrostichal bristles; there seem to be four pairs of dorsocentrals, the anterior pair small; scutellum with one pair of large bristles and several small hairs near apical margin. Abdomen dull black, depressed, its hair almost wholly black; hypopygium concealed, tip of abdomen a little enlarged.

Front coxae almost wholly yellow, anterior surface with short black hairs, outer side with a few yellow hairs and tip with black bristles; middle coxae wholly black, posterior pair yellow or yellowish brown with posterior surface black, one black erect bristle on outer surface; trochanters black to yellowish brown; all femora yellow with black hair, those below rather short, posterior pair very narrowly black at tip; all tarsi wholly black; front tibiae (Fig. 41) yellowish, brown above, with two very long bristles below on middle third, two smaller ones on posterior surface and a small one at tip above, also a row of close-set, moderately long hairs on upper and lower edges of anterior surface, their hair wholly black; fore basitarsi with rather long hair on lower anterior edge and a large bristle at the middle; middle and hind tibiae blackish with basal third or more yellowish, the hair on their sides white; middle pair (Fig. 42) with four bristles above, three smaller ones on posterior side, one at tip below and two on lower anterior edge, one at basal and one near apical third; posterior tibiae with eight bristles above in two rows, three large ones on lower anterior edge, one near the middle, one at apical fourth, and one at tip; middle and hind tarsi plain, except that the middle basitarsi are slightly arched, concave below, hairs on middle pair largely and those on hind ones wholly white or yellow; length of front tibiae as 55, middle 90 and posterior as 94; joints of front tarsi as 36-15-10-8-8; of middle 35-20-14-9-7; of posterior pair as 24-26-14-9-7. Calypteres and their cilia black, halteres yellowish with a brown knob.

Wings tinged with brown; third vein slightly bent backward toward tip, last section of fourth vein straight, apex of wing between their tips; last section of fifth vein as 32, of cross-vein as 10.

Female: form of antennae and general color of body and legs as in the male; front tibiae above with a large bristle at basal third and one near tip; below with a large bristle at apical third; front basitarsi without a bristle but with long hair below; bristles of middle and hind tibiae about as in the male; abdomen with a few pale hairs on basal segments.

Holotype, male, and allotype, female, taken by F. X. Williams, November 29, 1931, at Kahana, Oahu, on water, at an elevation of 2,000 feet; ten paratypes were also taken at the same place and time.

Campsicnemus ornatus new species.

Male: Length 1.7 mm. Eyes contiguous, almost completely obliterating the face; palpi reddish brown with black hairs and a little white pollen; first antennal joint yellow (other joints missing in the type); front shining, dark green.

Dorsum of thorax and scutellum shining, bright green; pleura yellow; can see no acrostichal bristles and only two pairs of dorsocentrals (others may be broken off). Abdomen shining green with yellowish hairs, depressed; hypopygium mostly concealed.

All coxae, femora, tibiae and tarsi wholly yellow; front coxae with a few yellow hairs and bristles; front tibiae (Fig. 43) one and a half times as long as their basitarsi, without bristles or long hair, their basitarsi curved, concave below, with a row of long hairs above; middle tibiae (Fig. 44) without bristles, except a small one at tip above, anterior surface with quite

dense, delicate, long, yellowish hairs on most of basal third, these are bent at tip and are continued to tip of tibia by two rows of bristle-like hairs, which are very slightly thickened in the middle, lower surface with a row of rather widely separated, slender, erect hairs, which are longer than diameter of tibia; middle tarsi slender with rather long hair; hind tibiae above with one bristle at basal fourth, one near apical third and one near tip, no bristles below; length of front tibiae as 30, middle 55 and of posterior as 70; joints of front tarsi as 20-10-10-6-6; of middle as 30-16-11-9-8; and of posterior as 21-25-18-9-8. Halteres yellow.

Wings grayish, rather broad; third and fourth veins nearly straight and parallel, fourth ending in the apex of the wing; last section of fifth vein straight, its length as 24, cross-vein as 9; anal angle of the wing rather prominent.

Holotype, male, taken on the Hawaiian Islands.

This specimen was one of several that were glued on strips of paper and had become detached, so I cannot be sure on which Island it was taken. The second and third joints of front tarsi together measure 20, and the articulation of the joints is near the middle of this distance. It is partly hidden by the wing, so I have marked them as 10-10.

***Campsicnemus sinuatus* new species.**

Male: Length 2 mm. Face very narrow above, a little wider below, dull brown, lower edge with yellow hairs; palpi black with whitish hairs; front and occiput black with bluish reflections on the former; antennae (Fig. 45) black, third joint long, acutely pointed at tip, arista basal with long pubescence; lower orbital cilia wholly black.

Dorsum of thorax and scutellum shining black, more or less reddish in front and on the sides, in holotype almost wholly reddish brown and paler on the sides; pleura largely yellow, black around the root of the wing; no acrostichal bristles; only two pairs of dorsocentrals; scutellum rather narrow at base, semicircular, the marginal bristles seem to have been broken off; humeri and propleura reddish brown. Abdomen black with black hair, a few pale hairs at base and tip; abdomen depressed, a little enlarged at tip; hypopygium mostly concealed.

Front coxae yellow, very narrowly black at base, with rather long and quite abundant yellow hair; middle and hind coxae black; fore and middle femora yellow with black hair, anterior pair nearly bare below, but with a row of a few very small black hairs on lower edge, moderately thick towards the base; middle femora greatly thickened at base (Figs. 46 and 47) with two rows of quite long, black bristles on basal third; hind femora yellow at base and more or less yellow at tip, black on the middle and mostly black above, with eight black bristles below on apical two-thirds, these are longer than width of femora; hind tibiae black, above with four bristles, one at basal seventh, one at basal two sevenths, one before fourth seventh, and one above and below at tip, all of these rather small; middle tibiae (Figs. 46 and 47) black, more or less yellow at base and on the sides, flattened and irregularly widened, widest at apical third, bisinuous, with two rows of

bristle-like hairs below, which are shorter on basal third, above with long hairs, a cluster of longer hairs on the widest part at basal third, these have their tips bent at a right angle, the tibia has a small conical projection below at basal third, and basal part of tibia (Fig. 48) has two projections, a square one at base and a rounded one a little beyond base; fore tibiae with two very small bristles below on middle third; all tarsi plain, black with rather short hair; length of front tibiae as 42, middle 54 and posterior pair as 72; joints of front tarsi as 23-12-10-6-6; of middle pair 27-14-9-8-6; of posterior pair as 17-16-11-7-7. Calypteres, their cilia and the halteres black.

Wings uniformly tinged with brown; third and fourth veins straight and parallel beyond the cross-vein, fourth ending just back of the apex of the wing; last section of fifth vein as 23, cross-vein as 10; first vein short, reaching only one-third its length beyond the forking of second and third veins; wings long and of nearly equal width, anal angle of wing rounded off, not at all developed.

Female: Third antennal joint but little longer than wide, triangular; thorax more black above than in the male, pleura reddish brown; femora and tibiae yellow, posterior tibiae more or less blackened towards tip, with about five bristles above on basal half and one below near apical third; length of middle tibiae as 55, they are plain with two bristles above and two below on middle third, all these bristles moderately long; all femora without long hair or bristles below, their hair largely yellow. Otherwise very much as in the male.

Holotype, male; allotype, female, and one male paratype were all taken by Swezey and Williams in October, 1931, at Nauthi Gulch, Hawaii, at about 5,000 feet elevation, on forest pools.

***Campsicnemus spinitibia* new species.**

Male: Length 3 mm. Face rather narrow, brown with a little bright yellow tomentum on lower part, which is rounded below; palpi black with rather long black hair and one bristle at tip; front brown pollinose; occiput dull black; antennae black, third joint somewhat triangular, about as long as wide, arista basal, pubescent; orbital cilia wholly black.

Thorax black; acrostichal bristles in a single row in front, in two rows in the middle of the dorsum; there seem to be five pairs of dorsocentral bristles; scutellum with one pair of large marginal bristles; pleura wholly black. Abdomen black, its hairs mostly black, a few pale hairs on apical segments; hypopygium concealed, tip of abdomen thick, but not enlarged, with a row of short bristles on posterior margin of last segment.

Front coxae yellowish brown with stiff, rather long, black hairs; middle and hind coxae black; all femora yellow, their tips more or less blackened, middle and hind ones for a considerable distance, all with black, bristle-like hairs below, posterior pair with two preapical bristles, one beyond the other, the one nearest the tip smaller; all tibiae and tarsi wholly black; front tibiae (Fig. 49) with one bristle above and a longer one below; hair above rather long on tibiae and tarsi, a row of long hair below on tibiae and tarsi and a small bristle above and below at tip of tibiae; middle tibiae (Fig. 50) with four long bristles above, three on anterior surface, three on lower posterior edge and a small one above and below at tip, their femora with three

bristles near tip; middle tarsi plain with only moderately long hairs; hind tibiae with four large bristles above, last one near tip, two large ones on lower posterior edge of the third fourth, a small bristle below at tip and about four on anterior surface; hind tarsi (Fig. 51) with moderately long hairs below on all joints, those on last four joints bent at tip; length of front tibiae as 45, middle .87 and posterior as 85; joints of front tarsi as 23-12-10-6-6; of middle as 30-19-17-10-9; of posterior pair as 18-22-18-11-10. Calyp-teres, their cilia and the halteres black.

Wings blackish; third and fourth veins nearly parallel, apex of wings about half way between their tips; last section of fifth vein straight, its length as 45, cross-vein as 18; wing rather wide, anal angle rather prominent.

Female: A female taken with these males has the color of the wings, body and legs about as in the male, except that the lower part of the pleura is dark reddish brown; front tibiae yellowish brown and the front shining blue.

Holotype, male; allotype, female, and one male paratype were taken by Swezey and Williams in October, 1931, at Nauhi Gulch, Hawaii, at an elevation of about 5,000 feet. "On creek pool."

***Campsicnemus strigosus* new species.**

Male: Length 1.5 mm. Eyes contiguous; front shining steel-blue; palpi small reddish brown; antennae (Fig. 52) yellow, tip of third joint blackish, arista dorsal with long pubescence; lower orbital cilia whitish.

Dorsum of thorax bright green, with a little brown pollen; two rows of acrostichal bristles; can see two pairs of dorsocentrals, one near the suture and one in front (back part of dorsum injured by the pin in type); lower part of pleura yellow. Abdomen green, darker than thorax, with yellow hairs and bristles, a few black hairs on lower edge of sides; hypopygium conspicuous, metallic black, rounded, with a pair of minute black, triangular lamellae on lower inner corner.

Fore coxae wholly yellow, nearly bare, but with several minute white hairs; middle and hind coxae seem to be black; all femora, tibiae and tarsi wholly yellow, last joint of tarsi scarcely darker; front leg (Fig. 53) with the femora of somewhat equal width, a little narrowed near the middle from below, apical half hairy, basal half nearly bare; tibiae very narrow in the middle, normal only at base and tip, fringed with long hairs above and below, their basitarsi much curved, larger at base and tip, with a dense fringe of long black hairs below, the upper edge less densely fringed; middle leg (Fig. 54) with the femora much thickened, except the narrow apical part, in some positions there seems to be a depressed brownish spot below before the thin part, which bears a cluster of spines; tibiae flattened and apparently twisted (as it changes shape when seen from different angles), fringed above with long delicate yellow hairs, below with five or six long, black, hair-like bristles on basal third, without stout bristles above or below, except the apical spurs, their basitarsi with long hairs above, which are continued on the following joint, fourth joint very slender, fifth slender at base, slightly widened at tip; hind femora rather thick, their tibiae slender, with several very slender bristles, the one above near basal fourth the longest, it being a little longer than diameter of tibia; tarsi slender, especially the last

two joints; length of front tibiae as 26, of middle 54 and of posterior pair 75; joints of front tarsi as 20-7-8-6-6; of middle pair 25-14-10-8-6; posterior pair as 20-23-16-9-6. Calypteres yellow, broadly black at tip with black cilia; halteres pale yellow.

