

Article V.—DOLICHOPIDÆ OF THE CANAL ZONE

By M. C. VAN DUZEE

I am indebted to Mr. C. H. Curran, for the privilege of working over of the Dolichopidæ collected by him in Panama during the months of December, 1928, and January and February, 1929. The collection comprises by far the greatest amount of material in this family ever taken in the region and adds very greatly to our knowledge of the distribution of many species. Moreover, it brings to light numerous species heretofore unknown to science. In 1928 I had the pleasure of working up the interesting collections made by Mr. Nathan Banks during June, July, and August, 1924 and by Mr. C. T. Greene during May and June, 1926.¹ No doubt there are many more species to be found in the Canal Zone, but the collections examined, made during seven months of the year, should be quite representative of the dolichopid fauna of the region.

Among the material collected by Mr. Curran are thirty-seven species which are herein described for the first time. Many of these are represented by excellent series and the same is true of several previously described forms, some of which were known from only one or two examples. It is of particular interest to note that a representative of the genus *Micromorphus*, previously known only from Europe, is contained in the collection.

The types of the new species are all deposited in The American Museum of Natural History, New York.

KEY TO THE GENERA OF DOLICHOPIDÆ FOUND IN PANAMA

1. Fourth vein with a widely divergent fork on front side.....2.
Fourth vein without a fork.....3.
2. Cilia of calypters white; scutellum with one pair of bristles; acrostical bristles hair-like.....*Sciapus* Zeller.
Cilia of calypters black; scutellum with two pairs of large bristles; acrostical bristles large.....*Condylostylus* Bigot.
3. Hypopygium of male long, extending forward under the abdomen.....4.
Hypopygium not elongated, or extended forward under the abdomen (except a little in *Thinophilus*), but sometimes large and free.....9.
4. Thorax with a depressed area on posterior slope, before the scutellum.....5.
Dorsum of thorax rounded posteriorly.....6.

¹"Tropical American Diptera or Two-winged Flies of the Family Dolichopodidæ from Central and South America," Proc. U. S. N. M., LXXIV, Art. 10, 1928.

5. Third and fourth veins convergent at tips; bristles of thorax usually black.
Medetera Fischer.
 Third and fourth veins parallel beyond the cross-vein; bristles of thorax yellow.
Thrypticus Gerstæcher.
6. Antennal arista plumose 7.
 Antennal arista pubescent or bare 8.
7. Face wide in both sexes, bulging on lower part. *Pelastoneurus* Loew.
 Face narrow, even in the female, not at all bulging. *Sarcionus* Aldrich.
8. Last section of fourth vein abruptly bent, beyond this bend more or less arched,
 concave posteriorly. *Parachius* Bigot.
 Last section of fourth vein parallel with third, gradually convergent with it, or
 with a small bend, beyond which it runs nearly straight. *Hercostomus* Loew.
9. Thorax with a conspicuous, depressed area before the scutellum. 10.
 Dorsum of thorax with posterior slope rounded, or with a small, slightly flat-
 tened space before the scutellum. 12.
10. Hypopygium large, free. *Neurigona* Rond.
 Hypopygium small, sessil or imbedded. 11.
11. Very small, grayish-brown pollinose species, without acrostical bristles.
Micromorphus Mik.
 Small yellow species; male with long slender hypopygial appendages.
Xanthina Aldrich.
12. Costa ending at tip of third vein; apical part of fourth vein very thin.
Asyndetus Loew.
 Costa ending at tip of fourth vein, which is normal. 13.
13. Second vein in male very sinuous. *Eutarsus* Loew.
 Second vein nearly straight. 14.
14. Without acrostical bristles; hypopygial appendages rather long, extending
 forward under the abdomen. *Thinophilus* Wahlberg.
 Acrostical bristles present. 15.
15. Third and fourth veins convergent at their tips, widest apart near middle of
 last section of fourth vein; face long, reaching lower margin of eyes, or below.
Stolidosoma Becker.
 Third and fourth veins parallel, at least toward their tips (except sometimes in
Diaphorus); face shorter, not reaching lower margin of eyes. 16.
16. Abdomen short, usually with five visible segments. 17.
 Abdomen long, somewhat slender, with six visible segments. 18.
17. Abdomen greatly compressed in the male, cut off abruptly at tip; cross-vein
 beyond the middle of wing. *Keirosoma* Van Duzee.
 Abdomen not compressed, sometimes depressed in male, tip in male obtusely
 pointed or rounded; cross-vein before the middle of wing.
Chrysotus Meigen.
18. Abdomen usually with large bristles at tip; eyes often contiguous on the front;
 acrostical bristles biserial. *Diaphorus* Meigen.
 Abdomen of male without bristles at tip; eyes more or less approaching each
 other below; acrostical bristles usually uniserial. *Sympycnus* Loew.

KEY TO SPECIES OF *Condylostylus* KNOWN TO OCCUR IN PANAMA

1. Femora black or green (the tips may be broadly yellow).....2.
Femora wholly or almost wholly yellow.....18.
2. Wings marked with brown.....3.
Wings grayish hyaline, without brown marks or clouds.....11.
3. Wings a little tinged with brown at tip in front of third vein; apical half sometimes mostly, although weakly tinged with brown.....4.
The brown markings consist of two cross-bands which are connected along the costa.....5.
4. Apical half of wing more or less tinged with brown; tibiæ without rows of bristles.....*forcipatus* Aldrich.
Wings a little tinged with brown in front of third vein; middle and hind tibiæ each with a row of about 14 bristles.....*ciliipes* Aldrich.
5. Fore tibiæ black.....6.
Fore tibiæ yellow, at most yellowish brown.....7.
6. Middle tibiæ and tarsi ciliated with bristles; hypopygium small; fork of fourth vein extending backward toward base of wing.....*uniseriata* Becker.
Middle tibiæ and tarsi without cilia or a row of bristles....*pulchritarsis*, n. sp.
7. Middle and hind tibiæ and tarsi wholly black or brown; knobs of halteres blackish.....*ignoratus* Becker.
At least middle tibiæ yellow; knobs of halteres yellow.....8.
8. Third antennal joint longer than usual, second joint with short bristles; fore tibiæ with a row of bristles.....*purpureus* Aldrich.
Third antennal joint short as usual, bristles on second joint about as long as antenna; fore tibiæ without more than three bristles in a row.....9.
9. Last two joints of hind tarsi distinctly widened; first joint of fore tarsi with one long bristle near apical fourth and several short ones before the middle.
uniseta Becker.
10. Apical joints of hind tarsi not at all widened.....10.
Hind tibiæ wholly black; fore tibiæ with rather short bristles.
nitidicauda Van Duzee
Hind tibiæ yellow, or brownish yellow, sometimes more blackish at base and tip; hypopygial lamellæ large, nearly round.....*simulans* Van Duzee.
11. Middle tibiæ and basitarsi ciliated with erect bristles or hairs.....12.
Middle tibiæ and basitarsi with a row of small bent or clavate hairs.....13.
12. Hind tarsi with last two joints considerably widened; cilia on middle tarsi extending onto fifth joint; all tibiæ and fore and middle femora yellow.
mentor Van Duzee.
Apical joints of hind tarsi plain; middle and hind tibiæ black or brown; first two joints of middle tarsi ciliated....*ciliipes* Aldrich, *chrysoprasius* Walker.
13. All tibiæ black; fore tibiæ with a row of five to eight bristles on posterior surface.....14.
At least the fore tibiæ yellow.....15.
14. Middle tibiæ and first two joints of their tarsi with a row of short, blunt, or slightly clavate hairs; hind tarsi with last three joints very slightly widened.
pulchritarsis, n. sp.
Middle tibiæ and tarsi without such hairs; middle basitarsi with a few irregular spines.....*panamensis* Van Duzee.

15. Abdomen with two long hairs at tip, which are as long as abdomen; hypopygial lamellæ blackish, elbowed.....*longipilus* Parent.
Abdomen without such hairs at tip.....16.
16. Hypopygium unusually large, its lamellæ flat.....*bicoloripes* Van Duzee.
Hypopygium small, or only moderately large.....17.
17. Halteres black; both sides of hind tibiæ ciliated.....*goetglebueri* Parent.
Knobs of halteres yellow; third and fourth joints of hind tarsi of equal length and a little widened, second joint also stout and but little longer than the others.....*longipennis* Van Duzee.
18. Wings with two brown cross-bands, connected along the costa as far back as third vein.....19.
Wings grayish, without brown cross-bands, sometimes with a slight shade in front.....21.
19. First joint of fore tarsi about as long as tibia, second and third joints short and thick with small spines below; fourth joint as long as the two preceding taken together, fifth short, normal.....*pedestris* Becker.
Fore tarsi of different structure, joints of quite different proportions.....20.
20. Middle tibiæ with a row of bristles for nearly their whole length; last three joints of hind tarsi a little widened.....*clavatus* Van Duzee.
Middle tibiæ without a row of bristles; fore basitarsi longer than their tibiæ, and with five bristles below, of which the apical ones are longest; last three joints of hind tarsi slightly widened.....*cornutus*, n. sp.
21. Middle tibiæ, and fore and hind tarsi as in the second alternative of the preceding couplet; wings only slightly tinged with brown in front. .*cornutus*, n. sp.
Middle tibiæ and fore and middle tarsi plain, without unusual hair or bristles; wings wholly grayish hyaline.....*cylindricus* Van Duzee.

Condylostylus uniseta Becker

BECKER, 1921, 'Dolichopodidæ, Nearktische und Neotropische Region,' p. 350.

MALE.—Length, 5–6 mm. Thorax and abdomen blue-green. Front shining green with bronze reflections; antennæ with bristles of the usual length; abdomen without special color or bristles; hypopygium metallic black, with two short rod-like, horizontal lamellæ. Coxæ and femora black, the tips of fore coxæ yellow; tips of femora, the tibiæ and fore basitarsi yellow; all femora on lower surface weakly white-haired; fore tibiæ on outer surface with three bristles, one near the base and one at the first and the other at the second third; fore basitarsus with one conspicuously large bristle at the apical fourth; middle and hind tibiæ without special cilia or bristles. Wings with two brown cross-bands, connected in front as far back as third vein, fourth vein also clouded, leaving a grayish or hyaline spot between the cross-bands between third and fourth veins; costa with distinct, short, erect cilia. No locality given (translation of Becker's description).

Mr. Curran took quite a series of both males and females that answer this description, except that they usually have an additional small bristle near the middle of the fore basitarsus; fore tibiæ often with only two bristles, the one near the base being missing. The infuscation along fourth vein is not very conspicuous in these specimens and they measure 4.5–5 mm. in length.

They have the last two joints of hind tarsi very slightly widened; abdomen with a few short white hairs on lower edge of second segment; face quite wide and mostly covered with white pollen; bristles on second antennal joint fully as long as antenna in the male and as long as the last two joints in the female; third antennal joint small, as long as wide; arista dorsal; fore coxæ with rather short, abundant, white hair; second and third joints of fore tarsi with a row of stiff hairs below (these are also found on first joint but are not conspicuous and none of them are longer than diameter of joint); middle basitarsi with a close-set row of short, blunt, nearly erect hairs, which are easily overlooked. Joints of fore tarsi about as 71-27-18-14-8; of middle ones as 100-27-21-10-8; joints of hind tarsi of 73-29-13-10-9. Calypters brown with brown or yellowish-brown cilia; halteres with yellow knobs.

Wings with the brown along the costa beginning at tip of first vein, sometimes reaching tip of third, and always to beyond tip of second vein; first cross-band ending at fifth vein, second band at fourth vein; cross-vein as 33, last section of fifth as 18, from cross-vein to fork in fourth vein as 49, from fork to wing margin as 23; fork of fourth vein forming less than a right angle with basal part of fourth upper angle rounded; cilia of costa a little slanting, ending at tip of second vein.

FEMALE.—Like the male in color and wing characters; all tarsi plain.

Redescribed from eight males and four females, taken in the Panama Canal Zone; eight on Barro Colorado Island, between December 25, 1928 and February 13, 1929; two at Ft. Davis, one at Ft. Sherman, one at Corozal, and one at Panama City.

***Condyllostylus mensor* Van Duzee**

VAN DUZEE, 1928, Proc. U. S. National Museum, LXXIV, Art. 10, p. 6. Described from Bella Vista, Panama Canal Zone.

One male was taken on Barro Colorado Island, December 23, 1928. This specimen has the measurements of the tarsal joints somewhat different from those given in the description, the greatest difference being in the first joint of fore tarsi, which in this specimen is 73 and is given in the description as 57.

This species is much like *pectinatus* Becker, from Bolivia, but in that form there are about twelve single bristles in the row on the middle basitarsi: in this there are only five such bristles. *C. ctenopus* Enderlein is also closely related to these species but has the usual two cross-bands on the wings and these are united along the front border as far back

as the third vein, while in *mentor* the wings are nearly hyaline, with only a faint clouding of the cross-vein.

Dr. Becker reports *ctenopus* Enderlein from Peru, Bolivia and Ecuador.

Condylostylus pedestris Becker

Figure 1

BECKER, 1921, 'Dolichopodidæ, Nearktische und Neotropische Region,' p. 131.

Five males and ten females of this species were taken in the Panama Canal Zone, on Barro Colorado Island, at Corozal and Ft. Sherman, between December 23, 1928 and February 19, 1929. The females differ from the males in having the fore coxæ wholly yellow and the knees blackened, especially those of posterior legs; tarsi are plain; fore tarsi of male (Fig. 1) are almost wholly black or brown.

There are eight species from the West Indies, Mexico, Central and South America already described, which have the fore tarsi formed almost alike; four of these have the femora largely or wholly black or metallic: these are *brevimanus* Enderlein, *coxalis* Aldrich, *nigrimanus* Van Duzee, and *camptopus* Parent. In the remaining four the femora are almost wholly or entirely yellow: these are *clavipes* Aldrich, *pedestris* Becker, *barbitarsus* Parent, and *rex* Parent. Of the former group, *coxalis* has the fore coxæ and femora yellow on the apical third, while the remaining three species have only the tips of fore coxæ and femora yellow: in *camptopus* the costa is without cilia, while the other two have the costa ciliated with quite long hairs. In *nigrimanus* the basitarsi of the fore feet are yellow with black tips and ciliated with about fourteen bristles: in *brevimanus* the fore tarsi are almost wholly black. In the group with yellow femora, *clavipes* and *rex* have the fore coxæ yellow and the costa without cilia: in the former the fore coxæ are a little blackened at base, and the wings are considerably hyaline at tip; *rex* has the fore coxæ wholly yellow, and the brown of apical cross-band reaching apex of wing as far back as tip of fork of fourth vein. *C. pedestris* Becker and *barbitarsus* Parent have the fore coxæ black with narrow yellow tips and costa ciliated between tips of first and second veins; in *pedestris* the fourth joint of fore tarsi bears a row of short, blunt spines below on basal half or more, while in *barbitarsus* there is a row of little bristles below, which decrease on length apically.

