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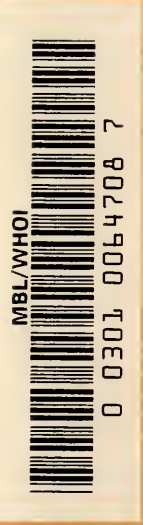
OF

Porto Rico and the Virgin Islands

VOLUME XI—Part 1

Insects of Porto Rico and the Virgin Islands

Diptera or Two-winged Flies—*C. H. Curran*



NEW YORK:
PUBLISHED BY THE ACADEMY
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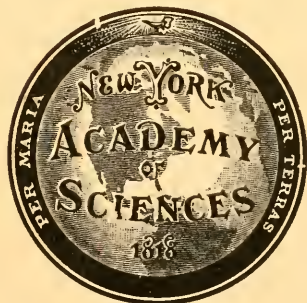
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INSECTS OF PORTO RICO AND THE VIRGIN ISLANDS

DIPTERA OR TWO-WINGED FLIES*

BY C. H. CURRAN

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*The publication of this paper has been made possible through grants from the income of the John Strong Newberry Fund and from the general funds of the New York Academy of Sciences.

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INTRODUCTION

The material upon which this report is based has been collected through the co-operation of the New York Academy of Sciences and the American Museum of Natural History and comprises by far the largest collection of flies yet brought together from any group of islands within the West Indies. The first extensive paper dealing with the Diptera of Porto Rico was that of von Roeder¹ in 1885, which was followed in 1900 by a report prepared by Coquillett² on a collection in the U. S. National Museum. The collections dealt with by these authors were relatively small and most of the species recorded by them are represented in the material at hand. Since the appearance of Coquillett's paper there have been only isolated descriptions of species from the region. The first Diptera from the Virgin Islands of which we have actual record are those described by Fabricius, who in 1794 and 1805 named several species from the island of St. Thomas. In 1830 Wiedemann also named several species from this island. It is not certain that Linnaeus described species from our region before Fabricius, although it is possible that some which he recorded as occurring in the West Indies came from St. Thomas.

KEYS

In preparing this report I have included a key to the families and keys to the genera and species where the material warrants. It may be argued that a key to a local fauna is misleading since additional species, discovered in the course of time, will probably trace out to one or another of the species recorded in the key. Such argument is of little weight, for most undescribed forms will run down to described species in almost any key, even one that is reasonably complete. A key must be regarded merely as a guide to the putative species, and only recourse to a complete description can serve properly to establish the identity of the insect.

¹ Von Roeder, *Stett. Ent. Zeitg.*, 1885, pp. 337-349.

² Coquillett, *Proc. U. S. N. M.*, xxii, pp. 249-270.

In all cases I have given the reference to the original description of a species and it is hoped that this will simplify the determination. It is presumed that the keys are far from complete, as there must be a very large number of species occurring in the Islands of which we have no records. From time to time the keys may have to be enlarged and eventually they may serve as a basis for a complete synopsis of the Diptera of Porto Rico and the Virgin Islands.

EXTENT OF THE COLLECTION

Some idea of the extent of the collection on which this report is based may be obtained from the fact that there are representatives of more than thirty families. In the following pages more than three hundred species are recorded from representatives in the collection examined and, if we add to these the species listed without comment, the number is increased to about five hundred. The types of the new species described in the present paper have been deposited in the American Museum of Natural History.

The determination of specimens from the West Indies is a rather tedious process inasmuch as one must consider the fauna of the whole of America and there is no catalog of the species occurring in South America. Many of the species are evidently peculiar to the Islands while others occur also either in South or North America. In some cases species represented in the collection are known from as far north as Canada and as far south as Argentina. Many of the species were originally described from Brazil and the United States, although the majority are peculiar to the region bordering the Caribbean Sea.

At the end of the paper I have given a list of species hitherto recorded from Porto Rico but not represented in the collection examined. A good many of these records may have been based upon erroneous determinations but it is impossible to correct such mistakes without examining the specimens upon which the records are based. Most of the names, as well as references to the descriptions of flies that have been published since 1904, will be found in George N. Wolcott's *Insectae Portoricensis*, Journ. Dept. of Agric. Porto Rico, 1924, Vol. VII, No. 1.

ACKNOWLEDGMENTS

For assistance in preparing the report I am greatly indebted to J. M. Aldrich, C. P. Alexander, E. T. Cresson, Jr., C. R. Twinn, M. C. Van Duzee and G. S. Walley. Dr. Aldrich kindly compared many of the Tachinidae with material in the United States National Museum.

Mention should here be made that the specimens reported in the pages that follow were secured largely by F. E. Lutz, H. E. Crampton, A. J. Mutchler, F. E. Watson, H. G. Barber and L. B. Woodruff, whose several expeditions to Porto Rico and the Virgin Islands, extending in the case of Messrs. Lutz and Crampton not through one season but several, were made possible by funds supplied by The New York Academy of Sciences, the Porto Rico Government and The American Museum of Natural History.

KEY TO FAMILIES

1. Flattened, more or less coriaceous flies, the legs in each pair broadly separated by the sternum..... 45
Rarely flattened; legs closely approximated..... 2
2. Antennæ consisting of four or more segments..... 3
Antennæ consisting of three segments and often a stout, terminal style or arista..... 14.
3. Antennæ consisting of six or more freely articulated segments; anal cell not or scarcely narrowed apically..... 4
Antennæ consisting of three to five freely articulated segments, those beyond the third usually more or less fused; anal cell narrowed or closed apically..... 11
4. Wings with less than nine longitudinal veins or with crossveins on the apical half..... 5
Wings with nine or more longitudinal veins, without crossveins except basally, densely haired along the veins..... Psychodidæ.
5. Mesonotum without a V-shaped transverse suture..... 6
Mesonotum with a deep V-shaped transverse suture..... Tipulidæ.
6. Wing without a net-work of fine lines..... 7
Wing with a net-work of fine lines over much of its surface.....
Blephariceridæ.
7. Anal veins present or represented by folds..... 8
Anal veins entirely absent..... Cecidomyidæ.
8. Ocelli present..... 9
Ocelli absent..... Chironomidæ.
9. Antennæ usually longer than the thorax, or, if not, the coxæ elongate or the legs slender..... 10
Antennæ shorter than the thorax; legs usually stout; coxæ short.
Bibionidæ.
10. Eyes rounded or oval..... Mycetophilidæ.
Eyes strongly produced towards each other above the antennæ. Sciaridæ.
11. Antennæ consisting of four or five freely articulated segments..... 12
Antennæ consisting of more than five segments, the apical ones not freely articulated..... 13
12. Front excavated above on either side of the ocellar swelling.... Asilidæ.
Front not concave above from anterior view..... Bombylidæ.
13. Alulet of wing large..... Tabanidæ.
Alulet small, elongate, often almost wanting..... Stratiomyidæ.

14. Wings with strong veins on the posterior half and usually with cross-veins 15
 Wings with two or three strong veins in front and several weak longitudinal veins, without crossveins..... Phoridae.
15. With a frontal lunule or suture, the anal cell never extending close to the wing margin except as a long, narrow production..... 25
 Without frontal lunule or suture or, when one is present, the anal cell extends close to the wing margin..... 16
16. Second basal cell present..... 17
 Second basal cell absent..... Dolichopodidae.
17. Third vein simple..... 22
 Third vein with anterior branch..... 18
18. Front concave on either side of the ocellar swelling, from anterior view Asilidae.
 Front not hollowed, from anterior view..... 19
19. Empodia bristle-like or wanting..... 20
 Empodia developed pulvilliform..... Rhagionidae.
20. Wings with four posterior cells..... 21
 Wings with five posterior cells..... Therevidae.
21. Anal cell extending close to the margin of the wing, sometimes open. Bombyliidae.
 Anal cell not reaching more than half way to the wing margin. Empididae.
22. Anal cell extending more than three-fourths the distance to the wing margin 23
 Anal cell not extending more than half way to the wing margin. Empididae.
23. No spurious vein between the third and fourth longitudinal veins.... 24
 A spurious vein between the third and fourth longitudinal veins. Syrphidae.
24. Without frontal and facial sutures..... Pipunculidae.
 With frontal and facial sutures..... Conopidae.
25. Squamæ usually greatly developed; costal cell reaching to the middle of the wing; mesonotum with the transverse suture almost entire.. 42
 Squamæ never large, the lower lobe linear or nearly so; mesonotal suture obsolete for almost half its length..... 26
26. Subcostal vein entirely free from the first vein and ending in the costa some distance before end of first vein, the first vein usually ending near the middle of the wing..... 34
 Subcostal vein partly or wholly fused with the first vein, evanescent at its tip or absent..... 27
27. First segment of the posterior tarsus longer than the second..... 28
 First segment of the posterior tarsus swollen and conspicuously shorter than the second..... Borboridae.
28. Subcostal vein not evanescent at its tip..... 29
 Subcostal vein evanescent at its tip, its apex represented by a transverse fold extending across the costal cell..... Trypaneidae.
29. Anal cell absent..... 30
 Anal cell present..... 31
30. Frontal bristles feebly developed..... Chloropidae.
 Frontal bristles strong..... Ephyridae.

31. Arista rarely plumose (if so the costa fractured once), usually pubescent or bare..... 32
 Arista plumose or pectinate; costa with two fractures.... Drosophilidae.
32. Costa broken once or, if broken twice, the proboscis not geniculate.... 33
 Costa broken twice, the proboscis geniculate..... Milichiidae.
33. Basal segment of the arista longer than wide; postvertical bristles divergent, often absent..... Geomyzidae.
 Basal arista segment very short; postverticals divergent, rarely absent Agromyzidae.
34. Oral vibrissae present..... 41
 Oral vibrissae absent..... 35
35. Legs short, normal..... 36
 Legs long and stilt-like; apical cell narrowed apically..... Micropezidae.
36. Tibiæ with preapical bristles..... 40
 Tibiæ without preapical bristles..... 37
37. Ovipositor membranous and retractile..... 38
 Ovipositor chitinized, not wholly retractile..... 39
38. Palpi well developed; front with bristles anteriorly..... Ochthiphilidae.
 Palpi vestigial; front not bristled anteriorly..... Sepsidae.
39. Only one fronto-orbital bristle: a single costal break..... Lonchaeidae.
 Usually more than one fronto-orbital or, if not, there are indications of two costal breaks or the anal cell is acutely produced posteriorly.
 Ortalidae.
40. Postvertical bristles converging; middle femora without a small anterior median bristle..... Sapromyzidae.
 Postvertical bristles parallel or wanting; middle femora with a small anterior median bristle..... Tetanoceridae.
41. Costa broken before the tip of the subcostal vein..... Clusiidae.
 Costa not broken..... Sepsidae.
42. Metascutellum not conspicuously swollen..... 43
 Metascutellum well developed, appearing as a strong convexity immediately below the scutellum..... Tachinidae.
43. Hypopleural bristles present..... 44
 Hypopleural bristles absent..... Muscidae.
44. Posthumeral bristle situated nearer the side of the mesonotum than the presutural; if absent, the color metallic green or blue. Calliphoridae.
 Posthumeral bristle situated farther from the side of the thorax than the presutural..... Sarcophagidae.
45. Head with a conspicuous movable neck; eyes vestigial or wanting.
 Streblidae.
 Head deeply sunk into the thorax, the neck not conspicuous; eyes well developed, round or oval..... Hippoboscidae.

FAMILIES REPRESENTED BY SPECIMENS COLLECTED
UNDER THE AUSPICES OF THE NEW YORK
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TIPULIDÆ

BY CHARLES P. ALEXANDER

Megistomastix portoricensis Alexander

1912. *Megistomastix portoricensis* Alexander, Psyche, xix, p. 65.

One male specimen, Luquillo National Forest, November 18, 1925 (above 1500 feet, on trail to summit of El Yunque). The type specimen was from this same region: El Yunque, altitude 2800 feet, February 20, 1900 (C. W. Richmond).

Rhipidia (Arhipidia) domestica Osten Sacken

1859. *Rhipidia domestica* Osten Sacken, Proc. Acad. Nat. Sci., Philadelphia, p. 208.

Manatí, June 27-29, 1915.

Geronomyia (Geronomyia) domingensis Alexander

1916. *Geronomyia domingensis* Alexander, Proc. Acad. Nat. Sci., Philadelphia, pp. 490-491.

A female specimen, Mameyes, November 19, 1925.

This is very closely related to *G. cinereinota* Alexander of South America and may not be distinct from it.

Gonomyia (Lipophleps) species

A broken specimen, Coamo Springs, July 17-19, 1914. It belongs to the *cinerea* group and may be *G. (L.) helophila* Alexander.

BLEPHARICERIDÆ

This family is represented by a single species, which has recently been described.

Paltostoma argyrocineta Curran

1927. *Paltostoma argyrocineta* Curran, American Museum Novitates, No. 245, p. 1.

The original description was based on five males taken at Rio Grande, Porto Rico, July 3, 1915.



CULICIDÆ

BY C. R. TWINN

The mosquitoes in the collection consist of about seventy specimens. Nearly all belong to *Culex quinquefasciatus* Say, the common household mosquito of the tropics. The yellow fever mosquito, *Aedes aegypti* Linnaeus, is represented by four females taken at Mayagüez and Manatí, and four males collected on Mona Island. *Aedes mediovittata* (Coquillett) Dyar & Knab and the genus *Wyeomyia* are each represented by a single female, the latter in a damaged condition.

***Culex quinquefasciatus* Say**

1823. *Culex quinquefasciatus* Say, Journ. Acad. Nat. Sci., Phil., iii, p. 10.

Four males, Fajardo, January 19, 1914; two males, three females, Mayagüez, February 15-16, 1914; one male, fourteen females, San Juan, July 9, 1914, and eight females, July 1-5, 1915; two males, seven females, Caguas, May 28-29, 1915, and one male and eighteen females, Manatí, June 27-29, 1915.

***Aedes aegypti* Linnaeus**

1762. *Culex aegypti* Linnaeus, Hasselq. Palestina Reise, p. 470.

One female, Mayagüez, February 15-16, 1914; three females, Manatí, June 27-29, 1915, and four males, Mona Island, February 21-26, 1914.

***Aedes mediovittata* (Coquillett) Dyar & Knab**

1906. *Stegomyia mediovittata* Coquillett, Can. Ent., xxxviii, p. 60.

A single female, Naguabo, March 7-9, 1914.

***Wyeomyia* species**

One female in damaged condition, Adjuntas, June 8-13, 1915.

CHIRONOMIDÆ

The material in this family, with the exception of the species belonging to the genus *Crictopus* van der Wulp, have been worked over by Mr. G. S. Walley, to whom I am much indebted for the assistance rendered. The material is, for the most part, in only fair condition and the series are small. As a result it has not been possible to make a definite determination in one case, although the species in question evidently represents an undescribed form. Since the collection is so small, no key to the genera is given.

Ceratopogon Meigen**Ceratopogon eriophorus** Williston

1896. *Ceratopogon eriophorus* Williston. Trans. Ent. Soc. London, p. 279.

One specimen, Mayagüez, June 21-23, 1915.

There are also two specimens from the Dominican Republic.

Crictopus van der Wulp

The three West Indian species belonging to this genus are separated in the following table.

KEY TO SPECIES

1. Anterior tibiae broadly blackish apically..... 2
All the tibiae whitish..... *insolitus*, new species.
2. Femora black with pale base; anterior tibiae white, black on apical third, the middle pair brownish yellow on the apical fourth, the posterior pair brownish basally, becoming yellow about the middle, all the tarsi yellowish with brown apices..... *conformis*, new species.
Femora yellow, black apically, the anterior pair broadly so; anterior tibiae whitish on the basal half, blackish apically, the others yellow (St. Vincent)..... *debilis* Williston.

Crictopus insolitus new species

Fig. 1

Anterior tibiae wholly whitish, the anterior femora yellow with the apical third black, all the tarsi brownish yellow, becoming darker apically. Length, 2 to 2.5 mm.

Male. Head brownish, face yellow, mouth parts luteous: basal antennal segment brown, with reddish apex, second segment reddish, flagellar segments brownish red, the rays fuscous.

Pleura brownish red, the upper incisures reddish; mesonotum with three broad, shining brown vittae which are almost fused behind the middle, the outer ones abbreviated in front and the median one behind, the color elsewhere brownish red; pectus brown. Whole thorax shining, with a thin coating of whitish pollen. Scutellum and metanotum shining black, the former with the broad, poorly defined, free border reddish.

Legs yellow; about the apical third or less of the anterior and the broad apices of the posterior four femora, black or brown; tibiae wholly whitish; tarsi brownish yellow, becoming darker apically; anterior basitarsus about two-thirds as long as its tibia.

Wings cinereous hyaline, somewhat paler on the basal third or less. The cubitus forks beyond the fork of the medius but at a point less than half the distance to the apex of the first vein. Halteres pale yellow.

First abdominal segment and basal fourth of the second shining black; median two-fifths of the second and whole of the fourth metallic yellowish (the fourth with a slightly darker median vitta?): apices of the second, third,

fifth and sixth segments narrowly yellowish, the abdomen elsewhere opaque brown to black. Venter pale to the middle of the fourth segment, thence brown. Genitalia whitish yellow, with somewhat darker base.

Female. Differs from the male as follows: Thorax shining rusty reddish, the humeri paler; brown vittae broadly separated, the intervening space being as wide or wider than either vitta; pectus reddish; scutellum reddish brown.

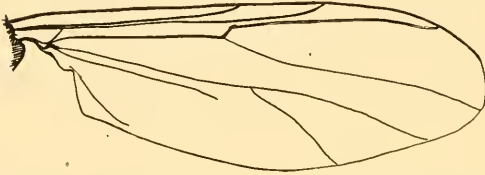


Fig. 1.—*Crictopus insolitus*, new species. Wing.

First two abdominal segments pale yellow, the broad apex of the second and the whole of the third opaque brown, fourth wholly metallic pale yellow. Genitalia pale yellow, large, tapering, almost as long as the preceding three abdominal segments, the styles as long as the basal portion, folded under and resting against the valves, thus completing a triangle, their apices somewhat broadened and bearing several short, curved hairs.

Type, male, and nine females, Mayagüez, Porto Rico, June 21-23, 1915; allotype, female, and twenty-five additional females, Manatí, Porto Rico, June 27-29, 1915.

***Crictopus conformis*, new species**

Tibiae whitish, the apical third or less of the anterior pair blackish; femora blackish, the narrow bases reddish. Length, 2.75 to 3 mm.

Male. Head and the whole thorax shining reddish brown; face yellow or brownish red, the base of the antennae reddish, the flagellar portion and the rays brown.

Coxae brown, their apices, trochanters and narrow bases of the femora yellow. Tibiae whitish, the anterior pair blackish on not more than the apical third, the middle tibiae stained with brown on the apical fifth, the posterior pair brownish-tinged on the basal half. Tarsi yellow, becoming brown on the apical segment; basal segment of the anterior tarsus two-thirds as long as its tibia.

Wings cinereous hyaline, tinged with yellow in front and basally; fork of the cubitus situated but little beyond that of the medius.

Basal abdominal segment shining brown; the second opaque brown with a whitish metallic band occupying the basal third in the middle and slightly narrowing laterally; third segment opaque brown with a narrow, transverse shining brown basal triangle; fourth segment with more than the basal half metallic whitish, opaque brown posteriorly; fifth to seventh segments shining brown with narrow, opaque brown apical fasciae, the eighth segment opaque black; genitalia whitish, with brown base.

Types:—Type, male, Guane, Cuba, September 24-26, 1915; paratypes, two males, Manatí, Porto Rico, June 27-29, 1915.

Chironomus Meigen
Chironomus redeuns Walker

1856. *Chironomus redeuns* Walker, Dipt. Saund., p. 422.

Eight specimens, St. Croix Island, February 28, 1925. There are also specimens from Haiti and Jamaica.

Coquillett has reported this species from Porto Rico,—it was originally described from "United States." It is not impossible that this form is quite distinct from *redeuns* Walker. The anterior basitarsus is three-fifths longer than the anterior tibia. All the male specimens lack the anterior tarsi, so that it is not possible to state whether they are "bearded."

Chironomus species

There is a single male from Coamo Springs, July 17-19, 1914, which is related to *similis* Johanssen.

MYCETOPHILIDÆ

The collection contains but two specimens belonging to this family. Both are new to science and descriptions are appended.

Boletina Stæger
Boletina incompleta, new species

Fig. 2

Related to *B. necta* Johanssen but at once distinguished from all the species in the genus by the unusual venation. Pale rusty yellowish, the abdomen mostly black. Length, 3.5 mm.

Femalc. Head reddish yellow; each ocellus surrounded by a small black spot, the median one small. Apical half of the flagellum brown, the basal half

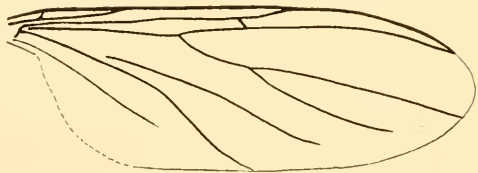


Fig. 2.—*Boletina incompleta*, new species. Wing.

more or less tinged with brown. Hairs and bristles reddish brown. Palpi very long, pale yellow.

Pleura and metanotum mostly pale ferruginous; hair brownish, appearing yellowish in some views. Scutellum with two strong and two weak bristles. Hypopleura with coarse, brown hair.

Coxal hair brownish, appearing yellow; posterior coxæ with two or three

posterior basal bristles. Middle and posterior tibiae each with two ranges of stout bristles, the middle tibiae with two strong and two weak ventral bristles. Basal segment of the anterior tarsus one-sixth longer than its tibia.

Wings (Fig. 2) pale amber colored. Halteres yellow.

Abdomen blackish above, the second to fifth segments each with a broad, widely interrupted brownish-yellow basal fascia, the apical half of the sixth and the whole of the seventh segments brownish yellow. Venter luteous, each segment with the base broadly darkened, rather blackish. Hair yellow.

Type, female, Adjuntas, Porto Rico, June 8-13, 1915.

Leia Meigen

***Leia mutchleri*, new species**

Fig. 3

Black above; wings with two brown fasciae. Length, 4.25 mm.

Male. Head and basal third of the antennae reddish yellow; front, except a narrow anterior fascia, and the occiput above, black; median ocellus as large as the outer. Hair black; bristles reddish. Palpi pale yellow.

Prothorax reddish yellow; scutellum reddish brown; mesonotum with very thin grayish pollen, the hair and bristles brownish. Mesopleura with thin yellowish pollen on the lower half; hair of the pleura yellowish, darker on the hypopleura.

Coxae and legs reddish yellow, the tarsi becoming blackish apically; hair of the coxae and lower two-thirds of the femora yellow, elsewhere black. Middle and posterior tibiae each with two ranges of bristles dorsally; middle tibiae with two strong and two weak ventral bristles; posterior tibiae with a row of fine setulae below. First segment of the anterior tarsi one-fifth longer than the anterior tibiae.

Wings grayish hyaline, the brown markings and venation as in Fig. 3. Halteres yellow.

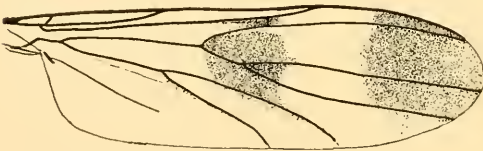


Fig. 3.—*Leia mutchleri*, new species. Wing.

Abdomen shining brownish black, each segment with a small, obscure basal spot on either side, the apical segment wholly, and the venter, reddish yellow. Hair black; pale on the venter. Genitalia black, with reddish appendages.

Type, male, Adjuntas, Porto Rico, June 26, 1915.

I take pleasure in naming this species for Mr. A. J. Mutchler, who has collected many of the Diptera in the collection.

SCIARIDÆ

The majority of the specimens belonging to this family are in poor condition and there is only a single male. All of the species, five in number, belong to the genus *Sciara* Meigen. I am unable to identify a single species but it is quite obvious that there are no representatives of the species described from St. Vincent by Williston. Until an extensive collection of perfect specimens is obtained, it is unwise to attempt a classification of the West Indian species belonging to this family.

STRATIOMYIDÆ

The Stratiomyids are represented by but few specimens, although one or two of the species must be quite common in the region.

KEY TO GENERA

1. All the posterior veins (4) arise from the discal cell or the discal cell is incomplete..... 2
 The fourth posterior vein arises from the second basal cell..... 3
2. Face conically produced forwards, the antennæ situated on the snout or at its base; third antennal segment with a terminal arista.
 Nemotelus Geoffroy.
 Face not conically produced forwards; antennæ with a long, flattened, laterally fringed style..... *Hermetia* Latreille.
3. Antennæ with a long, slender arista..... 4
 Antennæ with or without an apical style..... 5
4. Scutellum with two strong spines..... *Nothomyia* Loew.
 Scutellum without spines..... *Pedicella* Bigot.
5. Antennæ without a distinct style; third antennal segment composed of more than six closely united rings..... *Odontomyia* Meigen.
 Antennæ with a differentiated style; third segment composed of seven or eight rings..... *Cyphomyia* Wiedemann.

Nemotelus Geoffroy

There are two undescribed species, separable as follows:—

- Front unicolorous..... *thomae*, new species.
 Front with two whitish yellow spots below..... *mouensis*, new species.

Nemotelus thomae, new species

Length. 2 to 3 mm.

Agrees in all respects with *crassus* Loew but the snout is only half as long as the width of either eye. The lower lobe of the squamæ is brown and bears a brown fringe, while *unicolor* Loew has the squamæ pale. In Melander's key (*Psyche*, 173, 1903) the species traces to *unicolor*. The punctures of the thorax are considerably finer and more numerous towards the posterior part

of the mesonotum and the snout shorter than in *unicolor*. The knobs of the halteres are whitish. The differences between the species are slight but apparently constant.

Types: five males and two females, St. Thomas Island, February 24 and 25, 1925.

Nemotelus monensis, new species

Metallic greenish black, the front with yellowish white orbital spots below. Length, 3 mm.

Female. Snout short, the distance from the orbit to its tip distinctly less than the width of either eye; face and cheeks with very short whitish hairs; the front and occiput evidently bare, the former with small, sparse punctures on the upper half, strikingly concave below the middle. Proboscis not curved. Antenna shorter than the snout, reddish, the apical annulus and arista black.

Mesonotum with fine punctures which are condensed laterally, posteriorly and in two sub-median vittae, elsewhere almost without punctures, the sub-lateral polished areas finely aciculate. Humeri and the rather broad upper margin of the pleura in front of the wings very pale yellowish, the space about the root of the wings reddish. Hair very short, not conspicuous, whitish.

Legs reddish; a pre-median band on the posterior femora and the sub-apical half of their tibiae, black; tarsi yellowish, very pale basally.

Wings hyaline; veins with very slight luteous tinge; third vein not branched. Squamae very pale yellowish. Halteres reddish yellow.

Abdomen shining black, the sides and apex rather broadly reddish yellow; hair very short and sparse, inconspicuous, whitish. Venter largely reddish basally and along the incisures.

Type, female, Mona Island, February 21-26, 1914.

Nothomyia Loew

Nothomyia calopus Loew

1869. *Nothomyia calopus* Loew, Berlin. Ent. Zeitschr., xiii, p. 5.

Two specimens from Adjuntas, June 8-13, 1915.

Pedicella Bigot

This is the earliest name available for the genus *Sargus* Fabricius, which is preoccupied. The single specimen in the collection represents a new species.

Pedicella schwarzi, new species

Allied to *alchidas* Walker from which it differs in having the oral region black, tawny-haired scutellum, etc. Length, 12 mm.

Male. Ocellar triangle twice as long as wide; vertical triangle bright green, the eyes contiguous for a shorter distance than the length of the ocellar triangle. Front whitish; face and front with fairly abundant upwardly directed

black pile; the head elsewhere with yellowish pile except that it is somewhat fuscous on the ocellar triangle; vertical triangle without pile in front of the ocelli. Face and occiput blackish; proboscis reddish.

Thorax bright metallic green, the upper edge of the mesopleura and most of the metapleura whitish; propleura largely, sides of the mesonotum posteriorly and the posterior part of the pteropleura brownish red; the humeri and a slender, inwardly directed fascia in front, white. Pile fairly long, golden reddish, short and pale only on the sternum. Lower margin of the scutellum somewhat reddish.

Legs reddish; posterior coxæ wholly, and about half of the middle pair, shining black; hair entirely yellow.

Wings pale luteous basally, somewhat infuscated on the apical two-thirds or more, the veins brownish; stigma not developed. Squamæ yellow. Halteres yellow, the knob brown except its apex.

Abdomen cupreous-bronzed, the sides with green reflections; pile golden reddish, forming fasciæ on the apices of the segments, the second to fifth segments each with a very large, rectangular, basal black pilose area which is always broadly separated from the lateral margins. The abdomen increases in width from the base of the second segment and is as broad at the apex of the fifth segment as the thorax. Genitalia reddish.

Type, male, Cayey, Porto Rico, May 30-31, 1915.

Named in honor of Mr. Herbert F. Schwarz, to whom I am indebted for many favors in connection with the preparation of this report.

Odontomyia Meigen

Odontomyia dorsalis Fabricius

1805. *Stratiomys dorsalis* Fabricius. Syst. Antl. p. 82.

Two specimens from San Juan, July 9-12 and August 2-3, 1914.

Cyphomyia Wiedemann

There is only a single species from our region in the collection. I include *marginata* Loew, which probably occurs there, in order to show the relationship of the two species.

Scutellum black; head black except around the base of the antennæ.

lasiophthalma Williston.

Scutellum, face and front reddish; abdomen narrowly margined with red-

dish (Haiti, Cuba, Jamaica)..... *marginata* Loew.

Cyphomyia lasiophthalmus Williston

1896. *Cyphomyia lasiophthalmus* Williston. Trans. Ent. Soc. London. p. 301, 1896.

One male, Cayey, May 30-31, 1915, and three females, St. Croix Island, June 3, 1911 and March 3, 1925.

These vary in size from five to eight millimeters but agree perfectly with Williston's description. In some females the lower part of the front and upper part of the face are reddish and the scutellar spines may be brownish red as in the male.

Hermetia Latreille

Hermetia illucens Linnaeus

1758. *Musca illucens* Linnaeus, Syst. Naturæ, p. 589.

One specimen, Ponce, July 20-22, 1914.

This species has been previously reported from the island of Porto Rico. It is distributed over the whole of tropical and sub-tropical America and must be very common in Porto Rico notwithstanding the paucity of its representation in the collection. There are numerous specimens before me from all the adjacent islands.

TABANIDÆ

Two species of Tabanidæ have been recorded from Porto Rico and, while there are no specimens in the collection, I have seen examples of *Chrysops* from both Porto Rico and Saint Thomas Island.

Chrysops costatus Fabricius. Porto Rico and St. Thomas.