Wings a little grayish, rather long and narrow, of somewhat equal width; third and fourth veins nearly straight and parallel beyond the cross-vein, fourth ending in the apex of the wing; last section of fifth vein straight, its length as 25, cross-vein as 9, perpendicular with fourth vein; anal angle of wing rounded, not prominent.

Holotype, male, taken May 4, 1913, by O. H. Swezey, at Waiawa, Oahu.

***Campsicnemus tibialis* new species.**

Male: Length 2 mm. Face narrow above, a little wider below, dark dull brown, lower part about as long as wide, a little pointed below, white pollinose; palpi black with black hair and one long bristle; proboscis yellowish brown with black hair; front and occiput dull black; antennae (Fig. 55) black, third joint about as long as wide, arista basal, pubescent; orbital cilia wholly black.

Dorsum of thorax, scutellum and abdomen dull black, lower part of pleura yellowish, upper part black; four pairs of long, yellowish brown acrostichal bristles in two irregular rows; four dorsocentrals in a row; two scutellar bristles; prothorax with one large black bristle above each front coxa. Abdomen depressed with long, delicate pale hairs and some stiff black hairs on the middle of the dorsum; hypopygium mostly concealed, but apical end of abdomen a little enlarged.

Front coxae dark yellow, a little blackened at tip, with black, bristle-like hairs; middle and hind coxae black, latter with one large erect bristle on outer surface; all femora dark yellow, more or less blackened, especially at tip, their hair mostly black; front femora (Fig. 56) with black bristles below near tip and rather long black hair on the middle of lower surface, also a row of longer pale hairs; hind femora with rather long black hair below, ending in three bristles near tip of lower posterior edge; front tibiae (Fig. 56) yellowish brown with one bristle above near middle, below with a slender one near tip and on lower anterior edge a row of long pale hairs; middle tibiae (Fig. 57) black with a row of close-set, moderately long, black hairs on lower posterior edge, a row of long slender, nearly erect hairs on upper posterior surface and a row of about twelve long, slender, blunt bristles on basal two-thirds of lower anterior surface; hind tibiae (Fig. 58) black with five long bristles above and three shorter ones below on apical half, also a row of stiff black hairs on lower posterior edge; front basitarsi with hairs below, which are long at base, shorter towards tip; all tarsi black with rather long black hair; length of front tibiae as 48, middle 61 and posterior as 73; joints of front tarsi as 24-12-11-8-5; of middle as 33-17-12-9-8; posterior pair as 15-16-11-8-8. Calypteres black with yellowish cilia; knobs of halteres black, stem yellow.

Wings uniformly blackish; third and fourth veins straight and parallel, apex of wing between their tips; last section of fifth vein slightly arched, its length as 34, cross-vein 14; fork of second and third veins about opposite

middle of first vein; wing long and narrow, of nearly equal width, anal angle rounded, but a little prominent.

Female: General color about as in the male; antenna (Fig. 59); front shining, slightly metallic; face wholly black; all legs and feet with moderately long hair and bristles; fore femora and tibiae with their hair mostly yellowish; tibiae with a long bristle below and a smaller one above near the middle; middle and hind femora and tibiae with their hair mostly black, but middle tibiae with a row of yellowish hairs below; middle tibiae above with one bristle near basal fifth, a pair near second fifth and at tip one above and below; middle tibiae below with one bristle at basal fourth, one before the middle and one before apical fourth; hind tibiae above with one bristle at basal sixth, one at second sixth, one at apical two thirds, another a little beyond that and one near tip, none below; length of front tibiae as 54, of middle 82 and of posterior as 95; joints of front tarsi as 32-13-12-8-7; of middle 37-28-12-10-8; of posterior pair as 27-25-16-10-10; lower part of pleura yellowish; halteres yellowish; wings broader than in the male; fourth vein ending nearly in the apex of the wing; anal angle rounded off; last section of fifth vein straight, its length as 34, cross-vein as 18.

Holotype, male; allotype, female, and eleven paratypes, all taken by Swezey and Williams, October, 1931, in Nauhi Gulch, Hawaii, at an elevation of about 5,000 feet, on forest pools.

***Campsicnemus williamsi* new species.**

Male: Length 2-3 mm. Face narrow, a little wider below with a little yellow pollen, lower part nearly round, covered with rather large scales of yellow, almost golden pollen; palpi black with long black hair; front shining blue-green; occiput black; antennae (Fig. 60) black, first joint long, third scarcely as long as first, its tip a little rounded, arista basal, long, pubescent; ocellar-tubercle prominent; orbital cilia wholly black.

Dorsum of thorax and the scutellum shining black, usually the sides of the dorsum a little reddish, sometimes broadly reddish on the sides and the lateral corners of the scutellum; I see one acrostichal bristle in one specimen, but most have none; there are three pairs of dorsocentrals and one pair of large scutellar bristles; prothorax with one large black bristle above each fore coxa; humeri usually reddish or yellowish brown; lower part of pleura reddish yellow to yellowish brown. Abdomen dull black with many small white hairs on the dorsum, depressed; hypopygium and last abdominal segment apically a little enlarged; hypopygium and its appendages mostly concealed.

Front coxae and all femora wholly yellow; hairs on fore coxae yellow; middle coxae black with abundant black hair on anterior surface; hind coxae yellowish brown with one small, erect, black bristle on outer surface; hairs on fore femora mostly yellow including the long ones below, but some of those at base are black at root, they have five small, hair-like, black bristles below near the base and one rather short, stout bristle near tip on lower posterior edge; middle and hind femora with their hair mostly black, as are also the slender bristles below; middle femora (Fig. 62) with a cluster of stout, black bristles below in the middle and a large hook at tip above, the size of this hook seems to vary in different individuals; hind

femora straight, not thickened, with about eight long, black, bristle-like hairs below on apical half and a large black bristle both above and below at apical sixth; hind tibiae black, upper surface with one bristle at basal sixth, one near basal fourth, one near basal third and one near the tip, below with a small bristle before basal sixth, a pair of small ones just beyond the middle and one at tip; middle tibiae (Fig. 62) black, flattened and widened irregularly, with a large cluster of very long hairs above beyond the middle, one very long bristle and two short ones on the side of apical third, besides other long hairs and bristles above and below; front tibiae (Fig. 61) yellowish brown, swollen near the middle and with long hair above and below, they have three very long, stout bristles above near the middle and three very long, but more slender bristles on posterior side of apical half; front basitarsi with long hair above and below, that above very long at base of joint; only moderately long at tip, this long hair is continued on the following joints, but is only moderately long; length of front tibiae as 50, middle tibiae 63 and posterior pair as 85; joints of front tarsi as 36-17-10-8-8; of middle pair 38-17-10-7-7; of posterior pair as 23-24-14-9-7. All tarsi black or brown. Calypteres, their cilia and the halteres black, sometimes the stem of the halteres is yellowish brown.

Wings uniformly tinged with dark brown, veins blackish; third and fourth veins straight and parallel, apex of wing between their tips; last section of fifth vein straight, its length in the large male as 32, cross-vein 15, in a small male the last section of fifth vein is as 27, cross-vein as 9; wings somewhat long and narrow, a little narrowed at base, but a little prominent at anal angle.

Female: Head parts and the wings as in the male, third antennal joint only a little shorter; color of body and legs as in the male, except that the lower part of the pleura is more brown, scarcely at all yellowish and the fore and middle femora are a little blackish above and below; length of front tibiae as 52, of middle 92 and of posterior 97; fore tibiae with one bristle above at basal two fifths and two at tip; one above and one below; middle tibiae above with one bristle a little before and one beyond the middle and one near apical third, below with one beyond the middle and one at apical third, also one above and one below at tip; hind tibiae above with one bristle at basal sixth, one beyond basal third and one at apical third, below with one beyond basal third and one beyond apical third, also one above and one below at tip; joints of front tarsi as 35-15-12-9-8; middle as 44-19-11-8-9; of posterior pair as 25-26-14-9-8.

Holotype, male; allotype, female, and five paratypes, taken by F. X. Williams, January 17, 1932, on boggy poollet on Mt. Kaala, Oahu, at 4,000 feet elevation, and five paratypes, taken November 29 and February 8, 1931, on poollets on Kahana ridge, Koolau range, Oahu, at 2,000 feet elevation.

Am naming this in honor of Dr. Williams, whose faithful work in collecting these interesting little flies has brought to light so many new forms of this genus.

Campsicnemus miritibialis new species.

Male: Length 2.4-2.6 mm.; of wing 3.5-4 mm. Face, front, palpi and proboscis black, face rather wide, a little narrowed in the middle; antennae black, third joint about as long as wide, conical in outline, arista as long as height of eyes; posterior orbits with a few black cilia above, a few pale hairs on the lower part of the black occiput.

Thorax and abdomen wholly black, somewhat shining, dorsum of thorax with a little brown pollen; acrostichal bristles in two irregular rows, very small; four pairs of dorsocentrals; scutellum with one pair of large marginal bristles; abdomen with black hairs; hypopygium partly visible, with a portion extending forward under the venter (this may be the lamellae), posteriorly near the dorsum is a small rounded part, covered with little black hairs, this is partly concealed, but I should take it for the outer lamellae if it was not for the part extending under the venter.

Legs and feet wholly black, except the fore coxae, all trochanters, extreme base of femora, and more or less of lower edge of front femora, which are usually yellowish brown; fore coxae with numerous long black hairs; fore femora rather wide, with long black bristles below on apical half, and a large preapical bristle on the side; middle femora wide when seen from the side, with two rows of moderately long bristles below; hind femora (Fig. 83) much widened when seen from the side, with two rows of long bristles below, seen from above (Fig. 80) much curved, concave posteriorly, and with long bristle-like hairs on both anterior and posterior edges of lower surface; fore tibiae (Fig. 81) with two large bristles above, near first and second thirds, and long, rather delicate hairs below; fore tarsi with fine, erect pile below, and long hair above; pulvilli large, almost concealing the claws in the drawing (Fig. 81). Middle tibiae (Fig. 82) very much widened, widest near apical third, where there are two long, pointed appendages above, beyond these the tibiae are much narrowed, but still much wider than normally found, they are fringed above and below with long hairs, several above near the points are longer than width of tibiae, near the tip is a yellowish brown lobe above, at apical end of this lobe is a short, thick, clavate or capitate appendage, below near the center are four long, erect bristles; middle tibiae with long white hairs on posterior surface, especially towards the apex, many of the hairs above also seem to be white; first joint of middle tarsi (Fig. 82) rather short, large, with an upturned horn-like tip, and a few long hairs above, second joint rather slender, attached to first near its base, on lower edge, this joint has fine, dense pile below, and long hairs above; third, fourth and fifth joints with moderately long hairs below and fine, dense, erect pile above, there are also a few long hairs above; hind tibiae (Fig. 83) with six bristles above and two below, besides the four bristles at tip, on basal two thirds they have a row of long, and more or less erect hairs, besides the usual recumbent hairs; hind tarsi (Fig. 83) with the base of last four joints narrowed, all joints with long hair above, below with rather long but scarcely erect pile, which is longest on first joint, the first two joints also have several slender, rather short bristles below; length of front tibiae as 51, of middle ones 64 and of posterior ^{thorax} measured straight across about as 65, when measured on the curved side about as 80; length of hind tibiae as 88; joints of fore tarsi as 25-16-15-10-9; of middle tarsi, first joint from base to tip of point as 16, the following

joints as 25-17-12-10; joints of hind tarsi as 20-18-14-10-12. Calypteres, their cilia and the halteres black.