Condylostylus cornutus, new species

Figure 2

MALE.—Length, 5 mm.; of wing the same. Face blue, wide above, a little narrower below, almost wholly covered with white pollen when seen from above, the portion below the indistinct suture longer than wide, rounded below. Front shining blue, with violet reflections, vertex green; palpi small, black, with black bristles; proboscis yellow. Antennæ (Fig. 2) brown; third joint large, nearly twice as long as wide; arista dorsal, nearly as long as width of head, almost bare; lateral orbital cilia white; beard composed of a few white hairs.

Thorax shining green; scutellum and edges of dorsum largely blue; scutellum with two large pairs of bristles. Abdomen shining green, with narrow black incisures, blue reflections and black hair; hypopygium small and black, with small, black, rounded appendages.

Fore coxæ yellow with long white hair and two black bristles, the extreme base blackened; middle and hind coxæ black; all femora and tibiæ yellow; knees of posterior legs and extreme tips of posterior tibiæ blackened; fore femora with moderately long white hairs below, middle and hind ones nearly bare below; fore tibiæ with four quite long, slender bristles on basal two-thirds of posterior surface, middle ones with several stout bristles, posterior pair with one bristle near basal fourth. Lower surface of fore basitarsi with one large bristle below near tip and four smaller ones; length of these bristles, beginning at base, is as 7-6-7-9-16 and they are placed as follows, beginning at base, 8-16-17-22-28-26; towards apex there is a row of hairs of increasing length, about in a line with the bristles and continued on the following three joints, where they are about equal in length to the diameter of the joint; fore and middle tarsi black from tip of first joint which is brownish yellow; hind tarsi wholly black, the last three joints very slightly widened; joints of fore tarsi as 117-30-23-17-10; of middle ones as 126-37-25-12-9; joints of hind tarsi as 115-36-25-11-8. Calypters and their cilia black; halteres pale yellow.

Wings long and narrow; grayish, with a very faint dark shade in front of the cross-vein; fork of fourth vein making less than a right angle with basal part, upper angle broadly rounded; third vein bent backward at tip; fourth vein from cross-vein to fork as 74, from fork to wing margin 28, cross-vein as 30, last section of fifth vein as 19.

TYPE.—Male, taken on Barro Colorado Island, December 24, 1928.

The large third antennal joint distinguishes this species from related forms.

Condylostylus pulchritarsis, new species

Figure 3

MALE.—Length, 5 mm.; of wing 6 mm. Face violet, but little narrowed below, lower part white pollinose, more thickly so along the orbit, suture near its middle, lower margin rounded, palpi and its hairs black; proboscis brownish yellow. Front violet. Antennæ black, bristles on second joint shorter than the antenna; third joint small, scarcely as long as wide; arista nearly as long as width of head. Lower orbital cilia and the scanty beard rather short, whitish.

Thorax and abdomen blue with green reflections; dorsum of thorax with thin brown pollen; incisures of abdomen broadly velvety black; scutellum with two pairs of large bristles; hypopygium (Fig. 3) small, black, its claspers black, curved.

Coxæ black, the anterior pair with long whitish hair and two black bristles; all femora, tibiæ and tarsi brown. All femora with long white hair below; fore tibiæ with six moderately long, slender bristles on posterior surface, the longest near base; middle tibiæ with short hair, one small bristle near base and one at tip, also a row of short, closely inserted, clavate hairs or bristles, which are not longer than the other hairs and extend the whole length of tibia and along first two joints of tarsi; basitarsi also have a few short bristles above; fore basitarsi as long as their tibiæ and with two small bristles below near apical third, last joint a little wider at tip than the other joints; hind tibiæ and basitarsus with long hair, last four joints very slightly widened, last three flattened and with very short hair below; joints of fore tarsi as 95-31-25-17-7; middle ones as 141-27-25-11-7; joints of posterior pair as 98-26-20-18-11. Calypters brown, their cilia black; halteres black.

Wings gray; third vein bent backward a little at tip; fourth vein from cross-vein to fork as 74, from fork to wing margin 24, fork bending back at about a 25° angle with basal part of fourth vein, upper bend quite abrupt, then running straight but bending forward just before the tip; cross-vein as 48, last section of fifth vein as 22.

Types.—Holotype and paratype, two males, taken on Barro Colorado Island, January 3, 1929.

KEY TO THE SPECIES OF *Sciapus* KNOWN TO OCCUR IN THE PANAMA CANAL ZONE

1. Antennæ wholly black or brown.....2.
Antennæ partly or wholly yellow.....4.
2. Second joint of fore tarsi narrowed at apical third, so as to form two lobes below, largest one at base; third joint as long as wide, nearly round.
bilobus Van Duzee.
- Fore tarsi not formed as above.....3.
3. All tarsi plain.....*planipes* Van Duzee.
Second and third joints of fore tarsi modified to form a grasping organ, second nearly three times as long as third, fourth as long as second and third together; last three joints of hind tarsi widened.....*armiger*, n. sp.
4. Length 2.5 mm.; pleura wholly yellow; (female).....*pectoralis*, n. sp.
Length 4.5 mm.; pleura metallic; costa of male with erect cilia.....5.
5. Base of first and second abdominal segments yellow on dorsum.
flaviannulatus Van Duzee.
Dorsum of abdomen wholly metallic.....*longipes* Van Duzee.

Sciapus pectoralis, new species

FEMALE.—Length, 2.5 mm. Face green, narrow below, white pollinose, ground color showing through on upper part; front shining green with bronze reflections; palpi and proboscis pale yellow; antennæ yellow, bristles on second joint as long as diameter of the joint, third joint small, brown at tip; arista dorsal. Beard formed of a few short white hairs.

Dorsum of thorax bright green; scutellum with one pair of bristles; pleura wholly pale yellow; dorsum of abdomen shining green with bronze and bright

reddish-copper reflections, posterior edge of first segment obscurely yellow; hairs on abdomen black; venter pale yellow; ovipositor black.

Legs slender; coxæ, femora, tibiæ and tarsi wholly pale yellow, their hairs short, the tibiæ almost without bristles; fore coxæ with very short white hair; fore tarsi more than twice as long as their tibiæ; middle tibiæ and tarsi of about equal length, hind tarsi shorter than their tibiæ; fore tibiæ as 50, joints of fore tarsi as 61-22-12-8-4; joints of middle tarsi as 59-22-15-7-5; of hind ones as 43-21-11-7-5. Calypters, their cilia, and the halteres, pale yellow.

Wings a little grayish, the veins brownish, very thin; third vein much bent back toward tip, then a little recurved at apex; fourth vein from cross-vein to fork, as 29, from fork to wing margin as 21; fork at right angles to fourth vein, upper bend broadly rounded, then running straight to wing margin; last section of fifth vein as 12, of cross-vein as 15.

Types.—Described from three females. Holotype and one paratype taken at Barro Colorado Island, January 9 and 11, the other paratype at Corozal, January 21, 1929.

This species can easily be recognized by its very small size, wholly pale yellow pleura, feet and legs, its long, slender legs, and brown-tipped, yellow antennæ.

***Sciapus armiger*, new species**

Figures 4, 5 and 6

MALE.—Length, about 4.5 mm. Face and front bright blue, nearly covered with white pollen when seen from above; proboscis yellow; palpi brown. Antennæ brown, longest bristles on second joint about as long as diameter of joint; third joint small, rounded; arista dorsal, about as long as width of head; inferior orbital cilia and scanty beard short and white.

Thorax blue-green, dorsum shining, more blue in front; scutellum with two pairs of marginal bristles; bristles of thorax rather short; pleura white pruinose, posterior edge yellow. Abdomen green with bright bronze reflections and wide black incisures, this black widening on sides, sides becoming mostly dull black; hairs of abdomen wholly black, no longer ones on sides. Hypopygium (Fig. 4) black, its lamellæ very long, black, widest before middle, tapering to an obtuse point, fringed with long hairs; inner appendages short, somewhat rounded, bearing long hairs.

All coxæ, femora and tibiæ yellow; fore coxæ with a few delicate white hairs and two large black bristles, one of which is near the middle on outer surface. Anterior and posterior femora with a row of moderately long, yellow hairs on lower posterior surface; middle femora nearly bare below; bristles of tibiæ small. Fore tarsi (Fig. 5) yellow with last two joints black, first joint with a bristle below near middle, the second and third somewhat modified and bearing bristles or spines below, which form a grasping organ, fourth and fifth joints normal, but fourth very long; middle tarsi plain, black from tip of first joint; hind tarsi (Fig. 6) with first joint wholly yellow, last four black, second a very little widened at tip, last three widened and glabrous above. Joints of fore tarsi as 52-27-8-31-10; of middle ones as 87-28-21-10-5; joints of posterior pair as 61-28-13-14-11. Calypters yellowish brown, their cilia and the halteres yellow.

Wings dark grayish; third vein bent backward toward its tip; fork of last section of fourth vein at a right angle, its upper bend broadly rounded; from cross-vein to fork as 43, from fork to wing margin as 26; cross-vein as 32, last section of fifth vein as 18 and almost straight; hind margin of wing slightly notched at tip of fifth vein.

FEMALE.—All parts colored about as in the male; all tarsi plain; venation of wings as in the male; length, 3.5–4.5 mm.

TYPES.—Described from eleven males and seven females, all taken on Barro Colorado Island, from December 21, 1928 to February 16, 1929. The holotype was taken on December 24, the allotype on January 7.

KEY TO THE MALES OF THE SPECIES OF *Diaphorus* KNOWN TO OCCUR IN PANAMA

1. Antennæ black with first joint yellow; abdomen green with sides of second and third segments and a band at base of second on the dorsum yellow; all femora wholly yellow.....*antennatus* Van Duzee.
Antennæ wholly black; abdomen without yellow, except sometimes on the venter; femora largely black or metallic.....2.
2. Eyes contiguous or narrowly separated on the front.....3.
Front wide, eyes widely separated.....5.
3. Knobs of halteres black or brown.....*nigrihalteralis*, n. sp.
Knobs of halteres yellow.....4.
4. All tibiæ wholly yellow.....*spectabilis* Loew.
Hind tibiæ brown or black at tip.....*tenuipes* Parent.
5. Third and fourth veins parallel, or very nearly so; hind basitarsi without a large bristle below.....6.
Third and fourth veins much farther apart at middle of last section of fourth than at tips; hind basitarsi with a large bristle below.....8.
6. Fore pulvilli scarcely enlarged.....*perplexus* Van Duzee.
Fore pulvilli distinctly enlarged.....7.
7. Fore femora wholly yellow, middle ones black on median half, posterior pair yellow with upper surface of apical half black.....*varipes* Van Duzee.
All femora black, knees yellow.....*brevimanus*, n. sp.
8. Third and fourth veins not parallel, fourth straight, third bent back at tip.
perplexus Van Duzee.
Third and fourth veins far from parallel, third greatly bent.....9.
9. Bristle at base of hind basitarsi erect and straight.....*simplex* Aldrich.
Bristle at base of hind basitarsi curved and not very erect.
curvispina Van Duzee.

Diaphorus spectabilis Loew

This seems to be a very variable species, both in size and the enlargement of the pulvilli; in some specimens the pulvilli are longer than the fifth joint of the fore tarsi and as long as the fifth joint on the posterior tarsi; in others they are shorter than the fifth joint on the fore tarsi and the posterior ones are scarcely at all enlarged. The specimens taken by Mr. Curran are all of the latter form. One specimen from France Field, taken January 18, 1929, has the eyes distinctly but narrowly separated,

as in variety *approximatus* Aldrich, while those taken on Barro Colorado Island are of the typical form, with the eyes contiguous on the front. The specimens from the Island were taken between December 23, 1928 and January 5, 1929. Length, 3 to 4.5 mm.

***Diaphorus nigrihalteralis*, new species**

MALE.—Length, 3 mm. Eyes contiguous on the front, leaving a small white triangle below and a black one above; face blue-black in ground color, wholly covered with white pollen when viewed from above, about as wide as length of antenna, a little longer than wide; palpi and proboscis black. Antennæ black; third joint small, conical in outline, as long as wide; arista apical, blackish. Lower orbital cilia white.

Thorax and scutellum shining green with bright coppery reflections; pleura thinly white pruinose; dorsum of abdomen dark reddish coppery with black hair; venter black with long pale hair; bristles at tip of abdomen moderately long; hypopygium mostly concealed.

All coxæ and femora black; fore coxæ with long, stiff, black hairs; fore femora with a row of long bristle-like hairs below, middle and hind ones with quite short hairs below. Knees, tibiæ and all basitarsi pale yellow; tarsi brown or black from tip of first joint; pulvilli not enlarged; joints of fore tarsi as 37-18-13-9-7; of fore tibiæ as 62; joints of posterior tarsi as 28-23-17-8-6. Calypters brown with yellowish cilia, which appear more black in certain lights; knobs of halteres black, petiole yellow.

Wings dark gray; third and fourth veins parallel, slightly arched, fourth ending in apex of wing; last section of fifth vein as 29, of cross-vein as 18. Wings widest near the anal angle, which is broadly rounded.

TYPES.—Two males. The holotype taken at France Field, January 18, 1929; the paratype on Barro Colorado Island, January 7, 1929.

***Diaphorus brevimanus*, new species**

MALE.—Length, 2.5 mm. Face scarcely narrowed below, a little more than one-fourth the width of the head. Face, front and occiput dark green, covered with white pollen which almost conceals the ground color of the face; palpi small, yellowish; proboscis black. Antennæ black; third joint very small, about half as long as wide; arista dorsal, appearing whitish or yellowish in certain lights. Lower orbital cilia white.

Dorsum of thorax green, white pollinose; pleura black. Abdomen rather stout, shining black, bristles at tip rather strong; hypopygium mostly concealed.

Fore coxæ largely dark yellow, with black hair and bristles; middle and hind coxæ and all femora black; trochanters and knees yellow; fore and middle tibiæ dark yellow, the posterior ones blackened at tip and on sides at base, more yellow in the middle. Tarsi black with first joint more or less yellowish; joints of fore tarsi as 30-13-7-5-7, their pulvilli as 10; joints of posterior pair as 22-22-15-9-7; calypters and halteres yellow. cilia of the former black.

Wings a little grayish; third vein and last section of fourth straight, nearly parallel, but very slightly farther apart at tips, fourth ending in apex of wing; cross-vein as 12, last section of fifth vein as 28.

FEMALE.—One female, which seems to belong with this male, has all coxæ and trochanters black; tibiæ and basitarsi more yellow than in the male; hind tibiæ dark yellow, more blackish at base; abdomen dark greenish black.