Tabanus psamophilus Osten Saëken. Porto Rico.

BOMBYLIIDÆ

There are twelve species of Bombyliidæ in the collection. In some cases I have included additional species in the keys in order better to show the relationships of the various forms. There are representatives of but six genera.

KEY TO GENERA

1. The furcation of the second and third veins occurs opposite or almost opposite the anterior crossvein at almost a right angle..... 2
The furcation takes place well before the crossvein at a sharp angle. 5
2. Antennal style not terminating in a pencil of hairs..... 3
Antennal style terminating in a pencil of hairs, distinctly separated from the third antennal segment..... *Anthrax* Scopoli.
3. Style distinctly separated from the third antennal segment..... 4
Style not separated from the third antennal segment..... *Villa* Lioy.
4. Four submarginal cells..... *Hyperalonia* Rondani.
Three submarginal cells..... *Exoprosopa* Macquart.
5. Wings with four posterior cells..... *Phthiria* Meigen.
Wings with three posterior cells..... *Geron* Meigen.

Anthrax Scopoli

The collection contains but two species belonging to this genus. The key contains a Nearctic species which has been confused with *A. œdipus* Fabricius and a species from Haiti which probably occurs in our region.

KEY TO SPECIES

- | | |
|--|---------------------------|
| 1. Supra-squamal tuft white..... | 2 |
| Supra-squamal tuft black..... | 3 |
| 2. Costal cell with only one or two obscure, paler spots.... | <i>gideon</i> Fabricius. |
| Costal cell with several hyaline spots..... | <i>œdipus</i> Fabricius. |
| 3. Costal cell with several hyaline spots (U. S., Canada)..... | <i>irrorata</i> Say |
| Costal cell wholly blackish (Haiti)..... | <i>funebris</i> Macquart. |

Anthrax gideon Fabricius

1805. *Anthrax gideon* Fabricius, Syst. Antl., p. 124.

Three specimens from Ensenada, July 14-19, 1915, and Mameyes, March 31, 1925.

Anthrax œdipus Fabricius

1805. *Anthrax œdipus* Fabricius, Syst. Antl., p. 123.

One specimen, St. Croix Island, March 5, 1925.

This is not the same as the northern form, differing from it in having the tuft of hairs on the supra-squamal ridge snow-white. The species occurring in the Nearctic region is *irrorata* Say.

Hyperalonia Rondani

There is but a single species belonging to this genus in the material before me.

Hyperalonia cerberus Fabricius

1794. *Anthrax cerberus* Fabricius, Ent. Syst., iv, p. 256.

1840. *Eroprosopa serrillei* Macquart, Dipt. Exotica, ii. (1), Plate xvi, Fig. 3.

Fifteen specimens from the following localities: Arecibo, March 1-4, 1914, July 30-August 1, 1914, June 24-26, 1915; San Juan, July 9-12, 1914; Ensenada, June 14-19, 1915; Isabella, January 4, 1915; Mona Island, February 21-26, 1914, and St. Croix Island, March 6, 1925.

Most of the specimens agree perfectly with Macquart's figure. I have no doubt that this is the species described by Fabricius.

Exoprosopa Macquart**Exoprosopa cubana Loew**

1869. *Eroprosopa cubana* Loew, Berl. Ent. Zeitschr., xiii, 14.

One specimen from Tallaboa, near Ponce, July 23, 1914, appears to be this species, but the legs are reddish in ground color.

Villa Scopoli

The six species of *Villa* in the collection may be separated as follows:

KEY TO SPECIES

1. Wings hyaline, the sub-costal cell and immediate base brownish yellow 2
Wings with brown spots or an extensive brown pattern..... 3
2. Squamal hairs reddish yellow..... *fauna* Fabricius.
Squamal hairs white, at most with a yellowish tinge..... *lateralis* Say.
3. Wings with brown spots and at most a weakly developed brown pattern 4
Wings more extensively deep brownish..... 5
4. A brown spot on the pre-apical bulge of the third vein. *paradoxa* Jaennicke.
No brown spot on bulge of third vein..... *gorgon* Fabricius.
5. Wings very broadly hyaline apically and posteriorly. *eumencus* Osten Sacken.
Wings grayish brown, the anterior half brownish orange on the basal half or more..... *lucifer* Fabricius.

Villa fauna Fabricius

1865. *Anthrax faunus* Fabricius, Syst. Antl., p. 126.

? 1869. *Anthrax mucoreus* Loew, Berlin Ent. Zeitschr., xiii, p. 27.

Ten specimens, all taken at St. Croix Island, February 26, 27 and March 3 and 6, 1925.

Villa lateralis Say

1823. *Anthrax lateralis* Say, Journ. Acad. Nat. Sci., Phila., iii, p. 42.

More than thirty specimens from the following localities: Coamo Springs, January 10-15 and June 5-7, 1915; Aibonito, July 14-17, 1914; Ensenada, June 14-19, 1915; Tallaboa, July 23, 1914; Ponce, July 20-22, 1914; Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911; St. Thomas Island, February 21, 25, 1925, and St. John Island, February 10, March 7, 10, and September 14, 1925.

Villa paradoxa Jaennicke

1867. *Anthrax paradoxus* Jaennicke, Abhandl. Senckenb. Naturf. Ges., vi, p. 339.

Six specimens: Ensenada, June 14-19, 1915, and one from St. Thomas Island, March 13, 1925.

Villa gorgon Fabricius

1805. *Anthrax gorgon* Fabricius, Syst. Antl., p. 126.

Thirty-five specimens from the following localities: Ponce, July 20-22, 1914; Arecibo, July 30-August 1, 1914, June 24-26, 1915; San Juan, February 9-12, 1914, July 9-12, 1914, May 26-27, 1915; Guayanilla, July 22, 1914; Coamo Springs, June 5-7, 1915; Ensenada, June 14-19, 1915; Tallaboa, July 23, 1914; San Turce, August 1, 1914; Mayagüez, June 21-23, 1915; Tortogueros Lake, Manatí, November 20, 1925; Desecheo Island, February 18-20, 1914, and Mona Island, February 21-26, 1914.

Villa lucifer Fabricius

1775. *Bibio lucifer* Fabricius, Syst. Ent., p. 759.

Fourteen specimens from Porto Rico: Coamo Springs, July 17-19, 1914, January 1, 1915, June 5-7, 1915; Arecibo, June 24-26, 1915; Ensenada, June 14-19, 1915, and Guayanilla, July 22, 1914.

Villa eumenes Osten Sacken

1887. *Anthrax eumenes* Osten Sacken, Biol. Cent. Amer., Dipt., i, p. 131.

One specimen, Anegada Island, March 31, 1925.

Phthiria Meigen

The single specimen of this genus represents an undescribed species.

Phthiria fasciventris, new species

Length, 4 mm.

Male. Head blackish; a yellow spot on the upper part of the frontal triangle; head grayish pollinose except along the oral margin; pile short, yellowish white; vertical triangle opaque black. Antennae black; third segment broadly rounded apically, with a small style situated in the apical depression. Proboscis as long as the thorax and scutellum.

Mesonotum opaque brown, with a pair of dorsocentral vittae which broaden behind, and the whole posterior fourth, opaque black. Humeri yellow; posterior calli and scutellum milky white, the latter with the base broadly rusty yellow in the middle. Pleura reddish-brown pollinose. Hair of the thorax sparse, yellow.

Legs reddish yellow, the apical tarsal segments black; coxæ black; femora somewhat brownish basally.

Wings hyaline, some of the veins with projecting stumps. Squamæ white. Knob of the halteres brown with whitish apex and stem.

Abdomen rusty brownish-red with the base of each segment rather irregularly opaque black, the colors rather diffuse and not strongly contrasting; apex of each segment narrowly yellow. Genitalia dull black.

Type, male, Coamo Springs, Porto Rico, December 27, 1914.

Geron senilis Fabricius

1794. *Bombylius senilis* Fabricius. Ent. Syst., iv, p. 411.

Several specimens from Ensenada, June 14-19, 1915, and Caguas, May 28-29, 1915.

ASILIDÆ

This family has a fair representation, but on the whole there are few examples of it in the Antilles. The genera occurring in Porto Rico or the Virgin Islands may be separated by the table which follows.

KEY TO GENERA

- | | |
|---|------------------------------|
| 1. Marginal cell closed and petiolate..... | 3 |
| Marginal cell open..... | 2 |
| 2. Pulvilli absent..... | <i>Leptogaster</i> Meigen. |
| Pulvilli present: only four posterior cells..... | <i>Townsendia</i> Williston. |
| 3. Arista with long rays below (pectinate)..... | <i>Ommatius</i> Wiedemann. |
| Arista not pectinate..... | 4 |
| 4. Lateral slopes of the metanotum without fine hairs..... | 5 |
| Lateral slopes of the metanotum with longish hairs..... | <i>Asilus</i> Linnaeus. |
| 5. The posterior branch of the third vein joins the costa well before the tip of the wing and is not at all curved backwards at its tip; ovipositor of female with a terminal circle of spines. | |

Proctacanthus Macquart.

The posterior branch of the third vein joins the costa behind the tip of the wing or this branch is at least gently curved backwards apically *Eras* Scopoli.

Leptogaster Meigen**Leptogaster cubensis** Bigot

1856. *Gomytes cubensis* Bigot. in Sagra's Hist. de la Isla de Cuba, Pt. 2, viii, p. 332.

Two specimens from Mona Island, February 21-26, 1914. Von Reeder has recorded the species as occurring in Porto Rico.

Townsendia Williston

The single species belonging to this genus that is represented in the collection has recently been described. I present a key to the known species, all of which occur in North America.

KEY TO SPECIES

- | | |
|--|--------------------------|
| 1. Front, except the sides and lower part, brown pollinose..... | 2 |
| Front white pollinose: mesonotum opaque yellowish-white pollinose with black median vitta and lateral spots: tibiae not white pollinose (Mexico) | <i>minuta</i> Williston. |

2. Third antennal segment tapering from near the base..... 3
 Third antennal segment coarctate (Texas)..... *pulcherimma* Back.
 3. Anterior four tibiae silvery-white pruinose; apex of each abdominal
 segment of the female reddish..... *argyrata* Curran.
 Tibiæ not silvery-white pruinose; abdomen of female wholly black
 (U. S.)..... *niger* Back.

Townsendia argyrata Curran

1926. *Townsendia argyrata* Curran, American Museum Novitates, No. 220, p. 1.

The type series consists of a male, Luquillo National Forest, February 18, 1925, and two females from Coamo Springs, June 5-7, 1915.

Ommatius Wiedemann

Ommatius marginellus Fabricius

1781. *Asilus marginellus* Fabricius, Spec. Insect., ii, p. 464.

One male, St. Thomas Island, August 24, 1917.

This species is distinct from that described by Say as *tibialis*, and the species occurring in the United States which has been placed as a synonym of *marginellus* must be known as *tibialis* Say.

Proctacanthus Macquart

Proctacanthus rufiventris Macquart

1838. *Proctacanthus rufiventris* Macquart, Diptera Exotica, i, (2), p. 123.

One specimen, Tortogueros Lake, Manatí, February 20, 1925.

Erax Scopoli

One of the two species belonging to *Erax* is evidently undescribed. The two species are separable as follows:

Male with segments five to seven silvery white; female without white pile on the front of the thorax..... *tortola*, new species.

Male with segment five silvery on posterior half only; female with a narrow anterior fascia of white pile on the mesonotum

haitensis Macquart.

Erax tortola, new species

Belongs to the *acstuanus* group: Legs black, the tibiae bright reddish yellow with black apices. Length (exclusive of ovipositor) 17 mm.

Male. Beard and mystax white, the latter with strong black bristles on the upper half. Head grayish pollinose. Hair of the palpi and antennæ black; style longer than antennæ. Hair of the occiput pale yellowish.

Mesonotum grayish-yellow pollinose, the dorsal vitta with a very narrow pale median line, in most lights becoming obsolete at the posterior fourth;

lateral vittæ in the form of two approximate, sub-rectangular black spots. Pleura, pectus and scutellum gray pollinose, the latter mostly pale-haired, with two black or yellow bristles. Hair of the mesonotum black; of the pleura, whitish.

Wings with faint yellowish tinge, the costa swollen and arcuate beyond the auxiliary vein, the costal cell luteous; anterior branch of third vein with slight indication of appendage near its base. Squamæ whitish, with yellowish border and fringe. Halteres yellow.

Second to fourth abdominal segments shining brownish, their sides broadly, and the first segment wholly, gray pollinose; fifth to seventh segments silvery white. Pile pale yellowish; on the incomplete apical fourth of the third segment and the whole of the fourth except laterally, black; on the white portions, very short and white. Genitalia very large, long, the lower appendages almost as long as the upper, densely black-fringed below and apically; upper appendages shaped as in *stylatus* Fabricius.

Female. Mystax with a few more blackish bristles than in that of male; posterior border of the mesonotum narrowly white-haired, the scutellum wholly so. Wings simple, the anterior branch of the third vein with a distinct appendage. Ovipositor almost as long as the preceding four segments. Abdomen blackish, the sides and segmental apices pale pollinose, the hair black on the third and fourth segments except the broad apices and sides, and black on the terminal segments.

Type, male, Tortola, Virgin Islands, March 18, 1925; allotype, female, St. Thomas Island, March 11, 1925.

***Erax haitensis* Macquart**

1847. Diptera Exotica, Suppl., iii, p. 188.

Male and two females, Tortola, March 18, 1925; three males, St. Thomas Island, March 11 and 12, 1925.

THEREVIDE

Two species belonging to the genus *Psilocephala* Zetterstedt comprise the representation of this family. They may be separated as follows:

Halteres and legs wholly black; front long and very narrow; fourth posterior cell broadly open..... *monensis* Curran.
 Halteres yellow; tibiæ and first tarsal segment yellow with brown apices, the two following tarsal segments with yellow bases; fourth posterior cell closed a little before the margin of the wing. *veran's* Curran.

***Psilocephala monensis* Curran**

1926. *Psilocephala monensis* Curran, American Museum Novitates, No. 220, p. 2.

Originally described from a single specimen from Mona Island, February 21-26, 1914.

Psilocephala vexans Curran

1926. *Psilocephala vexans* Curran, American Museum Novitates, No. 220, p. 2.

The type series includes specimens from the following localities: Luquillo National Forest, February 18, 1925; Ensenada, June 14-19, 1915; Arecibo, June 24-26, 1915; San Juan, August 2-3, 1914; St. Thomas Island, March 13, 1925, and Mona Island, February 21-26, 1914, as well as a specimen from Haiti.

EMPIDIDÆ

There are representatives of but five species belonging to this family, one of them evidently undescribed.

Phoneustica Loew**Phoneustica flavida** Williston

1896. *Drapetis flavidus* Williston, Trans. Ent. Soc. London, p. 308.

Eleven specimens from Porto Rico: Mayagüez, February 15-16, 1914, and Coamo Springs, July 17-19, 1914.

Drapetis Meigen**Drapetis gilvipes** Loew

1872. *Drapetis gilvipes* Loew, Cent. x, p. 61.

Male, Cayey, May 30-31, 1915.

Syneches Walker**Syneches pusillus** Loew

1861. *Syneches pusillus* Loew, Cent. i, p. 25.

Female, Barros, June 4, 1915.

Hybos Fabricius**Hybos electus claripennis**, new variety

1902. *Hybos electus* variety, Melander, Trans. Ent. Soc. Amer., xxviii, p. 247.

This is the variety mentioned by Melander in the reference just cited. It differs from *electus* in having the wings wholly hyaline.

Type, male, Adjuntas, Porto Rico, June 8-13, 1915.

Hybos spinosus, new species

Length, 3 mm.

Male. Shining black; anterior femora brown, tips of all the femora reddish; immediate base of the posterior tibiæ, the anterior four wholly and the basal



two segments of all the tarsi, yellowish. Face very narrow, antennae narrow, the arista long and slender. Pleura thinly pale pollinose. Hair black or brown, whitish on the basal three abdominal segments, yellow on the pale portions of the anterior four legs, the basal segment of the anterior four tarsi with three or four long, slender bristles, the hair of the anterior legs rather long. Posterior femora considerably swollen, on either ventral edge with a row of short, coarse bristles. Halteres brown. Wings with a slight yellowish tinge.

Type, male, Adjuntas, Porto Rico, June 8-13, 1915.

Traces to *triplex* Walker in Melander's key (Trans. Ent. Soc. Amer., xxviii, p. 246), from which it is at once distinguishable by the largely pale anterior legs and different genitalia.

DOLICHOPODIDÆ

DETERMINED BY M. C. VAN DUZEE

The Dolichopodidæ are represented by a relatively large number of species belonging to several genera. They have been determined by Mr. M. C. Van Duzee, who has recently described a number of new species from the material contained in the collection as well as from other islands of the Antilles. In the keys to the species I have included those from adjacent islands but records are given only of the species occurring in the Virgin Islands.

KEY TO GENERA

1. Fourth vein not forked, sometimes bowed strongly forwards; mesonotum usually conspicuously longer than wide..... 2
- Fourth vein with a widely divergent fork and with an appendage at the bend; mesonotum as wide as long; scutellum usually with four bristles; arista dorsal..... *Sciapus* Zeller.
2. Costa extending to the fourth vein; crossvein situated well beyond the apex of the first vein..... 3
- Costa extending only to the tip of the third vein; crossvein usually situated before the end of the first vein..... *Asyndetus* Loew.
3. Fourth vein very strongly bowed or bent forward to form a crossvein which almost closes the apical cell..... 4
- Fourth vein with only a moderate curvature even though much narrowed 5
4. Arista plumose; face in both sexes wide..... *Pelastoneurus* Loew.
- Arista pubescent; face of males narrow..... *Paraclius* Loew.
5. Arista dorsal..... 6
- Arista apical or nearly so..... 7
6. Face with a median longitudinal groove bounded by rounded ridges.
Plagioncurus Loew.
- Face not sulcate..... *Diaphorus* Meigen.

7. Male genitalia extending far forwards under the abdomen.
Thrypticus Loew.
 Male genitalia small, mostly concealed..... 8
8. Face of male at most a little narrower than the front: apex of male
 abdomen usually with four stout bristles..... *Diaphorus* Meigen.
 Face of male usually much narrower than the front, the abdomen
 without strong bristles at apex..... *Chrysotus* Meigen.

Chrysotus Meigen

The members of this genus are among the smallest of the Dolichopodidae and are found on leaves and grass, especially in the vicinity of streams and swamps.

KEY TO SPECIES

1. Antennae wholly black or brown..... 2
 Antennae with the basal segments reddish..... *picticornis* Loew.
2. Femora wholly reddish or yellowish..... 3
 At least one pair of femora largely blackish or brown..... 7
3. Hair of the abdomen yellowish..... *longipes* Van Duzee.
 Hair black or brown..... 4
4. Pleura yellowish..... *flavus* Aldrich.
 Pleura green or blackish..... 5
5. Palpi small, never white..... 6
 Palpi of the male very large, thin, white (Cuba). *magnipalpus* Van Duzee.
6. Face of male with parallel or almost parallel sides..... *incisus* Aldrich.
 Face of the male very conspicuously narrowed in the middle.
minuticornis Van Duzee.
7. Front coxae blackish except their immediate apices..... 9
 Front coxae more than one-third yellowish..... 8
8. Palpi thin, very large, yellow, with whitish sheen (Cuba).
mirandus Van Duzee.
 Palpi small, normal, milky white..... *brevitibia* Van Duzee.
9. Anterior four femora reddish (female)..... *crcaratus* Van Duzee.
 All the femora mostly green or black..... 10
10. Third antennal segment as long as the head..... *crcaratus* Van Duzee.
 Antennae much shorter than the head..... 11
11. Eyes broadly separated on the face..... 12
 Face extremely narrow, almost obliterated for part of its length
 (male)..... *fulvohirtus* Van Duzee.
12. Bristles of the thorax black..... 13
 Bristles of the thorax reddish (female)..... *fulvohirtus* Van Duzee.
13. Knob of the halteres black..... *crcisus* Aldrich.
 Knob of the halteres pale yellowish..... *morrisoni* Van Duzee.

Chrysotus picticornis Loew

1864. *Chrysotus picticornis* Loew, Mon. N. Amer. Dipt., ii, p. 184.

Male and female, San Juan, February 11-14, 1914; female, Adjuntas, June 8-13, 1915; four females, Coamo Springs, July 17-19, 1914.

Chrysotus flavus Aldrich

1896. *Chrysotus flavus* Aldrich, Trans. Ent. Soc. London, p. 326.

Female, Adjuntas, June 8-13, 1915.

The specimen is not in the best of condition. I feel sure that it is a *Sympycnus* and not a *Chrysotus*.

Chrysotus inermis Aldrich

1896. *Chrysotus inermis* Aldrich, Trans. Ent. Soc. London, p. 330.

Female, Mayagüez, February 15-16, 1914.

There is also a specimen from Cuba.

Chrysotus minuticornis Van Duzee

1927. *Chrysotus minuticornis*. American Museum Novitates, No. 262, p. 3.

One male, Naguabo, March 7, 1914.

Chrysotus longipes Van Duzee

1927. *Chrysotus longipes* Van Duzee, American Museum Novitates, No. 262, p. 1.

The type series consists of eighteen specimens from the following localities: Manatí, June; Mayagüez, June and February; Barros, June; Coamo Springs, December.

Chrysotus brevitibia Van Duzee

1927. *Chrysotus brevitibia*, Van Duzee, American Museum Novitates, No. 262, p. 1.

Originally described from a single male taken at Naguabo, March 8, 1914, by F. E. Lutz. There is a second male from the same locality, March 7-9, 1914.

Chrysotus excavatus Van Duzee

1926. *Chrysotus excavatus* Van Duzee, Bull. Buffalo Soc. Nat. Sc., xiii, p. 48 (1924).

Male, Aibonito, July 14-17, 1914; male and two females, St. Thomas Island, February 23, 1925 and March 11, 1925.

Chrysotus flavohirtus Van Duzee

1916. *Chrysotus flavohirtus* Van Duzee, Wash. Univ. Studies, ii, p. 95.

Male, Manatí, June 27-29, 1915; male, Barros, June 4, 1915; male, Coamo Springs, July 17-19, 1914; female, Arecibo, June 24-26, 1915; female, Adjuntas, June 26, 1915.

Chrysotus excisus Aldrich

1896. *Chrysotus excisus* Aldrich, Trans. Ent. Soc. London, p. 325.

A male, Christiansted, St. Croix Island, June 4, 1911, is doubtfully placed here.

Chrysotus morrisoni Van Duzee

1926. *Chrysotus morrisoni* Van Duzee, Bull. Buff. Soc. Nat. Sc., xiii, p. 37.

Two males, Aibonito, July 14-17, 1914; male and female, Coamo Springs, July 17-19, 1914; male, Naguabo, March 7-9, 1914; male, Barros, June 4, 1915, and female, Arecibo, June 24-26, 1915.

Diaphorus Meigen

This genus is represented by but a single species.

Diaphorus simplex Aldrich

1896. *Lyroneurus simplex* Aldrich, Trans. Ent. Soc. London, p. 323.

Male, Aibonito, July 14-17, 1914; male, Caguas, May 28-29, 1915; male, Mayagüez, July 24-29, 1914.

Asyndetus Loew

The two species belonging to this genus may be readily separated as follows:

Posterior femora with two rows of coarse bristles below; tibiae green,
 with many coarse bristles..... *interruptus* Loew.
 Posterior femora with bristly hairs below; tibiae reddish brown or red-
 dish, with very few weak bristles..... *exiguus* Van Duzee.

Asyndetus interruptus Loew

1862. *Diaphorus interruptus* Loew, Wien. Ent. Monatschr., v, p. 57.

Male, San Juan, February 11-14, 1914.

Asyndetus exiguus Van Duzee

1927. *Asyndetus exiguus* Van Duzee, American Museum Novitates, No. 262, p. 4.

The type series consists of four males and two females from Arecibo, June 24-26, 1915.

Thrypticus Loew

The two species in the collection may be separated as follows:

Legs wholly pale..... *violaceus* Van Duzee.
 Femora green..... *fraterculus* Wheeler.

Thrypticus violaceus Van Duzee

1927. *Thrypticus violaceus* Van Duzee, American Museum Novitates, No. 262, p. 5.

The original description was based on a single male taken at Arecibo, June 24-26, 1915. In the collection are males also from the following localities: Aibonito, July 14-17, 1914; Coamo Springs, July 17-19, 1914; Mona Island, February 21-26, 1914.

Thrypticus fraterculus Wheeler

1890. *Aphantotimus fraterculus* Wheeler, Psyche, p. 376.

Male, Naguabo, March 7-9, 1914.

Plagioneurus Loew**Plagioneurus univittatus** Loew

1857. Wien Ent. Monatschr., i, p. 43.

One male, Cayey, May 30-31, 1915.

Paraclius Loew

The collection contains two species separable as follows:

Posterior femora wholly reddish yellow..... *alternans* Loew
 Posterior femora broadly brown apically..... *femoratus* Aldrich.

Paraclius alternans Loew

1864. *Pelastoneurus alternans* Loew, Cent. v, No. 91.

Female, St. Thomas Island, February 23, 1925.

Paraclius femoratus Aldrich

1901. *Paraclius femoratus* Aldrich, Biol. Cent. Amer., Dipt., i, p. 340.

Two males and one female, Mayagüez, February 15-16, 1914.

Pelastoneurus Loew**Pelastoneurus aequalis** Van Duzee

1927. *Pelastoneurus aequalis* Van Duzee, American Museum Novitates, No. 262, p. 5.

The types consist of a male and female taken at Adjuntas, June 26, 1925.

Sciapus Zeller

The members of this genus are commonly found skipping about upon leaves, often quite far from water or damp places. In many of them the

wings are colored or otherwise ornamented. The majority of the species may be separated readily upon genitalic characters.

KEY TO SPECIES

1. Wings with sharply defined brown markings..... 2
Wings at most slightly infuscated..... 5
2. Anterior coxæ blackish..... 3
Anterior coxæ yellow..... *nubilipennis* Van Duzee.
3. Bristles on the middle tibiæ of male scarcely longer than the tibial thickness (not more than twice as long in the female?)..... 4
Middle tibiæ with three very long antero-dorsal bristles in both sexes.
diffusus Wiedemann.
4. Knob of the halteres reddish..... *digitatus* Van Duzee.
Knob of the halteres brown..... *leonardi* Van Duzee.
5. Antennæ partly or wholly reddish or yellow..... 6
Antennæ wholly black or brown..... 9
6. Thorax metallic green or blue..... 7
Pleura and broad sides of the mesonotum rusty reddish yellow.
dorsalis Loew.
7. Base of the abdomen broadly yellowish..... 8
Abdomen wholly green dorsally..... *spinimanus* Van Duzee.
8. Front, from dorsal view, wholly whitish pollinose. *unicinctus* Van Duzee.
Front, from dorsal view, mostly shining green..... *flavicornis* Aldrich.
9. Lower section of the face without hair..... 10
Lower section of the face with fine white hair.... *grœnicheri* Van Duzee.
10. Anterior coxæ at least one-third yellowish..... 11
Anterior coxæ black or green except the tip..... 12
11. Costa with long, fine, curved ciliate hair..... *cilicostatus* Van Duzee.
Costa with normal appressed hair..... *inacqualis* Van Duzee.
12. Posterior four tibiæ brown..... *chrysoprasius* Walker.
Anterior four tibiæ yellowish..... 13
13. Anterior tibiæ with at most one unusually long bristle behind; anterior tarsi of the male with coarse bristles and other ornamentation 14
Anterior tibiæ with two very long, slender posterior bristles, each of which is almost half as long as the tibia; anterior tarsi of the male practically simple..... *pruinus* Coquillett.
14. Second segment of the anterior tarsi with several coarse, short, curved spines below (male)..... *albiciliatus* Van Duzee.
Front tarsi simple (females)..... 15
15. Anterior tibiæ with a very long fine bristle beyond the middle posteriorly *albiciliatus* Van Duzee.
Anterior tibiæ with only very short bristles..... *chrysoprasius* Walker.

Sciapus nubilipennis Van Duzee

1927. *Psilopus nubilipennis* Van Duzee, American Museum Novitates, No. 262, p. 7.

Originally described from a single male from Adjuntas, June 8-13, 1915.

Sciapus diffusus Wiedemann

1830. *Psilopus diffusus* Wiedemann, *Ausser. Zweifl.*, ii, p. 221.

Male and female, Arecibo, March 1-4, 1914, and June 24-26, 1915; male, Mayagüez, June 21-23, 1915; female, Cayey, March 30-31, 1915; female, Manatí, June 27-29, 1915; female, Adjuntas, June 8-13, 1915.

Occurs also in Cuba, Jamaica and Haiti.

Sciapus digitatus Van Duzee

1914. *Sciapus digitatus* Van Duzee, *Can. Ent.*, xlvii, p. 391.

Male, Cayey, May 30-31, 1915.

There are also specimens from Cuba, Jamaica, Haiti and Dominica.

Sciapus leonardi Van Duzee

1915. *Sciapus leonardi* Van Duzee, *Ent. News*, xxvi, p. 19. (key).

1916. *Sciapus leonardi* Van Duzee, *Washington Univ. Studies*, ii, p. 88.

Male, Aibonito, July 14-17, 1914; male, Adjuntas, June 26, 1915, and male, Tortogueros Lake, Manatí, February 20, 1925.

There are also specimens before me from Haiti and Dominica.

Sciapus dorsalis Loew

1865. *Psilopus dorsalis* Loew, *Cent.*, vi, No. 85.

Male, Manatí, June 27-29, 1915; Aibonito, June 1-3, 1915; female, Aibonito, February 10, 1925, and female, Arecibo, June 24-26, 1915.

Sciapus spinimanus Van Duzee

1927. *Psilopus spinimanus* Van Duzee, *American Museum Novitates*, No. 262, p. 6.

Originally described from a male from Sanchez, May 22-27, 1915.

Sciapus unieinctus Van Duzee

1927. *Psilopus unieinctus* Van Duzee, *American Museum Novitates*, No. 262, p. 6.

The type female is from St. John Island, March 10, 1925.

Sciapus flavicornis Aldrich

1896. *Gnamptopsilopus flavicornis* Aldrich, *Trans. Ent. Soc. London*, p. 342.

Male, San Juan, February 11-14, 1914.

There are also representatives from Jamaica.

Sciapus graenicheri Van Duzee

1927. *Psilopus graenicheri* Van Duzee, Ent. News, xxxviii, p. 73.

Male, Coamo Springs, July 17-19, 1914; female, Mayagüez, February 15-16, 1914; female, Arecibo, July 30-August 1, 1914; female, Jayuya, January 6, 1915; female, Luquillo National Forest, February 11, 1925; male and female, Tortogueros Lake, Manatí, February 30, 1925; male, St. John Island, March 9, 1925, and female, St. Croix Island, March 2, 1925.