Wings blackish, rather long and narrow, but with the anal angle quite prominent; last section of fifth vein straight; last section of fourth vein slightly farther from third at its middle than at the cross-vein or tip, apex of wing between the tips of third and fourth veins; last section of fifth vein as 21, of cross-vein as 11.

Female: Almost like the male in color and the form of the wings, except that the fore coxae and base of fore femora are a little more yellowish; middle tibiae and tarsi plain; joints of fore tarsi as 30-13-8-6-10, of middle tarsi as 32-18-10-8-9; of hind tarsi as 30-18-16-11-12; front tibiae with one large bristle above and one below; hind femora bent about as in the male; all femora without large bristles below, but with a few rather long hairs on lower surface.

Holotype, male; allotype, female, and eight male paratypes and five female paratypes were taken by F. X. Williams, August 13, 1933, on running water at Waihi iki, Manoa, Honolulu, Oahu, and one female paratype was taken at Pauoa headwaters, Oahu, May 8, 1932, at an elevation of 1,400 feet.

***Campsicnemus crinitibia* new species.**

Male: Length 1.8 mm.; of wing 2.3 mm. Face rather narrow, reddish, lower part nearly round, yellowish; cheeks reddish; palpi brown; proboscis black; front black with brown pollen; antennae (Fig. 84) black, third joint acutely pointed, with long pubescence; a few stout black orbital cilia above, and a very few pale hairs on the lower part of head.

Dorsum of thorax shining dark blue, scutellum blue-green with one pair of bristles, no acrostichal bristles; can see only two pairs of dorsocentrals; pleura blackish above, yellow on more than lower half. Abdomen black with greenish reflections; last segments on the sides, and the hypopygium with white hairs; hypopygium mostly concealed.

Coxae and femora pale yellow; fore coxae with a few small black hairs, especially on inner side of anterior surface; front femora with a few rather long hairs below; middle femora (Fig. 85) much widened on basal half or more, then narrowing to nearly normal, with a large protuberance below, before the tip, the widened basal half has many bristles on the flattened lower surface, which are arranged in four rows, the bristles in the two anterior rows are the longest and reach nearer to the protuberance than the shorter bristles in the two posterior rows; posterior femora only moderately thickened, with five bristles on lower surface, which are of decreasing length, with the longest near the basal third, and shortest near tip; fore tibiae with one bristle below near apical third, without bristles above; middle tibiae (Figs. 86 and 87) irregularly widened on apical two-thirds or more, and with a long thumb-like protuberance at base, rather dark yellow with a wide blackish ring near basal third on widened part; on basal third of lower surface there is a row of very short, stout spines, beyond these are rather slender, erect hairs; above with long delicate hairs where the tibiae widens, and beyond the middle a cluster of very long hairs, also a number of longer hairs near the tip; all tarsi plain; fore and middle knees

blackened; hind tibiae with about seven bristles on upper surface, below with rather long hair, and one small very slender bristle near the middle; length of front tibiae as 42, of middle pair as 53, and of posterior pair as 67; joints of front tarsi as 17-11-9-7-7; of middle pair as (Fig. 87) 27-13-10-8-8; of posterior pair as 20-18-12-7-6. Calypteres yellowish brown with black cilia; halteres pale yellow.

Wings grayish, veins brown; third and fourth veins parallel beyond the cross-vein; last section of fifth vein nearly straight, its length as 21, cross-vein as 9.

Holotype, male, taken by F. X. Williams, April 13, 1933, in the Kamokuiki Valley, Waianae Mts., Oahu, at 950 feet elevation, on water.

***Campsicnemus nudifemorata* new species.**

Male: Length 1.5 mm. Eyes contiguous, leaving a black triangle below, which is a little white pollinose; antennae (Fig. 88) black, all three joints of nearly equal size, third joint rounded at apex, bare, arista slender with rather erect hairs, its tip lamelliform; front black, shining.

Thorax and abdomen shining black, without noticeable metallic color; hypopygium small, black.

Front coxae wholly yellow, but rather dark, with a few small black hairs, near the tip with rather long, hair-like bristles; middle and hind coxae blackish, broadly dark yellow at tip; femora, tibiae and fore and hind tarsi yellow; apical third of middle tibiae and their tarsi a little blackened, fore tarsi becoming brownish towards their tips, hind tarsi a little brownish apically; fore and middle femora nearly bare, without hair or bristles below or at tip on the sides; hind femora very thick, nearly straight, with a large bristle at apical sixth of posterior surface, without hair below; front tibiae without bristles, and with only short hair; first joint of fore tarsi with a row of bristle-like hairs below on whole length, these are of equal size and a little longer than the diameter of the joint; middle femora (Fig. 89) moderately thickened, narrowed before the tip; middle tibiae (Fig. 89) arched, concave below, and a little narrowed in the middle, with short hair, except on apical fourth of lower surface, and near the base above; first joint of middle tarsi (Fig. 89) very short, with a tooth above at base, and long hairs and bristles; second joint long, arched, concave above, with long hair above, and slender, erect, bristle-like hairs below, last three joints very short; hind tibiae with a row of nearly erect, rather long hairs on upper, anterior edge and two or three small bristles; length of front tibiae as 30, of middle pair 55, and of posterior pair as 59; joints of front tarsi about as 15-5-5-5-5; of middle pair as 7-30-5-4-4; joints of posterior pair as 11-20-8-7-6. Halteres blackish-brown. Wings crumpled in type.

Holotype, male, taken by F. X. Williams, August 13, 1933, at Waihi iki, Manoa, Honolulu, Oahu.

This is very much like *patellifer* Grimshaw, but the following characters given by Grimshaw differ from this specimen as mentioned in the above description: Front, dark brown; third

antennal joint hairy; halteres, bright yellow; abdomen, dull blackish brown; middle femora very much thickened on basal two-thirds with two rows of very conspicuous black bristles on the thickened portion, also two moderately sized bristles below near tip; first joint of middle tarsi with two long spines. The type is in poor condition, but as it differs in all these characters I do not think it can be the same species.

***Campsicnemus bellulus* new species.**

Male: Length 1.5 mm. Face very narrow, linear on upper half, widening into the low part, which is nearly round and silvery white; palpi rather pale brown; front black with brown pollen; antennae black, third joint acutely pointed, about as in *crinitibia* (Fig. 84); lower orbital cilia pale.

Thorax and scutellum light yellow, pleura with a large blackish spot below the root of the wing; no acrostichal bristles; scutellum with one pair of large bristles; three pairs of dorsocentrals; bristles of the thorax black; abdomen black with black hair; hypopygium and its appendages black, mostly concealed.

All coxae, femora, tibiae and tarsi pale yellow, tarsi scarcely darker at tip; all femora almost whitish, hind femora with two small bristles near the tip on posterior surface, and a long one at apical fourth below, otherwise bare on lower half; middle femora (Fig. 91) moderately thick at base, with a small bristle on each side at tip, three long slender ones at base below, which are continued towards tip by shorter stout bristle-like hairs; fore femora with a small bristle near tip on posterior side, otherwise wholly bare on lower three-fourths; fore tibiae without noticeable bristles; middle tibiae (Figs. 90 and 91) thickened, irregularly widened, with a rounded protuberance at base, and long, rather stout, nearly erect, wavy hairs below, above with long fine wavy hairs on apical half, which are mostly yellow, and a moderately large bristle near tip; middle basitarsi (Fig. 91) with two little bristles above, at first and second thirds, otherwise the fore and middle tarsi are plain and slender; hind tarsi with first joint three-fourths as long as second, rather thick, each of the following joints becoming more slender than the preceding one; length of fore tibiae as 33, of middle pair 36, and of posterior pair as 55; joints of fore tarsi as about 16-9-8-5-6; of middle pair 38-14-11-8-7; of posterior pair as 15-21-7-6-7. Calypteres yellow with black cilia; halteres yellow.

Wings narrow, a little grayish, veins yellowish; third and fourth veins straight and nearly parallel beyond the cross-vein, but a very little farther apart at wing margin; fourth vein ending in the apex of the wing; last section of fifth vein slightly curved, its length as 19; cross-vein at right angles to fourth vein, its length as 6.

Holotype, male, taken by F. X. Williams, October 9, 1932, at Tantalus, Oahu, on a wet spot.

***Campsicnemus divergens* new species.**

Male: Length 1.7 mm.; of wing 2 mm. Face and front black, eyes almost touching in the middle of the face, leaving rather long gray triangles

above and below; palpi black; first two antennal joints yellow, third brown, hairy, about as long as wide, obtuse at tip.

Dorsum of thorax and the scutellum greenish-black, a little shining; no acrostichal bristles; three pairs of dorsocentrals; scutellum with one pair of large marginal bristles; thorax with black bristles; abdomen blackish with green or bronze reflections, and black hair and bristles; hypopygium small, rounded posteriorly with several small bristles, but mostly concealed.

Coxae yellowish, femora and tibiae yellow, fore femora with a broad blackish ring near the middle, and a small bristle near the tip on posterior surface; fore tibiae without bristles, their apical third and their tarsi darker; middle femora (Fig. 92) with a bristle near tip on posterior side, bare below; middle tibiae (Fig. 92) with a pair of bristles near base, and one above and below beyond the middle, also one at tip below, their hair wholly short and recumbent; posterior femora bowed outward when viewed from above, with a bristle on each side near tip, nearly bare below, they are moderately thickened almost to their tip; hind tibiae with two bristles above, none below; all tarsi plain, except that the hind tarsi have first joint a little thickened and about six-sevenths as long as second joint; middle and hind tarsi scarcely darkened towards their tips; length of front tibiae as 32, of middle pair 50, and of posterior pair as 66; joints of fore tarsi as 32-8-7-4-6; of middle pair as 25-13-9-7-6; of posterior pair as 18-21-13-9-6. Calyp-teres blackish, with a few pale cilia; halteres pale yellow.

Wings grayish, rather narrow; third and fourth veins nearly straight from the root of the wing, distinctly divergent, the apex of the wing between their tips; last section of fifth vein nearly straight, its length as 30, cross-vein as 10.

Female: Almost like the male in color and form, but the third antennal joint seems to be more yellow, third and fourth veins are slightly less divergent and front femora and tibiae wholly yellow.

Described from ten specimens, taken by Swezey and Williams, September 30, and October 1-3, 1931. Holotype, male, and allotype, female, taken October 1, 1931, in Nauhi Gulch, at 5,000-6,000 feet elevation. All were taken in Nauhi Gulch. Those labeled October 1st were swept from the foliage of *Broussaisia*, and those taken October 2 were swept from the foliage of *lehua* (*Metrosideros*), by O. H. Swezey.

This comes nearest to *rectus* Malloch, but differs as in the table of species.

