

3. Mesonotum with lateral yellow vitta interrupted between humerus and transverse suture (Jamaica, Puerto Rico) . . . . . *violaceus* (Curran)
- Mesonotum with lateral yellow vitta continuous . . . . . 4
4. Scutellum completely and mesonotum extensively black pilose; front and middle femora with broad black annuli on apical  $\frac{1}{2}$  . . . . . 5
- Scutellum partially and mesonotum completely yellow pilose; front and middle femora usually all yellow, rarely with a small dorsoapical brown spot (Mexico? south to Argentina) . . . . . *confusus* (Schiner)
5. Male with 2nd tergum with a pair of arcuate yellow spots; 3rd and 4th terga with large basomedial round black spots (Fig. 71); female same as male (Cuba, Hispaniola) . . . . . species A
- Male with 2nd tergum with continuous straight yellow fascia; 3rd and 4th terga with a narrow basomedial triangular black spot (Fig. 70); female similar to male but fascia sometimes narrowly interrupted and basomedial black triangular spots sometimes broader and more rounded (Puerto Rico) . . . . . *luna* (Hull)

## DUBIOUS RECORDS AND NAMES

*Toxomerus boscii*, auctores

*Mesogramma boscii* of Stahl, 1883: 206 (Puerto Rico); Williston, 1896: 350 (St. Vincent; ?=*floralis* Fabricius); Wolcott, 1948: 465 (Puerto Rico).

*Mesograptia boscii* of Roeder, 1885: 343 (Puerto Rico); Gundlach, 1887: 187 (Puerto Rico); Telford, 1973: 222 (Puerto Rico).

*Toxomerus boscii* of Wolcott, 1923: 219, 1936: 349 (Puerto Rico).

I have not seen material from the West Indies that could be assigned to *boscii* Macquart, and I consider *boscii* restricted to the southeastern United States. The few West Indian specimens I have found identified as *boscii* have been either *floralis* Fabricius or *arcifer* Loew.

*Toxomerus duplicatus*, auctores

*Toxomerus duplicatus* of Johnson, 1919: 434 (Jamaica).

*Mesogramma duplicata* of Gowdey, 1926: 80 (Jamaica); Curran, 1928b: 38 (Puerto Rico); Wolcott, 1936: 349, 1948: 465 (Puerto Rico).

*Mesograptia duplicata* of Miskimen and Bond, 1970: 66 (St. Croix); Doesburg, 1970: 92, 96 (St. Vincent, Guadeloupe); Telford, 1973: 223 (Puerto Rico).

As noted by Curran (1930b: 4) *duplicatus* Wiedemann is a large species complex, and the West Indian forms of this complex are *buscki*, new species, *watsoni* Curran, and *difficilis* Curran. Most of the older records of *duplicatus* can be tentatively identified on the basis of distribution: *Toxomerus watsoni* is the widespread species of the complex, being the most common and occurring on all major islands; *difficilis* is much rarer; and

*buscki* is known from a unique specimen from Hispaniola. All the material I have examined, that was identified as *duplicatus*, including that on which Johnson's and Telford's records were based, is *watsoni* Curran.

*Toxomerus geminatus*, auctores

*Toxomerus geminatus* of Beatty, 1944: 149 (St. Croix).

*Mesograpta geminatus* of Miskimen and Bond, 1970: 66 (St. Croix; ? repeat of Beatty citation).

*Toxomerus geminatus* (Say) does not occur in the West Indies but is restricted to eastern North America. These records may refer to *pictus* (Macquart), a species of similar appearance.

*Toxomerus minutus*, auctores

*Mesograpta minuta* of Roeder, 1885: 343 (Puerto Rico, descript.); Gundlach, 1887: 187 (Puerto Rico); Telford, 1973: 223 (Puerto Rico).

*Toxomerus minutus* of Wolcott, 1923: 219, 1936: 349 (Puerto Rico).

*Mesogramma minuta* of Wolcott, 1948: 465 (Puerto Rico).

*Toxomerus minutus* Wiedemann was described from Brazil. The records of this species as West Indian are all based on Bigot's record (1857:338, =*floralis*) from Cuba and Roeder's record from Puerto Rico. I do not know this species nor was it known to either Curran (1930b) or Hull (1934b). A translation of Wiedemann's original description is given below. This description suggests a species of the *duplicatus* Wiedemann group, but none of the known West Indian species of this group agree with the description. Bigot's description suggests that it may have been based on a pale male of *floralis* Fabricius (q.v.); Roeder's descriptive notes could be interpreted as also fitting a pale form of *floralis* or any of the West Indian *duplicatus* group species (*buscki* Thompson, *difficilis* Curran, and *watsoni* Curran).

*Syrphus minutus* Wiedemann, 1830: 146. Aeneous; abdomen yellow; black fasciate. Brassy green with yellow, black banded abdomen.—Small 2 lines [=4.36 mm] ♀.—From Brazil.

Antennae reddish yellow; face pearly white; front bronze colored. Mesonotum bluish bronze green; humerus yellow; pleura with yellow band and two spots. Scutellum appears likewise, at the least, yellow on margin; since it is stuck straight through by the pin, I cannot decide with full certainty. Abdomen reddish yellow; hind margins of all segments black, on the 5th only on the outer most end at each side; the bases of these segments show the beginning of a black stripe. Wings water clear. Legs yellow: the rear most femoral apex with narrow, slightly noticeable blackish band; 1st segment and tip of tarsi blackish brown.—In Frankfurt Museum [=Senckenbergische Naturforschende Gesellschaft, Frankfurt a. M., West Germany].

*Toxomerus* species

*Toxomerus* sp., Johnson, 1919: 434 (Jamaica).

*Toxomerus* sp., Beatty, 1944: 149 (St. Croix; =*watsoni* Curran?).

## TRIBE BACCHINI BIGOT

Genus *Leucopodella* Hull

*Leucopodella* Hull, 1949a: 94. Type-species, *Baccha lanei* Curran (orig. des.). Reference: Hull, 1949a: 94, 101–104 (descript., key to spp.).

*Leucopodella* is an endemic Neotropical genus, the species of which range from southwestern United States to northern Argentina. Two species are recorded from the West Indies. While all the species of *Leucopodella* are included in Hull's key to New World *Baccha* (1949a: 101–104, couplets 8–9, 12–28), the genus needs revision. The color characters used by Hull are quite variable and of little use. A number of other characters, such as distribution of wing microtrichia, size of alula, type of occipital cilia, and condition of postmetacoxal bridge (v. *Ocyptamus*) appear to be of great specific value.

KEY TO WEST INDIAN SPECIES OF *LEUCOPODELLA* HULL

- Alula greatly reduced, about as wide as 2nd costal cell, bare; wing with medial crossveins and furcations only faintly clouded; abdomen with broad orange basal fascia on 3rd and 4th terga (Cuba, Jamaica, Hispaniola, Puerto Rico; Central America) . . . . . *gracilis* (Williston)
- Alula normal, much wider than 2nd basal cell, completely microtrichose; wing with distinct brown zigzag mark across medial crossveins and furcations; abdomen either without markings or with a pair of narrow yellow basal fasciate spots on 3rd and 4th terga (Brazil; ?Puerto Rico) . . . . . *incompta* (Austen)

*Leucopodella gracilis* (Williston)

*Baccha gracilis* Williston, 1891: 34. Type-locs.: Mexico, Guerrero, Omilteme, 8000 ft.; Orizaba. Syntypes 4 ♂ ♀ BM(NH). Subsequent references: Curran, 1928b: 35 (Puerto Rico); Wolcott, 1936: 348, 1948: 463 (Puerto Rico); Telford, 1973: 230 (Puerto Rico).