There are also specimens from Cuba, Jamaica and Dominica.

This species has previously been recorded as *caudatus* Wiedemann.

Sciapus inaequalis Van Duzee

1927. *Psilopus inaequalis* Van Duzee, American Museum Novitates, No. 262, p. 6.

Originally described from a single male, Charlotte Amalie, St. Thomas Island, June 3, 1911.

Sciapus chrysoprasius Walker

1849. *Psilopus chrysoprasius* Walker, List Dipt., iii, p. 646.

1904. *Psilopus ciliipes* Aldrich, Biol. Cent. Amer., i, p. 355.

Male, Corozal, July 2, 1915; male, Naguabo, March 7-9, 1914; two males, St. John Island, March 9, 1925; male, St. Thomas Island, February 23, 1925.

Sciapus pruinus Coquillett

1904. *Sciapus pruinus* Coquillett, Proc. Ent. Soc. Wash., vi, p. 186.

Male, Aibonito, July 14-17, 1914; female, Adjuntas, June 8-13, 1915.

Occurs also in Dominica and Florida.

Sciapus albiciliatus Van Duzee

1927. *Psilopus albiciliatus* Van Duzee, American Museum Novitates, No. 262, pp. 9 and 10.

Three of the type specimens are from our region: San Juan, July; Mona Island, February 24-26, 1914; St. Thomas Island, November 22, 1925.

Occurs also in Jamaica.

SYRPHIDÆ

This family is represented by a number of striking species, several of those in the collection having been recently described by the author.

The genera occurring in Porto Rico and the Virgin Islands are separable by the following key.

KEY TO GENERA

1. Humeri bare..... 2
Humeri pilose..... 5
2. Abdomen more or less spatulate in outline..... *Baccha* Fabricius.
Abdomen oval or with parallel sides..... 3
3. Sides of the mesonotum bright yellow, or, if not, the face strongly produced forwards..... 4
Sides of the mesonotum not strongly yellow, or, if somewhat so, the facial swelling is in the shape of a rounded tubercle (*Ocyptamus*).
Baccha Fabricius.
4. Face somewhat receding, not distinctly tuberculate.
Allograpta Osten Sacken.
Face strongly produced in the middle..... *Mesogramma* Loew.
5. Third vein deeply looped into the apical cell..... 6
Third vein at most gently undulated; apical crossvein recurrent.
Volucella Geoffroy.
6. Yellow markings of the thorax composed of dense tomentum; no pile beneath the posterior spiracle..... *Meromacrus* Rondani.
Yellow markings of the thorax either of the ground color or due to pollen..... *Eristalis* Latreille.

Baccha Fabricius

All the species belonging to this genus have the abdomen spatulate in outline or parallel-sided and all have quite large heads. Nine species are known from Porto Rico and the Virgin Islands.

KEY TO SPECIES

1. Wings wholly hyaline or with only the stigma and costal or subcostal cells basally brown..... 2
Wings with an apical spot or cloud or largely brownish..... 3
2. Face most prominent in the middle; upper lobe of the squamæ without fringe; knob of halteres brown; allula small. *stenogaster* Williston.
Face produced below; upper squamal lobe fringed; halteres yellow; allula large..... *clavata* Fabricius.
3. Wings lightly clouded apically or with a sub-triangular apical brown cloud 4
Wings much more extensively brown..... 6
4. Wings only lightly infuscated apically, with a clear spot near the apex of the submarginal cell; face receding, not tuberculate.
gracilis Williston.
Wings with a sub-triangular spot in the submarginal cell..... 5
5. Front yellow, with a deep black lunular spot..... *ornatipes* Curran.
Front blue-black..... *incompta* Austen.
6. Scutellum wholly yellow; wings wholly brownish lutesc. *Baccha* species (condition imperfect).

- Scutellum wholly black or brownish yellow..... 7
 7. Wings wholly brownish..... *laticusculus* Loew.
 Wings in large part hyaline..... 8
 8. Abdomen long, slightly clavate: face pale yellow... *cylindrica* Fabricius.
 Abdomen short and rather broad: face dark yellow, usually with a
 dark median vitta..... *dimidiata* Fabricius.

***Baccha stenogaster* Williston**

1888. *Baccha stenogaster* Williston, Trans. Amer. Ent. Soc., xv, p. 266.

Six specimens: Adjuntas, June 8-13, 1915; Coamo Springs, June 5-7, 1915; St. Thomas Island, February 22, 1925; St. Croix Island, February 21, 1925.

***Baccha clavata* Fabricius**

1794. *Syrphus clavatus* Fabricius, Ent. Syst., iv, p. 298.

Several specimens from the following localities: Arecibo, June 24-26, 1915; St. Croix Island, February 23, 28, 1925, April 10, 1925, March 3, 6, 1925; St. Thomas Island, March 12, 1925, February 24, 25, 1925.

***Baccha ornatipes* Curran**

Fig. 4

1927. *Baccha ornatipes* Curran, American Museum Novitates, No. 245, p. 3.

Originally described from a single male from Cayey, May 30, 1915, collected by F. E. Lutz and A. J. Mutchler.



Fig. 4.—*Baccha ornatipes* Curran. Hind leg of male, posterior view.

(Courtesy of American Museum of Natural History.)

***Baccha gracilis* Williston**

1891. *Baccha gracilis* Williston, Biol. Cent. Amer., Dipt., iii, p. 34.

A single specimen, Luquillo National Forest, appears to be this species but, as indicated in the key, the wings are distinctly though lightly darkened apically. Otherwise it appears to show no differences.

Baccha incompta Austen

1893. *Baccha incompta* Austen, Proc. Zool. Soc. London, p. 147.

Three specimens: Adjuntas, June 8-13, 1915; I have also a specimen from Honduras. The species was originally described from Brazil.

Baccha species

One specimen from Corozal, July 2, 1915, is related to *capitata* Loew but has quite different abdominal markings and yellowish-brown wings. Its condition is imperfect, but it evidently represents an undescribed species.

Baccha cylindrica Fabricius

1781. *Syrphus cylindricus* Fabricius, Species Insect., ii, p. 429.

Numerous specimens from the following localities: Arecibo, July 30-August 1, 1914; Mayagüez, July 24-29, 1914, and February 15-16, 1914; Luquillo National Forest, February 18, 1925; Mona Island, February 21-26, 1914; St. John Island, March 9, 10, 1925; St. Thomas Island, February 24, 25, 1925; St. Croix Island, February 27, 1925 and March 7.

Baccha dimidiata Fabricius

1781. *Syrphus dimidiatus* Fabricius, Species Insect., ii, p. 434.

There are specimens in the collection from the following localities: Aibonito, July 14-17, 1914; Cayey, May 30-31, 1915; Mayagüez, July 24-29, 1914; Luquillo National Forest, February 18, 1925; St. Croix Island, March 2, 7, 1925; February 26, 1925; St. Thomas Island, February 22, 23, 25, 1925, and St. John Island, March 9, 1925.

Allograpta Osten Sacken

The two species belonging to this genus, contained in the collection, were recently described by the author. The following key separates the known species.

KEY TO SPECIES

- | | |
|---|---------------------------|
| 1. Pteropleura black on the lowest two-thirds or more..... | 2 |
| The yellow spot on the sternopleura extends over the pteropleura to connect with that on the hypopleura..... | <i>obliqua</i> Say. |
| 2. Disc of the scutellum with a large, transverse, posteriorly convex black or brown spot..... | 3 |
| Scutellum wholly yellowish or dull orange with yellow border. | <i>erotica</i> Wiedemann. |
| 3. Tip of oral margin lying much above the lower edge of the eyes and considerably more prominent than the antennal base..... | 4 |

- Tip of oral margin situated but little above the lower edge of the eye, not more prominent than the antennal base and less prominent than the obscure tubercle..... 5
4. Hair of the anterior tibiae wholly black; yellow band on the third abdominal segment separated from the base of the segment by at least its own width..... *colombia* Curran.
 Hair of the anterior tibiae practically all yellow; pale band on third abdominal segment only narrowly separated from the base of the segment *similis* Curran.
5. Squamae brown except basally; front of male black pilose
fuscisquama Curran.
 Squamae at most slightly infuscated; front of male yellow pilose, often a few black hairs..... *venusta* Curran.

Allograpta fuscisquama Curran

1927. *Allograpta fuscisquama* Curran, American Museum Novitates, No. 245, p. 4.

Originally described on the basis of five specimens from Eusenada, June 14, 1915; Tortola, March 18, 1925; St. Thomas Island, February 25, 1925; St. Croix Island, February 26, 1925; Mona Island, February 21-26, 1914.

Allograpta venusta Curran

1927. *Allograpta venusta* Curran, American Museum Novitates, No. 245, p. 5.

Described from St. Croix Island, February 25 and 26, 1925.

Mesogramma Loew

This genus is well represented in Porto Rico and the Virgin Islands and most of the species are rather common.

KEY TO SPECIES

1. A yellow spot above the anterior coxae..... 2
 No yellow spot above the anterior coxae..... 5
2. Third and following segments of the abdomen without sub-basal fasciae 3
 Third and following abdominal segments reddish with a narrow sub-basal black fascia which is narrowly interrupted in the middle, the inner ends joined to a pair of slender median vittae which may, however, be obsolete..... *polita* Say.
3. Pteropleura practically all black, never yellow contiguous to the yellow of the mesopleura; scutellum black with yellow border..... 4
 Pteropleura more than half yellow; scutellum wholly pale.
duplicata Wiedemann.
4. Humeri, a spot on the notopleura and the posterior calli, yellow.
verticalis Curran.

- Lateral margin of the mesonotum yellow at least in front of the suture *florale* Fabricius.
5. Scutellum opaque black with yellow margin, or mostly shining aeneous. 7
Scutellum mostly yellow, sometimes rusty brownish on the disc or with narrow black base..... 6
6. Yellow of the third abdominal segment bearing on either side an oblique comma-shaped black spot; space between the posterior coxae and the spiracle mostly yellow..... *laciniosa* Loew.
Yellow of third abdominal segment with a longitudinal dash of black; space above posterior coxae normally black..... *musicus* Fabricius.
7. Middle femora, and usually the front femora as well, with a broad, pre-apical black band..... *violacea* Curran.
Middle and anterior femora wholly yellow or the former with incomplete ferruginous bands..... 8
8. Sides of the mesonotum yellow..... 9
Only the humeri and part of the posterior calli yellow. *basilare* Wiedemann.
9. Middle tibiae black-haired in front; there is no black prolongation of the posterior black fascia at the lateral fourth of the third segment; abdomen often almost wholly reddish..... 10
Middle tibiae usually wholly pale-haired; the lateral posterior black area on the segments is connected at its inner corner to the base of the segment by an anterior prolongation or triangle.. *pecta* Macquart.
10. All the femora unusually swollen and with unusually long pile; abdomen, except the first segment, shining reddish..... *rufocincta* Curran.
Femora only a little swollen, with normal pile; at least the second segment always with lateral black triangles..... *arifera* Loew.

Mesogramma polita Say

1823. *Scavea polita* Say. Journ. Acad. Nat. Sci. Phila., iii, p. 88.

I have seen specimens from Porto Rico although the species is not represented in the collection.

Mesogramma duplicata Wiedemann

1830. *Syrphus duplicatus* Wiedemann, Ausser, Zweifl., ii, p. 142.

Represented by specimens from the following localities: Rio Piedras, February 12, 1925; Coamo Springs, July 17-19, 1914; Aibonito, June 1-3, 1915; Caguas, May 28, 29, 1915; Manatí, March 5, 1914, June 27-29, 1915; Adjuntas, June 8-15, 1915; Corozal, July 2, 1915.

Mesogramma verticalis Curran

1927. *Mesogramma verticalis* Curran, American Museum Novitates, No. 245, p. 6.

Known only from the type male, Cayey, May 30-31, 1915.

Mesogramma florale Fabricius

1798. *Scacva floralis* Fabricius, Entom. Syst., p. 563.

Numerous specimens from the following localities: Aibonito, June 24-26, 1915; Adjuntas, June 8-13, 1915; Arecibo, June 1-3, 1915; Barros, June 4, 1915; Caguas, May 28-29, 1915; Coamo Springs, July 17-19, 1914; Ensenada, June 14-19, 1915; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914; Quebradillas, June 23, 1915; San Juan, July 1-5, 1915, July 9-12, 1914; St. John Island, March 9, 10, 1925; St. Thomas Island, February 25, 27, 1925.

Mesogramma laciniosa Loew

1865. *Mesogramma laciniosa* Loew, Berlin Ent. Zeitschr., ix, p. 159.

Not in the collection: I have seen specimens labeled Porto Rico.

Mesogramma musicus Fabricius

1805. *Scacva musicus* Fabricius, Syst. Antliat., p. 253.

One specimen, Corozal, July 2, 1915.

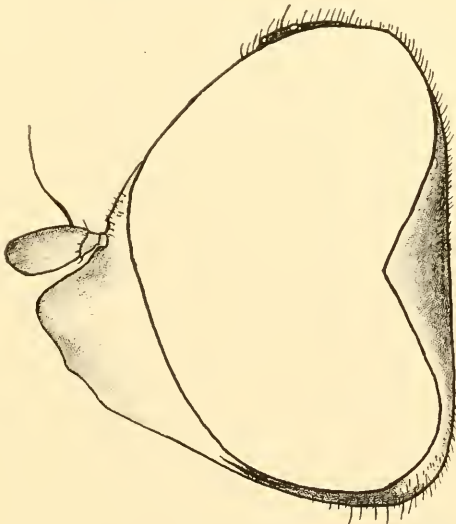


Fig. 5.—*Mesogramma violacea* Curran. Profile of head, male.

Mesogramma violacea Curran

Figs. 5, 6

1926. *Mesogramma violacea* Curran, in Cat. Insect. Jamaicensis, (sep. edit. p. 2, July 1), p. 103.

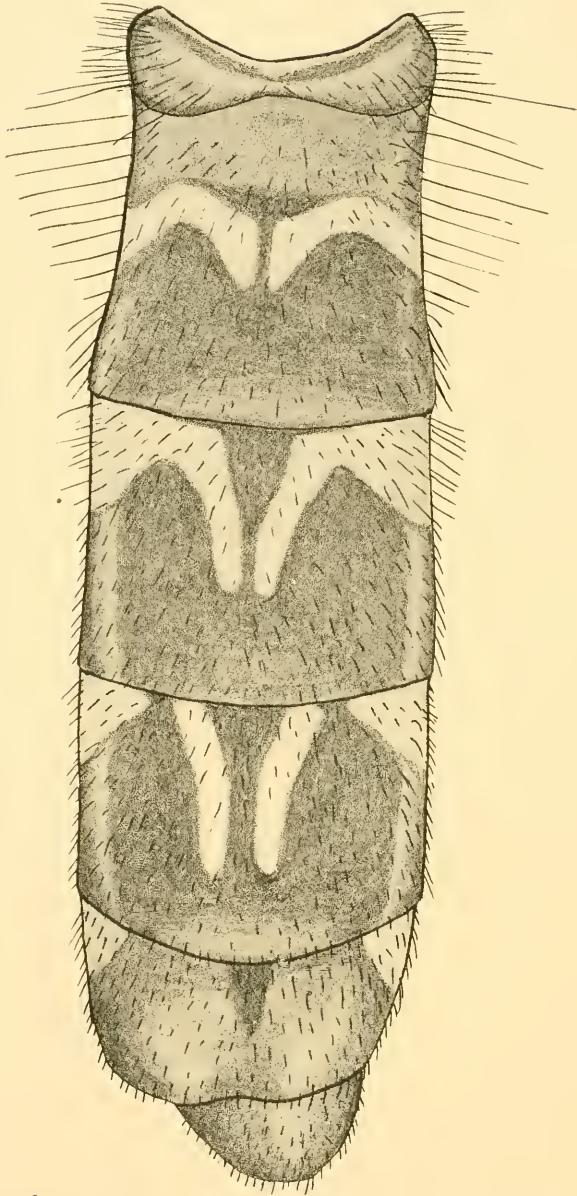


FIG. 6.—*Mesogramma violacea* Curran. Abdomen of male, dorsal view.

Represented from the following localities: Adjuntas, June 26, 1915 and June 8-15, 1915; Aibonito, February 10, 1925; Arecibo, March 1-4, 1914; Jayuya, January 6, 1915; Mayagüez, July 24-29, 1914; Naguabo, March 7-9, 1914; Luquillo National Forest, February 18, 1925.

Mesogramma arcifera Loew

1865. *Mesogramma arcifera* Loew, Berlin Ent. Zeitschr., ix, p. 160.

Numerous specimens: Aibonito, July 14-17, 1914, February 10, 1925; Arecibo, June 24-25, 1915; July 30-August 1, 1914, March 1-4, 1914; Corozal, July 2, 1915; Luquillo National Forest, February 17, 18, 1925; Mameyes, February 17, 1925; Manatí, June 27-29, 1915; Mayagüez, June 21-23, 1915; Naguabo, March 7-9, 1914; San Juan, February 11-14, 1914, July 1-5, 1915; Jayuya, January 6, 1915.

Mesogramma picta Macquart

1842. *Syrphus pictus* Macquart, Dipt. Exot., ii, (21), p. 99.

There are specimens from Aibonito, July 14-17, 1914, and Corozal, July 2, 1915.

Volucella Geoffroy

The species recorded from Porto Rico and the Virgin Islands are separated in the following table.

KEY TO SPECIES

1. Metallic green, usually with violaceous or bluish reflections.
obesa Fabricius.
- Not metallic green..... 2
2. Large blackish species, the abdomen with violaceous reflections: wholly dark..... *eugenia* Williston.
- Abdomen with at least the base broadly pale..... 3
3. Wings more or less strongly fasciate with brown.... *unipunctata* Curran.
- Wings with only the small stigmal spot blackish; squame yellow; pre-apical scutellar depression present..... *pallens* Wiedemann.

Volucella obesa Fabricius

1775. *Syrphus obsesus* Fabricius, Syst. Entom., p. 763.

Numerous specimens from Porto Rico: Aibonito, June 14-17, 1914; June 1-3, 1915; Naguabo, March 7-9, 1914; Maricao, July 27, 1914; Manatí, June 27-29, 1915; Comerio, July 6, 1915; Adjuntas, June 6-13, 1915; San Juan, July 1-5, 1915; Cayey, May 30-31, 1915; Mameyes, November 19, 1925.

Volucella unipunctata Curran

1926. *Volucella unipunctata* Curran, Ann. Ent. Soc. Amer., xix, p. 63.

Originally described from Desecheo Island and Ensenada, Porto Rico. There are specimens in the collection from the following localities: Tortola, March 18, 1925; St. Croix Island, March 2, 3, 1925; St. Thomas Island, February 25, 1925.

Volucella pallens Wiedemann

1830. *Volucella pallens* Wiedemann, Ausser. Zweifl., ii, p. 204.

Male and female, Luquillo National Forest, February 17, 18, 1925.

Eristalis Latreille

The collection contains four species belonging to this genus.

KEY TO SPECIES

1. Anterior four femora wholly reddish or only ferruginous basally.
vinetorum Fabricius.
- All the femora mostly black..... 2
2. No pale prescutellar fascia; pleura almost wholly black pilose.
atrimana Loew.
- A pale pollinose prescutellar fascia; pleura almost wholly pale pilose. 3
3. Front of female whitish pilose on lower fourth or more.
albifrons Wiedemann.
- Middle of front black pilose on its whole length..... *cubensis* Macquart.

Eristalis vinetorum Fabricius

1798. *Syrphus vinetorum* Fabricius, Ent. System., p. 562.

Numerous specimens from the following localities: Tortogueros Lake, November 19, 20, 1925; San Juan, July 9-12, 1914, July 1-5, 1915; Catano, January 3, 1914; Adjuntas, June 8-13, 1915; Ensenada, June 14-19, 1915; Cayey, May 30-31, 1915; Caguas, May 28-29, 1915; Naguabo, March 7-9, 1914; Maricao, July 27, 1914; Mayagüez, February 15-16, 1914; July 24-29, 1914; Coamo Springs, July 17-19, 1914, June 5-7, 1915; Talaboa, near Ponce, July 23, 1914; Manatí, June 27-29, 1915; Aibonito, July 14-17, 1914; St. Croix Island, May 5, 1919, August 25, 1917, March 7, April 10, and November 26, 1925; St. Thomas Island, March 12, 1925; St. John Island, April 10, 1925.

Eristalis albifrons Wiedemann

1830. *Eristalis albifrons* Wiedemann, Ausser. Zweifl., ii, p. 189.

Three females: Luquillo National Forest, February 18, 1925; Tortola Island, March 28, 1925 and St. Thomas Island, March 12, 1925.

Eristalis cubensis Macquart

1842. *Eristalis cubensis* Macquart, Diptera Exot., ii, (2), p. 42.

One female, Manatí, June 27-29, 1915.

Eristalis atrimana Loew

1865. *Eristalis atrimana* Loew, Berlin Entom. Zeitschr., ix, p. 167.

Male, Aibonito, Porto Rico, June 1-3, 1915.

Meromaerus Rondani**Meromaerus pratorum** Fabricius

1775. *Syrphus pratorum* Fabricius, Syst. Entom., p. 765.

One specimen, St. Thomas Island, February 22, 1925.

PHORIDÆ

There is in the collection but one species, belonging to the genus *Megaselida* Rondani, representing this family.

Megaselida scalaris Loew

1866. *Phora scalaris* Loew, Cent., vii, p. 100.

More than forty specimens from Mona Island, February 21-26, 1914. There are before me also specimens from Dominica, Jamaica and Cuba.

PIPUNCULIDÆ

There are in the collection three specimens belonging to three different species of *Pipunculus* Latreille. Two of the specimens are without heads and therefore cannot be definitely determined. One of these appears to be undescribed while the second may be the same as a species recently described from Jamaica. The third species is characterized below.

Pipunculus Latreille**Pipunculus regalis**, new species

Black; stigma brown; antennæ black, the third segment yellowish brown, produced downwards into a long, tapering point; abdomen brownish pollinose above, grayish on the sides and base; legs black. Length, 2.25 mm.

Female. Face and lowest fifth of the front silvery white; front shining black, widest at the upper third, with a distinct longitudinal median groove. Occiput grayish-white pollinose, very thinly so above. Labellæ and palpi reddish yellow. Arista thickened on less than the basal sixth.

Thorax moderately grayish pollinose, the disc of the mesonotum brownish; a white spot located inside either humerus; humeri yellow. Scutellum shining black, thinly pollinose on the basal half, with inconspicuous marginal hairs.

Legs black, gray pollinose; tips of the femora and the broad bases of the tibiae yellow; tips of the tibiae and the basal two or three tarsal segments brownish red.

Wings almost pure hyaline; anterior crossvein situated slightly beyond the tip of the auxiliary vein; posterior crossvein slightly longer than the ultimate section of the fifth vein, straight, a little oblique; ultimate section of the fourth vein straight. Squamæ yellowish. Halteres brownish? (the knob missing).

Abdomen shining black on the disc, thinly brownish pollinose, the basal and apical segments and the broad lateral margins grayish pollinose; genitalia very thinly grayish pollinose, the piercer longer than the basal sub-globose section, reaching almost to the base of the third abdominal segment. First abdominal segment with three black bristles laterally, the abdomen elsewhere apparently without hair.

Type, female, Mayagüez, Porto Rico, February 15-16, 1914.

CHLOROPIDÆ

This family is very well represented in the collection and a number of new forms have been described from the material. The six genera represented may be distinguished by the characters given in the following key:

TABLE OF GENERA

- | | |
|---|-------------------------------|
| 1. Costa extending to the fourth vein..... | 2 |
| Costa ending at or slightly beyond the tip of the third vein; posterior tibiae with a large, oval sensory area..... | <i>Chloropisca</i> Loew. |
| 2. Posterior tibiae with a strong, curved apical spine..... | 3 |
| Posterior tibiae without such spine..... | 4 |
| 3. Scutellum elongate, the disc flattened; front with strong orbital bristles | <i>Prohippелates</i> Malloch. |
| Scutellum normal, convex; orbitals very weak..... | <i>Hippelates</i> Loew. |
| 4. Arista tapering, bare or pubescent..... | 5 |
| Arista broadened and strap-like in appearance.... | <i>Elachiptera</i> Macquart. |
| 5. Proboscis elongate and horny, with the terminal, folded-back portion three-fourths as long as the preceding section..... | <i>Madisa</i> Fallen. |
| Proboscis shorter, the folded-back portion rarely more than half as long as the preceding section..... | <i>Botanobia</i> Lioy. |

Chloropisca Loew

There is but a single species representing this genus.

Chloropisca atra Curran

1926. *Chloropisca atra* Curran, Amer. Mus. Novitates, No. 220, p. 3.

Only the type female, Arecibo, June 24-26, 1915, has been seen.

Prohippelates Malloch

The genus is represented by only a single species.

Prohippelates pallidus Loew

1865. *Hippelates pallidus* Loew, Cent. vi, No. 93.

One specimen from Mona Island, February 21-26, 1914.

Originally described from Cuba.

Hippelates Loew

A large proportion of the species of Chloropidae occurring in Porto Rico and the Virgin Islands belong to this genus.

KEY TO SPECIES OF HIPPELATES AND PROHIPPELATES

- | | |
|---|-------------------------------|
| 1. Front with short, hair-like orbitals..... | 2 |
| Front with strong orbital bristles; scutellum flat above; wholly pale except the small brown ocellar spot..... | <i>P. pallidus</i> Loew. |
| 2. Scutellum wholly or partly yellow..... | 3 |
| Scutellum wholly black..... | 7 |
| 3. Mesonotum black, usually pollinose..... | 4 |
| Mesonotum rather shining reddish, sometimes with three slender brownish vittæ, rarely with a broad median black vitta and one or two spots on either side..... | 6 |
| 4. Pleura mostly or wholly brown; vertical triangle brown; mesonotum never yellow posteriorly..... | 5 |
| Pleura pale on upper half; posterior border of mesonotum yellow; only the ocellar triangle black..... | <i>dorsatus</i> Williston. |
| 5. Spur of posterior tibia situated half its length from the apex of the tibia; scutellum not black on more than the basal fourth | |
| <i>incipiens</i> Curran. | |
| Spur of posterior tibiæ situated about one-fourth its length from apex of tibia; scutellum black on basal half..... | <i>scutellaris</i> Williston. |
| 6. Ocellar triangle shining brownish red, sharply defined.. | <i>tener</i> Coquillett. |
| Ocellar triangle reddish yellow, poorly defined..... | <i>impressus</i> Becker. |
| 7. Posterior half or more of the mesonotum or at least the notopleura, thickly pollinose..... | 8 |
| Mesonotum not pollinose on more than the posterior third, the noto- pleura always devoid of pollen..... | 11 |
| 8. Mesonotum shining; a prescutellar fascia, notopleura and pteropleura, grayish pollinose; anterior coxæ black..... | <i>nigricoxa</i> Malloch. |
| Mesonotum pollinose on at least the posterior half..... | 9 |
| 9. Mesonotum wholly pollinose..... | 10 |
| Mesonotum broadly shining in front (sometimes in denuded speci- mens largely shining except posteriorly); mesopleura and ptero- pleura pollinose; front coxæ normally yellow..... | <i>convexus</i> Loew. |
| 10. Thorax reddish brown; vertical triangle shining except the ocellar spot | <i>tener</i> Coquillett. |

- Thorax blackish; vertical triangle with three shining black spots, elsewhere pollinose..... *nobilis* Loew.
11. Only three rows of hairs between the dorso-central punctured rows. 12
At least four rows of hairs between the punctured vittæ..... 15
12. At least a complete row of hairs between the central and dorso-central rows..... 13
Only a few weak hairs between central and dorso-central rows; sides of vertical triangle straight..... *nudifrons* Malloch.
13. Posterior femora and tibiæ black on apical third or more; vertical triangle acute, rarely a little reddish in front..... *illicis* Curran.
Legs wholly pale..... 14
14. Anterior half of the acute frontal triangle yellow..... *partitus* Becker.
Frontal triangle wholly black, its sides convex anteriorly.. *flavipes* Loew.
15. Legs entirely yellow or with the posterior tibiæ and tips of the tarsi more or less black..... 16
At least the posterior femora partly black..... 22
16. Frontal triangle largely reddish or rusty red, its middle with a black triangle, the sides concave anteriorly; tibiæ wholly pale.
peruanus Becker.
Frontal triangle wholly shining black or marked with yellow anteriorly, or the posterior tibiæ largely black..... 17
17. Abdomen largely black..... 18
Abdomen entirely pale yellow..... *lutzi* Curran.
18. Posterior tibiæ broadly yellow at both ends or wholly yellow, the frontal triangle reaching almost to the anterior margin of the front. 19
Posterior tibiæ black on the apical two-thirds or more; mesonotum with longish white hair; frontal triangle reaching to the anterior third of the front..... *peruanus* Becker.
19. At most the anterior fifth of the frontal triangle yellow..... 20
Anterior half of frontal triangle pale yellow.. *partitus* Becker.
20. Frontal triangle reaching only to the anterior fourth of the front or convex on the sides..... 21
Frontal triangle reaching almost to the lunule, its sides concave anteriorly *bicolor* Coquillett.
21. Sides of the vertical triangle convex anteriorly..... *flavipes* Loew.
Sides of the vertical triangle almost straight, the triangle reaching only slightly beyond the middle of the front..... *collusor* Curran.
22. Posterior femora and tibiæ black on apical half or more..... 23
Posterior femora broadly pale apically and basally, their tibiæ wholly pale..... *pusio* Loew.
23. Posterior tibiæ black on apical half, without sensory area. *apicata* Malloch.
Posterior tibiæ wholly pale, with elongate, dull sensory area on the postero-dorsal surface near the middle..... *peruanus* Becker.

Hippelates dorsatus Williston

1896. *Hippelates dorsatus* Williston, Trans. Ent. Soc. London, p. 419.

Three specimens from Mona Island, February 21-26, 1914.

Hippelates incipiens Curran

Fig. 7

1926. *Hippelates incipiens* Curran, Amer. Mus. Novitates, No. 220, p. 5.

Described from two females: Naguabo, March 7-9, 1914, and Coamo Springs, July 17-19, 1914.