YES.—Two males and one female, taken on Barro Colorado Island, December, 22, 1928 and January 11 and 31, 1929. The holotype, male, was taken on December 22, 1928, the allotype on January 11, 1929.

***Asyndetus currani*, new species**

MALE.—Length, 3 mm. Face nearly as wide as the front, both wholly white pollinose; face about as long as wide, the lower edge somewhat emarginate in the middle; palpi and proboscis black, the former with black hairs and thickly covered with white pollen. Antennæ black; third joint small, rounded at tip, nearly concealed by second when viewed from the inner side; arista dorsal. Lower orbital cilia white.

Thorax pea-green, thickly covered with white pollen and bearing a median yellowish-brown pollinose stripe; occiput and pleura more blackish, with white pollen. Abdomen dark green with only a little white pollen, its hairs black, bristles at tip conspicuous but short; hypopygium mostly concealed.

Coxæ and femora black; fore coxæ with a few black hairs; all femora with delicate, moderately long yellowish hairs below; fore trochanters, extreme tips of femora and fore tibiæ, yellow; middle and hind trochanters yellowish brown; middle tibiæ brown, hind ones wholly black, or nearly so; all tarsi black or brown; all pulvilli white, enlarged; bristles of tibiæ large. Length of fore tibiæ as 50, of joints of fore tarsi as 23-12-9-9-7, of fore pulvilli as 8; joints of posterior tarsi as 23-19-13-9-7, of their pulvilli as 7.

Wings with a slight whitish sheen, veins brown; third vein running parallel with second, but moderately distant from it, distinctly bent back at tip; last section of fourth vein broken, apical part thin, parallel with basal part, but not overlapping it; sections of fifth vein as 23-58; of cross-vein as 9.

TYPE.—Described from one male, taken at Bruja Point, January 25, 1929.

This is very much like *disjunctus* Van Duzee, from Lower California, which also has the head and thorax covered with white pollen. It differs from that species in having the third vein running farther from the second and its tip bent backward. *A. disjunctus* has the thorax more coppery and without the median, yellowish, pollinose stripe; hind tibiæ pale yellow on the basal half; middle tibiæ yellow with a brown tip, and fringed with black, bristle-like hairs below.

***Asyndetus flavitibialis* Van Duzee**

VAN DUZEE, 1928, Proc. U. S. Nat. Mus., LXXIV, Art. 10, p. 20.

Originally described from two females taken by A. Busck, on Tabogilla Island, February 15, 1912.

***Eutarsus nigripennis*, new species**

Figures 7 and 8

MALE.—Length, 3 mm. Face linear, silvery white; front opaque with white pollen when viewed from above; palpi and proboscis black, the former edged with

white pollen. Antennæ black; third joint small, obtusely pointed at tip, about as long as wide; second joint overlapping third to about the middle; arista dorsal. Orbital cilia wholly black.

Dorsum of thorax green with coppery reflections, rather dull; pleura black. Abdomen wholly dull black; hypopygium brown or black with the two large bristles on the posterior surface, small but quite conspicuous; outer lamellæ yellowish, black on the edges, as long as the height of the hypopygium, one-fifth as wide as long, fringed with long hairs, one or two of those at tip longer than either lamella; inner appendages black.

Fore coxæ dark yellow with long black hair, middle and hind coxæ black; fore femora yellow with a row of bristle-like hairs below; middle and hind femora more or less black, yellowish brown at tips; all tibiæ yellow; all tarsi plain, black or brown, the first joint yellowish; pulvilli of fore tarsi large. Joints of fore tarsi as 34-18-14-7-6; of middle ones as 34-20-16-7-5; joints of posterior pair as 18-26-16-9-8. Fore tarsi nearly one and one-half times as long as their tibiæ. Calypters, their cilia, and the halteres, black.

Wings (Fig. 8) blackish; second vein nearly parallel with first to tip of that vein, then making a wide sweep backwards; third vein sinuous from before cross-vein to tip; fourth vein nearly straight, bending slightly backward at cross-vein; last section of fifth vein as 30, of cross-vein as 16.

FEMALE.—Length, 2.3 mm. Face and front blue, the color mostly concealed by white pollen when viewed from above; face near antennæ two-fifths as wide as the width of one eye, only a little narrower below. Antennæ (Fig. 7) longer than in the male; arista nearly apical and rather pale in color. Orbital cilia wholly black. Thorax green with blue reflections in front, bronze posteriorly. Abdomen metallic black with slight blue, green or coppery reflections; venter brown or yellowish brown. All coxæ and femora wholly black; tibiæ dark yellow, middle and hind ones blackened at base; tarsi mostly black; pulvilli small; fore tarsi one and one-third times as long as their tibiæ; joints of fore tarsi as 30-12-8-7-7; of middle ones as 37-13-10-5-5; those of posterior pair as 23-16-11-6-6. Calypteres, their cilia, and the halteres black. Wings gray; second, third and fourth veins nearly straight, third and fourth nearly parallel, fourth ending just back of apex of wing; last section of fifth vein and cross-vein as in the male.

TYPE.—Described from four males and five females, taken on Barro Colorado Island, between December 26, 1928 and February 21, 1929. The holotype, male, was taken on December 26, 1928, the allotype on January 3, 1929.

The males of this species have the venation of the wings about as in *Eutarsus sinuatus* Aldrich, but that species has the body and legs almost wholly yellow. The female differs from the male to about the same degree as in *sinuatus*, perhaps a little more so, as the second, third, and fourth veins in *nigripennis* are nearly straight and the wings not blackened.

Stolidosoma permutans Becker

Figures 9 and 10

BECKER, 1921, 'Dolichopodidæ, Nearktische und Neotropische Region,' p. 217.

MALE.—Length, 5–6 mm. Face silvery white, linear or reduced to narrow triangles above and below; palpi large, bare, yellow, silver-white pollinose; proboscis brown; front shining blue or violet. First two antennal joints brownish yellow (Fig. 9), sometimes quite brown above; third joint black, cut out above from near the base to form a long, narrow apical portion; arista inserted near base, basal portion arched, arista nearly bare; antennæ of female (Fig. 10) shorter and the arista more pubescent. Hypopygium concealed. Thorax green, sometimes blue in front. Abdomen black with purple reflections, first segment wholly yellow; large yellow triangles on sides of second and third segments and small ones on the following segments: these triangles always meet on the dorsum of second and third segments and sometimes on the others. All coxæ, femora, and fore and middle tibiæ yellow; hind tibiæ, and sometimes the tip of the hind femora, blackish; tarsi largely black, more or less yellow at the base. Joints of fore tarsi as 78–20–44–30–12; of middle ones as 107–38–28–13–10; joints of posterior ones as 15–65–33–19–11; fore tibiæ as 94. Wings tinged with brown; cross-vein twice as long as last section of fifth vein; calypters yellow at base, black at tip, with their cilia black, dense, bent, but not very long. Posterior edge of pleura and halteres pale yellow.

FEMALE.—Fore tibiæ as 98, joints of fore tarsi as 74–33–30–20–11; of posterior ones as 20–60–30–11–9. Face short, as wide as the third antennal joint, silvery white; palpi about as large as in the male but with long black hairs on upper surface. Color of body and legs about as in the male; antennæ as in figure 10.

Redescribed from ten males and eighteen females, taken in Panama. Canal Zone, mostly on Barro Colorado Island. Originally described from Colombia.

KEY TO THE SPECIES OF *Sympycnus* KNOWN TO OCCUR IN PANAMA

1. Palpi nearly as long as the face; second joint of fore tarsi very short, with long hairs and a curved bristle at tip.....*palpiger*, n. sp.
Palpi short, about normal.....2.
2. Antennæ wholly black or brown.....3.
Antennæ yellow, at least the first joint wholly yellow.....4.
3. Second joint of fore tarsi with long curly hair below; fourth joint of hind tarsi with two hairs at the tip which are fully half as long as fifth joint.
flavicauda, n. sp.
First joint of fore tarsi with a row of long curved hairs below, second ciliated above with long hairs which are bent at tip; fourth joint of hind tarsi with a projecting point extending over fifth above, and with long hairs, fifth joint ciliated above with long hairs, which are bent at tip.....*currani*, n. sp.
4. All tarsi plain.....*planipes*, n. sp.
Anterior and posterior tarsi ornamented as in couplet 3.....*currani*, n. sp.
Second joint of fore tarsi with long curly hair.....*unispina*, n. sp.

***Sympycnus unispina*, new species**

Figure 11

MALE.—Length, 3.5 mm. Face narrow, silvery white, blue just below the antennæ; palpi yellowish brown; proboscis yellow; first two antennal joints yellow, third small, brown; front shining blue.

Dorsum of thorax bright blue, narrowly yellow on anterior and lateral edges; abdomen yellow, dorsum black from posterior margin of first segment, its hairs black; hypopygium shining black, tapering to an obtuse point below.

Coxæ, femora and tibiæ yellow. Fore coxæ nearly bare, except for a few black hairs and bristles at tip, but there are several very minute yellow hairs above. Fore tibiæ without bristles; middle tibiæ with four rather large bristles above and two smaller ones on lower anterior edge; hind tibiæ with several quite large bristles. Tarsi yellowish brown, middle and hind ones darker toward their tips; fore tarsi with second joint fringed with long curly hair on one edge; hind tarsi (Fig. 11) with fourth joint nearly as long as fifth and with a long, curved bristle at tip; fore tarsi about one and one-half times as long as tibiæ, their joints as 70-19-15-8-8; of middle ones as 64-22-12-6-6; of posterior pair as 13-41-16-6-15. Calypters, their cilia, and the halteres yellow.

Wings dark grayish; third and fourth veins nearly parallel, fourth ending in apex of wing; last section of fifth vein a little longer than cross-vein; anal angle of wing quite prominent.

FEMALE.—Venation of wings and color about as in the male; face a little wider than in male; cilia of the calypters black; first two antennal joints more yellowish-brown.

TYPES.—One male and four females, all taken on Barro Colorado Island, Holotype, male, taken December 26, 1928; all four females between January 7 and 11, 1929.

***Sympycnus currani*, new species**

Figures 12 and 13

MALE.—Length, 3 mm. Eyes narrowly separated in the middle of the face, or contiguous; lower part of face silvery white, the upper part black; front bright blue; palpi and proboscis black. Antennæ black or brown, sometimes yellowish brown, especially on inner surface; third joint rounded at tip, about as long as wide. Lower orbital cilia white.

Dorsum of thorax shining blue or violet, posterior part and the scutellum green; pleura partly yellow, more or less brown on upper portion. Abdomen black, venter and lower part of sides yellow, its hairs and the bristles on first segment black; hypopygium black, small, its appendages wholly or mostly concealed.

Coxæ, femora and tibiæ yellow. Fore coxæ with a few minute black hairs and with black bristles at tip; fore tibiæ without bristles; middle tibiæ with three small bristles above. Fore tarsi (Fig. 12) nearly twice as long as their tibiæ, yellowish, first joint with a row of slender, arched hairs, second joint ciliated with long hairs which have their tips sharply bent; hind tarsi (Fig. 13) with first joint very short, fourth with a finger-like projection at tip, which bears several long hairs, fifth joint ciliated on the apical three-fourths with long erect hairs, which have their tips bent. Joints of fore tarsi as 73-10-9-9-6; of middle ones as 70-26-21-15-6; joints of

posterior ones as 9-48-16-7-12. Calypters and their cilia brown; knobs of halteres black, the stem yellow.

Wings narrowed at base, brownish; third and fourth veins nearly parallel, fourth ending in apex of wing; last section of fifth vein one and a half times as long as cross-vein, but varying considerably in length.

FEMALE.—Color and wings as in the male; face wider, silvery white with the blue ground color showing through on upper part; tarsi plain, joints of fore tarsi as 56-16-14-9-6; of hind ones as 14-36-16-10-7.

TYPES.—Eleven males and nine females, all taken on Barro Colorado Island, between December 26, 1928 and February 21, 1929. The holotype, male, was taken on February 15, 1929, the allotype on January 5.

***Sympycnus planipes*, new species**

MALE.—Length, 2.2 mm. Face silvery white, linear or with eyes touching; palpi yellow; proboscis brown; front opaque with brown pollen. Antennæ dark yellow to yellowish brown; third joint small, triangular. Orbital cilia short, white.

Thorax yellow; middle of dorsum and scutellum blue-green, shining. Abdomen black or brown on the dorsum, the whole of first segment, venter, and sides of the remaining segments yellow; all hairs on abdomen and legs and bristles on first segment of abdomen and thorax yellow; hypopygium small and black, with small, black lamellæ which are fringed with long hair.

All femora, coxæ, tibiæ and tarsi yellow, tarsi darkened at tips; middle tibiæ with two bristles above, one near base and one near middle; fore tarsi with rather long hair, their pulvilli somewhat enlarged. Fore tibiæ as 40, joints of fore tarsi as 30-19-15-8-6; of middle ones as 32-16-12-5-4; first two joints of hind tarsi as 13-20. Calypters, their cilia, and the halteres yellow.

Wings grayish; third and fourth veins nearly straight and parallel, the fourth ending in apex of wing; last section of fifth vein about twice as long as cross-vein.

FEMALE.—Like the male in color and venation of wings; face a very little wider.

TYPES.—Two specimens of each sex taken on Barro Colorado Island, between December 24 and January 10. The holotype, male, was taken on January 9, 1929, the allotype on December 24, 1928.

***Sympycnus flavicauda*, new species**

MALE.—Length, 3.5 mm. Face silvery white, as wide as third antennal joint, a little wider below; front bright blue; palpi and proboscis black. Antennæ wholly brown; third joint small, nearly as long as wide, somewhat triangular, obtuse at tip. Occiput dull green; inferior orbital cilia short, sparse and white.

Thorax yellow, dorsum violet with the exception of the lateral and anterior edges; scutellum blue with green reflections. Abdomen yellow, dorsum black from hind margin of first segment, its hairs black; hypopygium yellow, with very small yellow lamellæ.

All coxæ and femora yellow, tips of fore and middle femora slightly brown. Fore tibiæ yellow, middle and hind tibiæ black or brown (if brown, more or less black at base, especially below); fore tibiæ without bristles, middle ones with four small bristles on upper anterior edge, including the one at tip and one near base on upper posterior edge; hind tibiæ with several bristles above. All tarsi black; fore tarsi

nearly twice as long as their tibia, first joint as long as tibia, second joint with quite long, dense, curly hair below; fourth joint of hind tarsi with two hairs at tip which are fully half as long as fifth joint; joints of fore tarsi as 60-25-12-9-8; of middle ones as 64-23-17-9-7; joints of posterior pair as 12-45-25-11-9. Halteres yellow, tips of knobs brown.