*Leucopodella gracilis*: Hull, 1949a: 94, 103, fig. 176 (abdomen).

*Baccha gowdeyi* Curran, 1926b: 102. Type-loc.: Jamaica, Cinchona. Holotype ♀ BM(NH). Subsequent references: Gowdey, 1926: 79 (Jamaica); Curran, 1928a: 37 (Jamaica); Hull, 1943d: 49, fig. 73 (abdomen). NEW SYNONYMY.

*Leucopodella gowdeyi*: Hull, 1949a: 94, 103, figs. 73 (abdomen), 292 (wing).

*Baccha estrelita* Hull, 1948: 1. Type-loc.: Cuba, Trinidad Mts., Buenos

Aires. Lectotype ♂ MCZ (here designated). Subsequent reference: Boyes et al., 1971: 91, pl. 25, fig. 4 (idiogram) (chromosomes). NEW SYNONYMY.  
*Leucopodella estrelita*: Hull, 1949a: 94, 103.

*Baccha carmelita* Hull, 1948: 9. Type-loc.: Haiti, La Visite vic [=vicinity?] La Selle Range, 5–7000 ft. Holotype ♀ MCZ?. NEW SYNONYMY.

*Leucopodella carmelita*: Hull, 1949a: 94, 103.

Distribution.—Cuba\*, Jamaica\*, Hispaniola, Puerto Rico\*.

I have studied a limited sample of *Leucopodella gracilis* material from the Antilles. While there appears to be some minor variation in the wing coloration and sculpturing of the frontal ridge of the females, I consider this intraspecific variation and all the material to represent only one widespread species.

I have found no material labeled as the types of either *estrelita* or *carmelita* Hull despite a careful check of the collections in the MCZ (the stated depository), CNC (Hull personal collection), AMNH, FSCA, and USNM. I saw a number of *gracilis* specimens with data identical to that reported for the type of *estrelita*, some of which were determined as *Baccha gowdeyi* Curran by Hull. I assume that Hull never labeled a type for these species, and that the material with the proper data is part of the type-series (v. introduction). Accordingly, I have labeled one male specimen now in the MCZ as the LECTOTYPE of *estrelita* Hull. I did not find any *Leucopodella* material with data that corresponds to that of the type of *carmelita*.

*Leucopodella incompta* (Austen)

*Baccha incompta* Austen, 1893: 147, pl. 4, fig. 13 (habitus). Type-loc.: Brazil, region of the Amazon. Lectotype ♂ BM(NH), see Appendix B. Subsequent references: Curran, 1928b: 36 (Puerto Rico); Curran, 1930a: 15 (suggests that Puerto Rican form may be a distinct species); Wolcott, 1936: 348, 1948: 463 (Puerto Rico); Hull, 1943d: 49 (Brazil); Telford, 1973: 230 (Puerto Rico).

*Leucopodella incompta*: Hull, 1949a: 94, 103, fig. 323 (wing).

Distribution.—Puerto Rico\*; Brazil.

There is a second *Leucopodella* species in Puerto Rico, but whether this species is *incompta* Austen is not certain. The Puerto Rican species clearly belongs to *incompta* of Austen and subsequent authors. However, both Austen (in his original description) and Curran (1930a: 15) indicated that *incompta* of authors consists of two or three species. I have restudied Curran's material and agree with him that there are three species involved and that the Puerto Rican species is distinct. However, until Austen's types can be examined and the name fixed to one of them, it is premature to name any species in this group (see Appendix B).

Genus *Rhysops* Williston

*Rhysops* Williston, 1907: 2. Type-species, *Melanostoma rugosonasmus* Williston (Coquillett, 1910: 601, as *rugonasmus* Williston). References: Fluke, 1945: 2-12 (key to spp., in part), 1958: 263 (revised status; ♂ genitalia).

*Rhysops* is an endemic Neotropical genus of more than 30 species. *Rhysops* is considered to include all the New World tropical forms which earlier authors included in *Melanostoma*. *Melanostoma* is restricted to North America and the Old World. The temperate forms of *Melanostoma* of authors from the Andes and the Chilean subregion are now placed in *Carposcalis* Enderlein. Only one species of *Rhysops* is known from the West Indies. The only available key to the species of *Rhysops* is incomplete because many of the species were then included in *Melanostoma*.

*Rhysops praeustus* (Loew)

*Syrphus praeustus* Loew, 1866a: 155. Type-loc.: Cuba. Type ♀ MCZ\*.

*Rhysops quadrimaculata* Hull, 1944a: 28. Type-loc.: Cuba. Holotype ♂ MCZ\*. Subsequent reference: Fluke, 1945: 9, figs. 12 (head), 41 (abdomen) (descript.). NEW SYNONYMY.

Distribution.—Cuba\*, Jamaica\*.

I have seen a very teneral female specimen of a species of *Rhysops* from Jamaica. The characters which can be noted on this specimen agree with those of *praeustus*.

I have compared the types of *praeustus* and *quadrimaculata* and find them to represent the opposite sex of the same species. The pile of the female is more brownish, the abdomen is narrower, with large, more quadrate spots, and the sides of the second tergum are shiny, but these are typical of the sexual differences found in other *Rhysops* species.

Genus *Xanthandrus* Verrall

*Xanthandrus* Verrall, 1901: 316. Type-species: *Musca comtus* Harris (Coquillett, 1910: 620).

References: Fluke, 1937: 6-7 (key to Neotropical spp.), 1958: 263 (male genitalia); Telford, 1973: 235 (key to Puerto Rican spp.).

*Xanthandrus* is a small genus known from all faunal regions except the Australian (Nearctic (1 species), Palearctic (2), Oriental (6), Ethiopian (1), and Neotropical (13)). Besides the new species described below, two other species are known from the West Indies (*cubanus* Fluke (Cuba and Puerto Rico) and *simplex* Loew (Cuba, Hispaniola, and Puerto Rico)).

KEY TO SUBGENERA AND WEST INDIAN SPECIES OF  
*XANTHANDRUS* VERRALL

1. Hindfemur swollen, arcuate, with long ventral spinose setae on apical  $\frac{1}{2}$  (Fig. 128b) (Jamaica); *Androsyrphus*, new subgenus .....  
..... *setifemoratus*, new species
- Hindfemur simple, not swollen or arcuate, without spinose setae;  
subgenus *Xanthandrus* ..... 2
2. Abdomen without pale markings (Cuba, Hispaniola, Puerto Rico)  
..... *simplex* (Loew)
- Abdomen with yellow to orange markings ..... 3
3. Second abdominal tergum with a pair of widely separated pale spots  
(Cuba, Puerto Rico) ..... *cubanus* Fluke
- Second abdominal tergum with a single broad pale fascia (Lesser  
Antilles) ..... *tricinctus*, new species

*Xanthandrus* subg. *Androsyrphus* Thompson, NEW SUBGENUS

Type-species.—*Xanthandrus* (*Androsyrphus*) *setifemoratus* Thompson, new species.

Description.—Head black; face tuberculate, straight except for tubercle; facial tubercle small, rounded, abrupt; ocellar triangle about twice its length anterior to posterior eye margin; eye bare; 3rd antennal segment elongate oval; arista bare.

Thorax with anterior mesopleuron bare; sternopleuron with pile patches broadly separated; scutellum with distinct premarginal sculus, with ventral fringe long and abundant; metasternum bare, developed as in *Platycheirus*; postmetacoxal pile patch present; metapleuron bare; all femora slightly swollen with hindfemur distinctly swollen, with long ventral spinose setae on apical  $\frac{1}{2}$  of middle and apical  $\frac{5}{6}$  of hindfemur; hindtibia slightly arcuate; wing venation typical of *Xanthandrus comtus* (Harris).