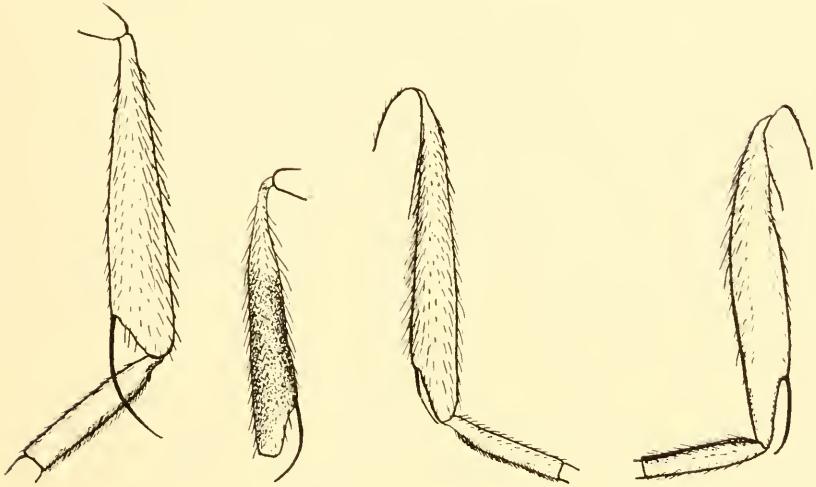


Fig. 7 (extreme left).—*Hippelates incipiens* Curran. Posterior tibia.
 Fig. 8 (second from left).—*Hippelates illicis* Curran. Posterior tibia.
 Fig. 9 (second from right).—*Hippelates lutzii* Curran. Posterior tibia.
 Fig. 10 (extreme right).—*Hippelates collusor* Curran. Posterior tibia.

Hippelates scutellaris Williston1896. *Hippelates scutellaris* Williston, Trans. Ent. Soc. London, p. 420.

One specimen from Adjuntas, June 8-13, 1915.

Hippelates tener Coquillett1900. *Hippelates tener* Coquillett, Proc. U. S. N. M., xxii, p. 265.

One specimen from Arecibo, June 24-26, 1915, and one from Mona Island, February 21-26, 1914.

Hippelates impressus Becker1912. *Hippelates impressus* Becker, Annales Mus. Nat. Hung., x, p. 98.

Fourteen specimens from Desecheo Island, February 18-20, 1914.
 The color of the mesonotum is somewhat variable.

Hippelates nigricoxa Malloch

1913. *Hippelates nigricoxa* Malloch, Proc. U. S. N. M., xlv, p. 250.

Nineteen specimens from the following localities: Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914; Barros, June 4, 1915; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914; Coamo Springs, July 17-19, 1914; San Juan, February 11-14, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911.

Hippelates convexus Loew

1865. *Hippelates convexus* Loew, Cent. vi, No. 94.

Numerous specimens from the following localities: Adjuntas: Arecibo, June 24-26, 1915, March 1-4, 1914; Caguas, May 28-29, 1915; Cayey, May 20-31, 1915; Coamo Springs, July 17-19, 1914; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914; San Juan, February 11-14, 1914; July 9-12, 1914; Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911.

Hippelates nobilis Loew

1863. *Hippelates nobilis* Loew, Cent. iii, No. 67.

Three specimens: Aibonito, July 14-17, 1914; Adjuntas, June 8-13, 1915; Arecibo, June 24-26, 1915.

Hippelates nudifrons Malloch

1913. *Hippelates nudifrons* Malloch, Proc. U. S. N. M., xlv, p. 242.

This species is not represented in the collection. One of the type specimens is from Vieques Island.

Hippelates illicis Curran

Fig. 8

1926. *Hippelates illicis* Curran, Amer. Mus. Novitates, No. 220, p. 4.

The type series: Arecibo, June 24-26, 1915; Charlotte Amalie, St. Thomas Island, June 3, 1911, and Manatí, March 5, 1914.

Hippelates partitus Becker

1912. *Hippelates partitus* Becker, Annales Mus. Nat. Hung., x, p. 89.

One specimen from Aibonito, July 14-17, 1914, agrees with the description.

Hippelates flavipes Loew

1865. *Hippelates flavipes* Loew, Cent. vi, No. 95.

Represented by specimens from the following localities: Arecibo, June 24-26, 1915; Barros, June 4, 1915; San Juan, July 1-5, 1915; Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911.

This species has the frontal triangle convex on the sides anteriorly according to a type specimen before me, and the specimens referred to *flavipes* by Becker and Malloch are a quite different species—evidently the same as that which I have described as *collusor*.

Hippelates peruanus Becker

1912. *Hippelates peruanus* Becker, Annales Mus. Nat. Hung., x, p. 170.

Eight specimens: Arecibo, June 24-26, 1915; Jayuya, January 6, 1915; San Juan, July 1-5, 1915; Adjuntas, June 8-13, 1915; Christiansted, St. Croix Island, June 4, 1911.

Hippelates lutzi Curran

Fig. 9

1926. *Hippelates lutzi* Curran, Amer. Mus. Novitates, No. 220, p. 5.

The type specimens are from Mona Island, February 21-26, 1914.

Hippelates bicolor Coquillett

1900. *Hippelates bicolor* Coquillett, Proc. U. S. N. M., xxii, p. —.

Specimens from Manatí, March 5, 1914; Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911.

Hippelates collusor Curran

Fig. 10

1926. *Hippelates collusor* Curran, Amer. Mus. Novitates, No. 220, p. 4.

Originally described from the following specimens: female, Charlotte Amalie, St. Thomas Island, June 3, 1911; female, Manatí, March 5, 1914; female, Mona Island, February 21-26, 1914.

Hippelates pusio Loew

1872. *Hippelates pusio* Loew, Cent. x, p. 87.

Six specimens: Arecibo, June 24-26, 1915; Adjuntas, June 8-13, 1915; Ensenada, June 14-19, 1915; Mona Island, February 21-26, 1914.

Hippelates apicata Malloch

1913. *Hippelates apicata* Malloch, Proc. U. S. N. M., xlv, p. 248.

Four specimens: Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911.

Elachiptera Macquart

There is only one species in the collection belonging to this genus.

Elachiptera flavida Williston

1896. *Elachiptera flavida* Williston, Trans. Ent. Soc. London, p. 417.

A single female, Cayey, May 30-31, 1915.

Madiza Fallen

The two species belonging to this genus have the thorax black and the tibiae mostly yellow. They are separable as follows:

1. Mesonotum grayish pollinose with five brownish vittae.

quinquilineata Adams

Mesonotum mostly and the mesopleura and pteropleura shining black;

tibiae and tarsi, except their tips, pale yellow..... *mattea* Curran.

Madiza quinquilineata Adams

1904. *Siphonella quinquilineata* Adams, Psyche, p. 104.

Several specimens from Manatí, March 5, 1914; Coamo Springs, July 17-19, 1914, and St. Thomas Island, February 23, 1925.

Some of the specimens agree well with the description except that the middle tibiae are never brownish, while others have the front wholly black and the mesonotal vittae are rather cupreous. Without specimens from the mainland for comparison it seems unwise to consider these specimens as other than *quinquilineata*, especially since some of the species vary considerably in the color of the legs.

Madiza mattea Curran

1926. *Madiza mattea* Curran, Amer. Mus. Novitates, No. 220, p. 5.

The type male, Adjuntas, Porto Rico, June 26, 1915, is the only specimen recorded.

Botanobia Lioy

KEY TO SPECIES

- | | |
|--|-------------------------|
| 1. Front femora wholly yellowish or reddish..... | 2 |
| Anterior femora partly or wholly black or brown..... | 12 |
| 2. Second costal section at least slightly shorter than the third..... | 3 |
| Second costal section longer than the third..... | 4 |
| 3. Antennae and palpi wholly black or brown..... | <i>limitata</i> Becker. |

- Antennæ largely, the palpi and scutellum wholly, reddish yellow.
lutzi Curran.
4. Frontal triangle black, gray pollinose or at least not polished..... 10
 Frontal triangle not pollinose, polished..... 5
5. Front wholly black or brown; anterior and posterior tibiæ brownish
 except basally..... 6
 Front broadly reddish or yellow anteriorly..... 7
6. All the femora reddish..... *anonyma* Williston.
 Middle and posterior femora mostly blackish..... *anonyma pura* Curran.
7. Middle and posterior femora black except the base and tip; anterior
 tibiæ mostly, their tarsi wholly, brownish..... *diversipes* Curran.
 Middle and posterior femora yellow or the anterior tibiæ wholly pale
 yellow 8
8. Pleura wholly black; anterior and posterior tibiæ brownish.
palliatæ Curran.
 Pleura partly or wholly reddish yellow..... 9
9. Thorax shining reddish, the mesonotum somewhat darkened on the
 disc, usually more or less distinctly bi- or tri-vittate; all the femora
 reddish *confusa* Malloch.
 Mesonotum black, rather thickly pollinose; posterior femora mostly
 black *sicatrix* Curran.
10. All the abdominal segments with conspicuous apical pale yellow
 fasciæ; front, except the triangle, wholly reddish yellow, *mona* Curran.
 Only the terminal abdominal segment yellow apically; front more or
 less brown opposite the triangle..... 11
11. Triangle reaching little more than one-third the distance to the
 lunule, without shining spots..... *maes* Curran.
 Triangle reaching half way to the lunule, with a shining spot in front
 of the anterior and outside each lateral ocellus.... *tripunctata* Curran.
12. Front wholly black..... 13
 Front broadly pale anteriorly..... 14
13. Triangle reaching the anterior third of the front; anterior tarsi brown-
 ish *plesia* Curran.
 Triangle reaching only a little beyond the middle of the front; anterior
 tarsi pale yellow..... *obscura* Coquillett.
14. Palpi long and projecting well beyond the oral margin in repose,
 yellow; coxæ black; all the tibiæ with blackish bands; triangle
 reaching anterior third of the front..... *magnipalpis* Curran.
 Palpi normal, not projecting from the oral margin in repose..... 15
15. Triangle appearing silvery in some reflections..... *maes* Curran.
 Triangle shining black..... 16
16. Humeri pollinose; parafrontals gray pollinose above..... 17
 Humeri shining; parafrontals above narrower than width of ocellar
 triangle, with parallel sides on the upper fifth..... *varipalpus* Curran.
17. Second costal section at least one and one-half times as long as the
 third *corœndis* var.?
 Second costal section not more than one and one-third times as long as
 the third..... *corœndis* Fitch.

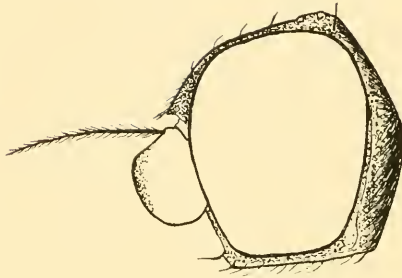


Fig. 11

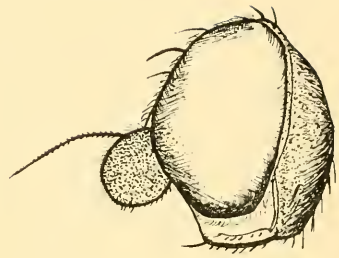


Fig. 12

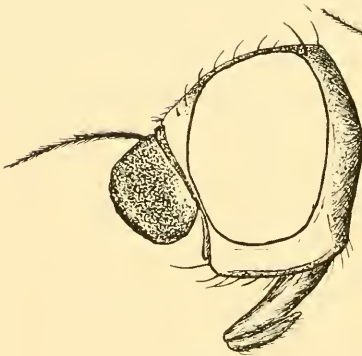


Fig. 13

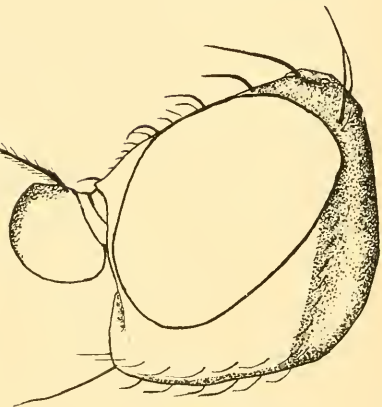


Fig. 14

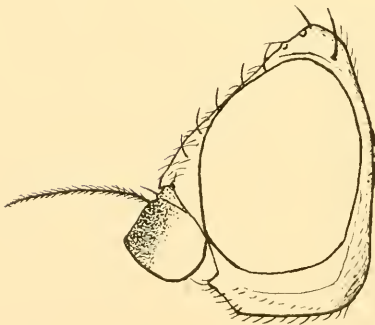


Fig. 15

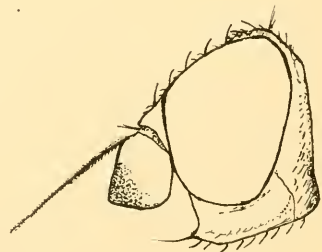


Fig. 16

PROFILES OF HEADS

Fig. 11.—*Botanobia lutzii* Curran.Fig. 12.—*Botanobia anonyma pura* Curran.Fig. 13.—*Botanobia diversipes* Curran.Fig. 14.—*Botanobia palliata* Curran.Fig. 15.—*Botanobia sicatrix* Curran.Fig. 16.—*Botanobia mona* Curran.

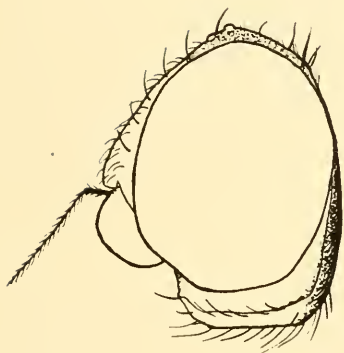


Fig. 17

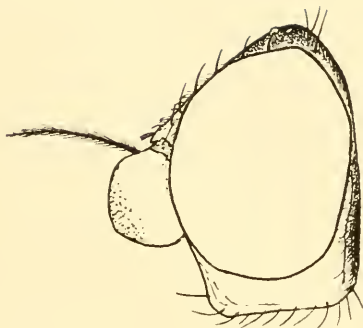


Fig. 18

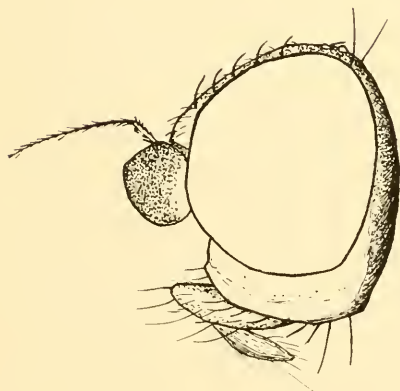


Fig. 19

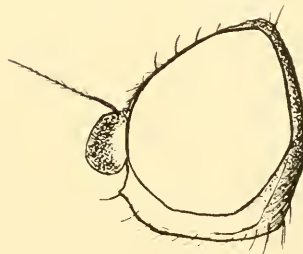


Fig. 20

PROFILES OF HEADS

Fig. 17.—*Botanobia mars* Curran.Fig. 19.—*Botanobia magnipalpis* CurranFig. 18.—*Botanobia tripunctata* Curran.Fig. 20.—*Botanobia varipalpus* Curran.***Botanobia limitata* Becker**1912. *Oscinella limitata* Becker, Annales Mus. Nat. Hung., x. p. 211.

Twenty specimens:—Porto Rico: Arecibo, March 1-4, 1914; Adjuntas, June 8-13, 1915; Caguas, May 28-29, 1915; Cayey, May 30-31, 1915; Manatí, March 5, 1914; Naguabo, March 7-9, 1914; San Juan, July 1-5, 1915. Mona Island, February 21-26, 1914. Charlotte Amalie, St. Thomas Island, June 3, 1911.

The species was originally described from Haiti.

Botanobia lutzii Curran

Fig. 11

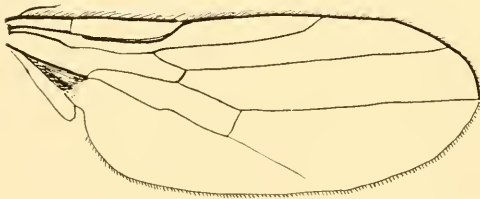
1926. *Botanobia lutzii* Curran, American Mus. Novitates, No. 220, p. 6.

Two males and one female, Arecibo, March 1-4, 1914, June 24-26, 1915, and Adjuntas, June 8-13, 1915.

Botanobia anonyma Williston1896. *Oscinis anonyma* Williston, Trans. Ent. Soc. London, p. 423.

Several specimens are doubtfully referred to this species. They agree with the description except that the basal two segments of the middle and posterior tarsi are reddish. In structure they are quite like the form described as a variety of *anonyma* (see following). Coquillett records the species from various localities in Porto Rico.

The specimens before me are from the following localities: Arecibo, June 24-26, 1915; Cayey, May 30-31, 1915; Manatí, March 5, 1914; Naguabo, March 7-9, 1914.

Fig. 21.—*Botanobia anonyma pura* Curran. Wing.**Botanobia anonyma pura** Curran

Figs. 12 and 21

1926. *Botanobia anonyma pura* Curran, American Mus. Novitates, No. 220, p. 7.

The type male is from San Juan, February 11-14, 1914. Occurs also in Dominica.

Botanobia diversipes Curran

Fig. 13

1926. *Botanobia diversipes* Curran, American Mus. Novitates, No. 220, p. 7.

Originally described on the basis of three specimens from Arecibo, June 24-26, 1915.

Botanobia palliata Curran

Figs. 14 and 22

1926. *Botanobia palliata* Curran, American Mus. Novitates, No. 220, p. 8.

Described on the basis of eight specimens from Adjuntas, June 8-13, 1915.

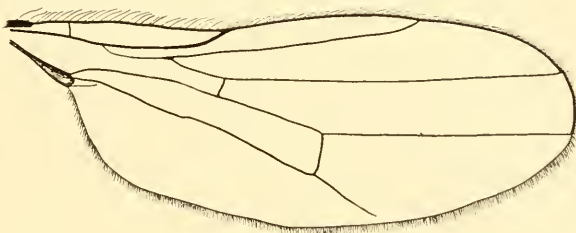


Fig. 22.—*Botanobia palliata* Curran. Wing.

Botanobia confusa Malloch1913. *Botanobia confusa* Malloch, Ins. Ins. Mens., i, p. 61.

Allied to *dorsalis* Loew: rather variable in the color of the thorax. The following description will supplement that of Malloch:—

Length, 1.5 to 1.75 mm.

Vertical triangle somewhat wider than long, extending to a little beyond the middle of the front, shining brownish red, the ocellar triangle darker. Front, face, cheeks and palpi yellowish, the front opaque and with a more reddish cast. Antennæ shining red, the third segment wholly opaque black; arista black, long pubescent. Occiput brownish, black in the middle.

Mesonotum shining reddish brown, the metanotum shining black, the thorax and scutellum elsewhere (including the humeri, notopleura and posterior calli) shining rusty reddish although there is an obscure spot on either side of the scutellum and a yellow spot on the sternopleura above. The hair is black, fairly long and abundant, the dorsocentral rows of punctures conspicuous in some views; only one posterior notopleural bristle; scutellum bare except for the strong apicals and weak marginal bristles.

Legs reddish, the tarsi becoming brown apically.

Wings grayish hyaline; second costal section about one-fifth longer than the third; third and fourth veins somewhat divergent apically; posterior crossvein slightly oblique, situated about twice its length from the anterior crossvein. Squamæ and halteres yellow.

Abdomen shining brown, rather reddish basally; venter pale on basal half.

A female from Cayey, May 30-31, 1915, and another from Mayagüez, February 15-16, 1914.

Botanobia sicatrix Curran

Figs. 15 and 23

1926. *Botanobia sicatrix* Curran, American Mus. Novitates, No. 220, p. 8.

Original description based on a series of seventeen specimens from Mona Island, February 21-26, 1914.

Botanobia mona Curran

Figs. 16 and 24

1926. *Botanobia mona* Curran, American Mus. Novitates, No. 220, p. 9.

Described from two dozen specimens, Mona Island, February 21-26, 1914.

Botanobia mars Curran

Figs. 17 and 25

1926. *Botanobia mars* Curran, American Mus. Novitates, No. 220, p. 10.

Described from three males and two females, Naguabo, March 8-9, 1914, and two females, Mona Island, February 21-26, 1914.

Botanobia tripunctata Curran

Figs. 18 and 26

1926. *Botanobia tripunctata* Curran, American Mus. Novitates, No. 220, p. 10.

Originally described on the basis of three specimens from Mona Island, February 21-26, 1914.

Botanobia plesia Curran1926. *Botanobia plesia* Curran, American Mus. Novitates, No. 220, p. 11.

The type is from Arecibo, March 1-4, 1914.

Botanobia obscura Coquillett1900. *Oscinis obscura* Coquillett, Proc. U. S. N. M., xxii, p. 266.

Six specimens: Mayagüez, June 21-23, 1915; Manatí, March 5, 1914; Naguabo, March 7-9, 1914, and San Juan, February 11-14, 1914.

This species is most closely related to *nitidissima* Meigen. Becker placed it as a variety of *coxendix* Fitch in his monograph but in his Neotropical key it runs to couplet 27, where it does not agree with any of the species. The palpi are black: the wholly yellow anterior four tibiae distinguish it from the other species in couplet 27.

Botanobia magnipalpoides Curran

Figs. 19 and 27

1926. *Botanobia magnipalpoides* Curran, American Mus. Novitates, No. 220, p. 11.

The type series consists of two specimens from Arecibo, March 1-4, 1914, and two from San Juan, February 11-14, 1914.

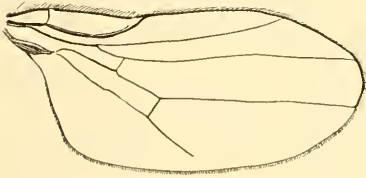


Fig. 23

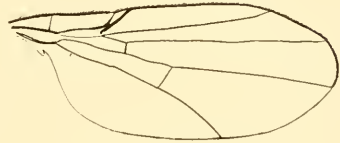


Fig. 24

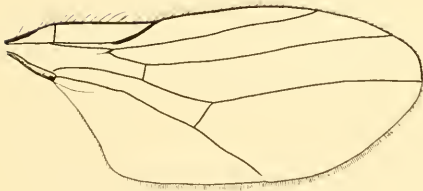


Fig. 25

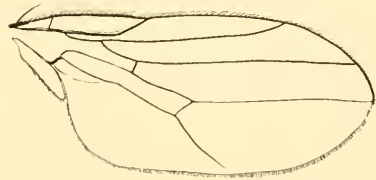


Fig. 26

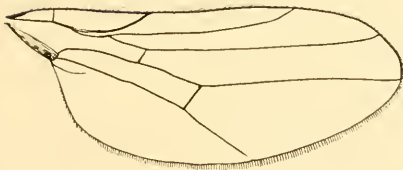


Fig. 27

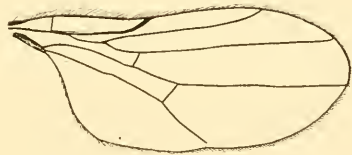


Fig. 28

WINGS

Fig. 23.—*Botanobia sicatrix* Curran.Fig. 24.—*Botanobia mona* Curran.Fig. 25.—*Botanobia mars* Curran.Fig. 26.—*Botanobia tripunctata* Curran.Fig. 27.—*Botanobia magnipalpoides* Curran.Fig. 28.—*Botanobia varipalpus* Curran.

Botanobia varipalpus Curran

Figs. 20 and 28

1526. *Botanobia varipalpus* Curran, American Mus. Novitates, No. 220, p. 12.

Originally described on the basis of four specimens from Mona Island, February 21-26, 1914, and one from San Juan, February 11-12, 1914.

Botanobia coxendix Fitch

Eight specimens (Aibonito, July 14-17, 1914; Corozal, July 2, 1915; Arecibo, June 24-26, 1915; Adjuntas, June 8-13, 1915; Manatí, June 27-29, 1915; Naguabo, March 7-9, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911) agree with the general conception of *coxendix* Fitch, but all of them have the second costal section at least one and one-half times as long as the third, while in two of the specimens it is twice as long, and in all the cheeks are not more than one-fifth the eye-height. Whether or not these apparent differences are of specific value cannot be absolutely determined from the scanty and none too well preserved material. It is quite certain that the typical *coxendix* is not represented in the collection but since it has been reported from Porto Rico, I place the specimens here, pending fresh material for study. It seems likely that there are two species represented, or at least a quite variable one which is distinct from *coxendix*.

EPHYDRIDE

IDENTIFIED BY E. T. CRESSON, JR., EXCEPT IN THE CASES SPECIFIED

KEY TO GENERA BY C. H. CURRAN.

- | | |
|--|-----------------------------|
| 1. Anterior femora not, or but little, dilated..... | 2 |
| Anterior femora very greatly dilated, their tibiae ending in a long spur; second antennal segment without an apical spine above | |
| | <i>Ochthra</i> Latreille. |
| 2. Middle tibiae without bristles on the outer surface..... | 4 |
| Middle tibiae with two or more bristles on the outer surface..... | 3 |
| 3. Costa ending at third vein..... | <i>Notiphila</i> Fallen. |
| Costa extending to fourth vein..... | <i>Paralimna</i> Loew. |
| 4. At most the prescutellar pair of dorsocentral bristles present..... | 7 |
| Two or more pairs of dorsocentrals present..... | 5 |
| 5. Eyes bare | 6 |
| Eyes pilose | <i>Hydrellia</i> Desvoidy. |
| 6. Face opaque, with nose-like tubercle; wings spotted..... | <i>Ilythca</i> Haliday. |
| Face shining, evenly convex; wings hyaline..... | <i>Typopsilopa</i> Cresson. |
| 7. Face evenly convex or more or less tuberculate..... | 8 |
| Face large, prominent below, not tuberculate..... | <i>Napaca</i> Desvoidy. |
| 8. Third antennal segment short or the second segment with an apical spine | 9 |

- Third antennal segment elongate, decumbent, the second segment without an apical spine..... *Ceropsitopa* Cresson.
9. Facial bristles strong; third antennal segment lenticular or elongate.. 10
 Facial bristles hair-like; third antennal segment short
Ochtheroidea Williston.
10. Third antennal segment elongate..... 11
 Third antennal segment lenticular; mesonotal hairs not disposed in rows *Discocerina* Macquart.
11. Face and front convex in profile, not in practically the same plane, the face retreating below..... 12
 Face and front oblique, in the same plane; face not retreating below *Plagiops* Cresson.
12. Abdomen oval; basal pair of scutellar bristles strong..... 13
 Abdomen broad, nearly circular in outline; basal pair of scutellar bristles weak; scutellum with very few hairs..... *Discomyza* Meigen.
13. Face sculptured and more or less transversely wrinkled
Leptopsitopa Cresson.
 Face not sculptured nor transversely wrinkled..... *Psitopa* Fallen.

Notiphila Fallen

Notiphila furcata (Coquillett)

1902. *Dichaeta furcata* Coquillett, Journ. N. Y. Entom. Soc., x, p. 182.
 1917. *Notiphila furcata* Coquillett, Trans. N. Y. Ent. Soc., xliii, p. 59.

Four specimens from San Juan, February 11-14, 1914, and July 1-5, 1915, and one from Ensenada, June 14-19, 1915.

Notiphila virgata Coquillett

1900. *Notiphila virgata* Coquillett, Proc. U. S. N. M., xxii, p. 259.

There are sixteen specimens, all from Porto Rico: Corozal, July 2, 1915; San Juan, February 11-14, 1914; Naguabo, March 7-9, 1914; Adjuntas, June 8-13, 1915; and Tortogueros Lake, Manatí, February 20, 1925. (The specimens from the last-mentioned locality, identified by C. H. Curran, were taken subsequent to the time when Mr. Cresson determined the other specimens.)

Paralimna Loew

The following key by C. H. Curran separates the species in the collection:

1. Pleura and venter in large part cinereous..... 2
 Pleura and venter of the same color as the dorsum..... *obscura* Williston.
2. Front of female broader than long; wings yellowish, the crossveins lightly clouded; face cinereous to yellowish pollinose *ciliata* Cresson.
 Front of female not broader than long; wings hyaline; face plumbeous *plumbiceps* Cresson.

Paralimna ciliata Cresson

1916. *Paralimna ciliata* Cresson, Trans. Amer. Ent. Soc., xlii, p. 111.

The following localities in Porto Rico are represented: San Juan, February 11-14, 1914; Coamo Springs, December 27, 1914; Aibonito, July 14-17, 1914. (There is also a large series from St. Thomas Island, February-March, 1925, which was taken subsequent to the time when Mr. Cresson determined the specimens from Porto Rico.)

Paralimna obscura Williston

1896. *Paralimna obscura* Williston, Trans. Ent. Soc. London, p. 391.

One specimen, St. Croix Island, March 4, 1925. (Identified by C. H. Curran.)

Paralimna plumbiceps Cresson

1916. *Paralimna plumbiceps* Cresson, Trans. Amer. Ent. Soc., xlii, p. 110.

Eight specimens from Adjuntas, June 8-13, 1915, and one from Coamo Springs, December 27, 1914.

Hydrellia Desvoidy**Hydrellia calverti** Cresson

1918. *Hydrellia calverti* Cresson, Trans. Amer. Ent. Soc., xliv, p. 48.

There are specimens from the following places: Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914; Aibonito, June 1-3, 1915; Naguabo, March 7-9, 1914.

Hythea Haliday**Hythea fenestralis** Cresson

1918. *Hythea fenestralis* Cresson, Trans. Amer. Ent. Soc., xliv, p. 51.

There is only one specimen, taken at Aibonito, June 1-3, 1915.

Psilopa Fallen**Psilopa skimmeri** Cresson

1922. *Psilopa skimmeri* Cresson, Entom. News, xxxiii, p. 136.

A dozen specimens are distributed among the following localities: Cayey, May 30-31, 1915; San Juan, February 11-14, 1914; Jayuya, January 6, 1915; Naguabo, March 7-9, 1914; Mayagüez, February 15-16, 1914, and June 21-23, 1915.

Psilopa unica Cresson

1926. *Psilopa unica* Cresson, Trans. Am. Ent. Soc., lii, p. 250.

There are two specimens: one from Adjuntas, June 8-13, 1915; the other from Mayagüez, February 15-16, 1914.

Ceropsilopa Cresson

The following key by C. H. Curran separates the three species in the collection :

1. Legs, including the coxae, yellowish..... 2
 Anterior femora black *adjuncta* Cresson.
2. Face appearing sub-opaque below: length over 2.5 mm.
 *coquilletti* Cresson.
 Face wholly shining; length under 2 mm..... *mellipes* Coquillett.

Ceropsilopa adjuncta Cresson

1925. *Ceropsilopa adjuncta* Cresson, Ent. News, xxxvi, p. 165.

Both the holotype and the paratypes of this species are represented in the collection. The type series was obtained at these localities:—Adjuntas (holotype), June 8-13, 1915; Arecibo, March 1-4, 1914; Manatí, March 5, 1914; and Naguabo, March 7-9, 1914.

Ceropsilopa coquilletti Cresson

1922. *Ceropsilopa coquilletti* Cresson, Ent. News, xxxiii, p. 136.

Represented by a single specimen from Mona Island, February 21-26, 1914.

Ceropsilopa mellipes (Coquillett)

1900. *Psilopa mellipes* Coquillett, Proc. U. S. N. M., xxii, p. 260.

There is a specimen from each of the following places: Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914; Naguabo, March 7-9, 1914.