**Table of Species of *Campsicnemus* Known to Be Found
in the Hawaiian Islands.**

1. Femora, tibiae and tarsi black.....	2
Femora and usually the tibiae yellow, or mostly yellow.....	3
2. Middle tibiae not, or scarcely widened, with a row of slender, blunt bristles on the side (Kokee, Kauai Island).....	<i>nigricollis</i> Van Duzee

- Middle tibiae greatly widened, with a pair of acutely pointed horns on upper surface, near apical third; middle basitarsi short, thick, with an upturned, horn-like point at tip, second joint inserted near its base on lower surface (Oahu).....*miritibialis* Van Duzee
3. Arista plain, as usual..... 4
Arista with a lamella at tip..... 25
4. Upper surface of front tibiae with three bristles, which are as long as the front basitarsi, these basitarsi have very long hair at base, which becomes shorter towards their tips; middle tibiae with very long, dense hair above; middle tibiae with a large hook at tip (Oahu).....
.....*williamsi* Van Duzee
Only middle tibiae with unusually long hair or bristles, and often their hair and bristles only moderately long..... 5
5. Middle tibiae with a rounded projection near base..... 6
Middle tibiae without a projection at base..... 10
6. Middle tibiae with about five very long, curved, stout bristles at their apex, the tip of the tibiae extending beyond the base of their tarsi (Oahu).....*gloriosus* Van Duzee
Middle tibiae without long bristles at their tips, their tarsi attached to the tip of the tibiae as usual..... 7
7. Middle tibiae widened, very crooked and sinuous, with long hair on the edges, especially on upper apical half (Hawaii).....*sinuatus* Van Duzee
Middle tibiae a little arched, not or but little sinuous..... 8
8. Middle tibiae gently bent, not widened, rather slender, fringed with moderately long hairs below, which are twice as long as the diameter of tibia; third antennal joint longer than wide, obtusely pointed at tip (Hawaii).....*grimschawi* Van Duzee
Middle tibiae a little concave, below, considerably widened on apical two-thirds or more; third antennal joint long, acutely pointed at tip 9
9. Middle tibiae of somewhat irregular outline, but of nearly equal width on apical three-fourths, and with a conspicuous cluster of long hairs above, beyond the middle, also with hairs not as long on upper surface, especially near base and tip, middle basitarsi without bristles; basal half of middle femora very much thickened (Oahu).....
.....*crimitibia* Van Duzee
Middle tibiae seen from the side, evenly rounded below on apical two-thirds, with rather long hair on both upper and lower edges, and a bristle above near tip; viewed from above, the middle tibiae widening towards the tip, narrowing abruptly a little before the apex, with long hair on the edge on widest part, a few bristle-like hairs on the other side; middle femora moderately widened at base, and with three moderately long bristles near base below; middle basitarsi with two small bristles above (Oahu).....*bellulus* Van Duzee
10. Middle tibiae widened or thickened..... 11
Middle tibiae not or scarcely widened, thickened or flattened..... 15
11. Antennae black..... 12
Antennae yellow, or reddish yellow, at least mostly yellowish at base.. 13
12. Middle tibiae greatly widened in the middle, somewhat fusiform; middle tarsi with long hair below, first joint longer than second (Oahu).....
.....*ciliatus* Van Duzee

- Middle tibiae much widened, with a small hook at tip below; first joint of middle tarsi about twice as long as wide, shorter than second, and with two fine hair-like bristles below (Oahu).....*brevipes* Van Duzee
13. First joint of middle tarsi greatly widened, leaf-like, about twice as wide as long, shorter than second, and with a bristle on one side; middle tibiae with apical part much widened, very thin and twisted (Hawaii).....*distortipes* Grimshaw
- First joint of middle tarsi not leaf-like; apical part of middle tibiae not widened, twisted or very thin..... 14
14. Fore tibiae short, about as long as the basitarsi, slender, especially in the middle; middle basitarsi bent in nearly a quarter circle, a little enlarged at extreme base; first joint of middle tarsi twice as long as second, plain (Oahu).....*strigosus* Van Duzee
- Front tibiae normal, much longer than their basitarsi; middle tibiae slightly thickened on apical third, with fine hairs, mostly erect, above, and a bristle on each side near apex; below with a group of black, short bristles, in three rows near apical third; middle basitarsi slightly curved, not half as long as second joint, the anterior dorsal angle slightly produced, and tipped with a curved, black thorn; bristles of thorax yellow (Hawaii).....*congregatus* Malloch
15. Middle tibiae with a row of long, slender, blunt bristles on one side (Hawaii).....*tibialis* Van Duzee
- Middle tibiae without a row of blunt bristles..... 16
16. Middle basitarsi shorter than the following joint, with an erect spur at tip; middle tibiae with a row of very short, erect bristles or spines below, and a row of longer bristles or bristle-like hairs above on their whole length; third antennal joint brown, basal joints paler (Molokai Mts., Molokai).....*calcaratus* Grimshaw
- First joint of middle tarsi longer than second, or not much shorter..... 17
17. Antennae wholly yellow, or with the first joint yellow..... 18
- Antennae wholly black, or dark brown..... 22
18. Middle tibiae slightly curved, with four large bristles above, below with about ten longer bristle-like hairs, or slender bristles (Hawaii).....*fibriatus* Grimshaw
- Middle tibiae above with a pair of bristles near base and one beyond the middle, below with one bristle beyond the middle and one at tip, no erect hairs or bristles below; hind tarsi with first joint six-sevenths as long as second; antennae yellow with third joint brown (Hawaii).....*divergens* Van Duzee
- Middle tibiae with one bristle above near base, besides those at tip. 19
19. Hairs and bristles of the thorax yellowish; antennae yellow; middle tibiae with a rather strong, black bristle close to the base on anterior surface, and a short spine on lower anterior surface near tip; middle tarsi with second joint six-sevenths as long as first, and with a straight, forward-directed, brownish spur at tip (Oahu).....*inermipes* Malloch
- Hairs and bristles of thorax black..... 20
20. Middle tibiae with a series of short, erect, delicate hairs on lower posterior surface, and a short bristle above near base on anterior edge; third antennal joint brownish; hind basitarsi three-fourths as long as second joint (Oahu).....*rectus* Malloch

- Middle tibiae with a rather close row of long, blunt hairs either above or below; first joint of hind tarsi three-fourths as long as second.... 21
21. Front basitarsi arched, concave above, with rather long hairs below; middle tibiae with small, slender, erect spines above on basal two-thirds, arched, concave above, lower surface with a row of long, delicate hairs, of nearly equal length, which have their tips bent; tarsi plain (Oahu).....*ornatus* Van Duzee
- Front basitarsi slightly arched, concave below, a little enlarged at base; middle tibiae straight with a bristle near base above, and three at tip, a row of long, fine hairs of nearly equal length on the whole of upper surface, these hairs have their tips bent; middle basitarsi straight, with about sixteen long, slender, curved hairs above (Oahu).....*flavicornis* Van Duzee
22. Middle tibiae above with about seven bristles, in two rows, also two or three large bristles below..... 23
- Middle tibiae with three or four bristles above, one of which is at the tip, and one at tip below, sometimes there are two or three more bristles below near the middle..... 24
23. Front tibiae without a bristle above, somewhat concave on dorsal edge, below with a large bristle near the middle, and a small one near tip; hind femora flattened, wide when seen from above, much curved, concave below when seen from the side; middle tibiae on upper surface with about five bristles on anterior surface, and two on posterior edge of basal half, below with two bristles on middle third (Oahu).....*concavus* Van Duzee
- Front tibiae nearly straight, with a bristle above before the middle and one below beyond the middle; hind femora nearly normal; middle tibiae with two rows of bristles above, one of four and the other of three bristles, below with three large bristles, near first, second and third fourths (Hawaii).....*spinitibia* Van Duzee
24. Front tibiae with two large bristles on middle third of lower surface, two small ones on posterior surface, and one above at tip; front basitarsi with one bristle near the middle on posterior surface; middle tibiae with four large bristles above, one of which is at tip, one bristle at tip below, and three on posterior side, which are rather small, also two small bristles on lower anterior edge; posterior tibiae with eight large bristles above, in two rows, three large bristles on lower anterior edge, one at basal and one at apical fourth, the other near the middle, also one at tip below (Oahu).....*octosetosus* Van Duzee
- Front tibiae with one large bristle above at apical third of posterior edge, a larger one at basal third of upper anterior edge, and a still larger one beyond the middle of lower surface, also one at tip on posterior surface; fore basitarsi with three small spines below; middle tibiae with four large bristles above, one of which is at the tip, two on lower posterior edge of basal half, two near basal third below, and one at tip below; third antennal joint about as long as wide, rounded at tip (Oahu).....*obtusus* Van Duzee
25. Third antennal joint hairy; middle femora greatly thickened on basal two-thirds, with two rows of large, black bristles below on thickened portion; halteres bright yellow (Oahu).....*patellifer* Grimshaw

Third antennal joint bare; middle femora only moderately thickened, wholly bare below, without hair or bristles; halteres wholly black (Oahu) *nudifemorata* Van Duzee

Syntormon distortitarsis new species.

Male: Length 2.5-3 mm. Face narrow, silvery white; front broad, violet or violet-blue, shining; occiput nearly opaque with brown pollen; antenna (Fig. 63) black, third joint long, tapering into a long narrow point; second joint extending thumb-like over third on inner side for nearly the length of first joint, arista apical, a little shorter than third joint; palpi and proboscis black; orbital cilia black, a few of the lower hairs brown.

Dorsum of thorax and the scutellum green with slight blue reflections, sometimes wholly blue, dorsum dulled with brown pollen; acrostichals large, in a single row, ending in a pair just before the depressed posterior slope of thorax; six dorsocentrals in each row; one large and two small humeral bristles, two posthumeral, two presutural and one superalar bristle, scutellum with one pair of large marginal bristles and a pair of small hairs on the margin near base; prothorax with short white hairs above front coxae; pleura mostly black, white pruinose, a little green on anterior part; abdomen green or blue, white pollinose, incisures and hairs black, sometimes the sides and one or two of the incisures yellow; hypopygium (Fig. 64) large for the genus, metallic, its appendages conspicuous and black.

Fore coxae yellow, dark at base with white hair and one black bristle; middle and hind coxae black; middle coxae with white hair and one black bristle on anterior surface, hind ones with one black bristle on outer side; trochanters, femora, tibiae and basitarsi yellow, sometimes whole of fore and middle tarsi yellow; sometimes hind tibiae and tarsi brown or blackish, only a little yellowish at base of tibiae; front and posterior femora with one, middle femora with two preapical bristles, the outer one on middle femora slender; all femora nearly bare below; fore tibiae with stiff hairs above and one bristle near basal third, below with one bristle near middle; middle tibiae with one bristle above near middle; hind tibiae with four bristles on upper posterior edge and quite dense, rather long hairs on both lower anterior and posterior edges, especially on apical half; fore tarsi (Fig. 65) with tip of first joint enlarged and fifth a little widened; hind tarsi (Fig. 66) with first joint thick and with a bristle at tip, second joint with basal part short and with a thumb-like projection on one side nearly as long as basal part and extending nearly parallel with third joint, bearing many stiff, black, curved hairs; length of front tibiae as 48, of middle 73 and of posterior as 90; joints of fore tarsi as 26-13-11-6-7; of middle as 35-17-12-7-7; of posterior pair as 22-12 over all (basal part 6, projection 7)-8-8. Calypteres yellow, sometimes brownish with yellow cilia, which has the base of the bristles more or less black; halteres pale yellow.

Wings gray, slightly brownish in front, rather long and narrow, widest at the posterior cross-vein, anal angle of wing a little prominent; third vein bent backward at tip, where it approaches fourth a little; last section of fourth vein nearly straight, ending in the apex of the wing; last section of fifth vein nearly straight, its length as 21, cross-vein as 16.

Female: Face wide, blue with only a little white pollen; lower edge considerably projecting; antenna (Fig. 67) small, third joint nearly round, very slightly angled at tip, arista subapical, nearly twice as long as antenna;

orbital cilia black; all femora yellow; color of thorax, its bristles and the color of abdomen about as in the male; wings as in the male; fifth joint of fore tarsi slightly widened; joints of fore tarsi as 29-15-10-7-7; of middle 39-16-11-7-8; of posterior pair as 23-23-17-10-9. Calypteres black, their cilia mostly black.

Described from eight males and twelve females. Holotype, male, and allotype, female, were taken by F. X. Williams, July 24, 1932, in Hering Valley, Tantalus, Oahu, the male hovering over the female, on wet rocks; two male and six female paratypes were taken at the same place and time; one pair of paratypes at Mana, Kauai, March 9, 1917, by O. H. Swezey; one male, three females at Honolulu, Oahu, on windows, by O. H. Swezey; and one pair at Pauoa headwaters, Tantalus, Oahu, February 14, 1932, at 1,400 feet elevation, by F. X. Williams.