Abdomen elongate, about 3× as long as broad; dorsum with large orange spots; male with 5 pregenital segments; cercus flattened, densely pilose; surstyle simple, rectangular, slightly curved mesially on apical  $\frac{1}{3}$ , with a vertical carina on mesial surface on apical  $\frac{1}{3}$ ; 9th sternum with a prominent ventromedial lateral flange; lingula broad, short, with anterior edge double convex; superior lobe free, not sickle-shaped, elongate, lobate; aedeagus simple, tubular.

Discussion.—*Androsyrphus* is readily distinguished from all other Syrphinae except *Salpingogaster* by the presence of apicoventral spinose setae on the mid- and hindfemora. *Salpingogaster* can hardly be confused with *Androsyrphus* because of its peculiar wing venation, petiolate abdomen, slender femora, etc. Due to the presence of these “spines” some dipterists would probably accord full generic rank to *Androsyrphus*. In the tribe Melanostomatini (Fluke, 1958) many generic names have been based on

special modification of the male legs, but most of these have now been reduced to subgenera or synonymized. While I am certain that the spinose femora of *Setifemoratus* will be found to be non-sexually dimorphic because this character is not sexually dimorphic in other syrphid genera, I hesitate to erect a new genus in this tribe on a leg character. *Androsyrphus* shares a unique facial shape with *Xanthandrus*. I consider *Androsyrphus* to be the sister-group of that taxon, and I rank it as a subgenus of *Xanthandrus*.

The name, *Androsyrphus*, is an arbitrary combination of letters and is to be considered as masculine.

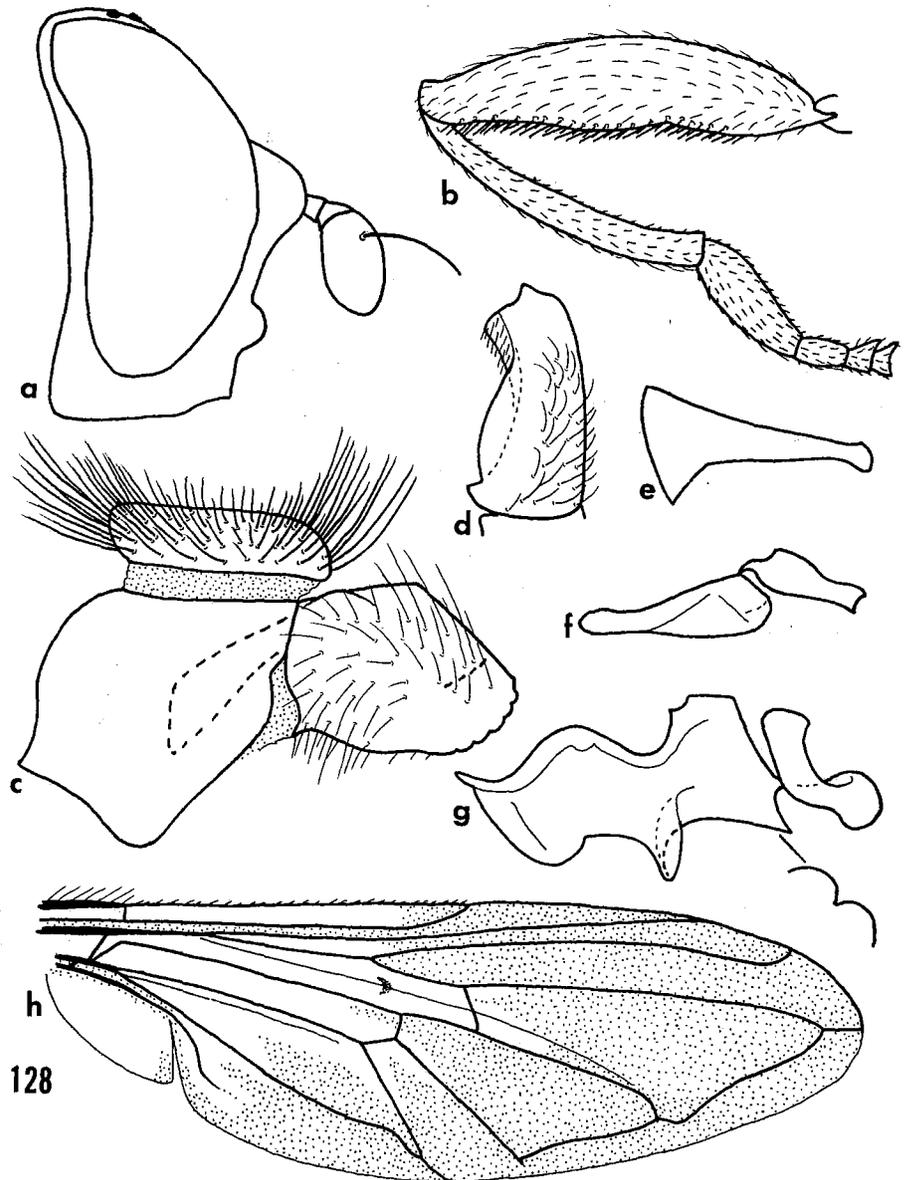
*Xanthandrus (Androsyrphus) setifemoratus* Thompson, NEW SPECIES

Fig. 128

Male.—*Head*: Black; face and cheek silvery-white pollinose except shiny on tubercle, yellow pilose laterally; frontal lunule black; frontal triangle shiny except narrowly white pollinose laterally, yellow pilose; vertical triangle shiny, yellowish-brown pilose; ocellar triangle about twice its length anterior to hind eye margin; occiput silvery-white pollinose, white pilose becoming slightly more yellowish above. *Antenna*: First segment brownish orange, black pilose; 2nd segment yellow, black pilose; 3rd segment yellow except apicodorsal  $\frac{1}{3}$  black, elongate oval, about  $\frac{5}{6}$  as long as broad; arista brown, as long as antenna.

*Thorax*: Black, with a slight bluish-green sheen, white pilose; dorsum and scutellum shiny; pleuron sparsely white pollinose except more densely pollinose on posterior mesopleuron and upper sternopleuron; squama and plu-mula pale orange; halter orange with tip slightly darker. *Legs*: Coxae dark, sparsely white pollinose, white pilose; trochanters dark reddish brown, yellow pilose; front femur reddish brown except orange apex, yellow pilose; middle femur dark reddish brown and yellow pilose on basal  $\frac{2}{3}$ , orange and black pilose on apical  $\frac{1}{3}$ , with black ventral spinose setae on apical  $\frac{1}{2}$ ; hindfemur dark reddish brown except orange apex, yellow pilose except black pilose on apical  $\frac{1}{4}$ , with strong long black ventral spinose setae on apical  $\frac{4}{5}$ ; front and middle tibiae orange, with slightly brownish medial tinge, black pilose, with some longer and stronger black hairs on postero-medial  $\frac{1}{3}$ ; hindtibia dark reddish brown except orange on base, black pilose; front tarsus dark brown, black pilose; middle tarsus orange on basal 2 segments, brownish on apical 3 segments, black pilose; hindtarsus brownish black, black pilose. *Wing*: with brownish tinge, extensively microtrichose, bare as follows: 1st costal cell, basal  $\frac{4}{5}$  of 2nd costal cell; above Rs, 1st and 2nd basal cells, basal  $\frac{1}{5}$  of apical cell, posterobasal  $\frac{1}{4}$  of discal cell, along anterior and posterior edges of cubital cell on basal  $\frac{1}{2}$ , anterobasal  $\frac{1}{2}$  of anal cell, in front of Ax, and basal  $\frac{5}{6}$  of alula; epaulet and basicosta brownish-black pilose.