Typopsilopa Cresson**Typopsilopa flavitarsis** Cresson

1916. *Typopsilopa flavitarsis* Cresson, Ent. News, xxvii, p. 147.

The following localities are represented: Mayagüez, June 21-23, 1915, and Arecibo, June 24-26, 1915.

Leptopsilopa Cresson**Leptopsilopa willistoni** Cresson

1896. *Psilopa nigriana* Williston, Trans. Ent. Soc. London, p. 393.

1918. *Psilopa willistoni* Cresson, Trans. Am. Ent. Soc., xlv, p. 53.

A large series from the following places: Cayey, May 30-31, 1915; Adjuntas, June 8-13, 1915; Mayagüez, February 15-16, 1914; Coamo Springs, July 17-19, 1914; San Juan, February 11-14, 1914; Arecibo, June 24-26, 1915; Naguabo, March 7-9, 1914; Manatí, March 5, 1914; Desecheo Island, February 18-20, 1914.

Plagiops Cresson**Plagiops aciculata** (Loew)

1862. *Psilopa aciculata* Loew, Mon. Dipt. N. Amer., i, p. 142.
 1868. *Ephygrobia metallica* Schiner, Nov. Resa. Dipt., p. 242.
 1925. *Plagiops aciculata* Cresson, Trans. Amer. Ent. Soc., li, p. 244.

There are specimens from Manatí, March 5, 1914; Mayagüez, February 15-16, 1914; Caguas, May 28-29, 1915; Cayey, May 30-31, 1915; Coamo Springs, July 17-19, 1914; San Juan, February 11-14, 1914; Naguabo, March 7-9, 1914; Mona Island, February 21-26, 1914.

Plagiops nitidifrons Cresson

1918. *Plagiops nitidifrons* Cresson, Trans. Amer. Ent. Soc., xliv, p. 54.

One specimen. St. Croix Island, February 27, 1925. (Identified by C. H. Curran.)

Discomyza Meigen**Discomyza maculipennis** (Wiedemann)

1824. *Notiphila maculipennis* Wiedemann, Anal. Ent., p. 57.
 1862. *Discomyza balioptera* Loew, Mon. N. Amer. Dipt., i, p. 140.

Nine specimens from Christiansted, St. Croix Island, June 4, 1911. (Identified by C. H. Curran.)

Discomyza dubia Williston

1896. *Discomyza dubia* Williston, Trans. Ent. Soc. London, p. 392.

There are representatives from the following localities: Manatí, June 27-29, 1915; Christiansted, St. Croix Island, June 4, 1911; Charlotte Amalie, St. Thomas Island, June 3, 1911. (Identified by C. H. Curran.)

Discocerina Macquart

The following key by C. H. Curran separates the species represented in the collection: §

1. Apical abdominal segment not white..... 2
- Apical abdominal segment white..... *leucoptera incisa* Coquillett.
2. Second costal section scarcely longer than the third *obscurella* Fallen.
- Second costal section one-half longer than the third *obscura* Williston

Discocerina leucoprocta subspecies **incisa** Coquillett

1902. *Discocerina incisa* Coquillett, Journ. N. Y. Ent. Soc., x, p. 182.
 1918. *Discocerina leucoprocta* subspecies *incisa* Cresson, Trans. Amer. Ent. Soc., xlv, p. 58.

The four specimens of this species are respectively from San Juan, February 11-14, 1914; Coamo Springs, July 17-19, 1914; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914.

Discocerina obscura Williston

1896. *Discocerina obscura* Williston, Trans. Ent. Soc. London, p. 397.

Nine specimens of this species are distributed among the following localities: Naguabo, March 7-9, 1914; Cayey, May 30-31, 1915; Mayagüez, February 15-16, 1914.

Discocerina obscurella (Fallen)

1813. *Notiphila obscurella* Fallen, Handl. K. Svenska Vet.-Akad., p. 251.

1862. *Discocerina parva* Loew, Mon. Dipt. N. Amer. i, p. 146.

1918. *Discocerina obscurella* subspecies *parva* Cresson, Trans. Amer. Ent. Soc., xlv, p. 58.

1925. *Discocerina obscurella* Cresson, Trans. Amer. Ent. Soc., li, p. 254.

Three specimens, two from Mayagüez, February 15-16, 1914, and the third from Mona Island, February 21-26, 1914, represent this species in the collection.

Ochtheroidea Williston**Ochtheroidea centralis** Cresson

1918. *Ochtheroidea centralis* Cresson, Trans. Amer. Ent. Soc., xlv, p. 60.

There are specimens from Mayagüez, February 15-16, 1914, and San Juan, February 11-14, 1914.

Ochtheroidea laevis Cresson

1918. *Ochtheroidea laevis* Cresson, Trans. Amer. Ent. Soc., xlv, p. 61.

Seventeen specimens of this species were collected at these localities: Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914; Barros, June 4, 1915; Mayagüez, February 15-16, 1914; Naguabo, March 7-9; Rio Grande, July 3, 1915.

Napaea Desvoidy**Napaea humilis** Williston

1897. *Parydra humilis* Williston, Kansas Univ. Quart., vi, p. 7.

Two specimens from St. Thomas Island, March 11, 1925. (Identified by C. H. Curran.)

Ochthera Latreille

One damaged specimen belonging to this genus from St. Thomas Island, March 11, 1925, remains undetermined.

DROSOPHILIDÆ

This family is represented by four species belonging to two genera.

TABLE OF GENERA

Arista with a single very long sub-basal ray above.. *Cladochaeta* Coquillett.
Arista with several rays above and one or more below.... *Drosophila* Fallen.

Drosophila Fallen

TABLE OF SPECIES

- | | |
|--|---------------------------|
| 1. Front largely or wholly black or brown..... | 2 |
| Front rusty reddish or yellowish..... | <i>similis</i> Williston. |
| 2. Mesonotum unicolorous black, with thin brown pollen.... | <i>lutzi</i> Sturtevant. |
| Mesonotum gray and brown..... | <i>repleta</i> Wollaston. |

Drosophila similis Williston

1896. *Drosophila similis* Williston, Trans. Ent. Soc. London, p. 415.

One specimen, St. Croix Island, February 27, 1925.

Drosophila lutzi Sturtevant

1916. *Drosophila lutzi* Sturtevant, Ann. Ent. Soc. Amer., ix, p. 340.

More than thirty specimens, Luquillo National Forest, February 17, 1925.

Sturtevant states that there are six rows of hairs between the dorso-centrals in front, but there are actually eight rows, the outer ones irregular.

Drosophila repleta Wollaston

1858. *Drosophila repleta* Wollaston, Ann. Mag. Nat. Hist., xli, p. 117.

Two specimens, Santurce, January 1, 1914.

Cladochaeta Coquillett**Cladochaeta nebulosa** Coquillett

1900. *Cladochaeta nebulosa* Coquillett, Proc. U. S. N. M., xxii, p. 263.

One specimen, St. Croix Island, March 7, 1925.

AGROMYZIDÆ

This family is represented by only a single genus.

Agromyza Fallen

One of the seven species of which there are representatives in the collection is undescribed.

KEY TO SPECIES

- | | |
|---|--------------------------|
| 1. Halteres dark, rarely only with a large blackish spot on outer side. | 2 |
| Halteres yellowish (the stem may be dark basally)..... | 4 |
| 2. Halteres black or brown..... | 3 |
| Halteres yellow, the knob brown exteriorly..... | <i>maculosa</i> Malloch. |
| 3. Squamæ and their fringe pale yellow..... | <i>virens</i> Loew. |

- Squamæ gray, with brown border and fringe.... *longicauda*, new species.
4. Scutellum yellow..... *melampyga* Loew.
Scutellum wholly blackish..... 5
5. At most the incisure between the mesonotum and the pleura pale..... 6
Sides of the mesonotum broadly yellow, at least in front of the wings.
platyptera Thomson.
6. Tarsi wholly black or brown..... *viridula* Coquillett.
Tarsi with at least the first segment reddish yellow.... *parricornis* Loew.

Agromyza maculosa Malloch

1913. *Agromyza maculosa* Malloch, Ann. Ent. Soc. Amer., vi, p. 302.

Nine specimens from the following localities in Porto Rico: Arecibo, March 1-4, 1914; Cayey, May 30-31, 1915; Barros, June 4, 1915; Adjuntas, June 8-13, 1915; Ensenada, June 14-19, 1915.

Agromyza virens Loew

1869. *Agromyza virens* Loew, Cent. viii, p. 84.

Thirty examples from Porto Rico: Naguabo, March 7-9, 1914; San Juan, February 15-16, 1914, July 9-12, 1914, July 1-5, 1915; Arecibo, June 24-26, 1915; July 30-August 1, 1914; Aibonito, June 1-3, 1915; Mayagüez, February 15-16, 1914; Coamo Springs, July 17-19, 1915; Barros, June 4, 1915; Caguas, May 28-29, 1915; Adjuntas, June 8-13, 1915; Cayey, May 30-31, 1915; Manatí, June 27-29, 1915. Two from St. Croix Island, March 4, 1925. One from St. Thomas Island, March 12, 1925.

Agromyza longicauda, new species

Structurally very similar to *virens* Loew. The color is black; the thorax lightly brownish pollinose; the abdomen somewhat greenish black; supra-alar bristles very long; ovipositor three times as long as its basal width; squamæ gray, with brown border and fringe; two pairs of dorsocentrals, no prescutellars.

Type, male, allotype, female, St. Croix Island, March 2, 1925. A second male from St. Thomas Island, February 23, 1925, lacks its head.

Agromyza melampyga Loew

1869. *Agromyza melampyga* Loew, Cent. viii, p. 88.

Two specimens: Naguabo, March 7-9, 1914, and Arecibo, March 1-4, 1914.

Agromyza platyptera Thomson

1853. *Agromyza platyptera* Thomson, Eugénies Resa, p. 608.

1872. *Agromyza artemisiæ* Kaltenbach, Pflanzenf., p. 358.

Seven specimens: Jayuya, January 6, 1915; Naguabo, March 7-9, 1914; Arecibo, March 1-4, 1914; Corozal, July 2, 1915; Aibonito, July 14-17, 1914.

Agromyza viridula Coquillett

1902. *Agromyza viridula* Coquillett, Journ. N. Y. Ent. Soc., x, p. 190.

A dozen specimens from Porto Rico and the Virgin Islands: Mayagüez, February 15-16, 1914; Manatí, June 27-29, 1915; Arecibo, March 1-4, 1914; San Juan, June 27-29, 1915; Naguabo, March 7-9, 1914; Christiansted, St. Croix Island, June 4, 1911; Charlotte Amalie, St. Thomas Island, June 2, 1911.

Agromyza parvicornis Loew

1869. *Agromyza parvicornis* Loew, Cent. viii, p. 92.

A single specimen from Adjuntas, June 8-13, 1915.

OCHTHIPHILIDÆ

This family is represented by only a single species.

Acrometopia Schiner

Acrometopia maculata Coquillett

1902. *Acrometopia maculata* Coquillett, Journ. New York Ent. Soc., x, p. 185.

Seven specimens from Mona Island, February 21-26, 1914.

MILICHIIDÆ

The genera belonging to this family that are represented in the collection are indicated in the following key.

KEY TO GENERA

1. Eyes with an angular emargination near the middle behind..... 2
Eyes not indented behind..... 3
2. Four dorsocentrals; hair of thorax bristly..... *Eccoptomma* Becker.
One or two dorsocentrals; hair of thorax short, appressed.
Milichiella Giglio-Tos.
3. Wing with an excision as deep as the width of the costal cell immediately before the tip of the first vein..... *Pholcomyia* Billimek.
Wing not deeply incised although the costa is fractured.
Desmometopa Loew.

Eccoptomma Becker

Eccoptomma montanum Becker

1907. *Eccoptomma montanum* Becker, Annales Mus. Nat. Hung., v, p. 541.

One male, Mayagüez, July 24-29, 1914.

Originally described from Peru. As the genus is new to North America, I present a description of the species, which includes also the generic characteristics.

Black; abdomen argenteous except the base and apex. Length, 2.5 mm.

Male. Head opaque, face with a little grayish-brown pollen and seven or eight pairs of bristles; median frontal bristles fairly long; postocellars divergent; excavation of the eyes moderately deep. Antennae black; arista very long, slender; palpi opaque black.

Mesonotum and scutellum brownish pollinose from anterior view; three pairs of postsutural acrosticals; four pairs of dorsocentrals, one pair situated in front of the suture, the hair rather long and coarse; three sternopleurals.

Legs black; tips of the tibiae and the immediate bases of the tarsal segments, reddish.

Wings cinereous hyaline; fourth vein curved forwards apically. Squamae with at least the border and fringe brown. Halteres blackish.

First abdominal segment, anterior angles of the second and the apical segment, black, the intermediate segments argenteous; venter wholly black.

Milichiella Giglio-Tos

1913. *Paramadiza* Malloch, Proc. U. S. N. M., xlvii, p. 136.

There are three species belonging to this genus in the collection. The males of the North American species are separated in the following table.

KEY TO MALES

1. Only the second abdominal segment with a silvery white spot on either side..... *lucidula* Becker.
Abdomen wholly black or more extensively silvery white..... 2
2. Abdomen largely silvery white..... 3
Abdomen wholly black, the disc dull, the margin shining. *lacteipennis* Loew.
3. Mesonotum shining black or rather thinly brownish pollinose..... 4
Mesonotum cinereous, usually with brownish vittae.... *cinerea* Coquillett.
4. Mesonotum with scarcely a trace of pollen; third and fourth veins strongly converging..... *arcuata* Loew.
Mesonotum more evidently brownish pollinose; third and fourth veins but little converging..... *Eccoptomma montanum* Becker.

Milichiella lacteipennis Loew

1865. *Lobioptera lacteipennis* Loew, Cent. vi, p. 97.

1900. *Desmomctopa halteralis* Coquillett, Proc. U. S. N. M., xxii, p. 267.

Eleven specimens of both sexes: San Juan, July 9-12, 1914; Adjuntas, June 8-13, 1915; Manatí, March 5, 1914; Mayagüez, February 15-16, 1914; Guayanilla, July 22, 1914; one from Mona Island, February 2-12, 1914; three from Desecheo Island, February 18-20, 1914.

Some of the specimens agree perfectly with Coquillett's description of *halteralis*. The costal incision is not always greatly pronounced.

Milichiella cinerea Coquillett

1899. *Ophthalmomyia cinerea* Coquillett, Proc. U. S. N. M., xxii, p. 268.

Not represented in the collection, but originally described from Porto Rico.

Milichiella arcuata Loew

1876. *Lobioptera arcuata* Loew, Zeitschr. Ges. Naturw., p. 339.

A single male, Desecheo Island, February 18-20, 1914.

Desmometopa Loew

The two species are separated in the table that follows.

KEY TO SPECIES

Palpi deep black; tarsi largely yellow..... *tarsalis* Loew.
 Palpi pale yellow with brown apices; tarsi black..... *M-nigrum* Zetterstedt.

Desmometopa tarsalis Loew

1865. *Desmomctopa tarsalis* Loew, Cent. vi, p. 96.

One specimen, Desecheo Island, February 18-20, 1914.

Desmometopa M-nigrum Zetterstedt

1848. *Agromyza M-nigrum* Zetterstedt, Dipt. Scand., vii, p. 2743.

One specimen, Jayuya, February 6, 1915.

Phleomyia Bilimek**Phleomyia indecora** Loew

1869. *Lobioptera indecora* Loew, Cent. viii, p. 94.

A female from Mayagüez, February 15-16, 1914, and another from Mona Island, February 21-26, 1914.

BORBORIDE

All the representatives of this family belong to the genus *Leptocera* Olivier and two of them are apparently common in the region.

Leptocera Olivier

KEY TO SPECIES

1. Third vein not angulated apically, curving into the costa..... 2
 Third vein almost rectangular at the apex, without appendage, surrounded by a blackish spot; thorax opaque blackish with whitish or cinereous spots..... *angulata* Thomson.

2. No distinct presutural acrosticals..... 3
 A pair of well developed presutural acrosticals..... *pumila* Williston.
 3. Disc of the scutellum with numerous appressed short, bristly hairs;
 thorax and scutellum dull reddish..... *illota* Williston.
 Scutellum with only marginal hairs; blackish..... *discalis* Malloch.

Leptocera angulata Thomson

1868. *Borborus angulata* Thomson, *Eugenies* Resa, v. p. 602.
 1878. *Borborus vernalicus* Osten Sacken, *Cat. Dipt.*, p. 203.

There are numerous specimens of this widespread tropical species: Adjuntas, June 8-13, 1915; Aibonito, June 1-3, 1915; Arecibo, March 1-4, 1914, June 24-26, 1915; Barros, June 4, 1915; Cayey, May 30-31, 1915; Ensenada, June 14-19, 1915; Luquillo National Forest, March 17, 1925; Mayagüez, February 15-16, 1914; Naguabo, March 7-9, 1914; San Juan, February 11-14, 1914.

Leptocera pumila Williston

1896. *Limosina pumila* Williston, *Trans. Ent. Soc. London*, p. 432.

Two specimens from Aibonito, July 14-17, 1914, and Naguabo, March 7-9, 1914.

Leptocera illota Williston

1896. *Borborus illota* Williston, *Trans. Ent. Soc. London*, p. 434.

A single specimen from Charlotte Amalie, St. Thomas Island, June 3, 1911.

Leptocera discalis Malloch

1912. *Limosina discalis* Malloch, *Smiths. Misc. Coll.*, lxi, p. 8.

There are representatives from the following localities: Aibonito, June 1-3, 1915; Arecibo, March 1-4, 1914; Cayey, May 30-31, 1915; Coamo Springs, July 17-19, 1914, June 5-7, 1915; Naguabo, March 7-9, 1914; Christiansted, St. Croix Island, June 4, 1911; St. Croix Island, March 2, 1925.

TRYPANEIDÆ

While there are many representatives of this family in the collection, most of them belong to two species. The five genera in the collection may be separated as follows:

KEY TO GENERA

1. Proboscis short, not geniculate..... 2
 Proboscis long, geniculate at or near the middle; head longer than high *Ensina* Desvoidy.

2. Scutellum with four bristles..... 3
 Scutellum with two bristles; apical fourth of wing wholly brown.
Aciura Desvoidy.
3. Wings with strong brownish markings on the basal half..... 4
 Wings hyaline or with obscure markings on almost the basal half, the
 apical dark markings radiating from a median spot. *Trypanea* Schrank.
4. Wing markings radiating apically..... *Euaesta* Loew.
 Wing markings not radiating apically..... *Tephritis* Loew.

Eusina Desvoidy

There are two species in the collection belonging to this genus.

Eusina picciola Bigot

1857. *Aciura picciola* Bigot, in Sagra's Hist. Pol. & Nat. Cuba, p. 824.

Numerous specimens from the following localities: Adjuntas, June 8-13, 1915; Aibonito, July 14-17, 1914; Arecibo, March 1-4, 1914; Barros, June 4, 1914; Coamo Springs, June 5-7, 1915; Manati, June 27-29, 1915; Quadrillas, June 23, 1915; San Juan, February 11-14, 1914; Mayagüez, June 21-23, 1915; Christiansted, St. Croix Island, June 4, 1911; also Mangrove Cay, Andros Island, May-June, 1917.

This species is quite variable. In about half the specimens there are three spots in the marginal cell while in the others there are only two, but in some specimens there are three such spots in one wing and two in the other. Another variation is the presence of an additional spot in the apex of the submarginal cell but some specimens show this in only one wing; there may be either two or three hyaline spots in the marginal cell in this form. These can be no more than very poorly marked varieties and are scarcely worth considering. From the great variation shown in the large series before me it seems probable that the number of species in the genus is actually less than the number already described.

Eusina thomae, new species

Fig. 30

Length, 3 mm., ovipositor, 1 mm.

Female. Very similar to *picciola* Bigot but with less extensively brown wings, partly yellow scutellum and a much longer, narrower, shining black ovipositor. The legs are reddish yellow, the basal two-thirds of the posterior femora brownish.

Type, female, St. Thomas Island, February 28, 1925.

Aciura Desvoidy
Aciura insecta Loew

1862. *Aciura insecta* Loew, Mon. N. Amer. Dipt., i, p. 72. (Fig.)

More than fifty specimens from Porto Rico: Arecibo, March, June, July; Aibonito, June 1-3, 1915; Adjuntas, June 8-13, 1915; Barros, June 4, 1915; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914; San Juan, July 9-12, 1914 and July 1-5, 1915; Quebradillas, June 23, 1915.

Trypanea Schrank

The two species are separable as follows:

Five black rays reach the wing margin from the apex and posterior edge
of the black area..... *mevarna* Walker
Six black rays reach the wing margin..... *dacetopectra* Phillips

Trypanea mevarna Walker

1849. *Trypcta mevarna* Walker, List. Dipt. Brit. Mus., iv, p. 1023.

1862. *Urellia solaris* Loew, Mon. N. Amer. Dipt., i, p. 84. (Fig.)

One specimen, Adjuntas, June 8-13, 1915.

Trypanea dacetopectra Phillips

1923. *Trypanea dacetopectra* Phillips, Journ. N. Y. Ent. Soc., xxxi, p. 148.
(Fig.)

Two specimens from St. Croix Island, March 2, 1925.

Euaresta Loew

One of the three species in the collection is undescribed.

KEY TO SPECIES

1. Marginal cell with three hyaline spots..... 2
Marginal cell with two hyaline spots, the apical spot absent.
plesia, new species.
2. A hyaline spot in the submarginal cell behind the pair of spots in the
marginal cell..... *mcInogaster* Loew.
No hyaline spot in the submarginal cell behind those in the marginal
cell *obscuriventris* Loew.

Euaresta plesia, new species

Fig. 29

Length, about 3.5 mm.

Female. Head missing. Thorax brown, densely yellowish-gray pollinose, the hair silvery yellowish, subappressed, sparse; bristles yellowish, with brown bases. Humeri yellowish.



Fig. 29



Fig. 30

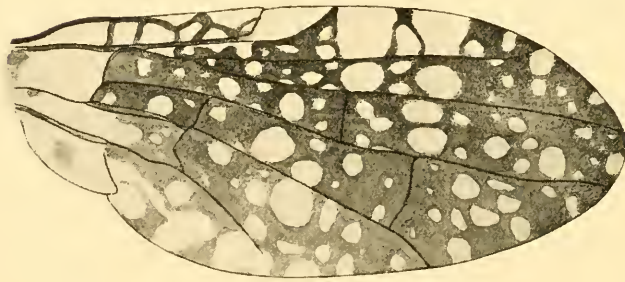


Fig. 31

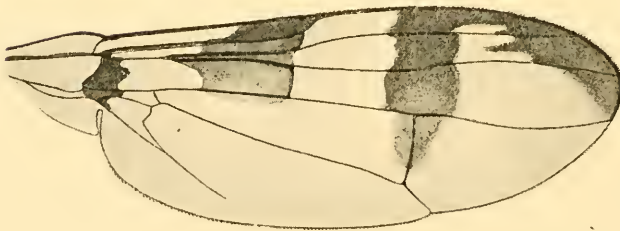


Fig. 32

WINGS

- Fig. 29.—*Euarcesta plesia*, new species.
 Fig. 30.—*Ensina thoma*, new species.
 Fig. 31.—*Tephritis floccosa*, new species.
 Fig. 32.—*Chactopsis quadrifasciata*, new species.

Legs reddish yellow, the hair pale yellowish, the anterior femora with three or four postero-ventral bristles.

Wings brownish, with whitish hyaline spots as shown in Fig. 29. First vein setulose above, the third vein bare.

Abdomen shining brown, the rather sparse, appressed hair very pale yellowish; ovipositor with sparse, dark hair above.

Type, female, Coamo Springs, Porto Rico, July 17-19, 1914 (along bank of stream).

***Euaresta melanogaster* Loew**

1862. *Euaresta melanogaster* Loew, Mon. N. Amer. Dipt., i, p. 90. (Fig.)

Very many specimens from numerous localities in Porto Rico and adjacent islands.

***Euaresta obscuriventris* Loew**

1873. *Euaresta obscuriventris* Loew, Mon. N. Amer. Dipt., iii, p. 313. (Fig.)

Fourteen specimens: Adjuntas, June 8-13, 1915; Aibonito, June 1-3, 1915; Barros, June 4, 1915; Mayagüez, June 21-23, 1915; Arecibo, June 24-26, 1915; Naguabo, March 7-9, 1914.

***Tephritis* Loew**

The single representative of this genus is an undescribed species which is characterized below.

***Tephritis floccosa*, new species**

Fig. 31

Pale brownish, with brownish yellow and brown pollen: base of each bristle black. Length, 3 mm.

Male. Head pale reddish yellow, the occiput brownish-stained and gray pollinose: a blackish spot separating the face and front on either side. Four pairs of frontals, the upper and lower pairs smaller, whitish and reclinate, the median pairs yellowish and converging, each bristle arising from a narrow, high tubercle; vertical bristles strong, the outer verticals well developed, the occipital cilia extending to below the middle of the eyes, about half of them white and enlarged; each cheek with a strong, brown median bristle below: hair of the head mostly sub-squamose and whitish. Antennae large, the third segment less than one and one-fourth as long as wide, angulated at the upper apex; arista pubescent, brown on the apical three-fourths, swollen on the basal fourth.

Mesonotum densely brownish-yellow pollinose, the hair squamose, whitish, arranged in four broad, irregular, poorly separated vittae, the bristles yellowish with black bases. Pleura yellowish-brown pollinose, with some paler areas, the hair squamose, pale; the mesopleura with three or four, the sternopleura with one brownish bristle. Scutellum colored as the mesonotum, with four yellowish bristles and sparse, squamose whitish hair.

Legs yellow; femora with squamose bristly hairs.



Wings grayish brown with numerous roundish, hyaline spots (Fig. 31), the first vein wholly setulose above, the third setulose as far as the anterior cross-vein.

Abdomen with yellowish-brown pollen, the second to fourth segments each with a small brown spot on either side towards the apex, the spots well separated from each other. The hair is whitish and squamose but each segment bears, on either side, a large, subtriangular spot clothed with short black hair, the triangles more or less distinctly connected anteriorly, those on the second and third segments extending the whole length of the segments.

Type, male, St. John Island, March 6, 1925.

SEPSIDÆ

This family is well represented in the collection, six species belonging to the family being present. All the representatives belong to the genus *Sepsis*.

Sepsis Fallen

KEY TO SPECIES

1. Mesonotum wholly or almost wholly brownish pollinose and appearing somewhat dull..... 2
 Mesonotum polished black on at least the anterior half; no apical spot on wing..... 5
2. Middle and posterior tibiæ wholly without bristles except on the apex. 3
 Middle and hind tibiæ each with one or more conspicuous short bristles dorsally; genitalia reddish..... *haemorrhoidalis* Schiner.
3. Anal vein reaching less than half way to wing-margin; abdomen constricted at base of second segment..... 4
 Anal vein reaching almost two-thirds the distance to the wing-margin; abdomen not constricted on base of second segment.... *armata* Schiner.
4. Wing not strongly brownish apically..... *furcata* Melander and Spuler.
 Wing with a large brown cloud between the second and third veins apically *simplex*, new species.
5. Anal vein extending more than half way to wing margin... *pusio* Schiner.
 Anal vein extending scarcely more than one-third the distance to the wing-margin *armillata* Melander and Spuler.

Sepsis haemorrhoidalis Schiner

1868. *Sepsis haemorrhoidalis* Schiner, Novara, p. 261.

Numerous specimens from the following localities: Aibonito, June 1-5, 1915; Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914; Naguabo, March 7-9, 1914; Mayagüez, July 24-29, 1914; Cayey, May 30-31, 1915.

Sepsis armata Schiner

1868. *Sepsis armata* Schiner, Novara, p. 262.

1917. *Sepsis hoplicnema* Melander and Spuler, Wash. Agr. Exp. Sta. Bull. No. 143, p. 17.

This species is represented by ten specimens: Adjuntas, June 8-13, 1915 and June 26, 1915; Mayagüez, July 24-29, 1914; Aibonito, July 14-17, 1914.

***Sepsis furcata* Melander and Spuler**

1917. *Sepsis furcata* Melander and Spuler, Wash. Agric. Exper. Sta. Bull. No. 143, p. 19.

1926. *Palacosepsis armillata* Duda, Ann. Naturhist. Mus. Wien, xl, p. 92.

Male, Mayagüez, February 15-16, 1914; female, Arecibo, June 24-26, 1915; male, Charlotte Amalie, St. Thomas, June 3, 1911.

There may be some doubt about this species being *furcata* Melander and Spuler since these authors state that the notum is polished black, whereas in the specimens before me the mesonotum is thinly but conspicuously brownish pollinose, with the usual pale lateral stripe in front. In all other respects the specimens agree with the description.

***Sepsis simplex*, new species**

Agrees well with *furcata* Melander and Spuler but there is a very large brown cloud in the apex of the first posterior cell and the male genital forceps lack a process towards the apex. Length, about 3 mm.

Male. Front, occiput and abdomen deep black; thorax brownish; front polished, occiput grayish pollinose; cheeks and face brownish red, the antennal grooves brownish, thinly pale pollinose. Antennæ reddish, the third antennal segment mostly and the arista, brown.

Thorax varying from brown to reddish brown, the mesonotum and scutellum almost all thinly brown pollinose; a grayish-white pollinose band extends backwards along the inner end of the humeri and over the notopleura while another extends from the front coxæ over the upper border of the sternopleura: three or four pairs of very inconspicuous acrostical hairs in front, the dorsocentral hairs almost as small; two pairs of strong dorsocentrals.

Front legs, including the coxæ, yellowish; posterior four femora yellowish on the basal third, the middle tibiæ yellowish on the sub-apical third to one-half; tarsi reddish yellow, with the apical two and one-half segments blackish; posterior four femora and tibiæ mostly blackish or brown. Anterior femora thick on the basal three-fifths, thence somewhat excavated beneath, with a small tubercle on either side a little beyond the middle, the posterior tubercle bearing a short, stout, tapering spine, a bristle situated at or slightly before the middle of under surface. The anterior femora and tibiæ are shaped almost as in *furcata*.

Wings cinereous hyaline, the base broadly deep brown except behind, the apex with a large brownish cloud. Anterior crossvein situated at the apical two-fifths of the discal cell; anal vein extending from one-fourth to one-third the distance to the wing-margin. Halteres yellow.

Abdomen polished black, the genitalia reddish; apical segments with distinct bristles; genital claspers simple.

Female. Legs simple; apical dark band on middle tibiæ usually less distinct.

Type, male, allotype, female, Adjuntas, June 8-13, 1915; paratypes: two males, four females, Adjuntas, June 26, 1915; female, Arcibo, June 24-26, 1915; female, Naguabo, March 7-9, 1914 (around horse manure).