Wings gray; third and fourth veins nearly parallel, but bent back a little toward their tips, apex of wing between their tips; last section of fifth vein a very little shorter than cross-vein; wings slightly narrowed at base.

TYPE.—Male, taken on Barro Colorado Island, January 10, 1929.

Sympycnus currani, *unispina* and *flavicauda*, all taken on Barro Colorado Island form a closely related group: all have the first joint of fore tarsi long, second with long bent or curly hair on one side, hind tarsi with first joint very short, second long and fourth with long or rather long hairs at tip. *S. currani* and *unispina* have fifth joint of hind tarsi very much longer than fourth; of these two *currani* has a finger-like projection at tip of fourth joint of hind tarsi, which also bears very long, slender hairs; *unispina* has no projection at tip of fourth joint of hind tarsi, but possesses a long curved bristle. In *flavicauda*, fourth joint of hind tarsi is a little longer than fifth and hairs at tip are but little more than half as long as fifth joint.

***Sympycnus palpiger*, new species**

Figures 14 and 15

MALE.—Length, 3.75 mm. Face very narrow, linear, silvery white; palpi nearly as long as the face, half as wide as long, somewhat oval, widest at base and with a short petiole, silvery white; front green or blue-green, antennæ black, short; third joint triangular, a little longer than wide. Proboscis yellowish brown.

Thorax green with blue reflections, rather dull; sutures and posterior edge of pleura yellow. Abdomen black, sides of first three abdominal segments wholly yellow, fourth and fifth segments with yellow spots on the sides; venter mostly yellow; hairs of abdomen black; hypopygium small, black, its small appendages yellowish.

All coxæ, femora and fore tibiæ yellow, middle and hind tibiæ and their tarsi brown. Fore tarsi (Fig. 14) black from tip of first joint, nearly twice as long as their tibiæ: first and third joints long and of nearly equal length, second joint very short, with long hairs and a curved bristle at tip; fourth and fifth joints flattened and widened, glabrous, and silvery white on upper surface; hind tarsi (Fig. 15) with first joint very short, third and fourth long, bearing a row of curved hairs, which are rather long; middle and hind tibiæ long and slender; middle tarsi one and one-half times as long as tibia; hind tarsi two-thirds as long as tibia. Joints of fore tarsi as 50-8-48-34-12; of middle ones as 108-35-33-15-6; joints of posterior pair as 9-50-29-24-7. Calypters yellow with black tips and brown cilia; halteres yellow.

Wings narrowed at base, brownish; third and fourth veins parallel, fourth ending in apex of wing; last section of fifth vein and cross-vein of nearly equal length.

FEMALE.—Face narrow, silvery white; palpi of moderate size, yellow; color

of all parts about as in the male; fore tarsi one and one-third times as long as their tibiae; joints of fore tarsi as 35-20-21-15-9; venation of wings as in the male.

Types.—Five males and eight females, all taken on Barro Colorado Island, between December 28, 1928 and February 16, 1929. The holotype, male, was taken on February 16, the allotype on January 4.

This species is remarkable for its large palpi and the very unusual form of the fore tarsi.

KEY TO THE SPECIES OF *Neurigona* KNOWN TO OCCUR IN PANAMA

1. Dorsum of thorax yellow, with depressed area, entire disk of scutellum and a narrow median line extending forward and tapering to a point at middle of dorsum, a beautiful blue-green color..... *banksi* Van Duzee.
Dorsum of thorax wholly metallic, or nearly so..... 2.
2. Wings with a brown cloud extending from costa to fifth vein and covering cross-vein..... *maculipennis* Van Duzee.
Wings without a brown cloud; abdomen with first segment and hind margins of the others yellow..... *thoracica*, n. sp.

Neurigona thoracica, new species

FEMALE.—Length, without ovipositor, 4.1 mm. Face linear, blue with white pollen; palpi brownish; proboscis yellow; front dark blue. Antennae yellow; third joint largely brown, scarcely as long as wide, somewhat pointed at tip. Lower orbital cilia whitish.

Thorax and dorsum of scutellum green with blue reflections, dorsum with brown reflections, pleura with white pollen; posterior edge of pleura yellow; metanotum dark blue, almost black. Dorsum of abdomen shining black, the whole of first segment, anterior edge of second segment and narrow posterior margins of second, third, and fourth, yellow; hairs of abdomen black, the yellow hind margins of segments white pollinose; ovipositor yellow, blackened on the sides at tip.

All coxae, femora, tibiae and tarsi yellow; tarsi a very little darkened at tip; fore coxae with black hairs and bristles; all tarsi plain; joints of fore tarsi as 73-35-24-18-9; of middle ones as 94-45-27-13-7; joints of posterior pair as 37-77-35-21-9. Calypters brownish yellow with black cilia, halteres pale yellow.

Wings tinged with grayish brown; third vein considerably bent back at tip; last section of fourth vein very slightly bent; apex of wing half-way between tips of third and fourth veins; last section of fifth vein as 25, cross-vein as 18.

TYPE.—Female, Barro Colorado Island, January 5, 1929.

This is something like the female of *decora* Aldrich, but the fourth vein ends before the apex of the wing in *decora*, while in *thoracica* the fourth vein ends back of the apex of the wing, making the tips of the third and fourth veins farther apart.

TABLE OF SPECIES OF *Xanthina* ALDRICH

1. Thorax with the depressed area on posterior slope, and the scutellum, black, white pollinose; hypopygium yellow (Panama)..... *nigromaculata*, n. sp.
Thorax wholly yellow or reddish yellow..... 2.

2. Pleura with a black spot; hind tibiæ with a row of pale bristles on each side of the dorsal surface (Granada)..... *plumicauda* Aldrich.
Pleura without a black spot; eyes touching on the middle of the face, leaving two small triangles, the lower one white pollinose; hypopygium black (Panama):
subcurva, n. sp.

***Xanthina nigromaculata*, new species**

Figure 16

MALE.—Length, 2 mm. Eyes touching, the face reduced to a narrow, white pollinose triangle above and below; palpi and proboscis yellow, the former hairy; occiput black; front black with slight green reflections. Antennæ yellow; third joint about as long as wide, rounded; arista apical.

Thorax reddish yellow; pleura paler yellow, without spots; the concave space before the scutellum is large and conspicuous, black, the black extending forward onto the dorsum in the form of a large triangle; dorsum of scutellum black, the edge and lower surface yellow, the black wholly concealed by silvery-white pollen when seen in certain lights. Abdomen depressed; dorsum black, except the narrow first segment and the venter which are yellow; hypopygium (Fig. 16) very small, yellowish brown, its lamellæ rather short, yellowish, with long hairs at tip.

Coxæ, femora, tibiæ, and tarsi pale yellow, tarsi only slightly darkened at tips; coxæ, legs and tarsi with yellow hair, the bristles on tibiæ appearing reddish in certain lights, black in others; all tarsi with quite long hair; femora with a row of longer hairs below. Joints of fore tarsi as 22-12-10-7-6; of middle ones as 24-16-12-8-7; of posterior pair as 15-24-16-9-7.

Wings grayish, veins brownish; second vein running close to costa; third and fourth veins nearly straight and parallel with apex of wing between their tips; cross-vein as 14, last section of fifth vein as 22.

TYPES.—Four males, taken on Barro Colorado Island. The holotype and one paratype, February 18, 1929; two paratypes, January 10, 1929 and December 26, 1928.

***Xanthina subcurva*, new species**

Figure 17

MALE.—Length, 2 mm. Eyes touching, leaving a very small, white pollinose triangle below and a longer, black one above; palpi yellow, nearly two-thirds as long as the face, hairy; front and occiput black, a little shining. Antennæ yellow; third joint small, rounded at tip, not as long as wide, tip blackened; arista apical.

Dorsum of thorax reddish yellow with many small black hairs; pleura wholly pale yellow; scutellum yellow; metanotum with a semicircular brown spot below the scutellum; acrostical bristles in two rows, slender but rather long. Abdomen with first segment, sides of the other segments and the venter yellow; dorsum, except first segment, last segment, and hypopygium, black; hypopygium (Fig. 17) with three or four large bristles and long, slender appendages, which have long curved hairs on the edges.

Coxæ, femora, tibiæ, and tarsi pale yellow with yellowish hairs; hind tarsi distinctly brownish. Hind tibiæ slightly curved, slightly enlarged at tip, with seven long, pale, slender bristles or hairs, of nearly equal length, situated on the apical half of the lower posterior edge, ending in the large bristle at tip of tibia, and longer

than the diameter of tibiæ at tip. Fore tibiæ as 36, joints of fore tarsi as 17-6-5-4-5; middle tibiæ as 41, joint of their tarsi as 12-11-11-11-4; posterior tibiæ as 60, joints of posterior tarsi as 14-15-12-8-8. Calypters and halteres yellow, cilia of former black.

Wings grayish, veins brown; third and fourth veins parallel, apex of wing between their tips; last section of fifth vein as 21, cross-vein as 11.

TYPE.—Male, Barro Colorado Island, February 18, 1929.

X. subcurva is very much like *plumicauda* Aldrich, but there is only one row of long bristles on hind tibiæ in this male, and the bristles are of about equal length; in *plumicauda* the bristles in the figure given by Dr. Aldrich are of increasing length, and in *subcurva* the hypopygial appendages have long curved hairs on the sides.

The measurements of the tarsal joints are rather uncertain, as the articulations of the joints are difficult to distinguish.

MICROMORPHUS Mik

MIK, 'Dipterol. Unters.', 6, VII, 1878.

Very small, grayish-brown pollinose species; without acrostical bristles; antennæ with a dorsal arista; thorax with a large depressed space before the scutellum; wings with third and fourth veins parallel.

This genus should go in the Xanthochlorinæ.

Micromorphus panamensis, new species

MALE.—Length, 1.3 mm. Face narrow below, wider above; face, front and palpi black. Antennæ black; third joint small, about as long as wide, somewhat triangular; arista dorsal, inserted near base of third joint, pubescent. Lower orbital cilia whitish.

Thorax and abdomen black, nearly opaque with brown or grayish brown pollen; hair of abdomen largely pale; bristles of thorax black, but in certain lights appearing pale brown or even whitish; posterior slope of thorax with a large depressed area; no acrostical bristles; six dorsocentrals in each row, three of which are placed along the edge of the depressed space; hypopygium small, but distinctly visible, yellowish.

Coxæ, femora, tibiæ, and tarsi yellow; fore coxæ with quite long, yellow hair on anterior surface; fore tibiæ three-fourths as long as their tarsi; joints of fore tarsi as 13-6-5-4-4; of middle ones as 17-8-6-4-3; joints of posterior pair as 8-11-7-5-4.

Wings grayish; third and fourth veins nearly parallel; last section of fifth vein nearly straight and five times as long as the cross-vein.

TYPE.—Described from one male, taken at Corozal, January 16, 1929.

KEY TO THE SPECIES OF *Medetera* KNOWN TO OCCUR IN PANAMA

1. Femora yellow, blackened at base, the posterior ones only slightly so; bristles of head and thorax yellow..... *flaviseta* Van Duzee.
- All femora black, sometimes their tips broadly yellow; bristles of head and thorax black, at least the larger ones black..... 2.

2. Fore tarsi ornamented.....3.
Fore tarsi plain.....7.
3. All tarsi and legs black; first three joints of fore tarsi gradually but considerably widened, last two very small.....*ovatus*, n. sp.
Tibiæ and tarsi more or less yellowish.....4.
4. Antennæ yellow; third joint of fore tarsi with a thin plate or filament, which is fringed on one edge with curled hairs.....5.
Antennæ wholly black; first two or three joints of fore tarsi gradually and greatly widened, last two joints very small.....6.
5. Hypopygium yellow on the apical half; lower orbital cilia black or brown.
pollinosa Van Duzee.
Hypopygium wholly black, its appendages yellow; lower orbital cilia yellowish.
pallidicornis, n. sp.
6. Third joint of fore tarsi much wider near its tip than second joint.
nigrimanus, n. sp.
Third joint of fore tarsi narrower than second.....*amplimanus*, n. sp.
7. Tibiæ and tarsi wholly pale yellowish white, their hairs mostly white.
albitarsis, n. sp.
All tibiæ and tarsi more or less black.....8.
8. All femora, tibiæ and tarsi black, knees yellow; hairs on thorax and some of the small bristles yellowish.....*bella* Van Duzee.
All femora wholly black; fore tibiæ black, usually more or less yellowish toward tip; middle and hind tibiæ black at base; fore tarsi blackish at base, becoming yellow at tip; middle and hind tarsi wholly pale yellow. *currani*, n. sp.

***Medetera nigrimanus*, new species**

Figure 18

MALE.—Length, 3–3.5 mm. Face and front violet or blue, face narrowed below, the lower half more black, the upper half less shining than the front; antennæ and orbital cilia wholly black; arista long and apical.

Dorsum of thorax shining, violet or blue, the posterior part green, dorsum dulled with brown pollen when viewed obliquely; pleura blue or blue-green, quite shining. Abdomen dark shining green, with black hair; hypopygium black, long and slender, with small, black appendages.

All coxæ, femora, fore tibiæ, and tarsi black, middle and hind tibiæ with basal half black, apical half yellow, middle ones sometimes yellowish brown or even black; hind tibiæ with small white bristles or bristle-like hairs above, the bristle at tip black; fore tarsi (Fig. 18) with first three joints gradually widened, third very wide, rounded above on apical half, last two joints very small; middle tarsi yellowish at base, black from tip of first joint; hind tarsi with first two joints yellow, last three black; joints of fore tarsi as 22–13–18–4–6; of middle ones as 31–15–12–5–6; joints of posterior pair as 15–30–18–9–6. Calypters, their cilia, and the halteres pale yellow.

Wings grayish, veins yellow, costa brown; sometimes both veins and costa brown; venation normal for the genus; last section of fifth vein as 20, cross-vein as 16.

FEMALE.—Color of head and body as in the male; all femora and fore and middle tibiæ black; all wing veins more brown than in male; venation and form of face as in

male; fore tarsi plain, black or blackish brown; hind tibiae and tarsi colored about as in the male.

TYPES.—Described from twenty-one males and nineteen females. Holotype, allotype and thirty-four paratypes were taken on Barro Colorado Island, January 9, 1929; three paratypes at France Field, January 18, and two at Corozal, January 21, 1929.

This form, *currani* and *amplimanus* are alike in having white hair or bristles on the upper surface of the hind tibiae, but in *currani* the fore tarsi are plain in both sexes and the cilia of the calypters are black. *M. amplimanus* differs from *nigrimanus* in having the third joint of the fore tarsi scarcely as wide as the second.