*Abdomen*: 1st tergum shiny black, yellow pilose; 2nd tergum mainly dull black, shiny laterally, with 2 large sublateral orange spots which extend



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Fig. 128. *Xanthandrus setifemoratus*, male. a, Head, lateral. b, Hindleg, lateral. c, 9th tergum and associated structures. d, Surstyle, dorsal. e, Ejaculatory apodeme, lateral. f, Aedeagus, lateral. g, 9th sternum, lateral; with outline of ligula. h, Wing.

over lateral margin on their anterior  $\frac{1}{3}$ , with spots broadly separated, yellow pilose on margins and spots, short black pilose elsewhere; 3rd tergum similar to 2nd but with spots isolated from lateral margins; 4th tergum mainly dull orange, shiny laterally, with indistinct medial brown vitta and apicomедial triangle, yellow pilose laterally and on basal  $\frac{1}{2}$ , black pilose elsewhere; 5th tergum dark reddish brown, yellow pilose; 1st sternum dark brown, sparsely white pollinose, white pilose; 2nd sternum dark orange, shiny, yellow pilose; 3rd sternum dark reddish brown, shiny, yellow pilose; 4th sternum orange, densely pilose, with lateral hairs longer and medial hairs long but slightly decumbent; genitalia black, black and brown pilose.

Holotype.—♂, JAMAICA, St. Andrew Parish, Hardwar Gap, 2 March 1960, T. H. Farr; deposited in USNM.

*Xanthandrus (Xanthandrus) cubanus* Fluke

Fig. 80

*Xanthandrus cubana* Fluke, 1936: 63, figs. 6 (abdomen), 7 (head). Type-loc.: Cuba, Oriente, Sierra del Corba, Loma del Gato, 2600–3325 ft. Holotype ♂ AMNH\*. Subsequent references: Maldonado and Navarro, 1967: 59 (Puerto Rico); Telford, 1973: 236 (Puerto Rico); Boyes et al., 1971: 111, pl. 28, fig. 20 (karyotype), pl. 30, fig. 17 (idiogram) (chromosomes, based on Puerto Rican population).

*Syrphus nigripes* Loew, 1866a: 155 (preocc. by Meigen, 1822). Type-loc.: Cuba. Type ♂ MCZ\*. Subsequent references: Aldrich, 1905: 367 (cat. citation); Fluke, 1957: 156 (as species incertae sedis).

*Syrphus loewi* Goot, 1964: 215. New name for *Syrphus nigripes* Loew.

Distribution.—Cuba\*, Puerto Rico\*.

*Xanthandrus (Xanthandrus) simplex* (Loew)

*Syrphus simplex* Loew, 1861: 40. Type-loc.: Cuba. Type ♀ MCZ\*. Subsequent references: Loew, 1866: 154 (descript.); Williston, 1887: 87 (St. Domingo; descript.); Ragues, 1908: 313 (Cuba).

*Ocyrtamus simplex*: Knab, 1916b: 133 (synonymy, descript. notes).

*Xanthandrus simplex*: Telford, 1973: 236 (Puerto Rico).

Distribution.—Cuba\*, Hispaniola\*, Puerto Rico\*.

*Xanthandrus (Xanthandrus) tricinctus* Thompson, NEW SPECIES

Male.—*Head*: Black; face and cheek pale golden pollinose except shiny tubercle and narrowly on epistoma, yellow pilose; frontal lunule brownish orange; front long, about  $1\frac{1}{2}$ × longer than face, narrow, about  $\frac{1}{2}$  as broad at level of antenna as long,  $\frac{1}{3}$  as broad at ocellar triangle as at level of antenna, broadly pale-golden pollinose on sides on lower  $\frac{3}{4}$ , shiny medially

and on upper  $\frac{1}{4}$ , black pilose on shiny areas and yellow pilose on pollinose areas; vertex shiny, black pilose; occiput silver pollinose and white pilose below, with pile becoming more yellow in color on upper  $\frac{1}{4}$  and with a few black hairs intermixed behind vertex. Antenna orange except black apical  $\frac{1}{2}$  of 3rd segment, black pilose; 3rd segment oval, slightly less than  $1\frac{1}{2}\times$  as long as broad; arista orange.

*Thorax:* Black except brownish postalar callus; mesonotum shiny except sparsely pale golden pollinose on anterior edge and sides in front of transverse suture, short yellow pilose; pleuron silver pollinose, yellow pilose; scutellum black, shiny except silver pollinose very narrowly along base, yellow pilose, with subscutellar fringe more whitish; halter white; plumula white; squama whitish, with lower margin and fringe orange and upper margin and fringe brownish orange. *Legs:* Coxae brown, silver pollinose, yellow pilose; trochanters brown, shiny, yellow pilose; front and middle femora mainly orange, slightly brownish on basal  $\frac{1}{4}$ , yellow pilose; hindfemur brown except orange apex, yellow pilose except black pilose on apical  $\frac{1}{4}$ ; front tibia orange except for indistinct brownish subapical band, orange pilose; middle tibia orange and orange pilose; hindtibia brown, black pilose; front tarsus brown, black pilose; middle tarsus with 1st 2 tarsomeres orange, orange and black pilose, with rest of tarsus brown, black pilose; hindtarsus brown, black pilose. *Wing:* Hyaline, microtrichose except bare as follows: 1st costal cell, basal  $\frac{1}{4}$  of 2nd costal cell, basal  $\frac{1}{3}$  of marginal cell, all of 1st and 2nd basal cells, basal  $\frac{1}{4}$  of cubital cell, basal  $\frac{1}{2}$  and broadly on inner sides on apical  $\frac{1}{2}$  of anal cell, in front of and behind axillary vein, and basomedial  $\frac{1}{2}$  of alula.

*Abdomen:* First tergum brownish black, sparsely gray pollinose, yellow pilose; 2nd tergum orange except black apical  $\frac{1}{4}$ , orange pilose on orange area and sides, black pilose elsewhere; 3rd and 4th terga orange except black on apical  $\frac{1}{3}$  and narrowly on sides and apical  $\frac{2}{3}$ , mainly black pilose, orange pilose in form of 2 large spots on 3rd and 2 small spots on 4th; 5th tergum brown, black pilose; venter orange, except black on apicolateral corners of 3rd sternum and apical margin of 4th sternum, orange pilose on 1st and 2nd and part of 3rd sterna, black pilose on apicolateral corners of 3rd and all of 4th and 5th sterna.

*Holotype.*—♂, DOMINICA, Clarke Hall, Layou Valley, 21–28 February 1965, (H. E. Evans), deposited in USNM.

*Discussion.*—In Fluke's key to the Neotropical species of *Xanthandrus* (1937: 6–7), *tricinctus* traces to *cubanus* Fluke. *Xanthandrus tricinctus* is contrasted with *cubanus* as follows: 1) Frontal pile yellow laterally, not all black; 2) antenna mostly orange, not mainly black; 3) mesonotum all yellow pilose, not with a black pilose band across it; 4) front and middle femora mostly orange, not all black; and 5) second abdominal tergum with a broad orange band, not a pair of widely separated spots.

## SUBFAMILY MICRODONTINAE RONDANI

Genus *Paramicrodon* de Meijere

*Paramicrodon* de Meijere, 1913: 360. Type-species, *lorentzi* de Meijere (mono.).

*Nannomyrmecomylia* Hull, 1945: 75 (as a subgenus of *Spheginobaccha*). Type-species, *Paramicrodon delicatulus* Hull (orig. des.).