***Sepsis pusio* Schiner**

1868. *Sepsis pusio* Schiner, Novara, p. 262.

1896. *Sepsis insularis* Williston, Trans. Ent. Soc. London, p. 431.

This common and widely distributed species is represented by numerous specimens from the following localities: Adjuntas, June 8 to 26, 1915; Aibonito, June 1-3, 1915; Arcibo, March 1-4, 1914; Caguas, May 28-29, 1915; Coamo Springs, June 5-7, 1915, July 17-19, 1914; Cayey, May 30-31, 1915; Jayuya, January 6, 1915; Manatí, June 27-29, 1915; Mayagüez, February 15-16, 1914; Naguabo, March 7-9, 1914; San Juan, February 11-14, 1914, July 9-12, 1914 and July 1-5, 1915; Mona Island, February 21-26, 1914; Christiansted, St. Croix, June 4, 1911; Charlotte Amalie, St. Thomas, June 3, 1911.

***Sepsis armillata* Melander and Spuler**

1917. *Sepsis armillata* Melander and Spuler, Wash. Agric. Exper. Sta. Bull. No. 143, p. 18.

1926. *Palacosepsis furcata* Duda, Ann. Naturhist. Mus. Wein, xl, p. 92.

This species is quite as common as *pusio* and evidently occurs with it since the data on the majority of the specimens correspond to those on the specimens of the preceding species although there are no specimens from Mona Island or St. Thomas. In every other case specimens of both species were taken in the same locality at the same time.

ORTALIDÆ

The thirteen species belonging to this family are distributed among five genera, which are separable by the table which follows.

KEY TO GENERA

- | | |
|--|-------------------------|
| 1. First wing vein wholly bare..... | 3 |
| First wing vein with tiny bristles on at least the apical half..... | 2 |
| 2. Scutellum with a large, polished black swelling on either side. | |
| <i>Xanthacrona</i> Wulp. | |
| Scutellum without such swellings..... | <i>Acrosticta</i> Loew. |
| 3. Third antennal segment rounded apically; oral margin or clypeus prominent | 4 |
| Third antennal segment angulated at its dorsal apex; face perpendicular or receding..... | <i>Chaetopsis</i> Loew. |
| 4. Front with strong transverse wrinkles bearing obscure punctures. | |
| <i>Notogramma</i> Loew. | |
| Front not strongly punctured or wrinkled..... | <i>Euresta</i> Loew. |

Xanthacrona van der Wulp

This genus contains but a single species, which was originally described from Mexico.

Xanthacrona bipustulata van der Wulp

1899. *Xanthacrona bipustulata* van der Wulp, Biol. Cent. Amer., Dipt., ii, p. 392.

One specimen, Coamo Springs, January 17, 1915. I have seen the species from Jamaica.

Acrosticta Loew

In the available tables to the genera belonging to the family this genus is represented as having the first vein of the wings bare but in all the examples I have seen this vein is more or less extensively setulose above. The two species in the collection may be distinguished as follows:

Apical wing-spot sub-triangular, but little concave inwardly. *foveolata* Loew.
Apical wing-spot strongly concave inwardly..... *scrobiculata* Loew.

Acrosticta foveolata Loew

1867. *Acrosticta foveolata* Loew, Berl. Ent. Zeitschr., xi, p. 294.

There are specimens from the following localities: Adjuntas, June 8-13, 1915; Arecibo, March 1-4, 1914, June 24-26, 1915; Coamo Springs, June 5-7, 1915, July 17-19, 1914; Manatí, June 27-29, 1915; San Juan, August 2-3, 1914; St. Thomas Island, February 25, 1925.

Acrosticta scrobiculata Loew

1867. *Acrosticta scrobiculata* Loew, Berl. Ent. Zeitschr., xi, p. 293.

One specimen, Charlotte Amalie, St. Thomas Island, June 3, 1911.

Euxesta Loew

This genus is well represented in the collection and there are large series of most of the species.

KEY TO SPECIES

1. Wings with an isolated apical brown spot and at most a short fascia at the stigma, the base also sometimes brown..... 2
- Wings with at least three bands in addition to the dark base..... 3
2. Anterior femora almost wholly reddish; apical wing-spot small; basal segment of front tarsi mostly reddish..... *spoliata* Loew.
- Anterior femora almost wholly black; apical wing-spot large. *costalis* Fabricius.
3. Frontal lunule opaque black..... 4

- Frontal lunule not opaque black..... 5
4. Hyaline fascia nearest the wing-tip extending into the marginal cell; lower part of the front opaque..... *eluta* Loew.
Hyaline fascia not extending in front of the third vein; front shining below..... *stigmatias* Loew.
5. The dark band extending back from the stigma reaches across the discal cell..... 6
This dark band barely enters the discal cell..... *quaternaria* Loew.
6. The hyaline band nearest the apex of the wing extends into the marginal cell; base of abdomen usually reddish..... *abdominalis* Loew.
The hyaline band does not extend in front of the second vein, the second dark band not reaching the posterior margin of the wing.
annona Fabricius.

***Euxesta spoliata* Loew**

1867. *Euxesta spoliata* Loew, Berl. Ent. Zeitschr., xi, p. 298.

The collection contains nine specimens: Manatí, March 5, 1914, June 27-29, 1915; San Juan, July 9-12, 1914; Mayagüez, February 15-16, 1914; Arecibo, June 24-26, 1915; Adjuntas, June 8-13, 1914; Christiansted, St. Croix Island, June 4, 1914.

***Euxesta costalis* Fabricius**

1794. *Musca costalis* Fabricius, Ent. Syst., iv, p. 360.

Male, St. John Island, March 9, 1925; male, St. Thomas Island, February 25, 1925.

***Euxesta eluta* Loew**

1867. *Euxesta eluta* Loew, Berl. Ent. Zeitschr., xi, p. 312.

Nine specimens from the following localities: Adjuntas, June 8-13, 1915; Caguas, May 28-29, 1915; Manatí, June 27-29, 1915; Ensenada, June 14-19, 1915; Naguabo, March 7-9, 1914; Juana Diaz, February 12, 1925.

***Euxesta stigmatias* Loew**

1867. *Euxesta stigmatias* Loew, Berl. Ent. Zeitschr., xi, p. 310.

Approximately fifty specimens from Adjuntas, June 8-13, 1915; Caguas, May 28-29, 1915; Arecibo, June 24-26, 1915, July 30-August 1, 1914; San Juan, February 11-14, 1914; Manatí, June 27-29, 1915; Mona Island, February 21-26, 1914; Christiansted, St. Croix Island, June 4, 1911.

***Euxesta quaternaria* Loew**

1867. *Euxesta quaternaria* Loew, Berl. Ent. Zeitschr., xi, p. 302.

One female, St. Thomas Island, February 25, 1925, differs from Loew's figure in having the third brown band extending along the discal cross-vein.

Euxesta abdominalis Loew

1867. *Euxesta abdominalis* Loew, Berl. Ent. Zeitschr., xi, p. 307.

Twenty-seven specimens: Manatí, March 5, 1914; Caguas, May 28-29, 1915; Arecibo, June 24-26, 1915; Mayagüez, February 15-16, 1914, July 24-29, 1914; Quebradillas, June 23, 1915; Corozal, July 2, 1915; San Juan, July 1-5, 1915; Mona Island, February 21-26, 1914.

There is some variation in the color of this species and the abdomen may be wholly dark, while the wing bands are not altogether constant.

Euxesta annona Fabricius

1794. *Musca annona* Fabricius, Ent. Syst., iv, p. 358.

There are more than fifty specimens from the following localities: Manatí, March 5, 1914, June 27-29, 1915; Caguas, May 28-29, 1915; Arecibo, June 24-29, 1915, July 30-August 1, 1914; Mayagüez, July 24-29, 1914; Adjuntas, June 8-13, 1915; Cayey, May 30-31, 1915; Aibonito, June 1-3, 1915; San Juan, July 9-12, 1914; Jayuya, January 6, 1915; Barros, June 4, 1915; Ensenada, June 14-19, 1915; Mona Island, February 21-25, 1914; St. Thomas Island, March 11, 1925; St. Croix Island, March 4, 1925; Christiansted, St. Croix Island, June 4, 1911.

Notogramma Loew**Notogramma stigma** Fabricius

1798. *Musca stigma* Fabricius, Ent. Syst., suppl., p. 563.

In the collection are eleven specimens: Adjuntas, June 8-13, 1915; Ensenada, June 14-19, 1915; Desecheo Island, February 18-20, 1914; Mona Island, February 21-26, 1914.

Chaetopsis Loew

There is an undescribed species belonging to this genus. Mr. C. W. Johnson has given a key to the North American forms (Bull. Amer. Mus. Nat. Hist., 1913, xxxii, p. 83), and Mr. E. T. Cresson, Jr., has published notes on two of the species. During the determination of several specimens notes have been added to Johnson's key and I give here a table of species including these notes.

KEY TO SPECIES

- | | |
|--|--------------------------------------|
| 1. Wings with four blackish-brown fasciae; legs black, the bases of the tarsi reddish..... | <i>quadrifasciata</i> , new species. |
| Wings with three or fewer dark fasciae..... | 2 |
| 2. Wings with two or three fasciae..... | 3 |

- Wings with only the small apical fasciæ..... *apicalis* Johnson.
3. Wings with three fasciæ..... 4
 Wings with only two fasciæ..... 7
4. Abdomen wholly greenish or greenish black..... 5
 Base of abdomen broadly yellow; legs reddish..... *debilis* Loew.
5. Cruciate frontals present in female and in male if the legs are red;
 prescutellars present in both sexes; at least the femora usually
 partly blackish..... 6
 Cruciate frontals absent in both sexes; prescutellars absent in female,
 in the male reduced in size; legs reddish; basal dark fasciæ of the
 wing evanescent posteriorly..... *fulvifrons* Macquart.
6. Femora and tibiæ blackish; male without cruciate frontals, female
 with only the lower pair..... *massyla* Walker.
 Femora often more or less blackish, the tibiæ always pale; male with
 lower cruciate frontals, the female with a median pair as well.
enea Wiedemann.
7. Female with cruciate frontals (male?)..... *heudeli* Johnson.
 Female without cruciate frontals (male?).... *apicalis duplicata* Johnson.

Chaetopsis fulvifrons Macquart

1855. *Urophora fulvifrons* Macquart, Dipt. Exotica, Suppl., v, p. 125.

Three specimens, San Juan, February 11-14, 1914.

Chaetopsis quadrifasciata, new species

Fig. 32

Wings with four blackish-brown crossbands, the apical two connected along the costa. Length, 4 to 5 mm.

Front rusty dark red, broadly bluish black above, the parafrontals densely white pollinose, each about one-fourth as wide as the frontal vitta; a pair of fairly strong supra-antennal and a weaker pair of median cruciate frontals; six pairs of frõntals, the upper pair strong and reclinate, the others weak; ocellars strong; post-ocellars divergent, fairly strong; the strong verticals reclinate; blackish portion of the front grayish pollinose; cheeks dark reddish except below; face and occiput blackish, thinly cinereous pollinose; hair wholly black. Palpi reddish. Antennæ reddish, the third segment broadly above and the arista, black, the latter bare.

Thorax and abdomen metallic bluish, the former moderately grayish pollinose, the pleura for the most part less thickly so. Three pairs of dorso-centrals; very few short hairs on the mesonotum; scutellum triangular, the apex acutely rounded.

Legs black; knees reddish; tarsi reddish brown.

Wings hyaline, with four brownish fasciæ, the first extending back from the humeral crossvein and reaching obscurely onto the alula, the second extending back from the stigma to the fourth vein, behind which it is grayish-tinged and reaches to the hind margin of the wing, the band broadening posteriorly (the hyaline fasciæ appear whitish in some views, making it possible to trace the

course of the dark fascia on the posterior half); the third fascia extending back from the middle of the marginal cell to the posterior third of the posterior crossvein, tapering gently and being broadly connected with the apical fascia, which extends along the costa to the tip of the fourth vein but is strongly narrowed before reaching it. Apical cell somewhat narrowed apically.

Abdomen blackish apically, the fifth segment longer than wide, gently tapering.

In the female the first tarsal segment is reddish, the others brown, the anterior tarsi but little paler basally than apically.

Type, male, Barros, Porto Rico, June 4, 1915; allotype, female, San Juan, February 11-14, 1914, in the American Museum of Natural History. Paratype, male, Miami, Florida, October 28, 1924 (S. Graenicher), in the Canadian National Collection, Ottawa.

SAPROMYZIDÆ

KEY TO GENERA

(All of the genera included in this table have the first antennal segment not elongate and the anterior orbital bristle present.)

1. Anterior orbital bristles directed inwards..... 2
Anterior orbital bristles directed backwards..... 3
2. Ocellar bristles minute; face strongly projecting beyond the eyes.
Physegenua Macquart.
Ocellar bristles strong; anterior orbital bristles situated close to the upper pair..... *Camptoprosopella* Hendel.
3. Sternopleura with only a single bristle..... 4
Sternopleura with two bristles, the anterior one usually weak..... 5
4. Front broader than long, from dorsal view concave in front; three dorsocentrals *Neogriphoncura* Malloch.
Front not concave anteriorly; two dorsocentrals.
Pseudogriphoncura Hendel.
5. Face strongly and evenly convex, highly polished..... *Catiope* Halliday.
Face flat or convex only below, dull-colored; intra-alar bristle always present though sometimes small..... *Minettia* Desvoidy.

Physegenua Macquart

The collection contains but one species belonging to this genus.

Physegenua vittata Macquart

1847. *Physegenua vittata* Macquart, Diptera Exotica, Suppl., iii, p. 220.

Thirteen specimens from Porto Rico: Aibonito, July 14-17, 1914; Mayagüez, June 21-23, 1915; Cayey, May 30-31, 1915; Arecibo, June 24-26, 1915; Jayuya, January 6, 1915.

Camptoprosopella Hendel

The only species belonging to this genus represented in the collection has recently been described. The North American species are separated in the following table.

KEY TO SPECIES

- | | |
|--|------------------------------|
| 1. Wings hyaline or yellowish tinged..... | 3 |
| Wings fuscous or marked with fuscous..... | 2 |
| 2. Wings almost wholly fuscous; mesonotum normally with a median brown vitta..... | <i>dolorosa</i> Williston. |
| Wings with the crossveins, costal and apical margin fuscous. | <i>maculipennis</i> Malloch. |
| 3. Three dorsocentrals..... | 4 |
| Two strong dorsocentrals; mesonotum often with a dark median vitta in front; tarsi a little darkened apically..... | <i>diversa</i> Curran. |
| 4. Anterior legs darker than the others, the tarsi and apices of the tibiae reddish brown; arista densely short plumose..... | <i>verticalis</i> Loew. |
| All the legs of the same color; arista with long, loose plumosity. | <i>vulgaris</i> Fitch. |

Camptoprosopella diversa Curran

1926. *Camptoprosopella diversa* Curran, American Museum Novitates, No. 220, p. 13.

The Porto Rican specimens examined are as follows: Nine from Coamo Springs, July 17-19, 1914, and Arecibo, June 24-26, 1915; one from Mona Island, February 21-26, 1914. Part of the type material is from Haiti and I have seen specimens from Jamaica.

Neogriphoneura Malloch**Neogriphoneura sordida** Wiedemann

1830. *Sapromyza sordida* Wiedemann, Ausser. Zweifl., ii, p. 456.

Twelve specimens from Porto Rico: Adjuntas, June 8-13, 1915; Aibonito, June 1-3, 1915, July 14-17, 1914; Cayey, May 30-31, 1915; Mayagüez, July 24-29, 1914; two from Mona Island, February 21-26, 1914; two from Christiansted, St. Croix Island, June 4, 1911, and one labeled St. Croix Island, March 7, 1925.

Pseudogriphoneura Hendel

The three species from Porto Rico are separable as follows:

- | | |
|--|-----------------------------|
| 1. Thorax not opaque black and without very conspicuous vittæ..... | 2 |
| Thorax opaque black with two ashy vittæ which are connected behind by the ashy scutellar margin..... | <i>albovittata</i> Loew. |
| 2. Thorax shining yellowish; scutellum with a black spot on either side | <i>anomala</i> Curran. |
| Thorax blackish, gray pollinose with a brown spot at the base of each hair | <i>cincacca</i> Coquillett. |

Pseudogriphoneura albovittata Loew

1862. *Laurania albovittata* Loew, Cent. ii, p. 79.

Four specimens from Mayagüez, June 21-23, 1915.

Pseudogriphoneura anomala Curran

1926. *Deccia anomala* Curran, Amer. Mus. Novitates, No. 220, p. 13.

Male, Adjuntas, June 8-13, 1913; female, same data and male, Naguabo, March 7-9, 1914. Occurs also in Jamaica.

Pseudogriphoneura cineracea Coquillett

1902. *Laurania cineracea* Coquillett, Journ. N. Y. Ent. Soc., x, p. 179.

Mayagüez, June 21-23, 1915, and Aibonito, June 8-13, 1915.

Caliop Halliday

The three species before me, two of which are represented in the collection, are separable as follows:

- | | |
|--|---------------------------|
| 1. Intra-alar bristle absent | 2 |
| Intra-alar bristle present: chiefly blackish species..... | <i>flavipes</i> Loew. |
| 2. Scutellum with a large brownish apical spot enclosing the apical bristles; abdomen with the bases of the segment broadly black | <i>scutellata</i> Curran. |
| Scutellum wholly pale; apical four segments of the anterior tarsi black | <i>lutea</i> Coquillett. |

Caliop scutellata Curran

1926. *Caliop scutellata* Curran, Amer. Mus. Novitates, No. 220, p. 14.

The type female, Naguabo, March 7-9, 1914, is the only specimen noted.

Caliop lutea Coquillett

Laurania lutea Coquillett, Journ. N. Y. Ent. Soc., x, p. 179.

I refer six specimens here with some doubt. They differ from the preceding, as indicated in the key. Coquillett does not mention the black apical four segments of the anterior tarsi and darker apical one or two segments of the posterior tarsi, nor the narrow, obscure ferruginous vitta in front of the dorsocentrals. The specimens are from Arecibo, March 1-4, 1914, June 24-26, 1915 and Aibonito, June 1-3, 1915.

Minettia Desvoidy

The collection contains four species belonging to this genus, which is separable from *Sapromyza* by the presence of a distinct intra-alar bristle.

Minettia sororia Williston

1896. *Supromyza sororia* Williston, Trans. Ent. Soc. London, p. 385.

One specimen, Aibonito, July 14-17, 1914.

LONCHAEIDÆ

This family is represented by a single species.

Lonchaea Fallen**Lonchaea nigrocœrulea** Malloch

1920. *Lonchaea nigrocœrulea* Malloch, Can. Ent., lii, p. 246.

Four specimens from Mayagüez, July 24-29, 1914, and Tallaboa, near Ponce, July 23, 1914.

MICROPEZIDÆ

DETERMINED BY E. T. CRESSON, JR.

Taenaptera lasciva (Fabricius)

1798. *Musca lasciva* Fabricius, Syst. Ent., Suppl., p. 564.

There are twenty-four specimens from Porto Rico: Adjuntas, June 8-13, 1915; Fajardo, January 19, 1914; Manatí, June 27-29, 1915; Mayagüez, July 24-29, 1914; San Juan, July 9-12, 1914; Coamo Springs, July 17-19, 1914; Arecibo, June 24-26, 1915.

Systellapha scurra Enderlein

1922. *Systellapha scurra* Enderlein, Arch. Natg. Berlin Abt. A 88, Heft 5, p. 191.

The twelve specimens from Porto Rico are distributed among the following localities: Cayey, May 30-31, 1915; Mayagüez, July 24-29, 1914; Adjuntas, June 8-13, 1915; Naranjito, July 6, 1915.

Hoplocheiloma fasciata (Fabricius)

1775. *Musca fasciata* Fabricius, Syst. Ent., p. 781.

1926. *Hoplocheiloma fasciata* Cresson, Trans. Am. Ent. Soc., lii, p. 272.

There is a single specimen from Fajardo, January 19, 1914.

Micropeza limbata Roeder

1885. *Micropeza limbata* Roeder, Steff. Ent. Zeit., p. 347.

Of this species, which Roeder described from Porto Rico, there are representatives from the following localities: Adjuntas, June 8-13, 1915; Mayagüez, July 24-29, 1914.

TETANOCERIDÆ

The single species representing this family belongs to the genus *Sepedon* Latreille.

***Sepedon macropus* Walker**

1849. *Sepedon macropus* Walker, List Dipt. iv, p. 1078.

Five specimens from Porto Rico: Caguas, May 28-29, 1915; Cayey, May 30-31, 1915; Coamo Springs, July 17-19, 1914.

MUSCIDÆ

To this family belong very many injurious flies, including such well-known pests as the house-fly, tsetse-fly, various root-maggots, etc. A few of the members of the family are beneficial in that they feed upon small insects, while the scavenging habits of many cannot be looked upon with disfavor. Even though Malloch has done much to systematise the study of the family, the determination of the Neotropical species affords much difficulty and, until the types of the older authors have been studied, little can be done, since species in several genera will often agree with a single description.

Most of the genera included in the following key occur in our region, but some, although represented by species from adjacent islands, have not yet been recorded from Porto Rico or the other islands in which we are at present interested.

KEY TO GENERA

1. Arista plumose, pubescent or bare..... 2
 Arista pectinate, with long rays on upper side only; proboscis long,
 broadened basally *Stomorhys* Geoffroy.
2. Fourth vein with a broadly rounded bend or not at all curved forwards 3
 Fourth vein angularly curved; rays of arista spreading more or less
 fan-like *Musca* Linnaeus.
3. Thorax with only one pair of presutural dorsocentrals; anal vein
 never reaching the wing-margin; scutellum never pubescent beneath 4
 Thorax with two or more pairs of presutural dorsocentrals..... 8
4. Three pairs of strong posterior dorsocentrals..... 5
 Two pairs of strong posterior dorsocentrals..... *Bithoracochaeta* Stein.
5. Lower squamal lobe much longer than the upper..... 6
 Lower squamal lobe scarcely longer than the upper, *Hoplogaster* Rondani.
6. Posterior tibiæ without a long postero-dorsal bristle near the middle 7
 Posterior tibiæ with a very long postero-dorsal bristle situated near
 the middle *Neocerxiopsis* Malloch.
7. Posterior tibiæ with a very long median anterior bristle situated close
 to the antero-dorsal one..... *Caricea* Desvoidy.
 Posterior tibiæ without an anterior bristle at the middle, the antero-
 ventral bristle, if present, not unusually long..... *Cænosiä* Meigen.

8. Anal vein not extending nearly to the wing margin..... 9
 Anal vein extending to the wing margin; under-surface of the scutellum with distinct, very fine hairs apically.....*Calythea* Schnabl.
9. Sixth and seventh veins more or less parallel or diverging, the seventh never strongly curved towards the tip of the wing..... 10
 Anal vein very short, the seventh strongly curved and usually cutting across the end of the sixth a little beyond the apex of the latter
Fannia Desvoidy.
10. Middle of the pteropleura bare or the palpi not greatly broadened.....11
 Middle of pteropleura with conspicuous pile; palpi flat and very broad, at least apically..... *Lispa* Latreille.
11. Squamal ridge bare..... 12
 Squamal ridge with long hairs; middle tibiae with ventral bristle.
Orthellia Desvoidy.
12. Posterior thoracal spiracle elongate, situated longitudinally or a little obliquely 13
 Posterior spiracle triangular or more or less circular, but little longer than wide, the opening small..... 15
13. Middle tibiae without ventral bristle..... 14
 Middle tibiae with ventral bristle..... *Pyrellia* Desvoidy.
14. Base of the third vein bare..... *Muscina* Desvoidy.
 Base of third vein setulose..... *Morcellia* Desvoidy.
15. Arista thickened on its basal half, its penultimate segment two or three times as long as wide; front in both sexes very wide, forming a sharp angle with the face; facial depression deep, narrowed below.
Tetramerinx Berg.
 Arista tapering from near the base and otherwise different..... 16
16. Third vein bare, or, if bristled, the sternopleurals arranged 1-2 or 1-1. 17
 Third vein setulose basally; fourth vein strongly curved forwards; arista long plumose; sternopleurals 2-2.....*Myospila* Rondani.
17. Third vein bristled at base; fourth vein conspicuously curved forwards; sternopleurals 1-2..... *Leucomelina* Macquart.
 Third vein bare, the fourth at most gently curved forwards.
Limnophora Desvoidy.

Bithoracochaeta Stein

Two species belonging to this genus are in the collection and are separable as follows:

Legs mostly yellow, the anterior femora sometimes largely black.

leucoprocta Wiedemann.

Legs mostly black, the trochanters, bases and apices of femora and the

bases of the tibiae, reddish..... *varicornis* Coquillett.

Bithoracochaeta leucoprocta Wiedemann

1830. *Anthomyia leucoprocta* Wiedemann, Ansser, Zweifl., ii, p. 433.

1856. *Cocnosia antica* Walker, Dipt. Saunders., p. 367.

One female, Barros, June 4, 1915. There are also specimens from Jamaica and Cuba.

Bithoracochaeta varicornis Coquillett

1900. *Cocnusia varicornis* Coquillett, Proc. U. S. N. M., xxii, p. 256.

Twenty-six specimens from Porto Rico: San Juan, February 11-14, 1914; Manatí, June 27-29, 1915; Coamo Springs, July 17-19, 1914; Arecibo, June 24-26, 1915; Aibonito, June 1-3, 1915; Adjuntas, June 8-13, 1915; Jayuya, January 5, 1915; Caguas, May 28-29, 1915 and Santurce, January 1, 1924.

Neodexiopsis Malloch

The single representative of this genus, is undescribed.

Neodexiopsis rex, new species

Head, thorax, apical two abdominal segments and the tarsi, blackish, elsewhere reddish yellow. Length, 4.5 mm.

Male. Head with dense grayish-white pollen, the frontal vitta blackish with a linear brownish-yellow vitta extending from the ocelli to the lunule. Upper pair of frontals reclinate, fairly strong, a very strong pair situated at the anterior third of the front, the other four pairs weak. Hair on the lower half of the occiput yellow. Face slightly narrower than the front. Proboscis blackish; palpi yellow. Antennæ blackish, the base of the third segment brownish red; arista short plumose.

Thorax grayish, the mesonotum with five brown vittæ, the outer ones broad and lying wholly behind the suture, where all the vittæ are inclined to be more or less fused; very few hairs. Scutellum with four marginal bristles and scattered discal hairs. Pleura with pale yellowish hair, the bristles black.

Coxæ pale, whitish pollinose. Anterior and middle femora each with a row of very long, slender bristles beneath, the posterior pair with a row postero-ventrally, antero-ventrally and antero-dorsally, the hair unusually long and fine, especially towards the lower edges where it forms ciliate rows. Anterior tibiæ with a fine posterior bristle situated a little beyond the middle; middle tibiæ with an antero-dorsal bristle at the apical third and a postero-dorsal one at the middle; posterior tibiæ with three long, fine bristles, a dorsal one at the apical fourth and two at the middle, one on either side above. Tarsi simple; pulvilli large, yellowish.

Wings cinereous hyaline, the veins brown except at the base. Squamæ whitish, the lower lobe large. Halteres reddish yellow.

Abdomen reddish yellow, with the third segment above, the fourth wholly and the genitalia, blackish; the pale color covers the whole of the third segment towards the middle below, thence gradually narrows so as to appear as basal triangles laterally above. The abdomen is grayish-white pollinose except for very large apical dorsal triangles, which cover most of each segment and

are very broadly connected with each other in the middle. Genitalia thinly grayish pollinose; sternites wholly pale. Hair black dorsally, yellowish ventrally.

Type, male, Luquillo National Forest, Porto Rico, February 18, 1925 (above 1500 feet on way to summit of El Yunque).

Cenosia Meigen

There are representatives of two species, one of which I have not been able to determine.

Cenosia flavipes Williston

1896. *Cenosia flavipes* Williston, Trans. Ent. Soc. London, p. 370.

Two females, Charlotte Amalie, St. Thomas Island, June 3, 1911. Coquillett has reported the species from Porto Rico.

Cenosia species

Five specimens from Jayuya and Aibonito. This form differs from the preceding in having the femora mostly and the tarsi wholly blackish.

Tetramerinx Berg

There are four specimens from San Juan, February 11-14, 1914, which belong to a species of this genus.

Calythea Schnabl

Calythea crenata Bigot

1885. *Trichopticus crenatus* Bigot, Ann. Soc. Ent. Fr., p. 282.

Nine specimens from the following localities: Mayagüez, June 15-16 and 21-23, 1915; Aibonito, June 1-3, 1915; Cayey, May 30-31, 1915; Charlotte Amalie, St. Thomas Island, June 3, 1911.

There may be some doubt about the identification. The wings are more brownish-tinged than in *albicincta* Meigen, the squamæ are broadly brown on their borders, and the posterior femora bear a row of postero-ventral bristles on their basal two-thirds. The black abdominal band on the third segment is very broad and hardly excised on the apical half near the middle.

Fannia Desvoidy

Fannia femoralis Stein

1897. *Homalomyia femoralis* Stein, Berl. Ent. Zeitschr., xlii, p. 282.

More than thirty specimens, mostly from Mayagüez, February 15-16, 1914, also from San Turce, January 1, 1914, Ensenada, June 14-19.

1915, and St. Croix Island, April 6, 1925. Other specimens are from Haiti and the Dominican Republic.

Lispa Latreille

Lispa rufitibialis Macquart

1843. *Lispa rufitibialis* Macquart, Dipt. Exotica, ii. (3), p. 168.

Coquillett lists this species from Fajardo and Culebra Island.

Myospila Rondani

Myospila obsoleta Brauer and Bergenstamm

1891. *Phasiophana obsoleta* Brauer and Bergenstamm, Denkschr. Akad. Wien, lviii, p. 390.

About twenty specimens from Porto Rico: Adjuntas, June 8-13, 1915; Arecibo, June 24-26, 1915; Jayuya, January 5, 1915.

There are also specimens from Haiti, Cuba and Jamaica.

This species is somewhat variable, especially in the color of the squamæ: the border of these varies from blackish to yellowish although the upper lobe is almost always black. It is quite possible that an older name will eventually be found for this species as it is evidently common. Its affinities are rather obscure, but it fits *Myospila* most satisfactorily and does not seem worthy of a distinct genus. The prosternum is bare, arista very long plumose, head short, sternopleurals 2-2, posterior thoracic spiracle sub-triangular, not elongate, the venation as in *M. mediatunda* Fabricius, the antennæ usually reddish or luteous and the rather thick palpi brownish red to brown in color.

Linnophora Desvoidy

Two of the species belonging to this genus I am unable to determine satisfactorily but have prepared a key indicating the characters upon which they may be separated.