***Medetera amplimanus*, new species**

Figure 19

MALE.—Length, 2.7–3 mm. Face and front bright, shining blue or violet, face more green below; palpi black. Antennae black; bristles on second joint as long as third joint; third joint small, flattened at tip. Occiput velvety black when viewed from above; lower orbital cilia pale.

Dorsum of thorax green, anterior half almost blue, posterior part with bronze reflections; scutellum with two pairs of bristles, outer ones nearly as long as median pair; bristles above fore coxae black. Abdomen green with black hair and bronze reflections; hypopygium rather slender, black, its lamellae brownish yellow, about as long as width of hypopygium at its tip, quite blunt at tip, almost bare.

Coxae black, the anterior ones with black hair; trochanters brown; all femora black, very narrowly yellow at tips; fore tibiae yellowish brown, sometimes quite yellow, without bristles; middle and hind tibiae dark yellow. Posterior tibiae with white bristles above on the apical half; on the under surface with short white hairs on the apical three-fourths, which are continued onto their basitarsi; fore tarsi (Fig. 19) brown; first joint more yellow, second blackish, third paler, scarcely as wide as second; first two joints gradually widened, third of nearly equal width at both ends, narrower in the middle; last two joints very small, wholly black. Joints of fore tarsi as 20–14–17–2–4; of middle ones as 25–14–12–6–5; of posterior pair as 14–27–15–7–7. Calypters, their cilia and the halteres yellow.

Wings a little grayish; venation as usual in the genus; last section of fifth vein as 14, cross-vein as 16.

TYPES.—Three males, taken at Corozal, January 16 and 19, 1929; the holotype on January 19.

Medetera amplimanus comes near *pedestris* and *minor* Becker and *nigrimanus*, new species. It differs from all these by having the third joint of the fore tarsi scarcely as wide as the tip of second; in the other three species the third joint is distinctly wider than the second.

***Medetera currani*, new species**

MALE.—Length, 3 mm. Face and front shining dark blue or violet; palpi black. Antennae black; third joint small, nearly round; bristles on second joint as long as antenna; arista apical, about as long as the head-height; the orbital cilia appear to be wholly black.

Thorax shining green with blue or sometimes bronze reflections, but wholly blue in front; pleura black or brownish black, with slight blue reflections; scutellum with two pairs of marginal bristles, the outer ones near the base and half as long as the middle pair. Abdomen shining green with bronze reflections and black hair; hypopygium (Fig. 20) black, rather thick, its outer lamellæ blackish, with an elongated yellow tip which is fringed with long hairs on one edge; inner appendages yellow, almost bare, longer and larger than the outer ones.

Coxæ and trochanters yellowish brown, the fore coxæ with black hair. All femora wholly black, the anterior pair with four black bristles near tip on lower posterior edge; middle femora with a row of black hairs on lower surface, which are nearly as long as width of femora; hind femora with several long bristles on anterior surface. Fore tibiæ black, more or less yellowish brown toward the tip; middle and hind tibiæ black on the basal third or more, the remainder yellow, posterior pair more whitish on apical part; hairs on middle tibiæ, except below, and on base and sides of the hind pair black; hairs on upper and lower surfaces of the apical two-thirds of hind tibiæ and on lower surface of middle ones long, dense and white, those on upper edge of hind tibiæ more bristle-like. Fore tarsi blackish at base, becoming yellow toward tip; middle and hind tarsi wholly pale yellow; joints of fore tarsi as 22-15-9-4-7; of middle ones as 27-12-9-4-5; those of posterior pair as 17-28-17-8-6. Fore tarsi longer than their tibiæ; middle and hind tarsi shorter than their tibiæ. Calypters and halteres brown to yellowish brown, cilia of the former black.

Wings nearly hyaline, veins and costa brown (when seen against a dark background the veins appear yellow); venation normal for the genus; cross-vein and last section of fifth vein of equal length.

FEMALE.—Colored as in the male; middle femora with the hairs below nearly as long as in the male; hind femora with the same long bristles on the anterior surface; hind tibiæ with shorter white hairs above.

TYPES.—Described from fourteen males and two females, all taken on Barro Colorado Island, between January 7 and February 21, 1929. The holotype, male, was taken on January 7, the allotype on February 13.

***Medetera ovata*, new species**

Figure 21

MALE.—Length, 3 mm. Face and front shining blue, front with violet reflections. Antennæ black; third joint small, flattened at tip. Palpi black; occiput black with gray pollen; orbital cilia wholly black.

Thorax blue anteriorly, more green posteriorly, bristles above fore coxæ black; scutellum with two pairs of bristles. Abdomen green with black hair and slight bronze reflections; hypopygium slender, its petiole long and thick, lamellæ small, black.

All coxæ, their hair, the femora, tibiæ and tarsi wholly black; fore tarsi (Fig. 21) a little widened, third joint oval, notched on one edge, paler than the other joints; joints of fore tarsi as 24-13-12-6-6; of middle ones as 32-15-11-6-5; joints of posterior pair as 14-29-19-8-9. Calypters, their cilia and the halteres yellow.

Wings grayish; venation as usual in the genus; last section of fifth vein as 20, of cross-vein as 17.

FEMALE.—Agrees with the male in color, except that the hind tibiæ are a little yellowish above; fore tarsi plain.

TYPES.—Described from one pair, taken at Corozal, Panama Canal Zone, January 21, 1929.

***Medetera albitarsis*, new species**

Figure 22

MALE.—Length, 2.7–3 mm. Face and front dull black, sometimes a little bluish. Antennæ and palpi dark yellow; bristles on palpi yellow; third antennal joint small, not darkened at tip. Lower orbital cilia yellow.

Thorax and abdomen black, a little shining, gray pollinose; hairs of abdomen more brown than black; scutellum with two pairs of bristles, the outer ones half as large as the inner pair; bristles above fore coxæ black; hypopygium (Fig. 22) black, a little yellow at tip, appendages long, slender, yellow, blunt at tip.

Coxæ black, the anterior ones with yellow hair; trochanters yellow; femora black, their tips broadly yellowish white; all tibiæ and tarsi pale yellowish-white, sometimes the last two joints of all tarsi brownish; hairs on legs mostly white; joints of fore tarsi as 30–15–12–6–5; of middle ones as 32–12–9–5–5; joints of posterior pair as 16–34–17–7–7. Calypters dark brown with yellow cilia; knobs of halteres yellow.

Wings slightly whitish, the veins and costa yellow; third and fourth veins a little less convergent than usual; last section of fifth vein as 18, cross-vein as 15.

TYPES.—Described from twelve males and eleven females, taken in the Panama Canal Zone. Holotype, allotype, and nine paratypes taken on Barro Colorado Island, between December 21, 1928 and February 21, 1929; and one paratype at France Field, January 18, 1929; also one male taken by F. J. Dyer, at Tegucigalpa, Honduras, March 30, 1917.

This species is distinguished from related forms by the whitish tibiæ and tarsi and the quite widely separated tips of the third and fourth veins.

***Thrypticus scutellatus*, new species**

Figure 23

MALE.—Length, 2 mm. Face dark blue, violet above; front a beautiful violet; proboscis brown. Antennæ dark yellow, small; arista apical, nearly as long as the abdomen; bristles of head black, but appearing almost orange yellow in certain lights; lower orbital cilia yellow.

Dorsum of thorax dark shining green, its hairs and bristles yellow; posterior angles of the dorsum yellow; scutellum wholly yellow; pleura shining green. Abdomen green, with bronze reflections, thickly covered with yellow hair; venter yellow; hypopygium (Fig. 23) blackish, its appendages yellow, the inner appendages longer than the outer lamellæ and ending in a hook.

All coxæ, femora, tibiæ and tarsi wholly yellow; fore coxæ with a few minute hairs and five bristles near tip, posterior coxæ with one erect bristle on the outer surface, all hairs and bristles yellow; middle tibiæ with one black bristle near base and one at tip; first joint of hind tarsi with a short spur at tip. Joints of fore tarsi

as 17-6-4-3-6; those of middle ones as 17-11-7-5-4; joints of posterior pairs as 12-17-10-6-5. Calypters, their cilia, and the halteres, pale yellow.

Wings a little grayish, veins brownish; third and fourth veins straight and parallel, the fourth ending in apex of wing: first vein reaching but little more than half-way to cross-vein; last section of fifth vein as 21, cross-vein as 11.

TYPE.—Described from one male, taken on Barro Colorado Island, January 9, 1929.

A beautiful little species, separated from all other American species by its yellow scutellum.

Hercostomus panamensis, new species

Figure 24

MALE.—Length, 3 mm. Face narrow, silvery white, rounded below; palpi and proboscis black; lower third of front silvery-white pollinose, the upper two-thirds shining blue-green. First two antennal joints yellow, third black, a little longer than wide, rounded at tip; second joint extending nearly to middle of third on inner side; arista with long pubescence. Lower orbital cilia yellowish.

Thorax and scutellum dark green, dorsum shining, the velvety black stripe above root of wing and spot of white pollen at suture not very conspicuous, but present; pleura white pollinose. Abdomen shining green with bronze reflections and spots of white pollen on sides of segments; hypopygium (Fig. 24) black, of moderate size, with small, rounded, pale yellow outer lamellæ, and black or testaceous hooked inner appendages.

All coxæ, femora and tibiæ pale yellow, middle coxæ somewhat darkened on outer surface; fore coxæ with black hair; tarsi pale brownish, darker at tips and yellow at bases; joints of hind tarsi as 19-30-23-12-10. Calypters and halteres yellow, cilia of the former black.

Wings grayish; third vein nearly straight; last section of fourth vein slightly bent at the basal fourth, gradually converging with the third beyond this bend; last section of fifth vein scarcely longer than cross-vein.

FEMALE.—Like the male in the color of all parts and in the form of face and venation of wings.

TYPES.—Described from six males and one female, all taken on Barro Colorado Island, December 16, 1928 to January 4, 1929. The holotype, male, was taken on December 24, the allotype on December 25.

KEY TO THE MALES OF THE SPECIES OF *Parachius* KNOWN TO OCCUR IN PANAMA

1. Femora wholly or considerably black or brown.....2.
Femora yellow, at least yellow on basal half or with upper edge of posterior pair black.....10.
2. Costa considerably thickened before tip of first vein.....3.
Costa not or scarcely thickened.....5.
3. Tibiæ yellow; cilia of calypters white.....*longiciliatus*, n. sp.
Tibiæ and cilia of calypters black.....4.
4. Thickened part of costa about half as long as first section of costa and about as wide as third antennal joint.....*albinotatus* Loew.
First section of costa a little thickened for about one-third its length.

subcostatus n. sp

5. Antennæ reddish or yellow.....6.
- Antennæ wholly black or brown.....7.
6. Face silvery white; first joint of fore tarsi white, sharply black at tip.
albitatus Van Duzee.
Face yellow; fore tarsi yellow, scarcely infuscated at tip....*setosus* Van Duzee.
7. All tibiæ black.....8.
- Tibiæ yellow, hind ones black at tip.....9.
8. Hypopygial lamellæ small, with a long appendage at base....*keiferi* Van Duzee.
Hypopygial lamellæ small, without an appendage at base....*nigripes* Aldrich.
9. Face silvery white.....*parvicauda* Van Duzee.
Face golden yellow.....*setosus*, n. sp.
10. Antennæ wholly black or brown.....11.
- Antennæ yellow, or more or less reddish or yellow.....13.
11. Posterior femora black on the apical half; hind tibiæ mostly black.
femoratus Aldrich.
Posterior femora wholly yellow, or blackened on the entire upper edge.....12.
12. Hind femora black on the whole upper edge; anterior tibiæ and tarsi largely
silvery; costa enlarged; hypopygium of normal size....*costalis* Becker.
Posterior femora and tibiæ wholly yellow; costa not enlarged; hypopygium very
small for the genus.....*eximius*, n. sp.
13. Anterior tibiæ much flattened and widened, very thin, silvery white above.
fusiformis Becker.
Anterior tibiæ not widened, nearly or quite normal.....14.
14. Hypopygium largely yellow or yellowish brown.....15.
- Hypopygium black or brown as usual.....16.
15. Hind tibiæ whitish or yellow with four large black spots....*flavicauda*, n. sp.
Posterior tibiæ without such spots.....*acuticornis* Van Duzee.
16. Hypopygial lamellæ whitish or yellow, without a distinct black or brown border.
simplex Van Duzee.
Hypopygial lamellæ paler in color with a distinct black or brown border....17.
17. Hypopygial lamellæ large, paddle-shaped; hypopygium very small for the
genus.....*eximius*, n. sp.
Hypopygium of normal size.....18.
18. Third antennal joint twice as long as wide.....19.
- Third antennal joint not longer than wide.....20.
19. Very small species, 1.5–2 mm.; bright shining green or blue..*longicornis*, n. sp.
Larger species, 2.5–3 mm.; dull green.....*obscurus*, n. sp.
20. First joint of fore tarsi with about twelve nearly erect spines below.
ovatus Van Duzee.
All tarsi without such spines.....21.
21. Bend in last section of fourth vein at its middle.....*venustus* Aldrich.
Bend in last section of fourth vein distinctly beyond its middle.
brevicornis, n. sp.

***Paraclius fusiformis* Becker**

Figures 25 to 28

MALE.—Length, 3.2–4 mm. Face narrow, wider below, rather pale yellow, reaching down to lower margin of eyes, rounded below; palpi brown with white hairs; proboscis yellow; front opaque, with white pollen; occiput nearly opaque, black. Antennæ (Fig. 27) yellow; third joint a little blackened at tip; arista with short pubescence. Orbital cilia black, usually with a few yellowish cilia below the middle, but a few of the lower ones are always black.

Dorsum of thorax and scutellum dark shining blue-green, with thin brown pollen, which is invisible except at a very oblique angle, sometimes with slight coppery reflections; pleura black with thin white pollen; velvety black stripe above root of wings indistinct. When viewed from above there is a large spot of silvery-white pollen at each side in the suture. Abdomen wholly black on upper surface and more or less dull, on lower part of sides there are bright green or bronze reflections and large spots of chalk-white pollen, the hair black; hypopygium (Fig. 25) reddish yellow, black on the basal third or half, its lamellæ and inner appendages pale yellow. Lamellæ, posterior view (Fig. 26), have black bristles below, several of which have a sharp little hook at tip; outer surface and remainder of the edge have delicate white hairs; inside of the lamellæ is a pair of slender, bare appendages, and under the lower surface of hypopygium a pair of thin, rather broad appendages, inserted near its base and reaching beyond its middle: they have a black, bristle-like tip at upper corner. Penis long and slender, yellow, reaching to or beyond the tip of the lamellæ, its sheath brown, about half as long, and with a large, barbed tip.