*Paramicrodon* is a small genus known only from the Oriental (five species) and Neotropical regions. This distribution pattern may be relict or may be artificial, being the result of inadequate collecting. There are three or four Neotropical species of *Paramicrodon*, of which only two have been described, and one is West Indian.

*Paramicrodon delicatulus* Hull

Figs. 139, 181

*Paramicrodon delicatulus* Hull, 1937: 24. Type-loc.: Cuba, Soledad (Cienfuegos). Lectotype ♂ MCZ (here designated). Subsequent reference: Thompson, 1969: 77, fig. 2 (head).

*Spheginobaccha (Nannomyrmecomylia) delicatulus*: Hull, 1945: 75.

Distribution.—Cuba\*.

There is no specimen in the Museum of Comparative Zoology labeled as the type of *delicatulus* Hull, nor is there any such specimen recorded in their type catalog. There is a male (also female) specimen labeled "*Microdon gracilis* Bigot, [det.] Hull" in the MCZ which agrees perfectly with Hull's description of *delicatulus* and has the same locality, date, and collector data as the type. In the Canadian National Collection in the Hull Syrphidae Collection, there is another male with the same data. Despite the lack of type labels, I consider the two males to be the types of *delicatulus* Hull and have labeled the one in the MCZ as LECTOTYPE and the other in the CNC as paralectotype. *Microdon gracilis* Bigot is a species of the *Omegasyrphus* group of *Microdon*.

Genus *Mixogaster* Macquart

*Mixogaster* Macquart, 1842: 74. Type-species, *conopsoides* Macquart (orig. des.).

References: Hull, 1954 (revision Neotropical spp.); Carrera and Lenko, 1958 (key).

*Mixogaster* is restricted to the New World. The Oriental and Australian species assigned to this genus should be placed in *Microdon*. *Mixogaster* ranges from the northeastern United States to southern Brazil (3 Nearctic; 18 Neotropical species). Only one species is known from the West Indies.

*Mixogaster cubensis* Curran

*Mixogaster cubensis* Curran, 1932: 1. Type-loc.: Cuba, Sierra Maestra. Holotype ♂ AMNH\*. Subsequent reference: Hull, 1954: 14, fig. 7 (antenna), 27 (abdomen) (descript.).

Distribution.—Cuba\*.

Genus *Microdon* Meigen

*Microdon* Meigen, 1803: 275. Type-species, *Musca mutabilis* Linnaeus (mono.). Reference: Curran, 1941: 248–250 (key to Neotropical spp.).

*Microdon* is a large worldwide genus of more than 300 known species. Some 150 species have been described from the Neotropical Region, of which six are known from the West Indies. The larvae of *Microdon* are found exclusively in the nests of ants, where they are either scavengers or predators on the ant larvae.

KEY TO WEST INDIAN SPECIES OF *MICRODON* MEIGEN

1. Scutellum with strong apical spines (Figs. 133–134); propleuron pilose; alula and base of wing extensively bare; face narrow, occupying much less than ½ of head width (Fig. 138); arista normal, thin, long, about as long as 3rd segment (Figs. 129–130) ..... 2
- Scutellum without spines (Fig. 132); propleuron bare; alula and wing completely microtrichose; face broad, occupying ½ of head width (Fig. 137); arista thick, short, less than ½ as long as 3rd segment (Fig. 131) (Cuba) ..... *remotus* Knab
2. Scutellar spines long and closely set, separated by less than ½ of scutellar width (Fig. 133); femora and tibiae pale pilose ..... 3
- Scutellar spines short and distantly set, separated by about ⅔ of scutellar width (Fig. 134); femora and tibiae black pilose ..... 4
3. Antenna very short, about as long as distance from antennal base to ocelli (Cuba, Haiti) ..... *bruesi* Hull
- Antenna longer, much longer than distance from antennal base to ocelli ..... 5
4. Scutellum white pilose; abdomen broadly golden pilose laterally (Hispaniola) ..... *pulcher* Williston
- Scutellum black pilose; abdomen black pilose except genitalia fulvous pilose (Cuba, Jamaica) ..... *inaequalis* Loew
5. Apical cell with large bare basal area, at least on upper surface; tarsi bicolored, basal 3 tarsomeres orange, concolorous with tibiae, apical 2 tarsomeres dark; 1st antennal segment short, much shorter than 3rd (Fig. 129); male genital style short and broad (Fig. 136) (Jamaica) ..... *violens* Townsend
- Apical cell completely microtrichose; tarsi unicolorous, either entirely dark brownish and distinctly darker than tibiae or all pale and

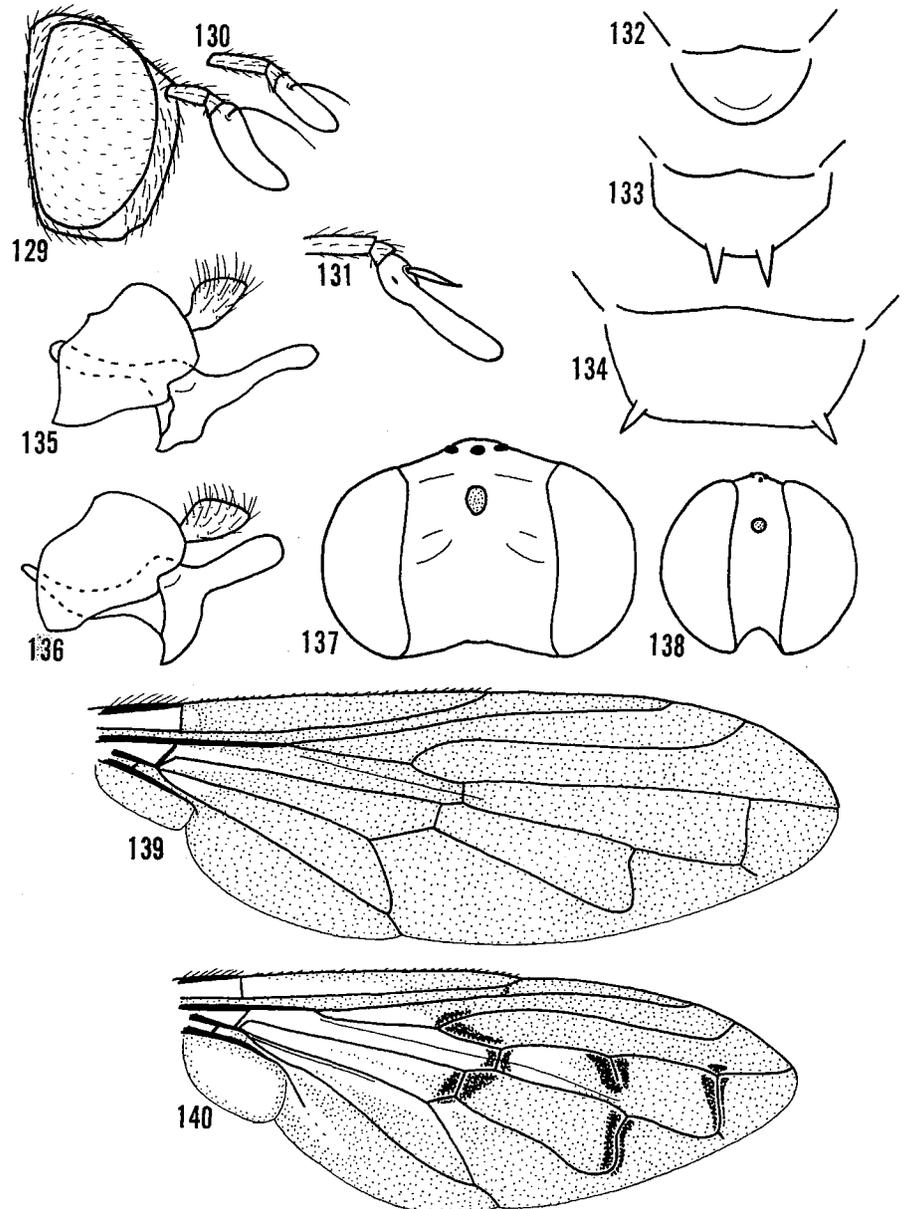


Fig. 129. *Microdon violens*, male, head, lateral. Figs. 130-131. *Microdon* spp., antennae, lateral. 130, *M. laetus*. 131, *M. remotus*. Figs. 132-134. *Microdon* spp., scutella, dorsal. 132, *M. remotus*. 133, *M. violens*. 134, *M. pulcher*. Figs. 135-136. *Microdon* spp., male genitalia, 9th terga and associated structures, lateral. 135, *M. laetus*. 136, *M. violens*. Figs. 137-138. *Microdon* spp., heads, frontal. 137, *M. remotus*. 138, *M. bruesi*. Figs. 139-140. Wings. 139, *Paramicrodon delicatulus*. 140, *Microdon violens*.