KEY TO SPECIES

1. Arista distinctly, though very short plumose..... 3
Arista bare or only microscopically pubescent..... 2
2. The frontal triangle of the female reaches not more than half the distance from the ocellar triangle to the antennæ..... species No. 2
The frontal triangle of the female reaches almost to the antennæ (female)..... species No. 1
3. Dorsal aristal rays at least half as long as the width of the third antennal segment..... *arcuata* Stein.
The dorsal aristal rays are not over one-fourth as long as the width of the third antennal segment, but little longer than the basal thickness of the arista (male)..... species No. 1

Linnophora arcuata Stein

1897. *Linnophora arcuata* Stein, Berlin Ent. Zeitschr., xlii, p. 201.

Male, Naguabo, March 7-9, 1914, and male, Mayagüez, June 21-23, 1915.

Linnophora, species No. 1

Male, Arecibo, March 1, 1914; female, Arecibo, June 1-3, 1915; female, Aibonito, July 14-17, 1914; two females, Aibonito, June 1-3, 1915; male, Adjuntas, June 26, 1915; two females, Adjuntas, June 8-13, 1915; two females, Barros, June 4, 1915; female, Mayagüez, June 21-23, 1915.

Linnophora, species No. 2

Two males and twelve females, Barros, June 4, 1915; two females, Adjuntas, June 8-13, 1915; male, Arecibo, June 24-26, 1915; female, Aibonito, June 14-17, 1914; two females, Caguas, May 28-29, 1915; female, Manatí, March 5, 1914; female, Mayagüez, February 15-16, 1914.

Stomoxys Geoffroy**Stomoxys calcitrans** Linnaeus

1758. *Conops calcitrans* Linnaeus, Syst. Nat., 10th ed., p. 604.

The species is not represented in the collection but has been recorded by Coquillett from Vieques Island and there are specimens from Haiti.

Musca Linnaeus**Musca domestica** Linnaeus

Numerous specimens from the following localities: San Juan, Manatí, Santurce and Christiansted, St. Croix Island, January, March, June and July.

Pyrellia Desvoidy**Pyrellia ochricornis** Wiedemann

1830. *Musca ochricornis* Wiedemann, Ausser, Zweifl., ii, p. 408.

Coquillett has recorded this species from Porto Rico and I have seen it from adjacent islands.

Morellia Desvoidy

The two species in the collection are separable as follows:

Humeri yellow..... *scapulata* Bigot.
Humeri metallic..... *riolucea* Fabricius.

Morellia scapulata Bigot

1878. *Morellia scapulata* Bigot, Annales Ent. Soc. France, p. 75.

There are representatives from the following localities: Aibonito, June 1-3, 1915; Cayey, May 30-31, 1915; Caguas, May 28-29, 1915; Coamo Springs, December 28, 1914; Mayagüez, February 15-16, 1914; Naguabo, March 7-9, 1914; St. John Island, March 9, 1925; St. Thomas Island, February 21, 25 and 28, 1925; St. Croix Island, March 3 and 4, 1925.

Morellia violacea Fabricius

1505. *Musca violacea* Fabricius, Syst. Antl., p. 288.

This species is represented by specimens from the following localities: Adjuntas, June 8-13, 1915; Arecibo, June 24-26, 1915; Aibonito, June 1-3, 1915; Mayagüez, July 24-29, 1914.

CALLIPHORIDÆ

There are five species belonging to this family in the collection, representing two genera.

Cochliomyia Townsend

The two species in the collection may be separated as follows:

Cheeks wholly yellow pilose; white pollinose spots on the fourth abdominal segment large, transverse, broadly separated from each other.

macellaria Fabricius.

Cheeks with considerable black hair anteriorly; white pollinose spots on the fourth abdominal segment triangular, approximate.

laniaria Wiedemann.

Cochliomyia macellaria Fabricius

1775. *Musca macellaria* Fabricius, Syst. Ent., p. 776.

There are representatives from the following localities: Aibonito, June 1-3, 1915, July 4-17, 1914; Coamo Springs, June 5-7, 1915; Ensenada, June 14-19, 1915; Jayuya, January 6, 1915; Mayagüez, June 21-23, 1915; San Juan, July 1-5, 1915; St. John Island, March 5, 10, 1925; St. Thomas Island, March 12, 1925; Mona Island, February 21-26, 1914; Christiansted, St. Croix Island, June 3, 1911; St. Croix Island, February 28, 1925, May 5, 1919.

Cochliomyia laniaria Wiedemann

1830. *Musca laniaria* Wiedemann, Ausser. Zweifl., ii, p. 406. (*laniaria*, error.)

Several specimens from Jayuya, January 6, 1915; Naguabo, March 7-9, 1914; Mona Island, February 21-26, 1914; St. John Island, March 9, 1925; St. Thomas Island, February 25, 1925.

Lucilia Desvoidy

There are examples of two or three species in the collection. The species which probably occur in our region may be separated by the table which follows:

KEY TO SPECIES

- | | |
|---|-------------------------------|
| 1. Males | 2 |
| Females | 4 |
| 2. Frontal bristles confined to lower half of front..... | <i>rica</i> Shannon. |
| Frontal bristles occupying the lower two-thirds of the front..... | 3 |
| 3. A pair of isolated frontals before the ocelli..... | <i>cluvia</i> Walker. |
| No isolated frontals..... | <i>hirtiforceps</i> Shannon. |
| 4. "Beard" black | <i>hirtiforceps</i> Shannon. |
| Beard largely pale..... | 5 |
| 5. Squamæ white..... | <i>hirtiforceps</i> Shannon ? |
| Squamæ brown..... | 6 |
| 6. Front as wide as the length of the third antennal segment. | |
| | <i>cluvia</i> Walker. |
| Front not nearly so wide as the length of the third antennal segment. | <i>rica</i> Shannon. |

Lucilia rica Shannon

1926. *Lucilia rica* Shannon, Proc. Ent. Soc. Wash., xxviii, p. 132.

Female, Mayagüez, July 24-29, 1914; female, Naranjito, July 6, 1915; female, Arecibo, June 24-26, 1915.

Lucilia hirtiforceps Shannon

1926. *Lucilia hirtiforceps* Shannon, Proc. Ent. Soc. Wash., xxviii, p. 133.

Male, Mayagüez, February 15-16, 1914. Two females, with the same data, and a female from Desecheos Island, February 18-20, 1914, differ in having the squamæ white but show no other differences from examples of the species before me.

SARCOFILAGIDÆ

The majority of the flies belonging to this family are scavengers, some are parasitic upon grasshoppers while others sometimes cause myiasis in animals. The family is well represented in the Islands, no less than eighteen species being present in the collection. In the key to the genera I have included all the American genera of the Sarcophaginae of which I have representatives.

KEY TO GENERA

1. Arista plumose or strongly pubescent..... 2
Arista bare..... 21
2. Lower lobe of the squamæ bare above..... 4
Lower lobe of the squamæ with long hairs on upper surface..... 3
3. Propleura bare..... *Squamata* Curran and Walley.
Propleura hairy (Type: *trivittata* Curran, Brazil). *Squamatoides* Curran.
4. Three sternopleurals..... 11
Only two sternopleurals..... 5
5. Hairs on the sides of the scutellum extending at least to the lower edge outside the marginals..... 6
Sides of the scutellum wholly without hairs outside the marginal bristles: both sexes with orbitals: almost wholly grayish pollinose species with reddish legs..... *Camptops* Aldrich.
6. Arista plumose..... 7
Arista pubescent..... *Wohlfahrtia* Brauer & Bergenstamm.
7. Abdomen largely pollinose, usually tessellate..... 8
Abdomen shining black..... *Phrissopodia* Macquart.
8. Propleura bare..... 10
Propleura hairy, the hairs sometimes quite fine and pale..... 9
9. Frontal bristles descending to below the base of the antennæ and somewhat diverging below..... *Notochaeta* Aldrich.
Frontal bristles not extending below the base of the antennæ.
Harpagopyga Aldrich.
10. Notopleura at most with two bristles and in addition a very weak anterior one; front of male with at least one orbital: first vein sometimes bristled..... 19
Notopleura with several hairs in addition to the two large and two weak bristles..... *Sarcophaga* Meigen.
11. Fifth vein not setulose..... 12
Fifth vein setulose..... *Johnsonia* Coquillett.
12. Propleura bare..... 14
Propleura hairy on median portion..... 13
13. Third antennal segment but little longer than the second; arista short plumose: both sexes with orbitals..... *Harbeckia* Aldrich.
Third antennal segment usually twice as long as the second; male without orbitals (*Boettcheria* Parker)..... *Sarcophaga* Meigen.
14. Sternopleurals situated in an almost straight line or forming a very shallow triangle..... 15
Sternopleurals 2—1, arranged in a very wide triangle.... *Agria* Desvoidy.
15. Head with pale hair at least below the neck..... 16
Head devoid of pale hair except on the proboscis.... *Sarcophartia* Parker.
16. Third antennal segment more than twice as long as the second; cheeks less than half as wide as eye-height; parafacials rarely with more than two rows of hairs..... 17
Third antennal segment less than twice as long as the second; cheeks more than half as wide as eye-height; parafacials with several irregular rows of hairs..... *Emblemasona* Aldrich.

17. Arista normally plumose..... 18
 Arista with several rows of hairs dorsally and a single row of shorter, finer hairs ventrally; vibrissæ situated far above the oral margin.
Sarcophagina, new genus.
18. Front of male without orbitals; invariably more than a single hair on the notopleura in addition to the two bristles, or the sternopleurals are all well developed and the apical cell ends well before the apex of the wing..... 20
 Front of male with one or two orbitals; at most a single hair on the notopleura in addition to the two bristles; apical cell ending rather near the apex of the wing..... 19
19. Parafacials with two or three rows of hairs; metacephalon swollen.
Sarothromyia Brauer and Bergenstamm.
 Parafacials with a single row of hairs; metacephalon not conspicuously swollen..... *Sarcophagula* Macquart.
20. First vein setulose..... *Heticobia* Coquillett.
 First vein bare..... *Sarcophaga* Meigen.
21. A row of orbitals in both sexes, *Pachyophthalmus* Brauer & Bergenstamm.
 With at most two orbitals..... *Scnolainia* Macquart.

Johnsonia Coquillett

Johnsonia bivittata, new species

Differs from the remaining species in having the abdomen black, the fourth segment obscurely red on the basal half. Length, 3.75 mm.

Male. Head cinereous pollinose, the face white; frontal vitta brown, half as wide as parafrontal; front a little more than half as wide as eye, slightly widening anteriorly; four pairs of frontal bristles, the anterior pair strong, the single pair of orbitals situated very close to the second upper frontal; ocellars very weak, verticals strong. Occiput with scattered black bristly hairs; cheeks one-seventh the eye-height. Palpi brown. Antennæ brownish, the base of the third segment reddish; arista with long, sparse rays.

Thorax gray pollinose, with two broad black vittæ bordered with brownish; prescutellars very weak; dorsocentrals 2-3; sternopleurals 1-2; two pairs of strong scutellars and a pair of discal hairs. Propleura bare; infra-squamal spinules absent.

Legs black, the femora partly gray pollinose; middle femora without comb; pulvilli elongate, luteous.

Wings cinereous hyaline, the bristles on the first, third and fifth veins long; apical cell very short petiolate; posterior crossvein in the middle between the anterior crossvein and the bend of the fourth vein.

Abdomen black in ground color, the fourth segment obscure reddish on a little more than the basal half, the basal two-thirds of each segment gray pollinose, the pollen increasing in width laterally, the apex of each segment broadly shining; on the intermediate segments there is an evident broad, diffuse, median black vitta while there is a narrow bare vitta on the fourth segment. The bristles are evidently as in *elegans* Coquillett. Genital segments reddish, the appendages brownish or blackish. There are no bristles on

the first genital segment and the anterior claspers are decidedly more slender than figured by Aldrich for *elegans*.

Type: male, Aibonito, P. R., July 14-17, 1914.

The three described species of *Johnsonia* are separated in the following table.

KEY TO SPECIES

1. Fourth abdominal segment black on apical third or more. *bivittata* Curran.
Fourth abdominal segment reddish on apical half or more..... 2
2. Antennæ red, the third segment blackish on apical half; bristles moderately long; legs reddish brown to reddish. (So. U. S.)
elegans Coquillett.
- Antennæ black, the apex of the second and base of third segment reddish; bristles very long; legs black. (Peru.)..... *setosa* Aldrich.

Sarcophartia Parker

Sarcophartia capitata, new species

Fig. 33

Male genitalia somewhat as in *Sarcophaga peltata* Aldrich; first and third veins bristly; fifth sternite not divided; acrosticals absent except for a weak pair of prescutellars. Length, 5.5 mm.

Male. Head with pale ochreous pollen, which becomes quite pale below, the hair wholly black; front five-eighths as wide as eye, with almost parallel sides, with two pairs of proclinate orbitals, the upper pair very weak, and six pairs of frontals, the upper two reclinate, the lower pair situated below the base of the antennæ; there is also a fine hair between each of the bristles in the frontal rows; ocellars weak; outer verticals distinct. Cheeks one-sixth the eye-height; parafacials with two or three black hairs near the orbits below and some inconspicuous yellowish hairs above. Palpi missing. Antennæ blackish, the base of the third segment reddish, reaching five-sixths the distance to the oral margin; vibrissæ level with oral margin. Arista long plumose.

Thorax gray pollinose, with three black, brown pollinose vittæ, the median one extending to the middle of the scutellum, the sides of the scutellum narrowly bare. Dorsocentrals 2-3; sternopleurals 1-1-1; two pairs of strong marginal scutellars and a weak, cruciate, sub-apical pair, the disc of the scutellum with short, sparse hairs.

Legs black, the femora in part gray pollinose; tibiæ more or less reddish brown.

Wings cinereous hyaline; epaulet black. Squamæ white; halteres yellow, the knob more or less infuscated.

Abdomen grayish pollinose, the second to fourth segment each with the apex and broad, sub-triangular spots towards the sides bare or thinly brownish pollinose, not tessellate. First two segments without dorsal bristles. Hair of the abdomen black, rather abundant and fine on the under side. Lateral view of the genitalia as in Fig. 33.

Type, male, Mayagüez, P. R., July 24-29, 1914 (Grounds of Porto Rico Agricultural Experiment Station): paratype, male, Mayagüez, February 15-16, 1914 (on the mesa).

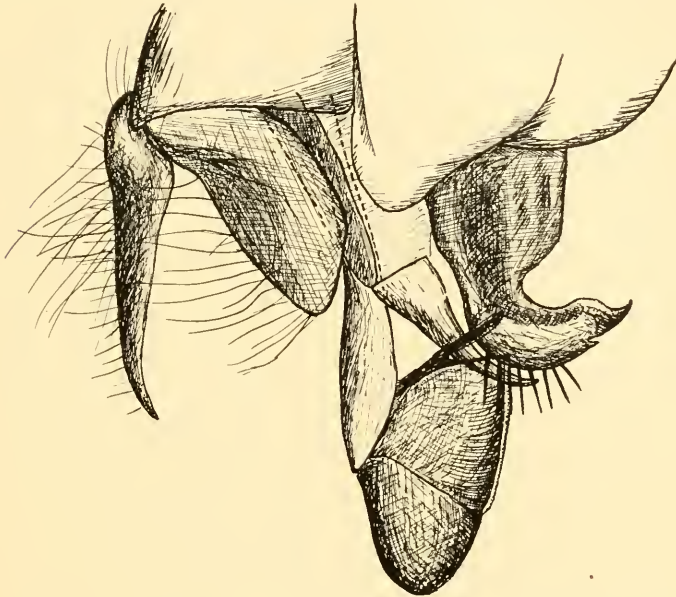


Fig. 33.—*Sarcophartia capitata*, new species. Male genitalia, lateral view.

This species differs from those described by Parker in the shape of the genitalia and the presence of orbitals in the male. Notwithstanding the presence of these latter it seems to belong to *Sarcophartia*. The unusually large outer forceps (auxiliary plate) at once distinguish this species from the others, as in all the species described these are small, vestigial or far removed from the posterior forceps.

Sarcophaga Meigen

The representatives of this genus contained in the collection may be separated as follows:

KEY TO MALES

- | | |
|---|---------------------------|
| 1. Cheeks with black or cinereous hair..... | 2 |
| Cheeks clothed with golden hair..... | <i>capitata</i> Aldrich. |
| 2. Three or four sternopleurals, the second and third weak, the first and last always strong..... | 3 |
| Two sternopleurals; no presutural acrosticals or dorsocentrals. | <i>hillifera</i> Aldrich. |
| 3. Fourth abdominal segment not golden pollinose..... | 4 |

- Fourth abdominal segment almost all golden pollinose.... *peltata* Aldrich.
4. Four postsutural dorsocentrals, the anterior ones weak; no presutural acrosticals 5
 Three strong postsutural dorsocentrals; presutural acrosticals moderately developed; posterior forceps angulate behind at the apical third and with dense, short, bristly hairs near the apex.
culminata Aldrich.
5. At least two pairs of strong postsutural dorsocentrals; presutural dorsocentrals moderately strong..... 6
 Only the posterior pair of dorsocentrals strong... *plinthopyga* Wiedemann.
6. Posterior forceps wholly pale, broad, the apex concave.
sternodontis Townsend.
 Posterior forceps blackish on the apical third, pointed at the end.
bakeri Aldrich.

KEY TO FEMALES

1. Cheeks with cinereous or black pile..... 2
 Cheeks with golden pile..... *capitata* Aldrich.
2. Three or four sternopleurals..... 3
 Only two sternopleurals..... *hillifera* Aldrich.
3. Fourth abdominal segment not golden pollinose..... 4
 Fourth abdominal segment largely golden pollinose..... *peltata* Aldrich.
4. Four pairs of strong postsutural dorsocentrals or the anterior ones short or weak..... 5
 Three pairs of strong postsutural dorsocentrals; first genital segment bright red, not emarginate above..... *culminata* Aldrich.
5. At least two pairs of strong postsutural dorsocentrals..... 6
 Only one pair of strong postsutural dorsocentrals, the others short but fairly stout..... *plinthopyga* Wiedemann.
6. Cheeks with pale hair on at least the posterior half; second abdominal segment without distinct median marginals..... *bakeri* Aldrich.
 Cheeks wholly black-haired; second abdominal segment with median marginals..... *sternodontis* Townsend.

***Sarcophaga capitata* Aldrich**

1916. *Sarcophaga capitata* Aldrich, Sarcoph. and Allies, p. 208.

Five specimens from Porto Rico: male, Aibonito, June 1-3, 1915; male, San Juan, July 1-5, 1915; male, Adjuntas, June 8-13, 1915; female, Cayey, May 30-31, 1915; female, Mayagüez, June 21-23, 1915.

***Sarcophaga hillifera* Aldrich**

1916. *Sarcophaga hillifera* Aldrich, Sarcoph. and Allies, p. 210.

One male, St. Thomas Island, March 1, 1925.

***Sarcophaga peltata* Aldrich**

1916. *Sarcophaga peltata* Aldrich, Sarcoph. and Allies, p. 216.

Seven males and fourteen females from Porto Rico: Quadradilla, January 3, 1925; Santurce, January 1, 1914; San Juan, July 1-5, 1915; Manatí, March 5, 1914, June 27-29, 1915; Caguas, May 28-29, 1915; Coamo Springs, July 17-19, 1914; Arecibo, June 24-26, 1915; Mayagüez, February 15-16, 1914; Cayey, May 30-31, 1915; and one female, St. Thomas Island, February 26, 1925.

***Sarcophaga culminata* Aldrich**

1916. *Sarcophaga culminata* Aldrich, Sarcoph. and Allies, p. 289.

Five males and four females: Mayagüez, February 15-16, 1914, July 24-29, 1914; Adjuntas, June 8-13, 1915; Jayuya, January 6, 1915; San Juan, February 11-14, 1914, July 1-5, 1915; Luquillo National Forest, February 17, 1925; Naguabo, March 7-9, 1914.

***Sarcophaga plinthopyga* Wiedemann**

1830. *Sarcophaga plinthopyga* Wiedemann, Ansser. Zweifl., ii, p. 360.

1916. *Sarcophaga robusta* Aldrich, Sarcoph. and Allies, p. 268.

Aldrich reports the species from Mayagüez, Porto Rico.

***Sarcophaga sternodontis* Townsend**

1892. *Sarcodexia sternodontis* Townsend, Journ. Inst. Jamaica, i, p. 105.

This widely distributed tropical species is represented by eight males and six females from the following localities:

Caguas, May 28-29, 1915; San Juan, February 11-14, 1914; Aibonito, July 14-17, 1914, June 1-3, 1915; Manatí, June 27-29, 1915; Mayagüez, July 24-29, 1914; Jayuya, January 5, 1915; Arecibo, June 24-26, 1915; St. Thomas Island, March 12, 1925.

***Sarcophaga bakeri* Aldrich**

1916. *Sarcophaga bakeri* Aldrich, Sarcoph. and Allies, p. 270.

Twenty-seven specimens: Arecibo, June 24-26, 1915, March 1-4, 1914, June 24-26, 1915; Adjuntas, June 8-13, 1915; Luquillo National Forest, February 17, 1925; San Juan, July 9-12, 1914; Adjuntas, June 8-13, 1915; Ensenada, June 14-19, 1915; Manatí, June 27-29, 1915; Naguabo, March 7-9, 1914; Aibonito, July 30-August 1, 1914; Mona Island, February 21-26, 1914; St. Thomas Island, February 25, 1925.

***Helicobia* Coquillett**

Strictly speaking, this group should not be considered as more than a subgenus of *Sarcophaga*. The only difference in the two is the presence

of setulae on the upper surface of the first vein and this is, at best, an extremely weak character upon which to base a genus. However, in such a large and unwieldy group as *Sarcophaga* the character may be used to advantage in the separation of a considerable number of the species. There are four species in the collection which are referable to the genus.

KEY TO MALES

1. Only four rows of acrostical hairs or bristles in front between the dorsocentrals..... *globulus* Aldrich.
At least six rows of acrostical hairs and bristles..... 2
2. Fourth abdominal segment wholly black..... *latisetosa* Parker.
Apex of the fourth abdominal segment broadly reddish..... 3
3. Posterior forceps long, their posterior edge straight, the apex oblique; acrosticals scarcely stronger than the adjacent hairs... *surrubea* Wulp.
Posterior forceps fairly short, curved; acrosticals somewhat stronger than the adjacent hairs..... *helicis* Townsend.

KEY TO FEMALES

1. The row of hairs closest to the acrosticals is very close to them, the hairs sparse: fourth abdominal segment wholly black; first genital segment bright red..... *globulus* Aldrich.
The six or more rows of anterior acrostical hairs and bristles are abundant and more evenly spaced or the fourth abdominal segment is broadly red apically..... 2
2. Fourth abdominal segment wholly black..... *latisetosa* Parker.
Fourth abdominal segment broadly reddish apically..... 3
3. Anterior acrosticals slightly developed; cheeks with only two rows of black hairs and some white ones behind..... *helicis* Townsend.
Anterior acrosticals not stronger than the surrounding hairs; cheeks with numerous scattered black hairs..... *surrubea* Wulp.

***Helicobia globulus* Aldrich**

1916. *Sarcophaga globulus* Aldrich, *Sarcoph.* and *Allies.* p. 299.

Two males and ten females: Naguabo, March 7-9, 1914; Manatí, June 27-29, 1915; Aibonito, June 1-3, 1915, July 14-17, 1914; Adjuntas, June 8-13, 1915; Barros, June 4, 1915; Mona Island, February 21-26, 1914.

***Helicobia latisetosa* Parker**

1914. *Ravinia latisetosa* Parker, *Proc. Bost. Soc. Nat. Hist.*, xxxv, p. 63.

Three males and seven females from Porto Rico: Aibonito, June 1-3, 1915; Arecibo, June 24-26, 1915; San Juan, February 11-14, 1914; Manatí, March 5, 1914, June 7-29, 1915; Ensenada, June 14-19, 1915.

Helicobia surrubea van der Wulp

1896. *Sarcophaga surrubea* van der Wulp, Biol. Cent. Amer., Dipt., ii, p. 273.

Numerous specimens from the following localities: Luquillo National Forest, February 18, 1925; Ensenada, June 14-19, 1915; Arecibo, June 24-26, 1915, July 30-August 1, 1914; Cayey, May 30-31, 1915; Caguas, May 28-29, 1915; Manatí, June 27-29, 1915; Quebradillas, June 23, 1915; San Juan, February 11-14, 1914, July 9-12, 1914, July 1-5, 1915; Coamo Springs, December 18, 1914; Adjuntas, June 8-13, 1915; Barros, June 4, 1915; St. Thomas Island, March 12, 1925; Charlotte Amalie, St. Thomas Island, June 3, 1911; St. Croix Island, February 28, 1925; St. John Island, March 9, 1925.

Helicobia helicis Townsend

1892. *Psyche*, vi, p. 220.

Thirteen specimens: Aibonito, June 1-3, 1915; Arecibo, June 24-26, 1915; Caguas, May 28-29, 1915; Manatí, March 5, 1914, June 27-29, 1915; Mona Island, February 21-26, 1914.

Sarcophagula van der Wulp**Sarcophagula occidua** Fabricius

1794. *Musca occidua* Fabricius, Ent. Syst., iv, p. 315.

Numerous specimens from the following localities: Arecibo, March 1-4, 1914, June 24-26, 1915, July 30-August 1, 1914; Caguas, May 28-29, 1915; Mayagüez, February 15-16, 1914; Coamo Springs, June 5-7, 1915; Aibonito, June 1-3, 1915, July 14-17, 1914; Naguabo, March 7-9, 1914; Manatí, June 27-29, 1915; Tallaboa, near Ponce, July 23, 1914; Fajardo, June 7, 1914; San Juan, July 1-5, 1915, July 9-12, 1914; Adjuntas, June 8-13, 1915; Mona Island, February 21-26, 1914; Charlotte Amalie, St. Thomas Island, June 3, 1911; Christiansted, St. Croix Island, June 4, 1911; St. John Island, March 9, 1925; St. Croix Island, March 3, 1925.

Sarothromyia Brauer and Bergenstamm**Sarothromyia femoralis** Schiner

1868. *Sarcophila femoralis* Schiner, Novara Reise, p. 315.

Two specimens from Porto Rico: Arecibo, June 24-26, 1915, and San Juan, February 11-14, 1914 (Santurce Park, along coast).

Harpagopyga Aldrich**Harpagopyga diversipes** Coquillett

1900. *Sarcophaga diversipes* Coquillett, Proc. U. S. N. M., xxii, p. 255.

Two specimens: Coamo Springs, December 27, 1914; Mona Island, February 21-26, 1914.

Sarcophagina, new genus

Face scarcely retreating, the oral margin slightly produced, almost as prominent as the anterior part of the front. Vibrissæ situated slightly more than the length of the second antennal segment above the oral margin. Parafacials wide, with very fine short hairs. Front wide, the frontals weak, the upper pair somewhat stronger and reclinate. Two pairs of weak proclinate orbitals in the female. Ocellars strong, outer verticals present. Palpi strong, swollen apically. Hair of head mostly pale. Cheeks one-third as wide as eye-height. Antennæ reaching almost to the vibrissæ, the third segment twice as long as the second; arista with several rows of hairs above and a single, much shorter row beneath.

No acrosticals. Four pairs of weak, short, dorsocentrals, one on the anterior slopes of the mesonotum, another immediately before the suture and two on the posterior third of the postsutural area. One sub-lateral and one post-humeral; one intra-alar; two supra-alars. Four notopleurals, two of them weak, the notopleura otherwise bare. Three sternopleurals the second weak; propleura bare. Infra-squamal spinules present. Two pairs of marginal scutellars and a weak sub-apical pair.

Middle tibiæ with two antero-dorsal, two postero-dorsal and one ventral bristle. The posterior tibiæ with two bristles on each of these surfaces.

Venation as in *Sarcophaga* Meigen. A strong, short fold at the bend of the fourth vein. First vein setulose above; the third vein setulose as far as the anterior crossvein.

Third abdominal segment with a pair of median marginals, the fourth with four or six, the bristles weak. Each segment with two or three weak lateral marginals.

Genotype: *S. candida*, new species.

Sarcophagina candida, new species

Fig. 34

Blackish; grayish-white pollinose, the pollen with a strong golden yellow tinge in some views; mesonotum with three darker vittæ. Length, 8.5 mm.

Female. Occiput and upper part of the front black in ground color, the head elsewhere reddish yellow but very densely pollinose, the cheeks golden, the occiput more whitish, its pile white; hair of the cheeks mostly yellow, that in front coarser and blackish. Front with obscure, very fine yellowish hairs on the anterior half and black hair above; eleven pairs of frontals, two situated below the base of the antennæ. Palpi and antennæ blackish.

Mesonotum with three moderately wide, grayish-black vittæ. Hair of thorax black except on the sternopleura.

Legs black, except the tarsi, more or less thickly grayish pollinose.

Wings cinereous hyaline; veins brown. Squamæ white. Halteres reddish yellow.

In some views the abdomen appears distinctly tessellate. Hair of the under surface pale yellow. The incisures of the under surface inclined to be reddish.

Type, female, Santurce, Porto Rico. February 11-14, 1914.

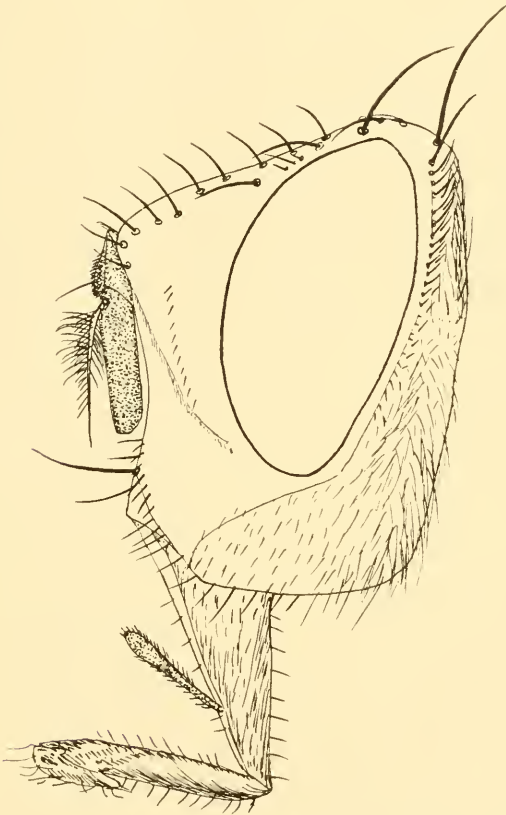


Fig. 34.—*Sarcophagina candida*, new species. Profile of head.

Pachyophthalmus Brauer and Bergenstamm

Pachyophthalmus floridensis Townsend

1892. *Sarcomacronychia floridensis* Townsend. Ent. News, iii, p. 80.