Coxæ black, white pruinose, anterior pair often yellowish brown, especially on inner surface, their hair and bristles black; femora and tibiæ yellow, tips of posterior tibiæ a very little blackened; femora without long hair below, middle and hind ones each with one preapical bristle, posterior pair have also a small bristle near tip on lower anterior edge. Fore tibiæ (Fig. 28) much flattened, narrowed at base, silvery white and glabrous on upper surface, more yellow with black hairs below, except on a space the width of the tibiæ at the tip and reaching to the middle on anterior edge which appears bare but is covered with minute white hair; on anterior edge near base are two black bristles and there are three near middle of posterior edge. Middle tibiæ with two large bristles below, one near the basal and one near the apical third; hind tibiæ with several small bristles below; all tarsi black from tip of first joint, fore tarsi usually with second joint a little yellowish, hind tarsi sometimes almost wholly black, their first joint with a bristle below near base. Fore tibiæ as 65 long and 15 wide at widest point, joints of fore tarsi as 34–14–11–7–8; of middle ones as 48–28–20–11–9; of posterior pair as 38–43–28–14–7. Calypters and their cilia black; halteres yellow.

Wings tinged with brown; third vein only a little bent back at tip; last section of fourth vein abruptly bent at or a little beyond its middle, this bend only a little rounded, the last part arched from the bend to near its middle, then running nearly straight to its tip where it is nearly parallel with the third for a short distance; last section of fifth vein and the cross-vein of nearly equal length; hind margin of wing distinctly notched at tip of fifth vein; anal angle of wing quite prominent.

FEMALE.—Like the male in color of all parts, with the exception of the face, which is white; form of face, antennæ and wings as in the male; all tibiæ with a little silvery-white pollen above, anterior tibiæ plain.

TYPES.—Redescribed from forty-eight males and forty-two females, taken by Mr. Curran, in the Panama Canal Zone, between December 26, 1928, and February 13, 1929. One male at Patilla Point; fifteen males and two females at Corozal; and all the rest on Barro Colorado Island.

***Paraclius subcostatus*, new species**

Figures 29 and 30

MALE.—Length, 5 mm. Face wide, silvery white, its lower part nearly as long as the upper, the ridge separating them not at all conspicuous; lower edge of face rounded, reaching almost to lower margin of eyes; front wholly silvery-white pollinose; palpi black. Antennæ blackish brown; third joint longer than wide, narrowed at tip, but not pointed. Lateral and inferior orbital cilia white.

Dorsum of thorax and scutellum blue-green; pleura more black, with white pollen; no distinct velvety black stripe above root of wing; seen from above there is a distinct spot of silvery-white pollen on each side at the suture, a dot over root of wing and a line over humeri. Abdomen dark green with bronze reflections; posterior margins of segments black with indistinct blue reflections in front of the black margins; sides of segments with silvery-white pollinose spots; hypopygium large, black, more yellowish below, its lamellæ (Fig. 29) blackish brown, yellow at base.

Coxæ, their hair and bristles, femora, tibiæ and tarsi, black; fore tibiæ more or less yellowish on inner side, sometimes tips of fore femora and lower surface of middle and hind tibiæ also yellowish; first joint of hind tarsi a little shorter than second. Calypters and halteres dark yellow, cilia of the former black.

Wings tinged with black; first section of costa with a small but conspicuous enlargement in the middle (Fig. 30); third vein only a little bent backward at tip. Last section of fourth vein with a rounded bend near its middle, its last part nearly straight; last section of fifth vein a little arched, about as long as cross-vein.

FEMALE.—Face the same as in the male; third antennal joint not longer than wide; color of thorax, abdomen and legs as in the male; wings as in the male, except that the first section of costa is only a very little thickened in the middle; sometimes the middle and hind tibiæ are dark reddish brown with black spots at the insertion of the bristles, but the reddish color is so near black that the spots are not conspicuous.

TYPES.—Described from seven males and four females, taken on Barro Colorado Island, between December 22, 1928, and February 14, 1929. The holotype, male, was taken on December 25, the allotype on December 22, 1928.

P. subcostatus is almost like *albonotatus* Loew, differing in having the lower part of the face nearly twice as long as in Loew's species; the thickening of the costa is much less abrupt and only half as wide: compare Fig. 31, *albonotatus*, and Fig. 30, *subcostatus*; all tibiæ and hypopygial lamellæ are wholly black or with middle and hind tibiæ green with upper edge black in *albonotatus*, while in *subcostatus* the lamellæ are distinctly yellow at base and tibiæ are more or less yellowish or reddish, but middle and hind ones are almost or wholly black.

***Paraclius setosus*, new species**

Figure 32

MALE.—Length, 4–4.5 mm. Face narrow, yellow, the portion below the transverse ridge about as long as wide, rounded below; front shining blue or blue-green; palpi and proboscis black. Antennæ black; first and second joints a little reddish below; third joint nearly round. Orbital cilia wholly black, quite abundant.

Dorsum of thorax and the scutellum shining green with blue or bronze reflections, the front half with considerable white pollen; black stripe above root of wing and the silvery-white spot at suture not very conspicuous; pleura black with metallic reflections and white pollen; bristles of thorax large. Abdomen almost opaque with white pollen; first segment, very narrow hind margins of the others, and a more or less complete dorsal line shining green; segments with small, silvery-white pollinose spots on the sides; hairs of abdomen long and black; hypopygium black with metallic reflections, not very large; its lamellæ black, yellowish at base, rather narrow, tapering to a point, three-fifths as long as hypopygium, at tip on inner side there are many long, bristly hairs, some of which are only a little shorter than the lamellæ.

Coxæ black, anterior pair with white pollen and stiff black hair; femora metallic green or blue-green, fore and middle ones with yellow tips and bristle-like hairs below, those near tip of anterior pair long; hind femora with a row of black bristle-like hairs on both upper and lower edges of anterior surface; trochanters and tibiæ yellow, fore tibiæ with many rather short bristles; middle tibiæ with four rather small bristles below; hind tibiæ with black tip and many long, slender bristles on the whole lower surface, and long bristles above; fore tarsi (Fig. 32) yellow, scarcely darkened at tip, with numerous bristles above, their pulvilli white, fully as long as the last two tarsal joints (cannot see any claws on fore tarsi); middle and hind tarsi wholly black or brown, without special bristles, pulvilli not enlarged, claws normal. Joints of fore tarsi as 33–12–10–5–8; fore pulvilli as 11; joints of middle tarsi as 41–22–18–10–10; of hind ones as 38–39–23–13–. Calypters and halteres pale yellow, cilia of the former black.

Wings grayish; third vein nearly straight; last section of fourth vein with an abrupt bend considerably beyond its middle, the last part only a little concave posteriorly; last section of fifth vein about twice as long as the cross-vein.

TYPES.—Described from the holotype and three paratypes (males) taken at Bruja Point, January 25, 1929.

A well-marked species, having a yellow face, shining front and with numerous bristles on the legs.

***Paraclius eximius*, new species**

Figure 33

MALE.—Length, 3.2 mm. Face narrow, silvery white, the lower part half as long as the upper; front blue, nearly opaque with white pollen when viewed from above; palpi and proboscis yellow. Antennæ black; first and second joints largely dark reddish brown; third joint large, about twice as long as wide, rounded at the tip; arista with long pubescence. Lateral and inferior orbital cilia white.

Dorsum of thorax shining, dark blue, the scutellum more green; velvety-black stripe above root of wing and silvery-white spots at suture distinct. Abdomen black,

shining, with indistinct spots of white pollen on sides of segments; hypopygium (Fig. 33) very small for the genus, black, its lamellæ moderately large, paddle-shaped, the outer part nearly round, whitish with narrow black border and small hairs; a pair of narrow, pale yellow inner appendages are nearly as long as the lamellæ and are smooth and pointed at tip.

Coxæ, femora and tibiæ pale yellow, tarsi darker yellow, plain; fore coxæ with black hair; middle tibiæ with two bristles below; anterior and posterior tibiæ without bristles below. Joints of fore tarsi as 37-14-10-9-8; of middle ones as 47-26-19-11-7; joints of posterior pair as 30-47-31-17-9. Calypters and halteres pale yellow, cilia of the former black.

Wings grayish; third vein nearly straight; last section of fourth vein bent at its middle, this bend rounded, the last part considerably concave posteriorly; last section of fifth vein and the cross-vein of nearly equal length.

TYPE.—Male, taken on Barro Colorado Island, January 4, 1929.

***Paraclius flavicauda*, new species**

Figures 34 and 35

MALE.—Length, 3-4 mm. Face and front opaque with silvery-white pollen, face rather wide; palpi black. Antennæ yellow, third joint mostly black, a little longer than wide, broadly rounded at tip; arista moderately pubescent. Occiput green, mostly opaque with white pollen; lateral and inferior orbital cilia white.

Dorsum of thorax and abdomen shining, blue-green, the former with white pollen along the front; velvety-black stripe above root of wings not conspicuous, the silvery-white pollinose spots on the sides at the suture large; there is a small yellow spot below each humerus; scutellum black, rather dull; pleura black with white pollen; arcostical bristles in two rows; dorsocentrals small, bristles on sides of thorax large. First abdominal segment black, seen from behind its posterior margin green; the other segments bluish black at base; second, third and fourth segments with large spots of bright, silvery-white pollen on each side; hypopygium (Fig. 34) yellow, black at base for one-fourth to one-half its length; lamellæ pale yellow, without dark border, somewhat triangular with rounded tip and small, pale hairs on the edge.

Coxæ, femora and tibiæ yellow, the tibiæ whitish above, especially the posterior ones, which have four large black spots from which bristles arise, the last of these spots situated at tip; middle tibiæ with one large bristle on lower anterior surface; fore tarsi brownish, paler at tip; middle tarsi from tip of first joint and whole of hind ones black; fore coxæ with black hair and bristles, middle and hind coxæ a little darkened. Joints of fore tarsi as 38-17-10-6-8; of middle ones as 51-32-23-21-9; joints of posterior pair as 33-51-33-21-9. Calypters and halteres yellow, cilia of former black.

Wings (Fig. 35) gray, slightly brownish in front; bend in last section of fourth vein very abrupt and occurring beyond its middle; third vein bent backward a little beyond tip of second vein; last section of fifth vein about one-third longer than cross-vein; anal angle prominent, the hind margin being a little hollowed between tips of fifth and sixth veins.

FEMALE.—Like the male in the color of head parts, thorax, scutellum, abdomen and legs; face a little wider than in the male; third antennal joint not longer than wide; venation of wings as in the male; arcostical and dorsocentral bristles longer than in the male.

TYPES.—Described from three specimens of each sex. The holotype and allotype were taken at France Field, January 19, 1929; one pair at Corozal, January 21 and 22, 1929; and one pair at Barro Colorado Island, December 23, 1928.

A very bright shining species, easily recognized by the dull black scutellum, the three very conspicuous silvery spots on each side of the abdomen, the upper surface of hind tibiæ alternately black and white, and the hypopygium largely yellow.

***Paraclius longicornis*, new species**

Figures 36, 37 and 38

MALE.—Length, 1.5–2 mm. Face moderately wide, narrowest in the middle, silvery white; front blue or green, dulled with white pollen; palpi and proboscis brown. Antennæ yellow, third joint mostly brown (Fig. 36), twice as long as wide, pointed at tip; arista with long pubescence. Lateral and inferior orbital cilia short and white.

Thorax and abdomen green with bronze or blue reflections; abdomen quite shining, its hair black, the segments with spots of white pollen on the sides; hypopygium brown, its lamellæ oval, a little longer than wide, white or yellowish white, with a narrow black border and short hairs on the edge; central filament slender, yellow, scarcely as long as the hypopygium.

Coxæ, femora, tibiæ and tarsi yellow, middle and hind coxæ and tarsi more or less infuscated; hind tarsi usually yellow at base, blackened from tip of first joint; first joint of hind tarsi about two-thirds as long as second.

Wings (Fig. 37) grayish; last section of fourth vein bent a little before the middle, the bend rounded, the apical part quite concave posteriorly; last section of fifth vein varying from a little longer than the cross-vein to one and one-half times as long as the cross-vein; third vein nearly straight.

FEMALE.—Like the male in color and wing characters; face a little wider; third antennal joint much shorter and not so sharply pointed at tip (Fig. 38).

TYPES.—Described from fifteen males and twenty-six females, taken in the Panama Canal Zone, between December 25, 1928 and January 21, 1929, at Barro Colorado Island, Corozal and France Field. The holotype, male, was taken on Barro Colorado Island on December 25, 1928, the allotype at France Field on January 18, 1929.

This is a very small, shining species with long third antennal joint.

***Paraclius obscurus*, new species**

Figures 39, 40 and 41

MALE.—Length, 3 mm. Face silvery white, wide; one and one-third times as wide at top and twice as wide in the middle as the third antennal joint; palpi and proboscis brown; front green, dulled with white pollen. Antennæ (Fig. 39) yellow, third joint dark brown on the apical half, nearly twice as long as wide. Lateral and inferior orbital cilia white.

Thorax brown with green reflections and brownish pollen; pleura with white pollen. Abdomen green with spots of white pollen on sides of segments, its hairs black;

hypopygium black, its lamellæ (Fig. 40) nearly round with a petiole at base, white with a narrow black border on apical margin.

Coxæ, femora, tibiæ and fore-tarsi yellow; middle and hind tarsi black or brown from tip of first joint; fore coxæ with small black hairs and four bristles; middle tibiæ with two bristles below. Joints of fore tarsi as 30-12-9-5-5; of middle ones as 36-20-20-13-7; joints of hind tarsi as 20-31-18-14-7. Calypters and halteres pale yellow, cilia of the former black.

Wings (Fig. 41) grayish, brownish in front; last section of fourth vein bent beyond its middle; last section of fifth vein a little longer than cross-vein; hind margin of wing indented at tip of fifth vein, which scarcely reaches the wing margin.

FEMALE.—Like the male, except that the third antennal joint is small; face about the same width as in the male, but a little yellowish above; thorax and scutellum blue.

TYPES.—Described from one male and two females taken on Barro Colorado Island, 1929. Holotype, male, taken February 13; allotype, female, January 4; the paratype, January 10.

***Paraclius brevicornis*, new species**

MALE.—Length, 2-2.5 mm. Face rather narrow, wider above, silvery white palpi and proboscis brown; front blue, dulled with white pollen. Antennæ yellow; third joint brown, small, a little pointed at tip; second joint large. Lateral and inferior orbital cilia white.

Thorax blue-green or green, usually with bronze reflections along the front; dulled with grayish or brownish pollen; pleura with white pollen. Abdomen green or coppery with black hair; segments with spots of white pollen on the sides; venter brown; hypopygium brown, its lamellæ whitish with narrow black border and short hairs on the edge; central filament brown or yellowish brown, not as long as hypopygium.