The antenna in this species is formed a little like those of the European *pallipes*, but the hind tarsi are very different. I know of no described species of *Syntormon* with the second joint of hind tarsi modified as in this form.*

It is a little like the genus *Pycsymnus* Frey, but that genus seems nearer related to *Sympycnus*, agreeing with *Syntormon* in having the hind tarsi modified, but the first joint very short in the male, and an apical arista. All known species are from Formosa and the Philippine Islands.

EURYNOGASTER new genus

A new genus of *Sympycninae*; differing from *Sympycnus* in having the cross-vein longer than the last section of fifth vein; the abdomen of both sexes depressed when seen from above, in the male the abdomen is more or less clavate or widened below before its tip, in the female the abdomen is rather pointed when viewed from above or from the side, and the posterior part of the thorax has a conspicuous depressed and somewhat concave area before the scutellum.

Face of male rather wide, that of female only a little wider; first antennal joint bare above; third joint something like that of *Sympycnus*, arista dorsal, nearly bare or slightly pubescent. The depressed area on posterior part of thorax distinctly concave and large; no acrostichal bristles; five pairs of large dorsocentrals; scutellum with one pair of large marginal bristles. Abdomen in the male seen from the side (Figs. 69, 71 and 74) clavate, or conspicuously widened below at posterior margin of fourth or fifth segment; sixth segment small, seventh very narrow, but visible; hypopygium concealed or more or less conspicuous. Wings with the first vein reaching half way from the root of the wing to the cross-vein; third and

* It comes nearest to *flexibilis* Becker from Formosa, but that species has the third antennal joint very small, pear-shaped with a subapical arista; first joint of hind tarsi rounded below, widest in the middle, and second joint extending but little beyond base of third joint.

fourth veins approach each other very slightly beyond the cross-vein, but are parallel at tip; cross-vein a little longer than the last section of fifth vein in the males, but in the female the cross-vein is a little shorter than the last section of fifth vein; sixth vein represented by a slight fold of dark coloring in the wing membrane where the base of the vein should be; middle and hind femora with one preapical bristle; hind coxae with a large, erect bristle on outer surface; first joint of hind tarsi a little longer than second joint.

Type of genus *Eurynogaster clavaticauda* new species.

Table of Hawaiian Species

1. Hypopygium conspicuously projecting, almost free, extending downward and a little forward; fourth abdominal segment widened below (Figs. 71 and 72).....*nitida* new species
Hypopygium small, partly or wholly concealed..... 2
2. Fifth abdominal segment greatly enlarged, abdomen strongly clavate when seen from the side; face long, extending below the lower margin of the eyes (Figs. 68, 69 and 70).....*clavaticauda* new species
Fifth abdominal segment moderately widened below; face scarcely reaching lower margin of the eyes (Figs. 73 and 74).....*virida* new species

Eurynogaster clavaticauda new species.

Male: Length 2.1 mm. Face silvery white, moderately narrow with its sides nearly parallel on lower three-fourths, slightly wider above, nearly six times as long as width of middle, its suture near apical fourth, lower part twice as long as wide, rounded below, reaching below lower margin of eyes and to the middle of the palpi; front green, with brown pollen; palpi and proboscis black; antennae (Fig. 68) black, first joint without hair above, second rather large with small bristles on apical margin, third joint about one and a half times as long as wide, arista dorsal, not quite twice as long as the antenna, both antenna and arista nearly bare; the orbital cilia seem to be wholly black.

Dorsum of thorax blue-green, shining, but with brown pollen, the large depressed, slightly concave area before the scutellum and the scutellum blue; no acrostichal bristles; five pairs of dorsocentrals, scutellum with one pair of very large marginal bristles; pleura black with some green reflections; posterior part of thorax below the abdomen pale yellow. Abdomen bronze-green with black hair, seen from above it is depressed and somewhat pointed at tip, seen from the side (Fig. 69) greatly enlarged below at posterior margin of fourth segment; sixth segment small, seventh very narrow; hypopygium reddish brown, its appendages largely concealed, black, fringed with short hairs.

Front coxae reddish brown with a few black hairs on anterior surface and five bristles at tip; middle and hind coxae reddish brown to black, their tips more or less yellow; posterior pair with one large, erect bristle on outer surface; all femora and tibiae yellow, tips of posterior tibiae enlarged and somewhat blackened; tarsi yellow, more or less darkened from tip of first joint; fore femora with a rather small bristle below near tip, middle and hind femora each with a rather large preapical bristle, middle ones also with a row of bristles below; front tibiae with a small bristle above near basal fourth, none below; middle tibiae (Fig. 70) with several large bristles below near the middle, which are continued nearly to base and tip by smaller

ones, above with one large bristle near basal third and one near the middle, also three at tip; hind tibiae above with a pair of long bristles at basal fifth and one large one near apical third, tips with three bristles; length of fore tibiae as 50, of middle pair 53 and posterior pair as 96; last joint of all tarsi a little flattened and widened; joints of fore tarsi as 29-15-11-8-9; of middle ones 41-21-16-9-7; posterior pair as 30-23-17-10-10. Calypteres yellow with black cilia.

Wings grayish hyaline; first vein reaching half way from root of wing to the cross-vein, which is beyond the middle of the wing; third vein bent back a very little towards its tip, so as to slightly approach fourth at tip; last section of fourth vein nearly straight, except that it bends back a little to meet the cross-vein, ending a little back of the apex of the wing; last section of fifth vein straight, its length as 19, cross-vein a little arched, so as to be a little convex towards apex of wing, its length as 21; anal angle of wing rounded off, not at all prominent.

Female: Face a little wider and slightly shorter than in the male; the rest of the head and the thorax about as in the male; abdomen depressed, tapering to the tip, which is rather pointed when seen from above or from the side, its hair black, or mostly black, tip of abdomen with a few rather long, bristle-like hairs; all coxae black with black hairs and bristles; fore tibiae with a bristle at basal third; middle tibiae with a bristle above at basal fifth and one below before the middle; hind tibiae about as in the male; fore and hind tibiae without bristles below; length of fore tibiae as 53, of middle pair 68 and of posterior pair as 88; joints of fore tarsi as 30-17-12-8-8; of middle pair 46-23-12-10-8; of posterior pair as 35-29-17-9-8. Halteres yellow, knobs darker yellow; wings about as in the male, except that the cross-vein is as 18 and last section of fifth vein is as 23.

Holotype, male, and allotype, female, were taken by O. H. Swezey, May 18, 1920, on Mt. Kaala, Oahu; three paratypes were taken at the same time and place.

Eurynogaster nitida new species.

Male. Length 2.3 mm. Face wholly white pollinose, rather wide above, half as wide at lower margin of eyes as at the antennae, extending considerably below the eyes, its suture rather indistinct, but upper part about two and a half times as long as the lower portion, which is rounded below; front green, somewhat dulled with grayish brown pollen; palpi black, moderately large with pale hairs; proboscis and first two antennal joints black (third joint broken off in type); first joint bare above; can see only a few small black orbital cilia on lower half of posterior orbits.

Dorsum of thorax, scutellum and abdomen shining green, with slight blue reflections; no acrostichal bristles; five pairs of moderately large dorso-centrals; scutellum with one pair of large marginal bristles, there are also several very small hairs on the margin; posterior part of thorax with a conspicuous concave area before the scutellum; hairs on the abdomen yellowish, one or more black bristles on posterior margin of each segment near lower edge; seen from the side the abdomen (Fig. 71) is widened below at the posterior edge of fourth segment; fifth segment rapidly narrowed apically; sixth segment small; seventh very narrow; hypopygium large, brown, extending far beyond seventh segment, its base extending nearly to base of

fifth abdominal segment; outer lamellae black with a spine-like tip and delicate hairs.

Front coxae yellow with several small black hairs on inner edge of anterior surface and three small bristles at tip; middle and hind coxae black, former with black hair, the latter with one large, black, erect bristle on outer side; all femora, tibiae and tarsi pale yellow, hind tarsi a little blackened towards tip; fore femora with a small, middle and hind femora with one large preapical bristle; middle femora (Fig. 72) with a large bristle below before its middle and beyond this five smaller bristles; fore tibiae with a small bristle above near basal third, none below; middle tibiae with one large bristle above near basal fifth and two smaller ones at tip, below with a row of long hairs, the longest near basal third and decreasing a little in length towards tip; hind tibiae with two large bristles above, one near basal third and one beyond the middle, two bristles at tip, one above and one below, no bristles below except the one at tip; length of front tibiae as 42, of middle 62 and of posterior as 65; joints of front tarsi as 26-14-11-6-7; of middle pair 37-20-16-7-6; of posterior pair as 29-24-14-10-7. Calypteres and their cilia dark yellow; halteres blackish.

Wings grayish; first vein scarcely reaching half way from root of wing to cross-vein, which is beyond the middle of the wing; third and fourth veins slightly convergent beyond the cross-vein, parallel at tip, fourth ending in the apex of the wing; last section of fifth vein straight, its length as 13, cross-vein bent outwards, so as to be convex towards apex of wing, its length as 18; sixth vein represented by a slight fold in the wing membrane where its base should be; anal angle of wing rounded off, not at all prominent.

Holotype, male, taken by O. H. Swezey, April 29, 1920, at Kaumana, Hawaii. Type in rather poor condition, having been eaten by museum pests.

***Eurynogaster virida* new species.**

Male: Length 2.2 mm. Face rather wide, its sides nearly parallel, but widened a little on upper third; wholly white pollinose, reaching nearly to lower margin of the eyes, its suture near apical third, lower portion as long as wide, rounded below; front green, dulled with grayish brown pollen; palpi black with pale hairs; proboscis thick, black; antennae (Fig. 73) black, first joint bare above, third about as long as wide, tip rounded, arista inserted near middle of upper edge, where there is an offset on upper margin, arista short pubescent.

Thorax, scutellum and abdomen bright shining green with some bronze reflections; thorax with a little grayish pollen and a conspicuous depressed, somewhat concave area before the scutellum; no acrostichal bristles; five pairs of dorsocentrals; scutellum with one pair of marginal bristles; abdomen with black hair, seen from above it is depressed, seen from the side (Fig. 74) with fifth segment widened at apical margin below; fourth segment also a very little widened apically; seventh segment very narrow, mostly concealed; hypopygium concealed, but with a pair of lamellae projecting from the hollowed posterior apex of the abdomen, these are mostly black and fringed with long delicate pale hairs.

Fore coxae yellow, middle and hind coxae black, posterior pair with a large black erect bristle on outer surface; all femora, tibiae and tarsi yellow, last joint of fore tarsi brown, middle and hind tarsi a little darkened towards their tips; fore femora without bristles; middle femora with one large pre-apical bristle; hind femora bowed outward when seen from above, with a preapical bristle, which is placed near apical third; front tibiae with a small bristle above near base; middle tibiae above with three bristles near basal fifth and one near basal two-fifths; upper surface of posterior tibiae with one moderately large bristle near basal fourth, a small one near three-fourths their length, besides these there are several at tip; middle basitarsi with a row of little bristles below, which are as long as diameter of joint; first joint of hind tarsi with a rather large bristle at tip; length of fore tibiae as 68, of middle pair 85 and of posterior pair as 100; joints of fore tarsi as 44-28-18-10-7; of middle pair as 50-31-19-12-6; and of posterior pair as 40-37-21-12-8. Calypteres yellow with black tip, their cilia partly yellowish and partly black; knobs of halteres yellow, stem black.