concolorous with tibiae; 1st antennal segment long, almost as long as 3rd (fig. 130); male genital style long and narrow (Fig. 135) (Cuba, Grand Cayman, Jamaica, Hispaniola) ..... *laetus* Loew

*Microdon bruesi* Hull

Fig. 138

*Microdon bruesi* Hull, 1945: 77. Type-loc.: Haiti, Port-au-Prince and vicinity. Holotype ♀ MCZ.

Distribution.—Cuba\*, Hispaniola\*.

I have examined a female from Cuba which agrees well with Hull's type. The figure was made from this specimen.

*Microdon inaequalis* Loew

*Microdon inaequalis* Loew, 1866b: 40. Type-loc.: Cuba. Type ♂ MCZ (lost).

Distribution.—Cuba, Jamaica\*.

The type of *inaequalis* is lost, and the species apparently has not been seen since its initial discovery. George Steyskal (Systematic Entomology Laboratory, USDA) has been kind enough to provide a translation of Loew's original description, which is given below. I have examined a pair of females from Jamaica which are undoubtedly this species. They differ from Loew's original description only by their overall purplish-violet coloration.

*Microdon inaequalis*, nov. sp. ♂. Brassy green, abdomen black pilose, steel gray, last segment and sides of preceding segments violaceous, hypopygium fulvous, legs steel gray, last segment of the tarsi luteous. Length of body  $4\frac{1}{4}$  lines, length of wing  $4\frac{1}{4}$ – $4\frac{1}{3}$  lines.

Brassy green, shining. Frons black pilose, broadening at each side, so that the eyes are separated in the middle of the front by an interval much less than at the vertex or near the antennae. Antenna black, 1st 2 segments shining steel gray, 1st and last subequal. Face covered with whitish pile. Proboscis and palpi black. Thorax covered with sooty hairs varied with spots, some of which are coppery and others violaceous, but all may be subobsolete. Scutellum of same color as thorax, black pilose, short but broad, with 2 short teeth, black, separated by a broad space. Abdomen rather broad, 1st 3 segments steel gray, toward the sides purplish violet, the last segment wholly purplish violet; 1st segment very short, 2nd a little longer, 3rd as long as preceding 2, 4th as long as preceding 3. Hypopygium fulvous, covered with short light yellowish hairs. Legs steel gray, black pilose, last segment of the tarsi luteous, infuscated towards the base. Wings clear, with black veins, the apical  $\frac{1}{2}$  for the greater part infused with fuscous.—(Cuba; Gundlach).

Note: *M. inaequalis* is related to *M. trochilus* Walker but is distinguished by black rather than pale-yellowish abdominal pile.

*Microdon laetus* Loew

Figs. 130, 135

*Microdon laetus* Loew, 1864: 74, Type-loc.: Cuba. Syntypes ♂ ♀ MCZ (lost). Subsequent references: Ragues, 1908: 312 (Cuba); Curran, 1928a: 36 (differences from *violens* Twn.).

Distribution.—Cuba\*, Grand Cayman\*, Jamaica\*, Hispaniola\*.

*Microdon laetus* forms part of a superspecies which includes *violens* Townsend (Jamaica) and *scitulus* Williston (southeastern North America). Wirth et al. (1965: 598) synonymized *scitulus* and *laetus* without comment. I prefer to leave the question of the status of the mainland populations open until a detailed study is done (or published).

*Microdon pulcher* Williston

Fig. 134

*Microdon pulcher* Williston, 1887: 5. Type-loc.: Saint Domingo. Lectotype ♀ USNM\*, see Appendix B.

Distribution.—Hispaniola\*.

*Microdon remotus* Knab

Figs. 131, 132, 137

*Microdon remotus* Knab, 1917: 142. Type-loc.: Cuba, Baracoa. Holotype ♂ USNM\*.

*Microdon banksi* Hull, 1943a: 91. Type-loc.: Cuba, Eastern Oriente, Upper Ovando River, 1000–2000 ft. Holotype ♀ MCZ\*. NEW SYNONYMY.

Distribution.—Cuba\*.

*Microdon remotus* Knab is very closely related to *fuscipennis* (Macquart) and may be an island population of it. I have compared the known material of *remotus* with a series of 15 specimens of *fuscipennis* (including the type of *pachystylum* Williston) from the southeastern portion of the United States. The significant differences that I have found are: 1) The third antennal segment in *remotus* is shorter, less flared and flattened apically; and 2) the hindbasitarsus of the male in *remotus* is not as strongly swollen and has some black pile on the dorsal surface.

In the Museum of Comparative Zoology, there are two specimens of *Microdon banksi* Hull labeled as the type and paratype. The paratype is labeled as Hull indicated. The holotype is labeled as follows: "Upper Ovando River, 1000–2000 ft., eastern Oriente, Cuba, 17–20 July 1936, Darlington Collector." This specimen is clearly the holotype because it agrees perfectly with Hull's description; likewise, the paratype agrees with Hull's comments about the second female. Thus I consider the specimens as being correctly labeled, the omission of the data for the holotype due to a *lapsus*, and the type-locality of *banksi* to be that listed above. I have compared the types

of *banksi* Hull with the holotype of *remotus* Knab and find that they undoubtedly represent the opposite sexes of the same species. The types of *banksi* have much more extensive black pile on the body than the type of *remotus*, but this is within the normal range of variation of *fuscipennis* (Macquart), a very closely related species (v.s.).

*Microdon violens* Townsend

Figs. 129, 133, 136, 140

*Microdon violens* Townsend, 1895: 34. Type-loc.: Jamaica. Type(s) ♀ BM(NH). Subsequent references: Johnson, 1919: 433 (Jamaica); Gowdey, 1926: 79 (Jamaica); Curran, 1928a: 36 (Jamaica, discussion relationships of *laetus* and *craigheadi* Walton).

Distribution.—Jamaica\*.

SUBFAMILY ERISTALINAE NEWMAN

TRIBE PIPIZINI WILLISTON

Genus *Trichopsomyia* Williston

*Trichopsomyia* Williston, 1888: 259. Type-species, *polita* Williston (Hull, 1949b: 330).

*Parapenium* Collin, 1952: 85. Type-species, *Pipiza carbonaria* Meigen (orig. des.). NEW SYNONYMY.

Reference: Thompson, 1972: 99 (descript.)