Coxæ, femora and tibiæ yellow; tarsi yellowish, more or less brown, but not black; first joint of hind tarsi about two-thirds as long as second; fore coxæ nearly bare, with several long black bristles at tip; middle tibiæ with two bristles on lower anterior edge, the one near the middle longer. Calypters and halteres yellow, cilia of the former brown, scarcely black.

Wings grayish, somewhat like those of *longicornis* (Fig. 37); third vein almost straight; last section of fourth vein bent before its middle; last section of fifth vein about twice as long as cross-vein; hind margin of wing scarcely indented at tip of fifth vein.

FEMALE.—Like the male, except that the face is wider.

TYPES.—Described from eighteen males and ten females, taken in the Panama Canal Zone, from January 5 to 21, 1929, at Barro Colorado Island, Corozal, and France Field. The holotype, male, was taken at Barro Colorado Island, January 10, 1929, the allotype at Corozal, January 21, 1929.

P. brevicornis, *longicornis* and *obscura* described above, belong to the *venustus* group, all of which have the hypopygial lamellæ, color, size and venation somewhat similar. There are eight species in the group: *venustus* Aldrich is the most abundant, and has the bend in last section of

fourth vein near its middle, last section of fifth vein one and one-half times as long as cross-vein, and second joint of hind tarsi about one and one-third times as long as first; *brevicornis* comes nearest this, differing in having the bend in fourth vein beyond its middle, and second joint of hind tarsi one-half longer than first; *lævis* Becker, as I have determined it from Costa Rica, is similar to these, but is larger and has longer lamellæ, which are almost wholly yellow, the bend in fourth vein is before the middle, last section of fifth vein is only a little longer than cross-vein and second joint of hind tarsi is only a little longer than first; *obscurus* and *longicornis* have the third antennal joint long and sharply pointed at tip, *obscurus* is larger and much duller, and the bend in the last section of fourth vein is beyond its middle; *ovatus* has about 12 small bristles on the lower surface of first joint of fore tarsi (Fig. 47) which are nearly erect and have their tips bent; *terminalis* Van Duzee has last joint of middle tarsi white, and *albimanus* Van Duzee has the fore tarsi partly white. The last three are conspicuously separated by the characters given, and *longicornis* by its very small size and bright shining color. The others are not so distinctly separated, but I do not think that there should be any trouble in determining them.

***Paraclius longiciliatus*, new species**

MALE.—Length, 4–4.5 mm. Face and front silvery white; face narrow, wider below, the lower part about half as long as the upper, longer than wide. Antennæ black; third joint as long as wide, rounded at tip, second joint with one of the upper bristles nearly as long as third joint. Palpi and proboscis yellow; lateral and inferior orbital cilia white.

Dorsum of thorax dark shining green, sometimes largely coppery, the silvery white spots at the suture large and extending as a line over the humeri; the velvety black stripe over root of wing indistinct. Pleura black with green reflections and white pollen; scutellum bronze color, more or less green in the middle. Abdomen with the segments coppery in the middle, sutures black or blue-black, sides with large spots of white pollen; hypopygium large, black, more yellowish below, its lamellæ brown with narrow black edge and long hairs on one side.

Coxæ black, the anterior pair yellowish on apical half, their hair black; femora black, yellow or yellowish brown below, sometimes the posterior pair largely yellowish; fore tibiæ and tarsi yellow, the latter slightly brownish toward tip; middle and hind tibiæ and most of middle basitarsi yellow, the posterior tibiæ becoming black at tip; middle tarsi from tip of first joint and the whole of posterior tarsi black; middle tibiæ with three bristles on lower anterior edge. Joints of fore tarsi as 33–14–10–8–9; of middle ones as 52–30–24–11–11; of posterior pair as 49–37–34–19–13. Calypters black, their cilia very long, pale yellow, sometimes spread out fan-shaped, usually folded thornlike as in the genus *Polymedon*; halteres yellow.

Wings uniformly tinged with black; first section of costa thickened about as in *albonotatus* Loew (Fig. 31); third vein nearly straight; last section of fourth vein

quite abruptly bent beyond its middle, this bend scarcely rounded, beyond the bend arched so as to be almost parallel with third at tip; last section of fifth vein as 23, cross-vein as 28.

FEMALE.—What I take to be the female of this species has the head, thorax, abdomen, legs and wings colored as in the male; face a little wider; venation about as in the male; first section of costa distinctly thickened along the middle; cilia of calypters of moderate length, black.

TYPES.—Described from twelve males and one female, taken on Barro Colorado Island, between December 23, 1928 and January 10, 1929. The holotype, male, was taken on December 28, the allotype on December 26, 1928.

This species comes near the genus *Polymedon* in the form of the cilia of the calypters. The central filament of the hypopygium (penis) is very long in four of the males but in the rest it does not project beyond its sheath, which in all specimens is shorter than the hypopygium.

KEY TO THE SPECIES OF *Sarcionus* KNOWN TO OCCUR IN PANAMA

1. Orbital cilia wholly black; femora almost wholly black. *intermedius*, n. sp.
Lower orbital cilia white or yellow. 2.
2. Hypopygial lamellæ yellow on basal half or more, broadly black on apical margin. 3.
Hypopygial lamellæ almost wholly black; dorsum of thorax with three black stripes. *currani*, n. sp.
3. Hypopygial lamellæ black on apical half; antennæ yellow, third joint blackish at tip. *rotundicornis*, n. sp.
Lamellæ yellow with apical edge black; antennæ dark brown, first and second joints yellowish on lower inner surface. *acutispina*, n. sp.

***Sarcionus intermedius*, new species**

Figure 42

MALE.—Length, 3 mm. Face narrow, especially in the middle, opaque with white pollen; palpi and proboscis black; front blue-green, not very shining. Antennæ black, a little yellowish below on inner surface, formed very much as in *acutispina* (Fig. 43), but the arista has much shorter hairs; orbital cilia wholly black, very short below.

Thorax and abdomen shining, metallic black; dorsum of thorax a little dulled with brown pollen when seen from the front and from above; there is a spot of white pollen at the suture on each side. Hairs of abdomen black; hypopygium (Fig. 42) and its lamellæ black, lamellæ somewhat round, with a short, yellow petiole.

All coxæ and femora black, the extreme tips of femora, trochanters and all tibiæ yellow; extreme tips and base of hind tibiæ brown; hairs of fore coxæ largely pale; middle tibiæ with one large bristle below; middle and hind tarsi black, fore tarsi yellowish at base. Joints of middle tarsi as 35-26-20-17-5; of posterior ones as 25-38-28-17-9. Calypters and halteres yellow, cilia of the former black.

Wings blackish; third vein nearly straight, only a very little bent back at tip; last section of fourth vein bent before its middle, and concave posteriorly; last section of fifth vein and cross-vein of equal length; hind margin of wing notched at tip of fifth vein.

Types.—Described from holotype, male, and one paratype, male, taken on Barro Colorado Island, January 7, 1929.

This species has the feathering of the arista short, not much longer than the pubescence on some species of *Paraclius*, and it might be classed with that genus, but it seems to me to belong in the genus *Sarcionus*.

***Sarcionus currani*, new species**

Male.—Length, 5-5.5 mm. Face moderately wide, silvery white, the upper part about twice as long as the lower, with a depressed line down the middle, the ground color showing through below the antennæ; lower part with an elevated ridge down the middle; palpi black. Antennæ yellow, third joint with apical half black, covered with yellow pollen; arista feathered with long hairs. Occiput green with silvery-white pollen; front bright shining violet-blue; lateral and inferior orbital cilia yellow.

Dorsum of thorax violet-blue, with three broad black stripes, which are as wide as the violet between them, the middle one dull, the side ones with coppery reflections and edged with bright green: below the side stripes at the suture is a large, shining green spot, which has blue reflections; humeri blue; pleura black with green reflections and white pollen; acrostical bristles in two rows; five dorsocentrals in each row. Abdomen with first segment dull black at base, the apical part purple-black; second to fifth segments with basal half purple-black, the apical half green with metallic or coppery reflections, this green band edged with a narrow blue line on either side; sixth segment wholly covered with white pollen; hairs of abdomen, bristles of thorax and cilia of calypters black, the latter with a slight whitish reflection when seen in certain lights; hypopygium black, rather short but thick, its lamellæ black, elongated oval with a petiole which is slightly yellow at base, covered with white pollen and short hairs on outer surface, the inner edge with long black bristles which taper to a hair-like tip; the lamellæ are two-thirds as long as the hypopygium and have rather short, blunt bristles below on the apical half.

Fore coxæ wholly yellow, with small black hairs and five bristles; middle and hind coxæ black at base, most of the apical half yellow; femora and tibiæ yellow, posterior tibiæ blackened on the apical sixth; fore and middle femora each with one pre-apical bristle, the hind ones with two pre-apical bristles, one in front of the other; middle tibiæ with two, sometimes three, bristles below; hind tibiæ with one bristle below; fore tarsi yellow, brownish toward their tips; middle tarsi brown from tip of first joint; hind tarsi wholly black. Joints of fore tarsi as 50-23-18-12-11; of middle ones as 62-42-33-16-13; of posterior pair as 52-60-48-23-13. Calypters and halteres yellow, cilia of the former black.

Wings dark gray; third vein bent back at tip; last section of fourth vein bent before its middle, almost straight beyond the bend; cross-vein and last section of fifth vein of about equal length.

Types.—Described from six males, taken on Barro Colorado Island, January 3, 5, and 10, 1929. The holotype was taken on January 10.

This is the largest and by far the most beautiful species of the genus known to me.

***Sarcionus rotundicornis*, new species**

Figures 45 and 46

MALE.—Length, 4 mm. Face rather narrow, wider above and below, silvery white, the blue ground-color showing through just below antennæ; palpi black, with white pollen; proboscis brown; front blue, shining when seen from in front, viewed from above, almost wholly white pollinose. Antennæ (Fig. 45) yellow; third joint blackened at tip and nearly round in outline, the tip obtusely pointed. Lateral and inferior orbital cilia white.

Thorax and scutellum blue-green with coppery reflections and white pollen in front and on pleura, dorsum with a median blackish stripe and black stripes above roots of wings reaching the suture and shading into coppery above; the silvery-white spot at the suture is large but not very well defined; seen from above there are two minute white dots above and back of root of wing; lateral corners of scutellum velvety black. Abdomen green with bronze reflections; large spots on sides of segments and the whole of last segment white pollinose; hypopygium (Fig. 46) black with slight green reflections, its lamellæ long, somewhat paddle-shaped, yellow on the basal half, black on most of the apical half, bearing seven straight, clavate bristles and as many more that are pointed and a little bent.

Coxæ, femora, tibiæ and fore tarsi yellow; middle tarsi brown from tip of second joint, first joint a little darkened at tip; hind tarsi wholly black; tips of hind tibiæ blackish. Joints of fore tarsi as 35-13-10-7-7; of middle ones as 44-30-24-12-8; joints of posterior pair as 35-49-32-18-7. Calypters and halteres yellow, cilia of the former black.

Wings grayish, tinged with brown in front; bend of last section of fourth vein a little before its middle, rounded, the last portion a little concave posteriorly, its tip a little before apex of wing and close to tip of third; third vein a little bent back at tip; last section of fifth vein as 23, cross-vein as 18.

FEMALE.—Color of front, face, thorax, abdomen, legs and feet as in the male; wings with the same color and venation; antennæ more yellow than in the male.

TYPES.—Described from six males and four females, taken on Barro Colorado Island, between December 23, 1928 and January 10, 1929. The holotype, male, was taken on December 23, the allotype on December 22.

***Sarcionus acutispina*, new species**

Figures 43 and 44

MALE.—Length, 4 mm. Face rather narrow, especially in the middle; face and front opaque with silvery-white pollen, the green ground-color showing through when seen from in front; palpi black, white pollinose; proboscis brown; occiput green, white pollinose. Antennæ (Fig. 43) dark brown, first and second joints yellowish on lower inner surface. Lateral and inferior orbital cilia small and white.

Thorax green with blue reflections; dorsum in front with the beginning of a median coppery stripe and considerable white pollen; black stripe above root of wing distinct; white pollinose spot at the suture conspicuous but not sharply defined; two dots of silvery-white pollen above root of each wing. Abdomen green, with narrow black incisures which are widest on fourth and fifth segments; sixth segment small, wholly white pollinose; hairs of abdomen black; sides of segments with large spots of white pollen. Hypopygium (Fig. 44) black with green reflections, its lamellæ yellow,

broadly black around the edge of the apical half: they are elongate, somewhat paddle-shaped, pointed at tip and with long black bristles; central organ brownish yellow, black at tip.

Coxæ, femora, tibiæ and fore tarsi yellow; middle coxæ a little blackened on outer surface; middle and hind tarsi blackish from tip of first joint, tips of first two joints and all of the last three joints of fore tarsi black. Joints of fore tarsi as 29-14-9-7-7; of middle ones as 39-24-17-12-7; those of posterior pair as 30-40-30-15-9. Calypters and halteres yellow, cilia of the former black.

Wings gray, slightly tinged with brown; third vein straight; last section of fourth vein bent at its middle, the bend quite sharp, not much rounded, the last portion nearly straight, only a little concave posteriorly; last section of fifth vein nearly straight, scarcely reaching the wing margin, it is as 17, cross-vein as 23 long; hind margin of wing scarcely indented at tip of fifth vein.

FEMALE.—Like the male in the color of face, front, thorax, abdomen, legs and wings, venation the same as in the male; antennæ slightly smaller, a little more reddish yellow; feathering of arista a little shorter and the face a little wider.

TYPES.—Described from one male and three females, taken on Barro Colorado Island, in 1929. Holotype, male, taken on January 28; allotype, female, January 7; paratypes January 5 and 9.

KEY TO THE MALES OF *Pelastoneurus* KNOWN TO OCCUR IN PANAMA

1. Face wholly opaque with pollen, which is yellowish in the middle, grayish on the sides; front opaque, velvety black.....*bilineatus*, n. sp.
Face with the ground color showing through more or less on upper part.....2.
2. Antennæ black, a very little yellowish below on inner surface; upper part of face bright metallic.....*nitidus*, n. sp.
First two antennal joints yellow, black above, third joint black; upper part of face rather dull.....*bilamellatus*, n. sp.
First two antennal joints wholly yellow, third yellow at base; hypopygial lamellæ largely black with a small yellow portion at base.....3.
3. Hypopygial lamellæ somewhat triangular, with a petiole at base and blunt bristle below.....*pectinatus* Van Duzee.
Hypopygial lamellæ long and slender, extending upward, with a small, rounded portion at base.....*cæruleus* Van Duzee.

All species known from Panama have all femora and fore coxæ yellow and lower orbital cilia white.