Wings grayish; third and fourth veins slightly convergent beyond the cross-vein, but parallel at tip, fourth ending in the apex of the wing; last section of fifth vein straight, not reaching the margin of wing, its length to wing margin as 13, cross-vein as 22; sixth vein represented by a dark shade where its base should be; anal angle rounded off, not at all prominent.

Holotype, male, taken by O. H. Swezey, May 18, 1920, on Mt. Kaala, Oahu.

***Medetera hawaiiensis* new species.**

Male: Length 2.3 mm. Face, front, palpi and occiput black, with a little gray pollen; face moderately wide, slightly narrowed in the middle; antennae black; third joint about as long as wide, conical in outline, arista apical, with very short pubescence; upper orbital cilia black, lower part of occiput with several whitish hairs.

Dorsum of thorax and the scutellum black, with a little white pollen; bristles and hairs of the thorax black; acrostichal bristles in two distinct rows; can see but two pairs of dorsocentrals; prothorax with one black bristle and a black hair above each fore coxa; scutellum with one pair of large marginal bristles, placed rather far apart. Abdomen black, with abundant white hairs on the dorsum; hypopygium black, almost glabrous, with a few little white hairs on the side, its appendages are a little yellowish brown.

Coxae and basal part of femora black, apical part of femora, the tibiae and tarsi yellow; femora with short hair, no long hairs below; middle tibiae with a very small bristle near base; tarsi a little darkened towards their tips; length of front tibiae as 45, of middle the same, of posterior as 51; joints of fore tarsi as 23-17-12-7-7; of middle tarsi as 35-18-13-6-4; of posterior pair as 15-30-16-9-7. Calypteres yellowish brown with white cilia; halteres black.

Wings grayish hyaline, veins yellowish, brown towards the apex of wing; venation about as usual in the genus; last section of fifth vein as 17, cross-vein as 13.

Holotype, male, taken by Swezey and Williams, October, 1931, at Nauhi Gulch, Hawaii, at an elevation of between 5,000-6,000 feet.

Medetera atrata new species.

Male: Length 2 mm. Face wholly shining black; front dull black; antennae black, third joint scarcely longer than second, somewhat rounded, arista black, subapical, very short pubescent; upper orbital cilia black, a few of the lower cilia white.

Thorax black; dorsum thickly covered with greenish-gray pollen, the pollen on the sides of middle third more yellowish gray, a broad reddish brown, median stripe has a row of acrostichal bristles on each edge; two or three pairs of dorsocentrals; two pairs of scutellar bristles; prothorax with two white bristles above each front coxa; hairs on front part of thorax black with a few yellow ones on the front slope. Abdomen black with white pollen and with white hairs, on the dorsum long and abundant; hypopygium wholly shining black, the usual white pollinose space on the left side, which is covered with small white hairs; hypopygium thick and moderately long its lamellae blackish brown with a slight reddish tinge.

Coxae and trochanters black, posterior coxae with one erect white bristle on outer surface; all femora reddish brown to yellowish brown, more or less blackened at base; tibiae and tarsi yellow; all femora nearly bare below with a few yellowish white hairs on the sides and above, posterior pair with a few long, yellowish, stiff hairs at base above; hairs on the tibiae and tarsi of hind feet wholly yellowish white, on fore and middle tibiae and tarsi black above, yellowish white on lower part; anterior and posterior tibiae without bristles, middle tibiae with one rather small black bristle on upper posterior edge at basal sixth; length of fore tibiae as 53, of middle as 62; joints of fore tarsi as 21-21-14-7-7; of middle as 40-24-17-9-5; of posterior pair as 17-40-21-9-8. Calypteres reddish brown with white cilia; halteres dark yellow almost reddish brown.

Wings nearly hyaline, veins yellow; third and fourth veins convergent; last section of fifth vein as 16, cross-vein as 13; posterior margin of wing evenly rounded, anal angle rounded, not prominent.

Female: Color, form of wings and tarsi about as in the male; fore coxae with white hair; face bluish-green; femora colored about as in the male.

Described from one male and two females, taken by Swezey, August 7, 1924, at Honolulu, Oahu.

This differs from *cilifemorata* new species by having the first and second joints of fore tarsi of equal length, femora darker in color; hypopygium wholly shining black, its lamellae blackish and the face of the male shining black.

Medetera cilifemorata new species.

Male: Length 2 mm. Face below the suture dark blue-green, above opaque with grayish brown pollen; front mostly grayish brown; occiput black with grayish pollen above, shining black below; antennae black, third joint small, rounded, sometimes a little notched at tip where the arista is inserted, arista yellowish brown with very short pubescence; orbital cilia white, a few above black; palpi black with white pollen and yellow hairs.

Dorsum of thorax green, thickly covered with gray pollen, usually with a rather broad, brownish, medial stripe, in which the two rows of acrostichal

bristles are inserted, these bristles are reddish yellow when seen in certain lights, black when viewed from other angles, the hairs on fore part of thorax are of the same color; there are two pairs of long posterior dorso-central and two small ones near the middle of the thorax, and are then continued to the front of the dorsum by small hairs; there are two humeral, one posthumeral, one presutural, two superalar, one postalar and two notopleural bristles; scutellum with two pairs of stout but not very long marginal bristles; prothorax with two white bristles above front coxae, the upper one slender. Abdomen green with white pollen and hair, some of the hairs on the sides appear black; hypopygium large at base, of moderate length, in the holotype shining black, except at tip where it is reddish yellow below, in the paratypes it is more largely yellowish or reddish yellow, its lamellae yellow with white hairs.

All coxae and trochanters black, fore and middle ones with white hair, hind ones with one erect, white bristle on outer side; all femora, tibiae and tarsi wholly yellow; hairs on fore and middle femora and tibiae mostly black, on lower part of middle tibiae the hairs are yellow; hairs on hind femora yellow including the row of long ones above, at base of femora these hairs are bristle-like and half as long as width of femora, decreasing in length, being very short at tip; hind tibiae slightly enlarged at tip, its hair wholly white, short, a few longer ones below at tip; anterior and posterior tibiae without bristles, middle tibiae with a small black bristle above and a yellow one on anterior surface near basal fifth; all tarsi plain, slender, fore and middle ones with short black hair; posterior tarsi with short white hair; length of fore tibiae as 55, of middle ones as 64; joints of fore tarsi as 25-20-14-7-7; of middle pair as 44-24-15-7-7; posterior pair as 16-38-21-9-8. Calypteres white with yellow margin and white cilia. Halteres pale yellow.

Wings nearly hyaline, veins yellow, third and fourth veins convergent; last section of fifth vein as 17, cross-vein as 15; posterior margin of wing nearly evenly rounded; anal angle rounded.

Female: about as in the male in general color and form of wings and feet.

Described from five males and two females, all taken by O. H. Swezey, at Honolulu, Oahu. Holotype, male, taken on a window; allotype, female, in cage in the insectary, December 3, 1914; two male paratypes were reared from compost, February 2, 1925.

Table of Species of *Medetera* Found in the Hawaiian Islands

1. All femora, tibiae and tarsi wholly yellow; scutellum with two pairs of bristles (Oahu).....*cilifemorata* Van Duzee
Femora more or less blackened at base..... 2
2. Prothorax with white bristles above fore coxae; scutellum with two pairs of bristles; halteres yellow or slightly brownish yellow; first two joints of front tarsi as 21-21; first two joints of hind tarsi as 17-40 (Oahu).....*atrata* Van Duzee
Prothorax with black bristles above front coxae; scutellum with only one pair of bristles; halteres black; first two joints of front tarsi as 23-17; first two joints of posterior tarsi as 15-30 (Hawaii).....
.....*hawaiiensis* Van Duzee

SWEZIELLA new genus

Rather small species of *Thinophilinae*, differing from the species of *Thinophilus* in having the last section of fifth vein considerably shorter than the cross-vein; a distinct depression on posterior part of thorax and the proboscis long, something like the proboscis of *Coracocephalus*.

First antennal joint bare above, third a little longer than second, arista dorsal with very short pubescence, face of male nearly as wide as front, proboscis nearly as long as the face; palpi rather large; thorax with a depressed area on posterior slope of thorax before the scutellum; no acrostichal bristles; five pairs of dorsocentral bristles, all large; abdomen depressed, first five segments tapering; sixth and seventh segments widened, wider than those preceding them; seventh very narrow, but of nearly equal width throughout; hypopygium extending forward under the venter, about as in *Thinophilus*, reaching nearly to second segment, and with a pair of converging, lamella-like organs above it; wings with third and fourth veins nearly parallel; cross-vein considerably longer than the last section of fifth vein; legs long and slender; first joint of hind tarsi a little longer than second.

***Sweziella albifacies* new species.**

Male: Length 4.3 mm. Front and face wholly covered with white pollen, face only a little narrower than the front, slightly narrower below, more than twice as long as the front, its suture a little above apical fourth, lower part as long as wide, obtusely pointed below; palpi black with white hairs and thickly white pollinose; proboscis reddish brown, about as long as the face, bent forward towards the tip in the type; antennae (Fig. 75) black, second joint rather large, third rounded at tip, as long as wide with scales of white pollen, but scarcely hairy, arista dorsal with very short pubescence, not quite three times as long as the antennae; a few rather long, pale hairs on posterior part of head.

Dorsum of thorax greenish, almost brown, with thin white pollen; on the posterior part is a large depressed area before the scutellum, which is more shining green; there are no acrostichal bristles; five pairs of large dorsocentral bristles, the anterior ones only a little smaller than the posterior; scutellum rather wide and short with one pair of large marginal bristles; pleura brown with white pollen.

Abdomen (Fig. 76) green, white pollinose, its hairs mostly black, it is depressed as in *Thinophilus*, narrowed towards tip as far as hind margin of fifth segment, but widened again to apical margin of sixth segment; seventh segment visible, narrow and of nearly equal width throughout; upper half of posterior end of abdomen hollow and projecting out of it near the middle of its vertical height is a pair of lamella-like organs, which are convergent, fringed with long hairs and project a little beyond the base of the hypopygium (Fig. 77), the hypopygium (Fig. 76) at its base comes up to these organs, or a little between them, it is composed of four segments, the last small, extending forward under the venter to a little in front of the posterior margin of second ventral segment.

Front coxae wholly yellow with a few small yellow hairs; middle and hind coxae reddish brown, more black at base on outer surface, posterior pair with a large, erect bristle on outer surface; all femora, tibiae and tarsi yellow, tarsi more or less blackened towards their tips; femora without

longer hairs below, posterior pair each with one small preapical bristle; front tibiae without bristles; middle and hind tibiae each with one bristle above near basal fourth, one near the middle and one at tip; length of fore tibiae as 35, of middle as 118 and of posterior pair as 130; joints of fore tarsi as 50-24-17-10-9; of middle pair as 59-35-19-10-8; of posterior pair as 48-43-25-15-10. Calypteres and their long cilia yellowish; halteres yellow.

Wings grayish; first vein scarcely reaching half way to the cross-vein, which is beyond the middle of the wing; third vein gradually, but only a little bent backward towards tip, so as to approach fourth vein a little at tip; last section of fourth vein straight, ending in the apex of the wing; last section of fifth vein as 17, cross-vein bent in the middle, its convex side towards apex of wing, its length as 27; sixth vein almost wholly wanting, just its base present; wings somewhat narrowed at base, the anal angle being rounded off.

Described from one male, taken by O. H. Swezey, May 18, 1920, on Mt. Kaala, Oahu. This male is the type of both the genus and species.