*Trichopsomyia* is a poorly known genus. In the past, the north temperate forms have been confused with both *Pipizella* Rondani and *Triglyphus* Loew. Recently Collin resolved this confusion by the placement of these species in their own genus, *Parapenium*. The tropical forms have been recognized as a distinct group ever since their initial discovery, and they appear to be mimics of meliponid or halictid bees and as such have a very distinctive habitus. Among these tropical bee mimics there are a number of distinctive forms of the male genitalia. *Trichopsomyia antillensis* is typical of *Parapenium* but has male genitalia of the form of *polita*, the type-species of *Trichopsomyia*. Thus the distinctive habitus on which *Trichopsomyia* was based is due to mimetic convergence (i.e. convergence resulting from having the same group of models). *Parapenium* and *Trichopsomyia* agree in all essential characters: 1) Pilose anterior mesopleuron; 2) elongate antenna; 3) processive apical crossvein; and 4) same basic structure of ninth sternum and aedeagus.

At the present there are three known Palearctic species, nine Nearctic species, and 12 Neotropical species of *Trichopsomyia*. *Trichopsomyia antillensis* is the only species known from the West Indies.

*Trichopsomyia antillensis* Thompson, NEW SPECIES

Fig. 141

*Parapenium banksi* of Telford, 1973: 236 (Puerto Rico).

Male, female.—*Head*: Bluish black; face and cheek shiny, white pilose; facial stripe white pollinose; frontal triangle shiny except dull black pollinose on upper  $\frac{1}{4}$  and small white pollinose spot on side laterad to antenna, white pilose with few black hairs intermixed; vertical triangle shiny, yellowish-white pilose except with few black hairs on anterior  $\frac{1}{3}$ ; front broad, shiny except for lateral white pollinose spots, with narrow lateral white pollinose spot on lower  $\frac{1}{4}$  and broader one on upper  $\frac{2}{3}$ , white pilose except for some black pile above antennae and in front of ocelli; vertex shiny, black pilose on anterior  $\frac{1}{4}$ , yellowish-white pilose on posterior  $\frac{3}{4}$ ; occiput silvery-white pollinose on lower  $\frac{2}{3}$ , brown pollinose on upper  $\frac{1}{3}$  in male, shiny on anterior edge and white pollinose posteriorly on upper  $\frac{1}{3}$  in female; antennal pits narrowly separated; eyes light brown pilose, of male holoptic and touching for 9–11 ommatidia. Antenna brownish black except reddish orange on ventral  $\frac{1}{2}$  of 1st and 2nd and basoventral  $\frac{1}{3}$  of 3rd segment, black pilose on dark areas, light pilose on pale areas, 1st and 2nd segments subequal,  $\frac{1}{3}$  as long as 3rd segment in male, slightly shorter in female; 3rd segment elongate,  $2\frac{1}{2}\times$  as long as broad in male, about  $\frac{1}{6}$  longer in female; arista bare, brown, slightly shorter than 3rd segment.

*Thorax*: Bluish black, white pilose except for few black hairs above wing, shiny except for propleuron sparsely white pollinose and indistinct trace of very short brownish pollinose medial vitta on mesonotum of male; plumula, squama white in female, brownish white in male; halter pale yellow to orange. *Legs*: Mostly shiny bluish black and white pilose; coxae sparsely white pollinose; femoral-tibial joints broadly orange; front and middle tarsi with basal 2 tarsomeres orange; hindtarsus orange on apical  $\frac{1}{4}$  of basitarsis, 2nd tarsomere, and basal  $\frac{1}{2}$  of 3rd tarsomere, brown on apical  $\frac{1}{2}$  of 3rd tarsomere, black elsewhere; legs black pilose on apex of front and middle femora, on apical  $\frac{1}{4}$  of hindfemur, on anteromedial  $\frac{1}{2}$  of front and middle tibiae, on apical  $\frac{1}{4}$  of hindtibia, and on dark areas of tarsi. *Wing*: Hyaline, microtrichose except bare as follows: 1st costal cell, basal  $\frac{1}{3}$  or less of 2nd costal cell, basal  $\frac{1}{2}$  or less of marginal cell, 1st and 2nd basal cells, basal  $\frac{1}{4}$  of apical cell, narrowly along posterior edge of discal cell on basal  $\frac{1}{3}$ , narrowly along anterior and posterior margins of cubital cell on basal  $\frac{1}{3}$ , and anterobasal  $\frac{1}{4}$  of anal cell.

*Abdomen*: Bluish black; 1st tergum shiny except subshiny medially, white pilose; 2nd and 3rd terga of female dull black and appressed black pilose on apical  $\frac{1}{4}$ , shiny and white pilose elsewhere; 2nd tergum of male dull brownish-gray pollinose and white pilose on basal  $\frac{2}{3}$ , shiny on sides, more blackish-gray pollinose and appressed black pilose on apical  $\frac{1}{3}$ ; 3rd tergum of

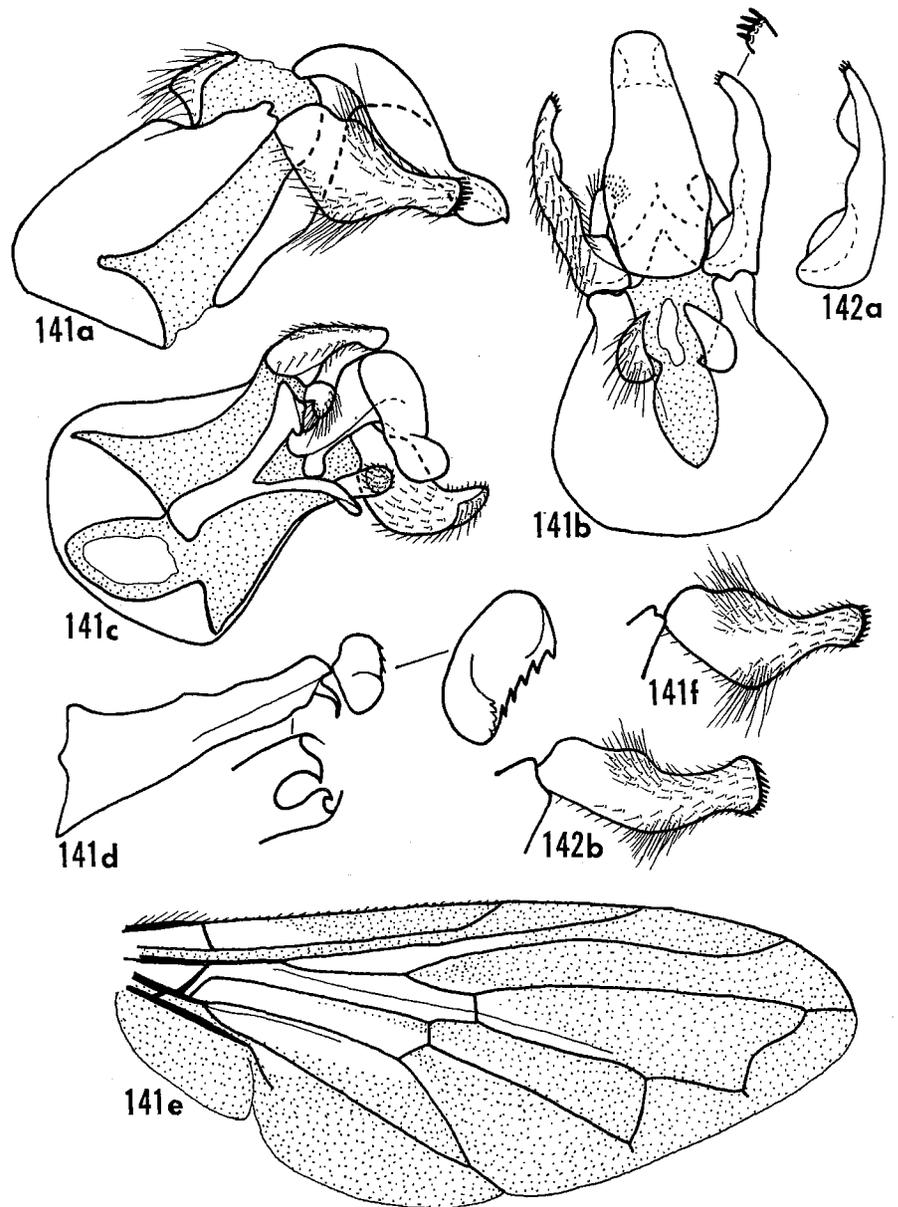


Fig. 141. *Trichopsomyia antillensis*. a, Male 9th tergum and associated structures, lateral. b, Same as a, dorsal. c, Same as a, ventral oblique. d, 9th sternum, lateral, with oblique enlargements of superior lobe and ligula. e, Wing, female. f, Superior lobe, lateral. Fig. 142. *T. banksi*, male surstyle. a, Dorsal. b, Lateral.