Pelastoneurus nitidus, new species

Figure 48

MALE.—Length, 3.7-4 mm. Face wide, the suture just below the middle, upper part concave, brilliant green, lower part bulging and silvery-white pollinose; palpi black, with white pollen; front dark blue or purple, dull. Antennæ black; first joint very slightly yellow below on inner side; arista feathered with long hairs. Inferior orbital cilia white.

Thorax green, dorsum sometimes with violet reflections on posterior half, slightly dulled with gray pollen in front, the velvety black stripe above root of wing distinct: seen from above there is a large spot of silvery-white pollen on each side at the suture

and a small one at outer posterior angles of the dorsum; pleura dulled with white pollen. Abdomen green, dulled with white pollen, the incisures broadly black; sides of segments with spots of white pollen; last segment black with a round spot of silvery-white pollen on each side. Hypopygium black, with blue reflections and white pollen, its lamellæ (Fig. 48) black, the outer part long and rather narrow, with bristles on the apical edge, several of which are blunt at tip: there is a long bristle and a small, lamella-like, obtusely pointed organ at base of the lamellæ and extending beyond these is a ball-like organ.

Fore coxæ yellow, narrowly black at base, the anterior surface silvery pollinose and with small black hairs, and bristles at tip; middle and hind coxæ black with yellow tips. Femora and tibiæ yellow; hind femora a little blackened dorsally at tip; fore and middle tibiæ a very little black at extreme tip, hind ones narrowly black at tip and with one long bristle on lower anterior edge at apical fourth; fore tibiæ with several small bristles above and one large one near the middle, none below; middle tibiæ with two large bristles below, one near middle, one at apical fourth, and several on upper surface; fore and middle tarsi from tip of first joint and the whole of posterior tarsi black; joints of fore tarsi as 31-21-18-17-8; of middle ones as 37-24-17-13-11; of posterior pair as 30-36-28-19-16. Calypters and halteres yellow, cilia of the former black.

Wings gray, more or less uniformly tinged with brown, but sometimes the cross-vein is a little clouded; third vein nearly straight; last section of fourth vein bent before its middle, this bend broadly rounded so that the vein is nearly evenly arched from cross-vein to tip; cross-vein about half as long as last section of fifth vein; hind margin of wing notched at tip of fifth vein.

FEMALE.—Like the male in color, form of face, antennæ, and wing venation, except that antennæ are more yellow below, and first joint of hind tarsi is more or less yellowish; last abdominal segment without silvery spots and colored like the rest.

TYPES.—Described from 44 specimens: 37 were taken on Barro Colorado Island; three at Ft. Davis; two at Corozal; two at Panama City. The holotype, male, and allotype, are from Barro Colorado Island, December 21, 1928.

***Pelastoneurus bilineatus*, new species**

Figure 49

MALE.—Length, 5 mm. Face long, reaching down to lower margin of eyes, obtusely pointed below, narrowly yellowish pollinose in the middle from top almost to lower point, grayish-white pollinose on the sides, the suture situated a little below the middle; palpi large, almost as long as lower part of face, black, covered with white pollen and black hairs; front velvety black, a little brownish below, narrowly white pollinose along sides; occiput velvety black with four lines of gray pollen running upward and outward from neck, the outer ones continuing down the posterior orbits, the middle lines connecting with the white pollen along the frontal orbits (when the dorsum of the thorax is viewed obliquely there are two lines of grayish-white pollen extending from the scutellum, over the occiput and down the frontal and facial orbits to the oral margin); the green ground-color shows through this white pollen a little in certain lights. Antennæ yellow; third joint black on apical half, nearly round, but a little pointed at tip; arista feathered with long hairs. Lower orbital cilia and bristles below the head yellow, the black cilia descending to below middle of eyes.

Dorsum of thorax velvety black with two wide longitudinal stripes of gray pollen, which extend over the front to the occiput; scutellum green; no silvery-white spot at the suture, which is green with thin white pollen; pleura black, with white pollen. Abdomen black, each segment with a transverse band of metallic green; large spots on sides of segments and the whole of last segment white pollinose. Hypopygium large and black, its lamellæ (Fig. 49) paddle-shaped, black, a little yellow at base; inner appendages large, black, with a bunch of hairs on one side and a horn-like branch on the other.

Fore coxæ wholly yellow; anterior surface with silvery-white pollen and minute black hairs, the tip with black bristles; middle and hind coxæ black with yellow tips. Femora and tibiæ yellow; hind tibiæ black on apical sixth, with one bristle on lower anterior edge at apical fourth; middle tibiæ with two bristles on lower anterior surface, one at basal, the other at apical third; fore tibiæ without bristles below, but with one large bristle above near the middle. Fore tarsi sordid yellow, blackened at tip; middle ones black from tip of first joint, but most of first joint brownish; hind tarsi wholly black, their joints as 42-56-37-34-14. Calypters and halteres yellow, cilia of the former black.

Wings tinged with brown, cross-vein a little clouded with darker brown; third vein scarcely bent back at tip; last section of fourth vein bent near its middle, this bend rounded so that it is nearly evenly curved from cross-vein to tip; last section of fifth vein and cross-vein of about equal length; hind margin of wing notched at tip of fifth vein.

FEMALE.—What seems to be the female of this species has the face narrower, wholly silvery-white pollinose, lower part shorter than upper, oral margin straight; front shining blue-green; antennæ about as in the male; occiput metallic green; thorax shining green with blue reflections and a little white pollen along the front; silvery white spot at the suture indistinct; abdomen with base and apical margins of segments black, the middle shining green with coppery reflections; femora and tibiæ as in the male; fore tarsi almost wholly yellow, middle and hind ones as in the male; wings as in the male, except that the third vein is more bent back at tip; bend in fourth vein more abrupt and nearer the cross-vein, and last section of fifth vein a little longer.

TYPES.—Described from one pair, taken on Barro Colorado Island. Holotype, male, taken on December 19, 1928 and allotype, female, January 5, 1929.

***Pelastoneurus bilamellatus*, new species**

MALE.—Length, 4.2 mm. Face wide, suture near the middle, upper part depressed, green, rather dull (it has a median longitudinal stripe of green and oblique stripes running from the central one, upward and outward to the orbits, between them the ground color is more blackish); lower part bulging, gray pollinose below, more brown on upper half; palpi large, black, thickly covered with white pollen and black hairs; proboscis black, with a few delicate white hairs around the edge. Antennæ black, first two joints largely yellow, except above, third joint a little longer than wide, rounded; arista feathered with long hairs. Lateral and inferior orbital cilia yellowish white, without black bristles near the proboscis. Front blue-green, quite dull.

Thorax green with blue reflections, dorsum with a median coppery vitta; velvety-black stripe above root of wings quite narrow and turned upward at ends;

when viewed from above there are rather large, silvery-white spots on the sides at the suture and small ones on the posterior angles of the thorax; front of the dorsum gray pollinose; pleura silvery-white pruinose. Abdomen green, with bronze reflections, black incisures and large white pollinose spots on sides of segments, the last segment mostly white pollinose (seen from above it is black with two large, round, white pollinose spots). Hypopygium black with blue reflections, its lamellæ long, black, somewhat spatulate, fringed with long hairs; at base of these lamellæ are small, yellow lamellæ which are fringed with delicate hairs on the sides, and stiff, black hairs at tip.

Fore coxæ wholly yellow with delicate black hair, some of the bristles at tip large, some small; middle and hind coxæ black with yellow tips. Femora and tibiæ yellow; fore tibiæ with one large bristle and several small ones above, none below; middle tibiæ with two large bristles on lower anterior edge, one just before the middle and one at apical third; hind tibiæ a very little blackened on inner side near the tip, with one bristle on lower anterior edge, at apical fourth: there is a row of hairs above on apical fourth, which are of increasing length and end in the apical bristle. Fore and middle tarsi blackened from tip of first joint, the hind tarsi wholly black. Joints of middle tarsi as 40-24-17-13-13; of posterior ones as 33-42-26-18-15. Calypters and halteres yellow, cilia of the former black.

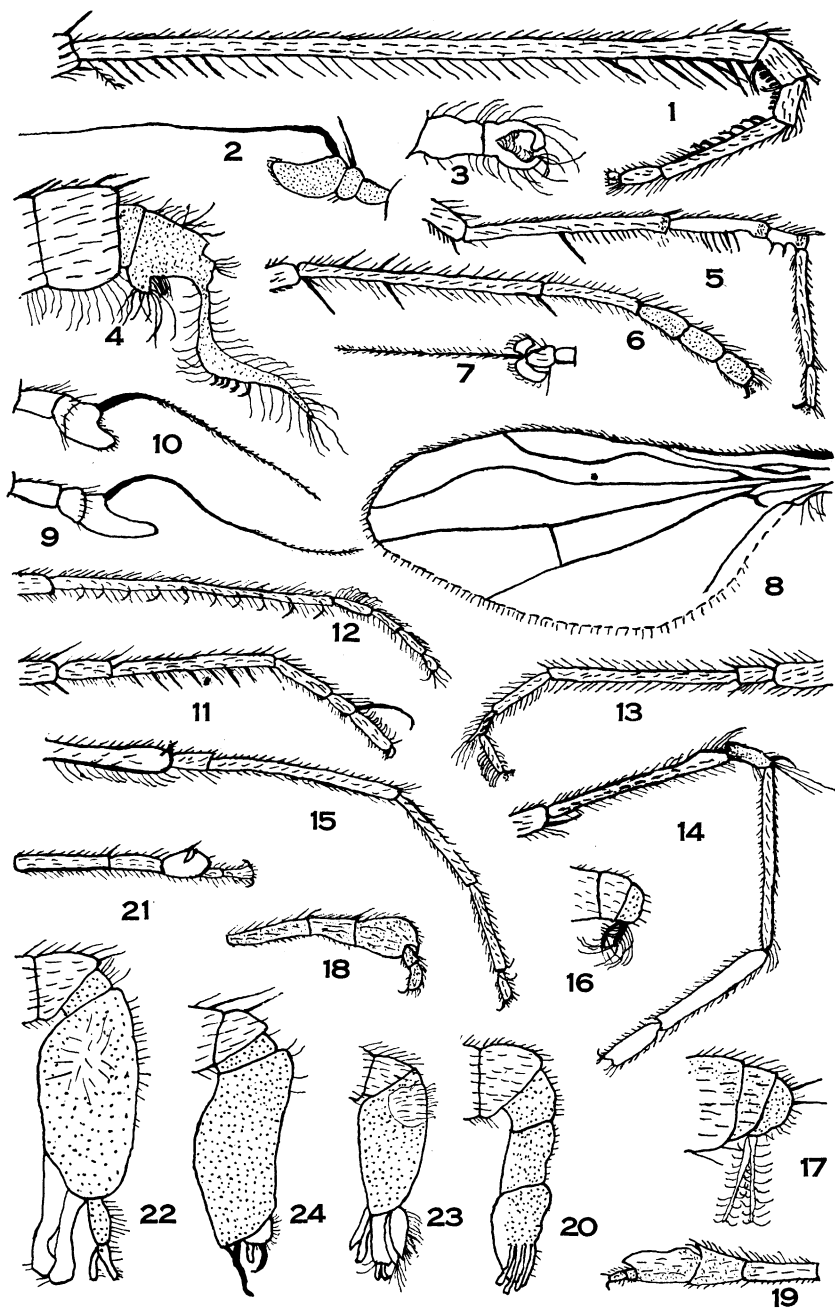
Wings tinged with brown; third vein only slightly bent back at tip; last section of fourth vein bent near its middle; last section of fifth vein one and one-half times as long as cross-vein; hind margin of wing notched at tip of fifth vein.

FEMALE.—Like the male in color and form of head, body, legs and wings.

TYPES.—Holotype, male, and allotype, female, taken at Corozal, January 19 and 16, 1929, respectively.

FIGURES 1 TO 49

- Fig. 1. *Condyllostylus pedestris* Becker. Fore tarsus of male.
 " 2. " *cornutus*, new species. Antenna of male.
 " 3. " *pulchritarsis*, new species. Hypopygium of male.
 " 4. *Sciapus armiger*, new species. Hypopygium of male.
 " 5. " " Fore tarsus of male.
 " 6. " " Hind tarsus of male.
 " 7. *Eutarsus nigripennis*, new species. Antenna of male.
 " 8. " " Wing of male.
 " 9. *Stolidosoma permutans* Becker. Antenna of male.
 " 10. " " Antenna of female.
 " 11. *Sympycnus unispina*, new species. Hind tarsus of male.
 " 12. " *currani*, new species. Fore tarsus of male.
 " 13. " " Hind tarsus of male.
 " 14. " *palpiger*, new species. Fore tarsus of male.
 " 15. " " Hind tarsus of male.
 " 16. *Xanthina nigromaculata*, new species. Hypopygium of male.
 " 17. " *subcurva*, new species. Hypopygium of male.
 " 18. *Medetera nigrimanus*, new species. Fore tarsus of male.
 " 19. " *amplimanus*, new species. Fore tarsus of male.
 " 20. " *currani*, new species. Hypopygium of male.
 " 21. " *ovata*, new species. Fore tarsus of male.
 " 22. " *albitarsis*, new species. Hypopygium of male.
 " 23. *Thrypticus scutellatus*, new species. Hypopygium of male.
 " 24. *Hercostomus panamensis*, new species. Hypopygium of male.



- Fig. 25. *Paraclius fusiformis* Becker. Hypopygium of male.
- " 26. " " Another view of the outer lamellæ.
- " 27. " " Antenna of male.
- " 28. " " Fore tibia of male.
- " 29. " *subcostatus*, new species. Hypopygial lamella of male.
- " 30. " " Base of wing showing first section of costa.
- " 31. " *albonotatus*, Loew. Base of wing showing first section of
* costa.
- " 32. " *setosus*, new species. Fore tarsus of male.
- " 33. " *eximius*, new species. Hypopygium of male.
- " 34. " *flavicauda*, new species. Hypopygium of male.
- " 35. " " Tip of wing.
- " 36. " *longicornis*, new species. Antenna of male.
- " 37. " " Tip of wing.
- " 38. " " Antenna of female.
- " 39. " *obscurus*, new species. Antenna of male.
- " 40. " " Hypopygial lamella of male.
- " 41. " " Tip of wing.
- " 42. *Sarcionus intermedius*, new species. Hypopygium of male. •
- " 43. " *acutispina*, new species. Antenna of male.
- " 44. " " Hypopygium of male.
- " 45. " *rotundicornis*, new species. Antenna of male.
- " 46. " " Hypopygium of male.
- " 47. *Paraclius ovatus*, Van Duzee. Fore basitarsus of male.
- " 48. *Pelastoneurus nitidus*, new species. Hypopygium of male.
- " 49. " *bilineatus* new species. Hypopygium of male.