***Hydrophorus pacificus* new species.**

Male and female: Length 4-5 mm.; of wing 4.5-5 mm. Whole fly, including legs, more or less densely white pruinose, but the ground color conspicuous on the thorax and abdomen. Face broad, wholly white pollinose, the green ground color is slightly visible; front with the brownish ground color showing, except on the broadly white pollinose orbits, seen from in front it is wholly white pollinose; cheeks forming a small lobe below the eyes, about half as wide as third antennal joint; palpi and proboscis white pollinose; antennae black, small, of about the usual shape, arista a little longer than antenna; one pair of postvertical bristles; nine black postorbital bristles, which reach down to the middle of the eye; beard white, mixed with black hairs, not very long or abundant.

Thorax green, dorsum sometimes reddish coppery with the humeri and narrow lines where the dorsocentral bristles are inserted white pollinose; acrostichal bristles in a single row, two or three humeral bristles; four scutellar bristles; prothorax with one black bristle and two or three black hairs above fore coxae, above these are a cluster of white hairs; anterior part of mesonotum with black hair; twelve or fourteen dorsocentrals in each row, one presutural, three superalar bristles; pleura with a row of minute white hairs above and in front of middle coxae. Abdomen green, hairs on the dorsum largely black and very small; on the venter white and rather short; hypopygium of male mostly or wholly concealed, shining black; fifth ventral segment projecting downward a little (if it were not for this projection it would be difficult to separate the sexes).

Fore and middle coxae with white hair, former with a black bristle near tip, hind coxae without hair or bristle; all legs and feet black, femora usually a little greenish, fore femora (Fig. 78, showing lower surface) thickened on basal part, with four rows of spines below, the anterior and posterior rows reach apical sixth, middle rows end near the middle, hairs on the sides black, on upper and lower surfaces yellowish white; fore tibiae (Fig. 79) with a rather close row of moderately long spines below, with one large spine at tip, hair on anterior surface white, on upper and posterior surface black or

mostly black, it also has three small bristles on posterior surface; hair on middle and hind femora largely black, whitish on lower and posterior sides, hairs on their tibiae and all tarsi mostly black; middle femora straight, hind femora bowed outward; length of fore femora as 85, fore tibiae as 65; joints of front tarsi as 35-16-16-12-11; of middle pair 54-30-25-19-14; of posterior pair as 45-23-27-17-15. Calypteres yellow with white hairs; halteres pale yellow.

Wings nearly hyaline; costa yellow on basal two-thirds; first vein and base of third and fourth veins yellow, remainder of the veins brown; fifth vein from the cross-vein to wing margin as 24, cross-vein as 17; usually the fifth vein does not extend much beyond the cross-vein, but sometimes reaches the wing margin.

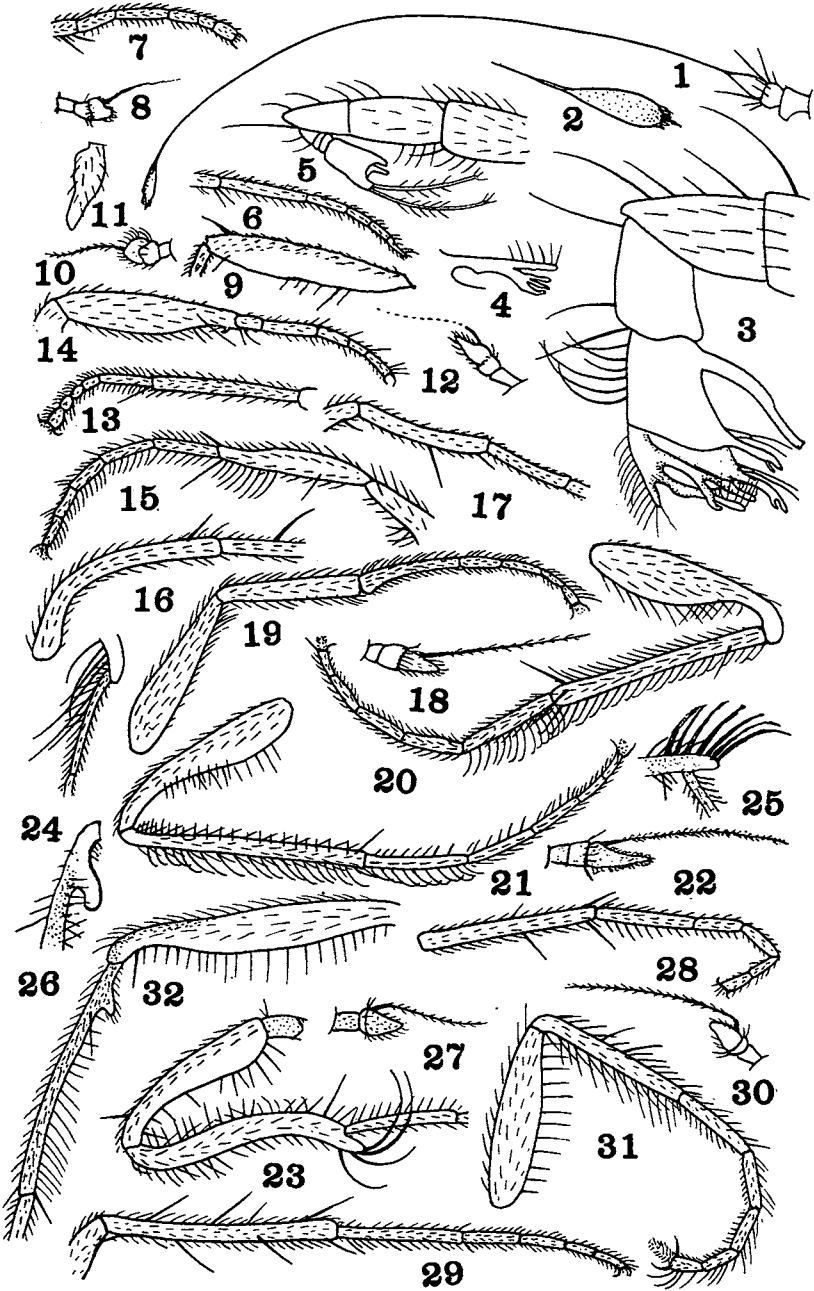
Described from four males and seven females, all taken on the Island of Oahu by F. X. Williams in 1931; holotype, male, at Honouliuli, April 5; allotype, female, at Haleiwa, April 11.

This is much like *praecox* Lehm., the wing veins being colored as in that species, and the form of the male hypopygium about the same; but in *praecox* the hairs are almost wholly white on both body and legs, and the fore femora have one row of spines below in the male and two rows in the female.

Explanation of figures.

Plate 22

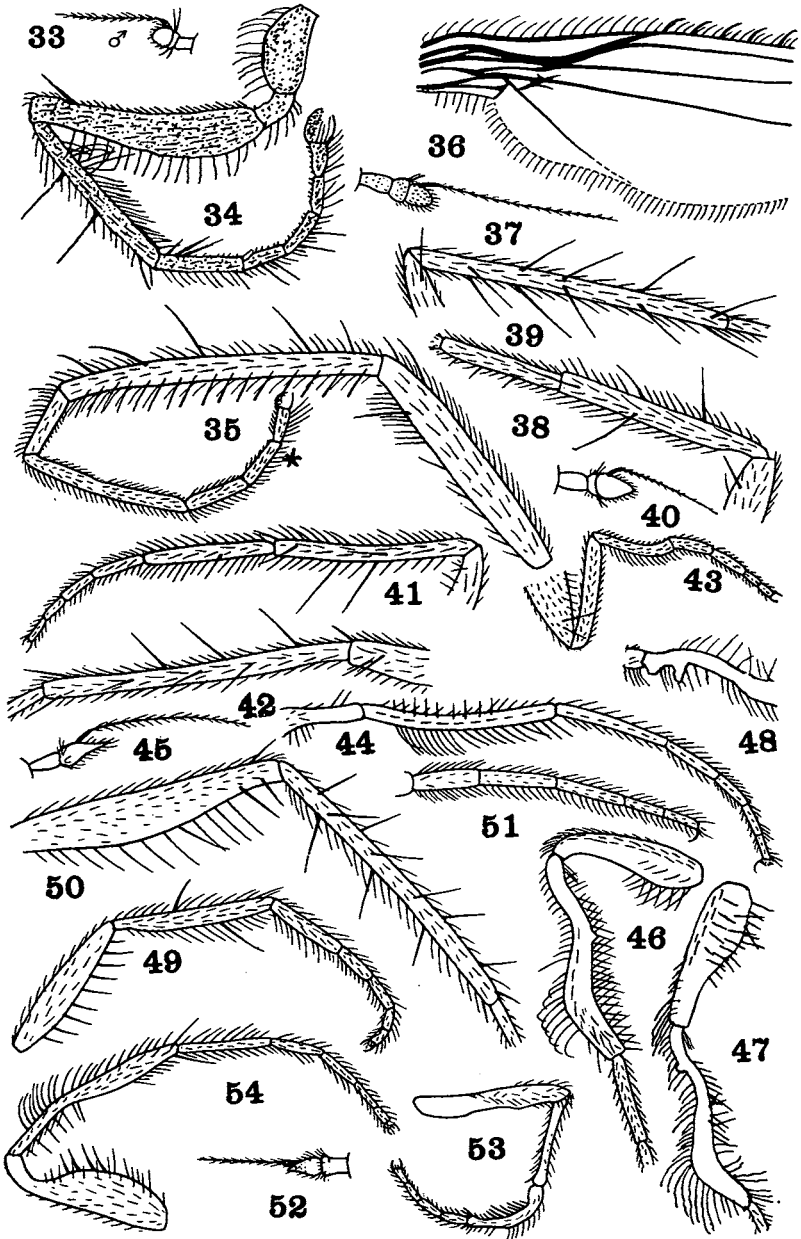
- Fig. 1. *Chrysosoma fraternum* new species, antenna of male.
 Fig. 2. *Chrysosoma fraternum* new species, tip of antennal arista of male.
 Fig. 3. *Chrysosoma fraternum* new species, hypopygium of male.
 Fig. 4. *Chrysosoma fraternum* new species, organ projecting from middle of lamellae of the hypopygium.
 Fig. 5. *Chrysosoma pallidicornis* Grimshaw, hypopygium of male.
 Fig. 6. *Chrysotus vulgaris* new species, mid tarsus of male, side view.
 Fig. 7. *Chrysotus vulgaris* new species, hind tarsus of male.
 Fig. 8. *Chrysotus spiniger* Grimshaw, antenna of male.
 Fig. 9. *Chrysotus spiniger* Grimshaw, mid femur of male.
 Fig. 10. *Chrysotus pallidipalpus* new species, antenna of male.
 Fig. 11. *Chrysotus pallidipalpus* new species, palpus of male.
 Fig. 12. *Campsicnemus brevipes* new species, antenna of male.
 Fig. 13. *Campsicnemus brevipes* new species, front tibia and tarsus of male.
 Fig. 14. *Campsicnemus brevipes* new species, mid tibia and tarsus of male.
 Fig. 15. *Campsicnemus ciliatus* new species, mid tibia and tarsus of male.
 Fig. 16. *Campsicnemus concavus* new species, hind femur of male, side view.
 Fig. 17. *Campsicnemus concavus* new species, front tibia and basitarsus of male.
 Fig. 18. *Campsicnemus flavicornis* new species, antenna of male.
 Fig. 19. *Campsicnemus flavicornis* new species, front leg of male.
 Fig. 20. *Campsicnemus flavicornis* new species, mid leg of male.
 Fig. 21. *Campsicnemus flavicornis* new species, mid leg of male, another view.
 Fig. 22. *Campsicnemus gloriosus* new species, antenna of male.
 Fig. 23. *Campsicnemus gloriosus* new species; mid femur, tibia and basitarsus of male.
 Fig. 24. *Campsicnemus gloriosus* new species, tip of mid tibia and basitarsus, showing the bristles straight.
 Fig. 25. *Campsicnemus gloriosus* new species, tip of mid tibia, showing the bristles curved.
 Fig. 26. *Campsicnemus gloriosus* new species, base of mid tibia, showing projection on the side.
 Fig. 27. *Campsicnemus gloriosus* new species, antenna of female.
 Fig. 28. *Campsicnemus gloriosus* new species, front tibia and tarsus of female.
 Fig. 29. *Campsicnemus gloriosus* new species, mid femur, tibia and tarsus of female.
 Fig. 30. *Campsicnemus grimshawi* new species, antenna of male.
 Fig. 31. *Campsicnemus grimshawi* new species, front femur, tibia and tarsus of male.
 Fig. 32. *Campsicnemus grimshawi* new species, mid femur and tibia of male.