One female, San Juan, July 1-5, 1915. Occurs also in Haiti and Jamaica.

Senotainia Macquart

Senotainia rubriventris Macquart

1845. *Senotainia rubriventris* Macquart, Dipt. Exot., Suppl., i, p. 167.

Five specimens: Caguas, May 28-29, 1915; Coamo Springs, June 5-7, 1915; Ensenada, June 14-19, 1915; Mayagüez, June 21-23, 1915; Mona Island, February 21-26, 1914.

TACHINIDÆ

The Tachinidæ are, so far as known, all beneficial, since they are parasitic on insects of other orders. Only one instance is recorded of a Tachinid that is parasitic upon another Dipteron,—an African species reared from Syrphid larvæ. The classification of the species is extremely difficult and no reliable key is available for the separation of the genera, which are very numerous. The family has been divided into several sub-families, some of which have even been considered as of family rank, but there is no character upon which they may be satisfactorily divided since all of the characters available for separation lose their significance when an extensive fauna is studied. I do not consider the Dexiidae as distinct from the Tachinidæ proper and some of the genera previously placed in these families are synonymous. The family Phasiidæ is so poorly defined that there are many species which cannot be satisfactorily placed in either the Tachinidæ or the Phasiidæ, and the same condition exists when one attempts to recognize the Megaprosopidæ.

KEY TO GENERA

- | | |
|---|------------------------------|
| 1. Middle of propleura hairy..... | 2 |
| Median portion of the propleura entirely bare..... | 3 |
| 2. Apical cell petiolate, ending far from wing-tip; parafacials with two bristles below..... | <i>Antillicolla</i> Curran. |
| Apical cell open; parafacials with fine hair..... | <i>Archytas</i> Jænnicke. |
| 3. Parafacials with hairs or bristles on lower half or more..... | 4 |
| Parafacials bare on more than the lower half..... | 8 |
| 4. Face strongly carinate; arista long plumose; cheeks one-third as wide as eye-height..... | <i>Rhynchodezia</i> Bigot. |
| Face not strongly carinate or, if moderately so, the arista is not long plumose and the cheeks are narrow..... | 5 |
| 5. Parafacials with fine or bristly hairs..... | 6 |
| Parafacials with a row of strong bristles..... | <i>Ricosia</i> Curran |
| 6. Eyes quite bare..... | 7 |
| Eyes thickly hairy..... | <i>Winthemia</i> Desvoidy. |
| 7. Ocellar bristles absent..... | <i>Belvoisia</i> Desvoidy. |
| Ocellar bristles present, directed backwards..... | <i>Gonia</i> Meigen. |
| 8. Thorax without plumose hairs..... | 9 |
| Thorax, at least on the pleura, with plumose pile.. | <i>Comatacta</i> Coquillett. |
| 9. Eyes bare or with sparse, inconspicuous hairs..... | 10 |
| Eyes conspicuously hairy..... | 31 |
| 10. Infra-squamal spinules absent; abdomen always with bristles..... | 14 |

- Infra-squamal spinules present on the abdomen without bristles..... 11
11. Posterior tibiae with scale-like cilia..... *Trichopoda* Latreille.
Legs wholly without squamose hairs..... 12
12. Arista with long rays; cheeks one-third or more as wide as eye-
height..... *Rhynchodexia* Bigot.
Arista pubescent or bare..... 13
13. Eyes with very short hairs; ocellar bristles absent.. *Compsileura* Bouché.
Eyes quite bare; ocellar bristles strong..... *Lydella* Desvoidy.
14. Ocellar bristles well differentiated and directed obliquely forwards.... 16
Ocellar bristles scarcely differentiated, absent or directed backwards;
apical cell open..... 15
15. Ocellar bristles directed obliquely backwards..... *Distichona* Wulp.
Ocellar bristles absent; frontal vitta very narrow.
Argyrophylax Brauer & Bergenstamm.
16. Facial ridges bristly on lower half or more..... 17
Facial ridges bristly on less than lower third..... 21
17. Ultimate section of the fifth vein less than half as long as the pre-
ceding section..... 18
Ultimate section of fifth vein three-fourths as long as preceding sec-
tion..... *Plagiprospherysa* Townsend.
18. Apical cell ending at or close to wing-tip; small species..... 19
Apical cell ending far before wing-tip; large species..... 20
19. Male with orbitals..... *Tachinophyto* Townsend.
Male without orbitals..... *Orymops* Townsend.
20. Discal scutellars approximate, in the middle of the disc. *Frontina* Meigen.
Discal scutellars widely separated, beyond the middle of the disc.
Frontina Meigen.
21. Apical cell open or very short petiolate..... 22
Apical cell long petiolate, the fourth vein ending in the wing-tip.
Sciasma Coquillett.
22. Palpi normal, at least well developed.....23
Palpi very small or absent..... *Cylindromyia* Latreille.
23. Facial carina weak or absent, the antennal grooves very shallow..... 25
Facial carina strong, resulting in deep antennal grooves; arista plu-
mose or long pubescent..... 24
24. Cheeks less than one-third the eye-height (Fig. 39).
Prohynchops Brauer & Bergenstamm.
Cheeks at least one-third as wide as the eye-height.. *Rhynchodexia* Bigot.
25. Intermediate abdominal segments without discals..... 26
Intermediate abdominal segments each with a pair of discals.
Tachinophyto Townsend.
26. Male with the third antennal segment bifid; third vein with three or
four basal bristles; length, 4 mm..... *Acronarista* Townsend.
Third antennal segment simple in both sexes..... 27
27. Third antennal segment more than twice as long as wide, not unusually
broadened apically..... 29
Third antennal segment reaching practically to the oral margin, at its
apex almost half as wide as long..... 28

28. Third vein with a single basal setula..... *Schizotachina* Walker.
Third vein setulose almost to the anterior crossvein. *Clausicellana* Curran.
29. Face conspicuously receding; arista at most short pubescent..... 30
Face below as long as at base of antennae; proboscis rather elongate;
arista short plumose..... *Stomatodexia* Brauer & Bergenstamm.
30. Costal spine well developed; third vein bristled to the anterior cross-
vein..... *Spathidexia* Townsend.
Costal spine not conspicuous; third vein with basal bristles only.
Erycia Desvoidy.
31. Ocellar bristles present, strong..... 33
Ocellar bristles absent..... 32
32. Infra-squamal spinules present; face retreating..... *Lydella* Desvoidy.
Infra-squamal spinules absent; face scarcely retreating.
Anacamptomyia Bischoff.
33. Palpi normal, widened apically..... 34
Palpi short, slender, not widened apically..... *Limnomyia* Desvoidy.
34. Facial ridges bristled on not more than the lowest fourth..... 35
Facial ridges bristled on more than the lower half... *Phorocera* Desvoidy.
35. Face as long below as at antennae; infra-squamal spinules present.
Mericina Curran.
Face slightly receding; infra-squamal spinules absent. *Nemorilla* Desvoidy.

Antillicolla Curran

Antillicolla auriceps Curran

Fig. 35

1927. *Antillicolla auriceps* Curran, American Museum Novitates, No. 260, p. 1.

The species was described on the basis of a single female from Adjuntas, June 8-13, 1915.

Archytas Jaenicke

There are a large number of species belonging to this genus in tropical America. The collection contains three species.

KEY TO SPECIES

1. Pleura largely black haired..... 2
Pleura wholly yellowish pilose..... *basifulva* Walker.
2. Abdomen shining black..... *antillicolla* Curran.
Abdomen conspicuously gray pollinose..... *piliventris* Wulp.

Archytas basifulva Walker

1849. *Echinomyia basifulva* Walker, List Dipt., iii, p. 725.

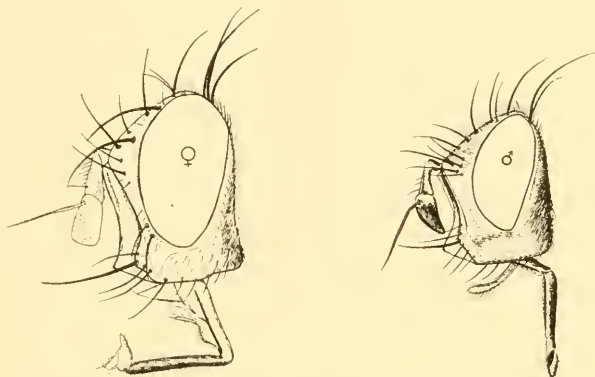
Four females, Coamo Springs, June 5-7, 1915, July 11-19, 1914, and January 17, 1915.

Archytas antillicolla Curran

Fig. 36

1927. *Archytas antillicolla* Curran, American Museum Novitates, No. 260, p. 2.

Described from specimens from the following localities: Aibonito, June, July; Maricao, July; Adjuntas, June and July; Arecibo, June; Barros, June.

Fig. 35 (left).—*Antillicolla auriceps* Curran. Profile of head.Fig. 36 (right).—*Archytas antillicolla* Curran. Profile of head.

(Courtesy of American Museum of Natural History.)

Archytas piliventris Wulp1883. *Echinomyia piliventris* van der Wulp, Tijdschr. v. Ent., xxvi, p. 22.

Male, Coamo Springs, December 29, 1914; female, Mayagüez, June 21-23, 1915; female, St. Thomas Island, March 12, 1925.

Gonia Meigen**Gonia texensis** Reinhard1924. *Gonia texensis* Reinhard, Ent. News, xxxv, p. 357.

Female, Coamo Springs, June 5-7, 1915; female, Manati, June 27-29, 1915.

There are also specimens from Jamaica.

Belvosia Desvoidy**Belvosia insularis** Curran1927. *Belvosia insularis* Curran, American Museum Novitates, No. 260, p. 4.

The original description was based on a single female, taken at Barros, June 4, 1915.

Ricosia Curran**Ricosia setigena** Curran

Fig. 37

1927. *Ricosia setigena* Curran, American Museum Novitates, No. 260, p. 5.

Originally described from a single female collected by Dr. F. E. Lutz at light, Aibonito, June 1-3, 1915.

Mericina Curran**Mericina ruficauda** Curran1927. *Mericina ruficauda* Curran, American Museum Novitates, No. 260, p. 6.

Described from a single male, Arecibo, July 30-August 1, 1914.

Linnæmyia Desvoidy**Linnæmyia fulvicauda** Walton1914. *Linnæmyia fulvicauda* Walton, Proc. Ent. Soc. Wash., xvi, p. 93.1526. *Linnæmyia compacta* Curran, appendix to Gowdey's Cat. Ins. Jamaica, Sep. pagination, 12. (July 1.)

A single male, Aibonito, June 1-3, 1915.

Nemorilla Desvoidy**Nemorilla maculosa** Meigen1824. *Tachina maculosa* Meigen, Syst. Besch. Zweifl. Ins., iv, p. 265.1830. *Tachina trivittata* Wiedemann, Ausser. Zweifl., ii, p. 300.

Male, Aibonito, June 1-3, 1915; male, Adjuntas, June 8-13, 1915; two males and three females, St. Croix Island, February 29 and March 6, 1915.

Winthemia Desvoidy

The collection contains two species belonging to this difficult genus, one of which was originally described from Georgia, the other recently described.

Winthemia okefenokeensis Smith1916. *Winthemia okefenokeensis* Smith, Proc. Ent. Soc. Wash., xviii, p. 95.1857. ?*Tachina elegans* Bigot, in Sagra's Hist. Fisc. Pol. Nat. Cuba, p. 810 (French edit.). *

Male, Manatí, March 5, 1914; male, Caguas, May 28-29, 1915.

There are also specimens from Cuba and Jamaica.

It is possible that this is the species described by Bigot as *Tachina elegans*. I have a copy of Bigot's description but have not had an oppor-

tunity to compare the specimens with the figures. Except for the modified front legs (not mentioned in the description) the species agrees perfectly with the diagnosis given by Bigot.

Winthemia sexualis Curran

1927. *Winthemia sexualis* Curran, American Museum Novitates, No. 260, p. 7.

This species was originally described from two males from Arecibo, June 24-26, 1915, and a male from Adjuntas, June 8-13, 1915.

Phorocera Desvoidy

Phorocera divisa Aldrich and Webber

1924. *Phorocera divisa* Aldrich and Webber, Proc. U. S. N. M., lxiii, Article 17, p. 55.

One male, St. Croix Island, March 6, 1925. The species was originally described on the basis of a specimen from Porto Rico.

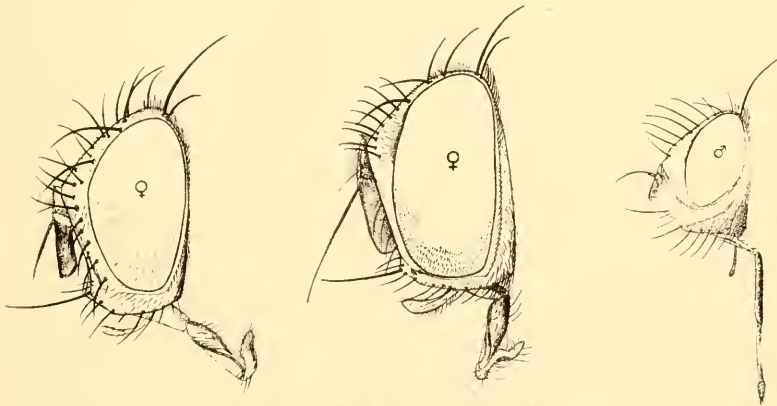


Fig. 37 (left).—*Riscosia setigena* Curran. Profile of head.

Fig. 38 (center).—*Anacamptomyia americana* Curran. Profile of head.

Fig. 39 (right).—*Prorhynchops errans* Curran. Profile of head.

(Courtesy of American Museum of Natural History.)

Anacamptomyia Bischoff

Anacamptomyia americana Curran

Fig. 38

1927. *Anacamptomyia americana* Curran, American Museum Novitates, No. 260, p. 8.

The original description was based on a female taken at Mayagüez, July 24-26, 1914.

Frontina Meigen**Frontina insularis** Brauer and Bergenstamm

1921. *Protopapa insularis* Brauer and Bergenstamm, Denkschr.: Akad. Wissen. Wien, lviii.
 1925. *Prospalpa insularis* Aldrich, Ann. Ent. Soc. Am., xviii, p. 111.

Male and female, St. Thomas Island, February 2, March 12, 1925; female, St. John Island, March 10, 1925; and female, Barros, June 4, 1915.

Brauer and Bergenstamm credited this species to Wiedemann as "*Tachina insularis*" but that author did not describe the species. The length varies from 12 to 14 mm. Aldrich has proposed the generic name *Prospalpa* for the species but I see no reason for separating it from several of the forms at present assigned to *Frontina*. It will probably have to be placed ultimately in one of the genera proposed by Townsend but, pending a revision of the group, it seems best to retain it in *Frontina* since, by so doing, it is more easily recognized.

Frontina bigeminata Curran

1927. *Frontina bigeminata* Curran, American Museum Novitates, No. 260, p. 9.

Originally described from three males from Adjuntas, June 8-13, 1915.

Argyrophylax Brauer and Bergenstamm**Argyrophylax albincisa** Wiedemann

1830. *Tachina albincisa* Wiedemann, Ausser. Zweifl., ii, p. 334.

A single female, Mayagüez, July 24-29, 1914.

Occurs also in Jamaica and adjacent islands.

Lydella Desvoidy**Lydella bigeminata** Curran

1927. *Lydella bigeminata* Curran, American Museum Novitates, No. 260, p. 10.

Originally described from a male from St. Croix Island, March 4, 1925.

Erycia Desvoidy**Erycia consistens** Curran

1927. *Erycia consistens* Curran, American Museum Novitates, No. 260, p. 10.

The original description was based on a male taken at Coamo Springs, January 10, 1915.

Plagiospherysa Townsend**Plagiospherysa occidentalis** Wiedemann

1830. *Tachina occidentalis* Wiedemann, Ausser, Zweifl., ii, p. 335.

1892. *Plagiospherysa floridensis* Townsend, Trans. Am. Ent. Soc., xix, p. 114.

There are six specimens before me from the following localities: Aibonito, June 1-3, 1915; St. John Island, March 9, 1925; St. Thomas Island, March 13, 1925.

There is very little difference between this species and *parvipalpus* Wulp. Here there is scarcely any trace of yellow on the scutellum and between the dark vittæ behind the suture there is usually considerable brownish pollen, which is best seen from the posterior view. The difference in the width of the frontal vitta and the number of reclinate frontal bristles appears to be of no value in separating the species.

Tachinophyto Townsend**Tachinophyto floridensis** Townsend

1892. *Tachinophyto floridensis* Townsend, Trans. Am. Ent. Soc., xix, p. 131.

Three females, Adjuntas, June 8-13, 1915; male, St. Thomas Island, February 27, 1925.

Spathidexia Townsend**Spathidexia dunningi** Coquillett

1895. *Thryptocera dunningi* Coquillett, Journ. N. Y. Ent. Soc., iii, p. 54.

Two males, one from Manatí, June 27-29, 1915, and one from Mayagüez, June 21-23, 1915.

The second specimen has the first vein setulose on its whole length and may represent a different species, but further material is necessary in order to decide the question. The species occurs also in Jamaica.

Spathidexia atypica Curran

1927. *Spathidexia atypica* Curran, American Museum Novitates, No. 260, p. 11.

Originally described on the basis of three specimens from the following localities: Adjuntas, June 26, 1915; Aibonito, June 14-17, 1914; Manatí, June 27-29, 1915.

Clausicellana Curran**Clausicellana mitis** Curran

1927. *Clausicellana mitis* Curran, American Museum Novitates, No. 260, p. 12.

Originally described from a single male taken at Aibonito, July 14-17, 1914.

Comatacta Coquillett

1902. *Comatacta* Coquillett, Can. Ent., xxxiv, p. 199.

1925. *Ptilomyia* Curran, American Museum Novitates, No. 176, p. 8.

There is a recently described species from Porto Rico belonging to this genus and in order to show the relationships of the species with which I am acquainted, I present a key for their separation. The genotype of *Comatacta* is *Bruchycoma pallidula* Wulp. For *Ptilomyia bequaerti* Curran, which has the median portion of the propleura hairy, but agrees otherwise with *Comatacta*, I propose the genus *Ptilomyoides*.

KEY TO SPECIES

1. Posterior four femora black; disc of mesonotum without plumose hairs. 2
Femora wholly reddish; disc of mesonotum with many plumose hairs. 3
2. Middle of propleura hairy; abdomen mostly pale in color, reddish and luteous; trochanters reddish; anterior femora largely reddish yellow. (Honduras)..... *Ptilomyoides bequaerti* Curran.
Middle of propleura bare; abdomen with only obscure luteous markings laterally; trochanters reddish brown; femora wholly black except their tips (Porto Rico)..... *insularis* Curran.
3. Palpi scarcely longer than third antennal segment; brown of the venter not reaching broadly forward from the apical segmental fasciae (Brazil)..... *micropalpus* Curran.
Palpi decidedly longer than the antennae; brown of the apical margins reaching broadly forward on each segment towards the sides of the under surface (Brazil)..... *plumata* Curran.

Comatacta insularis Curran

1927. *Comatacta insularis* Curran, American Museum Novitates, No. 260, p. 12.

The original description was based on a specimen of each sex from Porto Rico,—the male from San Juan, July 9-12, 1914, the female from Manatí, June 27-29, 1915.

Prorhynchops Brauer and Bergenstamm**Prorhynchops errans** Curran

Fig. 39

1927. *Prorhynchops errans* Curran, American Museum Novitates, No. 260, p. 13.

The type series was composed of six specimens from the following localities: Manatí, June 27-29, 1915; Arecibo, March 1-4, 1914, and June 24-26, 1915; Caguas, May 28-29, 1915; Adjuntas, June 8-13, 1915.

Rhynchodexia Bigot**Rhynchodexia sororia** Williston

1896. *Rhynchodexia sororia* Williston, Trans. Ent. Soc. London, p. 360.

There are eighteen specimens of both sexes from the following localities: San Juan, February 11-14, 1914; Manatí, June 27-29, 1915; Aibonito, June 1-3, 1915; Barros, June 4, 1915; Coamo Springs, June 7, 1915; Arecibo, July 30-August 1, 1914; Maricao, July 27, 1914; Santurce, January 8, 1914.

In this species there is considerable variation in the color of the abdomen, which may be almost wholly reddish with a black vitta of varying width, or may have only the fourth segment red. This variation occurs in both sexes. One of the specimens is extremely large and robust (15 mm.) but most of them range from 9 to 12 mm. in length.

Trichopoda Latreille**Trichopoda haitensis** Desvoidy

1830. *Trichopoda haitensis* Desvoidy, Myodaires, p. 285.

? *Trichopoda pyrrogaster* Wiedemann, Ansser, Zweifl., ii, p. 272.

Male, Mayagüez, May 28-29, 1915; two males and one female, St. Thomas Island, March 13, 1925, and St. Croix Island, April 9, 10, 1925.

This has been considered a synonym of *T. pennipes* Fabricius but it is certainly distinct from that species and also from *radiata* Loew as the wings of the male lack any yellow coloration. The posterior femora are ciliate postero-ventrally as in *pennipes* and the females of the two species are separable only with difficulty, but in *haitensis* the abdomen is wholly rusty reddish (almost always blackish apically in *pennipes*) while the middle of the face is somewhat narrower and there is a patch of peculiar whitish pubescence on the parafacials near their inner lower end. It is possible that *Phusia jugatoria* Say is the same as *pennipes* Fabricius.

Acronarista Townsend**Acronarista mirabilis** Townsend

1908. *Acronarista mirabilis* Townsend, Taxonomy Musc. Flies., Smiths. Misc. Coll., No. 1803, p. 86.

One male, Charlotte Amalie, St. Thomas Island, June 3, 1911, and a female, Barros, June 4, 1915, which I think belongs here.

The female has the third antennal segment entire but it is of about the same size as in the male, the arista is sub-basal, thickened almost to its apex, the second segment one-third or more as long as the apical segment.

Sciasma Coquillett**Sciasma nebulosa** Coquillett1897. *Sciasma nebulosa* Coquillett, Revis. Tachin., p. 69.

Male, Caguas, May 28-29, 1915; female, Aibonito, June 1-3, 1915.

Cylindromyia Latreille**Cylindromyia minor** Roeder1885. *Ocyptera minor* Roeder, Stett. Ent. Zeit., p. 344.

Male, Coamo Springs, July 17-19, 1914.

The species was originally described from Porto Rico.

Stomatodexia Brauer and Bergenstamm**Stomatodexia colturnata** Wiedemann1830. *Stomoxys colturnata* Wiedemann, Ausser. Zweifl., ii, p. 249.

Male, Aibonito, June 1-3, 1915; male, Adjuntas, June 8-13, 1915, and female, Mayagüez, July 24-29, 1914.

These specimens are all smaller than my South American examples and have considerable black hair on the mesopleura. I cannot, however, find other differences.

SPECIES PREVIOUSLY REPORTED FROM PORTO RICO BUT NOT REPRESENTED IN THE COLLECTION EXAMINED BY THE AUTHOR

Tipulidae

Monogomyia niveitarsis Alexander*Geranomyia rufescens* Loew*Tororhina fragilis* Loew*Rhamphidia albitalarsis* Osten Sacken*Gonomyia pleuralis* Williston*Eriocera trifasciata* Roeder*Megistocera longipennis* Macquart*Brachyremma unicolor* Osten Sacken*Culex salinarius* Coquillett*Culex similis* Theobald*Culex toweri* Dyar and Knab*Tacniorhynchus perturbans* Walker*Aedes portoricensis* Lindlow

Chironomidae

Callicoides phytobotomus Williston*Ceratopogon punctipennis* Williston*Ceratopogon squarx* Williston*Chironomus anonymus* Williston

Psychodidae

Psychoda phalaenoides Linné*Psychoda albipuncta* Williston

Cecidomyiidae

Arthrocuadar constricta Felt*Karschomyia coccii* Felt*Mycodiptosis insularis* Felt*Cecidomyia coccidarum* Cockerell*Cecidomyia coccolobæ* Cook*Ctenodactylomyia watsoni* Felt

Culicidae

Anopheles albimanus Wiedemann*Anopheles grabhami* Theobald*Anopheles punctipennis* Say*Megarhinus portoricensis* Roeder*Culex bisulcatus* Coquillett*Culex pipiens* Linné

Scatopsidae

Scatopse pygmaea Loew

Simuliidae

- Simulium haematoptum* Malloch
Simulium minusculum Lutz
Simulium quadrivittatum Loew

Stratiomyidae

- Pedicella bicolor* Wiedemann
Pedicella lateralis Macquart
Neorondania chalybea Wiedemann
Hermectia albitarsis Wiedemann

Tabanidae

- Chrysops costatus* Fabricius
Tabanus psamophilus Osten Sacken

Bombyliidae

- Villa adusta* Loew
Villa bigradata Loew
Heterostylum ferrugineus Fabricius

Asilidae

- Atomosia incisuralis* Macquart
Proctacanthus lutescens Loew
Erax bastardi Macquart (The record must be considered doubtful.)
Erax rufitibia Macquart

Therevidae

- Psiloccephala argentata* Bellardi

Empididae

- Hybos triplex* Walker

Dolichopodidae

- Chrysotus barbatus* Loew
Chrysotus pallipes Loew
Paraclius filifer Aldrich
Pelastoncurus fasciatus Roeder
Mesorhaga albiciliata Aldrich
Sciapus mundus Wiedemann
Sciapus jucundus Loew
Sciapus longicornis Fabricius
Sciapus pilosus Loew
Sciapus portoricensis Macquart
Sciapus suarum Walker
Sciapus dimidiatus Loew
Sciapus psittacinus Loew

Syrphidae

- Baccha capitata* Loew
Baccha parvicornis Loew
Baccha conformis Loew
Baccha fasciatus Roeder
Baccha laticusculus Loew

Mesogramma aurulentus Williston

- Mesogramma boscii* Macquart
Mesogramma minutus Wiedemann
Atlograpta limbata Fabricius
Volucella esuriens Fabricius
Volucella pusilla Macquart
Meromacrus cinctus Drury
Xylota pachymera Loew

Phoridae

- Megaselida aurca* Aldrich
Megaselida macrochacta Malloch
Megaselida picta Lehmann
Megaselida subflava Malloch
Conicra aldrichi Brues
Dohrniphora venusta Coquillett
Puliciphora borinquensis Wheeler

Chloropidae

- Chlorops trivittata* Williston
Hippelates teanus Malloch
Pseudogaurax taucifer Coquillett
Botanobia nana Williston
Botanobia quadrilincata Williston
Botanobia umbroso Loew
Botanobia virgata Coquillett

Ephydriidae

- Notiphila erythroccra* Loew
Paralimna decipiens Loew
Ptilomyia enigma Coquillett
Allotrichoma abdominalis Williston
Ilythca flavipes Williston
Ilythca ? oscitans Walker
Athyrotossa nitida Williston
Discocerina leucoprocta Loew
Hydrellina gilvipes Coquillett

Drosophilidae

- Drosophila fusca* Coquillett
Drosophila melanogaster Meigen
Drosophila vittata Coquillett
Stenomicroa angustata Coquillett

Agromyzidae

- Agromyza acuciventris* Fallen
Agromyza caerulea Malloch
Agromyza inaequalis Malloch
Agromyza insularis Malloch
Agromyza minima Malloch
Agromyza parvicornis Loew

- Agromyza neptis* Loew
Agromyza plumiseta Malloch
Agromyza setosa Loew
Cerodontha dorsalis Loew
- Ochthiphilidae
Leucopis bella Loew
- Geomyzidae
Anthomyza nigrimanus Coquillett
- Milichiidae
Desmometopa halteralis Coquillett
- Borboridae
Leptocera fontinalis Fallen
Leptocera lugubrina Malloch
Leptocera perparva Williston
Leptocera lugubris Williston
Leptocera rotundipennis Malloch
Leptocera nivicipennis Malloch
- Trypaneidae
Torotrypana curvicauda Gerstaecker
Anastrepha fraterculus Wiedemann
Polymorphomyia basitica Snow
Eusina humilis Loew
Eusina peregrina Loew
Euaeresta mexicana Wiedemann
- Sepsidae
Sepsis discolor Bigot
- Conopidae
Conops pictus Fabricius
Zodion nanellum Loew
- Ortaliidae
"Ortalis" quadrivittata Macquart
Acrosticta apicalis Williston
Euaeresta thoma Loew (also St. Thomas Island)
Stenomacra guerini Bigot
- Sapromyzidae
Physcgenia ferruginea Shiner
Sapromyza cincta Loew
Sapromyza octopunctata Wiedemann
- Lonchaeidae
Lonchaea longicornis Williston
Lonchaea glaberina Wiedemann
Lonchaea chalybea Wiedemann
- Micropezidae
Nerius cinereus Roeder
- Scatophagidae
Scatophaga crotica Wiedemann
- Muscidae
Synthesiomia nudiseta Wulp
Neomuscina tripunctata Wulp
Atherigona pulvinata Grimshaw
Ophyra acnesceus Wiedemann
Limnophora corvina Giglio-Tos
Facellia maritima Haliday
Bithoracochaeta despecta Walker
- Calliphoridae
Lucilia caesar Linné
Lucilia ruficornis Macquart
Lucilia semiriolacca Bigot
- Sarcophagidae
Sarcophaga amoenia Aldrich
Sarcophaga lambens Wiedemann
Sarcophaga quadrisetosa Coquillett
- Tachinidae
Gymnosoma fulginosa Desvoidy
Compsileura oppugnator Walton
Cryptomeigenia aurifacies Walton
"Hypostena" rauderwulpi Townsend
Euzenilliopsis diatraea Townsend
Eutrioides jonesi Walton
"Leskia" analis Say
Belvosia bifasciata Fabricius
Belvosia lutcola Coquillett
Belvosia piurana Townsend
Zenillia amplexa Coquillett
Zenillia tessellata Roeder
Phorocera claripennis Macquart
Frontina atelia Riley
Frontina archippivora Williston
Frontina ruffrons Roeder
Blepharipeza jurinoides Townsend
Blepharipeza leucophrys Wiedemann
Parachaeta bicolor Macquart
Winthemia quadripustulata Fabricius (Probably a distinct species)
Gonia angusta Macquart
Gonia pallens Wiedemann
Gonia crassicornis Fabricius

| | |
|--|--|
| <i>Peleteria robusta</i> Wiedemann (Probably a different species) | <i>Trichiopoda flava</i> Roeder |
| <i>Archylas analis</i> Fabricius (Not this species, which is known only from Brazil) | <i>Ormia punctata</i> Desvoidy |
| <i>Archylas seminigra</i> Wiedemann | <i>Deria strenua</i> Desvoidy |
| | <i>Rhynchoderia rufianalis</i> Wulp (<i>Deria thoma</i> Wiedemann has been reported from St. Thomas Island) |

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