male same as 2nd except shiny areas on sides extend medially at middle length of segment, thus forming pair of triangular shiny areas; 4th and 5th terga of female shiny, white pilose; 4th tergum of male shiny except narrowly brownish pollinose along basal margin, white pilose; venter shiny except for white pollinose apicomедial spot on 4th sternum of male, white pilose except for black pilose on apical  $\frac{1}{2}$  of 4th sternum of male.

Holotype.—♂, JAMAICA, St. Thomas, Holland Bay, 28 November 1954, T. H. Farr; deposited in USNM. Paratypes: JAMAICA: St. Andrew, Ferry, 24 Nov. 1957, T. H. Farr, 1 ♀ (IJ); St. Catherine, Spring Garden, 6 Jan. 1963, T. H. Farr, 1 ♀ (USNM); St. Catherine, 2 miles west of Ferry Red Hills Road, 1 Oct. 1957, T. H. Farr, 1 ♀ (IJ); Trelany, 5 miles west of Duncans, 5 Jan. 1962, T. H. Farr, 1 ♀ (IJ). PUERTO RICO: Corozal, 16–20 Jan. 1969, H. S. Telford, Malaise trap, 6 ♂ ♀ (USNM, WSU); Gurabo, 5–12 Nov. 1968, H. S. Telford, Malaise trap, 1 ♂ 4 ♀ (USNM, WSU); Fortuna, 15–18 Nov. 1968, H. S. Telford, Malaise trap, 1 ♂ 1 ♀ (WSU, USNM); Lajas, 29 Jan. 1969, H. S. Telford, Malaise trap, 1 ♀ (WSU); Isabela Agr. Ext. Substation, 23 Jan. 1969, H. S. Telford, Malaise trap, 1 ♀ (WSU); Cayey, Henry Barracks, 13–14 April 1969, H. S. Telford, Malaise trap, 1 ♀ (WSU).

Discussion.—I have studied Telford's Puerto Rican material of "*banksi*," some Jamaican material of the same form, the holotype, and other Nearctic material of *banksi* Curran (1921: 349, 1924: 343). The Antillean populations are quite distinct from the mainland one and can be distinguished as follows: 1) Wing of female more extensively microtrichose (Fig. 141e), apical  $\frac{2}{3}$  or more of 2nd costal cell and anal cell trichose, whereas less than apical  $\frac{1}{8}$  trichose in mainland forms; 2) mesonotum of male all shiny, not extensively brownish pollinose with a pair of submedial lighter grayish pollinose vittae; 3) male genital style shorter, broader, and without an inner subapical tubercle (Figs. 141b, f), while mainland forms have the style longer, narrower, and with a distinct inner subapical tubercle (Fig. 142); and 4) postanal notch of male genitalia smaller (Fig. 141b). These differences warrant species recognition.

#### TRIBE VOLUCELLINI NEWMAN

##### Genus *Ornidia* Lepeletier and Serville

*Ornidia* Lepeletier and Serville, in Latreille et al., 1828: 786. Type-species, *Syrphus obesus* Fabricius (orig. des.).

References: Curran, 1930d: 2 (key to spp.); Val, 1972 (key, ♂ genitalia); Thompson, 1972: 106–107 (descript.).

*Ornidia* is a small genus of Neotropical origin. Only three species are known, one of which has become widely distributed in the Old World tropics by man. This widespread species, *obesa* Fabricius, is one of the most com-

mon tropical American syrphids and is closely associated with man, breeding in his wastes.

*Ornidia obesa* (Fabricius)

*Syrphus obesus* Fabricius, 1775: 783. Type-loc.: "Americae Insulis" (restricted by Fabricius, 1805: 227). Lectotype ♂ Kiel now in MC, see Appendix B. Subsequent reference: Fabricius, 1805: 227 (restriction of type-locality); Zimsen, 1964: 477 (type).

*Volucella obesa*: Wiedemann, 1830: 199 (redescript.); Bigot, 1857: 336 (Cuba, descript.: distr. notes); Wulp, 1882: 122 (Guadeloupe; synonymy; distr. notes); Stahl, 1883: 206 (Puerto Rico); Roeder, 1885: 341 (Puerto Rico); Williston 1887: 143, pl. 5, fig. 9 (head) (St. Domingo; descript., distr. notes); Gundlach, 1887: 184 (Puerto Rico; biol. notes); Johnson, 1894: 276 (Jamaica); Townsend, 1895: 45 (Jamaica; descript. notes); Williston, 1896: 347 (St. Vincent); Ragues, 1908: 312 (Cuba); Johnson, 1908: 74 (Bahamas); Hine, 1914: 339 (Cuba, descript., distr. notes); Johnson, 1919: 435 (Jamaica); Wolcott, 1923: 219 (Puerto Rico); Gowdey, 1926: 80 (Jamaica); Curran, 1928b: 41 (Puerto Rico); Wolcott, 1936: 350 (Puerto Rico; biol. notes); Miskimen and Bond, 1970: 66 (St. Croix).

*Ornidia obesa*: Lepeletier and Serville, in Latreille et al., 1828: 786 Curran, 1939d: 173 (Martinique); Wolcott, 1948: 466 (Puerto Rico; biol. notes); Drewry, 1970: E-147 (Puerto Rico); Doesburg, 1970: 94, 97, 99, 100 (Lesser Antilles); Telford, 1973: 236 (Puerto Rico).

Distribution.—USA (New Mexico to Georgia), south to Peru and Argentina (Tucumán to Entre Ríos); Bahamas\*, Cuba\*, Jamaica\*, Hispaniola\*, Puerto Rico\*, Lesser Antilles (Guadeloupe, Dominica\*, Martinique\*, St. Lucia, St. Vincent\*, Grenada\*); Oceania (Hawaiian Is., Marquesas Is., Society Is., Samoan Is., Solomon Is., New Caledonia); Oriental Region (Java); Ethiopian Region (Madagascar, Mauritius, Seychelles Is.).

Genus *Copestylum* Macquart

*Copestylum* Macquart, 1846: 252. Type-species, *flaviventris* Macquart (mono.) = *marginatum* Say.

*Phalacromyia* Rondani, 1848: 67. Type-species, *submetallica* Rondani (Coquillett, 1910: 587).

*Phalacromyia*, auctores, error or emendation.

References: Curran, 1928b: 41 (key to Puerto Rican spp.), 1939a (key to spp. as part of *Volucella*), 1953: 3–10 (keys to spp. of *abdominale* and *esuriens* groups); Telford, 1973: 237 (key to Puerto Rican spp.); Thompson, 1972: 108–111 (descript.).

*Copestylum* is the largest American syrphid genus and is second only to *Cheilisia* (*sensu lato*) in size worldwide. More than 350 valid species have