Dolichopodidae

Plate 23

- Fig. 33. *Campsicnemus nigricollis* new species, antenna of male.
- Fig. 34. *Campsicnemus nigricollis* new species, front coxa, femur, tibia and tarsus of male.
- Fig. 35. *Campsicnemus nigricollis* new species, mid femur, tibia, and tarsus of male.
- Fig. 36. *Campsicnemus nigricollis* new species, base of wing of male.
- Fig. 37. *Campsicnemus obtusus* new species, antenna of male.
- Fig. 38. *Campsicnemus obtusus* new species, front tibia and basitarsus of male, posterior side.
- Fig. 39. *Campsicnemus obtusus* new species, mid tibia of male.
- Fig. 40. *Campsicnemus octosetosus* new species, antenna of male.
- Fig. 41. *Campsicnemus octosetosus* new species, front tibia and tarsus of male.
- Fig. 42. *Campsicnemus octosetosus* new species, mid tibia of male.
- Fig. 43. *Campsicnemus ornatus* new species, front tibia and tarsus of male.
- Fig. 44. *Campsicnemus ornatus* new species, mid tibia and tarsus of male.
- Fig. 45. *Campsicnemus sinuatus* new species, antenna of male.
- Fig. 46. *Campsicnemus sinuatus* new species, mid femur, tibia and basitarsus of male.
- Fig. 47. *Campsicnemus sinuatus* new species, mid femur and tibia of male, another view.
- Fig. 48. *Campsicnemus sinuatus* new species, base of tibia of middle leg, showing double projections.
- Fig. 49. *Campsicnemus spinitibia* new species, front femur, tibia and tarsus of male.
- Fig. 50. *Campsicnemus spinitibia* new species, mid femur and tibia of male.
- Fig. 51. *Campsicnemus spinitibia* new species, hind tarsus of male.
- Fig. 52. *Campsicnemus strigosus* new species, antenna of male.
- Fig. 53. *Campsicnemus strigosus* new species, front femur, tibia and tarsus of male.
- Fig. 54. *Campsicnemus strigosus* new species, mid femur, tibia and tarsus of male.

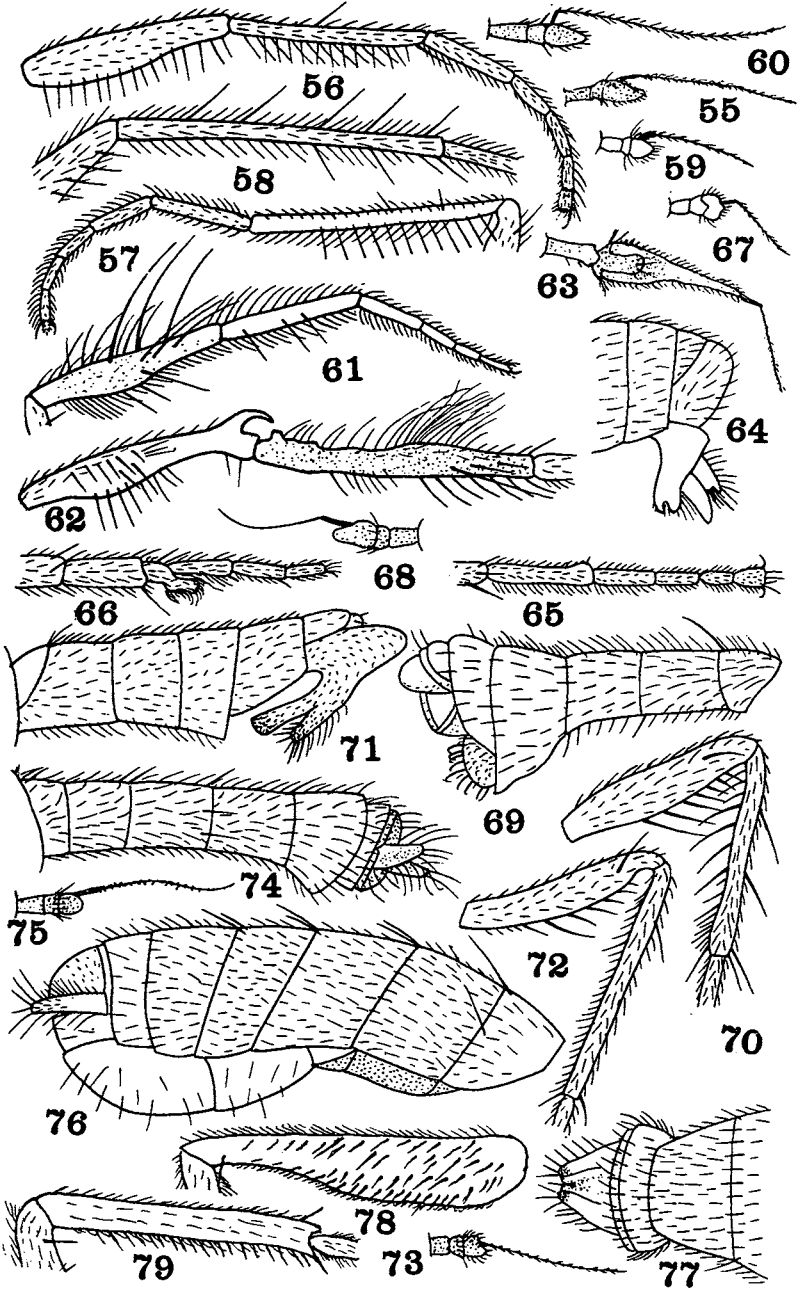


Dolichopodidae

* the second tarsal joint is nearly twice normal length

Plate 24

- Fig. 55. *Campsicnemus tibialis* new species, antenna of male.
- Fig. 56. *Campsicnemus tibialis* new species, front femur, tibia and tarsus of male.
- Fig. 57. *Campsicnemus tibialis* new species, mid tibia and tarsus of male.
- Fig. 58. *Campsicnemus tibialis* new species, hind tibia of male.
- Fig. 59. *Campsicnemus tibialis* new species, antenna of female.
- Fig. 60. *Campsicnemus williamsi* new species, antenna of male.
- Fig. 61. *Campsicnemus williamsi* new species, front tibia and tarsus of male.
- Fig. 62. *Campsicnemus williamsi* new species, mid femur and tibia of male.
- Fig. 63. *Syntormon distortitarsis* new species, antenna of male.
- Fig. 64. *Syntormon distortitarsis* new species, hypopygium of male.
- Fig. 65. *Syntormon distortitarsis* new species, fore tarsus of male.
- Fig. 66. *Syntormon distortitarsis* new species, hind tarsus of male.
- Fig. 67. *Syntormon distortitarsis* new species, antenna of female.
- Fig. 68. *Eurynogaster clavaticauda* new species, antenna of male.
- Fig. 69. *Eurynogaster clavaticauda* new species, abdomen of male.
- Fig. 70. *Eurynogaster clavaticauda* new species, middle femur and tibia of male.
- Fig. 71. *Eurynogaster nitida* new species, abdomen of male.
- Fig. 72. *Eurynogaster nitida* new species, mid femur and tibia of male.
- Fig. 73. *Eurynogaster virida* new species, antenna of male.
- Fig. 74. *Eurynogaster virida* new species, abdomen of male.
- Fig. 75. *Sweziella albifacies* new species, antenna of male.
- Fig. 76. *Sweziella albifacies* new species, abdomen of male, side view.
- Fig. 77. *Sweziella albifacies* new species, apical segments of abdomen of male, from above.
- Fig. 78. *Hydrophorus pacificus* new species, front femur of male.
- Fig. 79. *Hydrophorus pacificus* new species, front tibia of male.



Dolichopodidae

Plate 25

Fig. 80. *Campsicnemus miritibialis* new species, hind femur of male, seen from above.

Fig. 81. *Campsicnemus miritibialis* new species, fore tibia and tarsus of male.

Fig. 82. *Campsicnemus miritibialis* new species, mid tibia and tarsus of male.

Fig. 83. *Campsicnemus miritibialis* new species, hind femur, tibia and tarsus of male, from the side.

Fig. 84. *Campsicnemus crinitibia* new species, antenna of male.

Fig. 85. *Campsicnemus crinitibia* new species, mid femur of male, anterior view.

Fig. 86. *Campsicnemus crinitibia* new species, mid femur and tibia of male, posterior view.

Fig. 87. *Campsicnemus crinitibia* new species, mid tibia and tarsus of male.

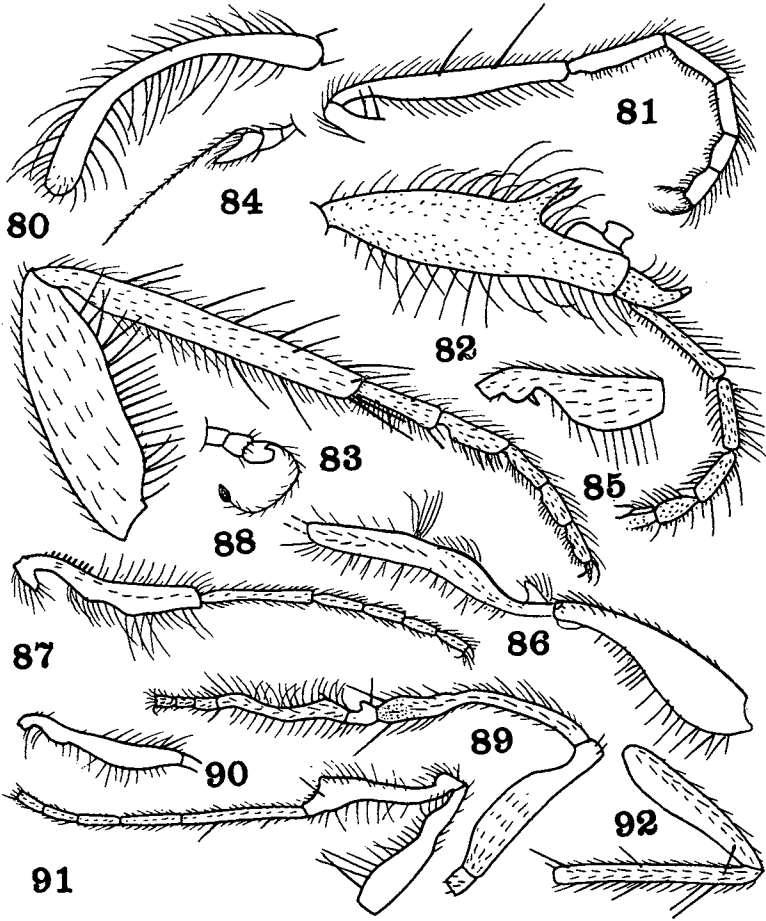
Fig. 88. *Campsicnemus nudifemorata* new species, antenna of male.

Fig. 89. *Campsicnemus nudifemorata* new species, mid femur, tibia and tarsus of male.

Fig. 90. *Campsicnemus bellulus* new species, mid tibia of male, one view.

Fig. 91. *Campsicnemus bellulus* new species, mid tibia, femur and tarsus of male.

Fig. 92. *Campsicnemus divergens* new species, mid femur and tibia of male.



Dolichopodidae