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THE CRANE-FLIES OF JAMAICA

(DIPTERA, TIPULIDAE)

by

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INTRODUCTION

I am indebted to Director C. Bernard Lewis and Dr. Thomas Howard Farr, of the Institute of Jamaica, for an invitation to review our present knowledge of the crane-flies of this attractive island.* In the past many persons had made collections of these flies in Jamaica, as summarized below, but the materials taken by Dr. Farr in 1954 and 1955 are so extensive and important as to have radically changed our conception of this fauna.

Our knowledge of the Tipulidae of Jamaica has developed gradually and very unevenly over the years. The first species to be reported was *Limonia* (*Geranomyia*) *intermedia* (Walker), described in 1848, based on a specimen taken by the distinguished naturalist, Philip H. Gosse. In Johnson's first list of the Diptera of the island (1894), this still was the only species known from Jamaica. Cockerell (1894) recorded a fly as a species of *Limnobia* without more exact identification but now known to refer to *Limonia* (*Rhipidia*) *domestica* (Osten Sacken), as later listed by Alexander (1912: 16). Johnson, on his collecting trip to Jamaica with William J. Fox in April and May 1891, secured two further species (*Gonomyia slossonae* and *G. puer*) that were included in his Second List of the Diptera of the island (Johnson, 1919) where a total of six species of Tipulidae are reported.

During the 1920's the then Government Entomologist of Jamaica, Mr. C. C. Gowdey, together with Dr. G. C. Crampton, added several species to the record, as reported by the writer in his First List of the crane-flies of Jamaica (Alexander, 1928), bringing the total to 22 species. During the 1930's and 1940's, a few further species were added, collected chiefly by Dr. J. G. Myers, A. E. Wight, and by various Americans stationed on the island during the war period. As indicated above, our greatest increase in knowledge of these flies came in the 1950's, when Dr. Farr began his systematic survey of several groups of insects, including the Tipulidae, and brought the list to its present satisfactory state. In this paper I have recorded 69 species, of which 23 are described as new. I am particularly indebted to Dr. Farr for the care exercised in preserving these fragile and easily broken flies and for the unusually complete data accompanying all materials. Holotypes and allotypes are being deposited in the United States National Museum. Series of duplicate specimens, including paratypes, have been returned to the Institute of Jamaica and a similar set has been placed in my personal collection.

* Contribution from the Entomological Laboratory, University of Massachusetts.

The more important collections of crane-flies, additional to the basic series taken by Dr. Farr (1954–1961), include especially materials captured by G. C. Crampton (1926), C. C. Gowdey and son Martin Gowdey (1923–26), C. Bernard Lewis (1952-1954), and J. G. Myers (1930). Smaller series, in cases a single specimen only, have been taken by the following, the names being arranged alphabetically. Peter F. Bellinger (1953–1954), Ronald P. Bengry (1954–1955), W. S. Brooks, August Busck (1911), T. D. A. Cockerell; E. I. Coher (1961); Marie L. Farr (1954), W. Fawcett (1889), W. J. Fox (1891), P. H. Gosse (1844–1846), M. Grabham (1903), John A. Grossbeck (1911), B. Heineman (1947), Charles W. Johnson (1891), Noel L. H. Krauss (1955), R. S. Martinez (1924), A. Earl Pritchard, G. R. Proctor (1954), A. Shaw, I. K. Sibley (1950), G. B. Thompson (1947), G. Underwood (1953), A. E. Wight, and A. M. Wiles.

In the present report I am adopting the *Parish* rather than the *County* as the political division in recording data, a procedure followed by Dr. Farr and others. The 14 Parishes are arranged alphabetically with the various stations listed thereunder in similar manner.

DISTRIBUTION

THE accompanying table shows the distribution of generic and subgeneric groups of crane-flies as presently known for the four major islands of the Greater Antilles, with a further indication as to their occurrence in the United States to the north and Mexico to the west. Of a total of 37 such groups in the Greater Antilles, Cuba has 32, Jamaica 29, Puerto Rico 22 and Hispaniola 15. The low figure for the last named island surely results from insufficient collecting.

The only group in the table that is restricted to the Greater Antilles is *Dolichopeza: Megistomastix* Alexander. There is a high degree of specific endemicity on all of these major islands, particularly in the mountainous areas. Each island has a high proportion of its known species restricted to it, in some cases including the entire genus or subgenus, as in *Orimarga*, *Shannonomyia*, *Hexatoma* and *Teuchelabis*. Conversely, several of the low-altitude and coastal species have a wide distribution in Tropical America and elsewhere.

It will be seen from the table that the species of large size, comprising the subfamily Tipulinae, in Jamaica are represented only by four species distributed in four genera. The remaining species, almost all of small or medium size, fall in the subfamily Limoniinae, with three tribes represented, the Limoniini, with its major genus *Limonia*, having approximately one-half of the total number.

TABLE OF DISTRIBUTION OF GENERA AND SUBGENERA

Genus and Subgenus	Jamaica	Cuba	Hispaniola	Puerto Rico	Mexico	U.S.A.	Old World
TIPULINAE							
Megistocera	*	*	*	*	*	*	*
Brachypremna	*	*	*	*	*	*	
Nephrotoma	*	*	*		*	*	*
Dolichopeza:							
Megistomastix		*	*	*			
Tipula:							
Yamatotipula	*	*			*	*	*
Eumicrotipula			*		*	*	
LIMONIINAE							
LIMONIINI							
Helius	*	*		*	*	*	*
Orimarga:							
Orimarga	*	*			*	*	*
Diotrepha	*	*		*	*	*	
Limonia:							
Neolimonia	*	*		*			
Neolimnobia	*	*		*	*		
Cacnoglochina	*	*		*			
Discobola	*	*				*	*
Atypophthalmus		*					*
Rhipidia	*	*	*	*	*	*	*
Dicranomyia	*	*	*	*	*	*	*
Geranomyia	*	*	*	*	*	*	*
HEXATOMINI							
Epiphragma		*	*		*	*	*
Polymera	*	*		*	*	*	*
Shannonomyia	*	*	*	*	*	*	
Hexatoma:							
Eriocera	*	*	*	*	*	*	*
Atarba	*	*			*	*	*
Elephantomyia		*	*		*	*	*
ERIOPTERINI							
Trentepohlia:							
Paramongoma	*			*	*		*
Teucholabis	*	*		*	*	*	*
Rhabdomastix:							
Sacandaga	*		*		*	*	*
Gnophomyia:							
Gnophomyia				*	*	*	*
Eugnophomyia		*			*	*	*
Gonomyia:							
Progonomyia	*	*			*	*	*
Gonomyia	*	*			*	*	*
Idioglochina		*			*	*	*
Lipophleps	*	*	*	*	*	*	*
Paralipophleps	*	*		*	*	*	
Neolipophleps	*	*		*	*	*	
Cheilotrichia:							
Empeda	*				*	*	*
Erioptera:							
Mesocyphona	*	*		*	*	*	*
Toxorhina	*	*	*	*	*	*	*

KEY TO SUBFAMILIES, TRIBES, SUBTRIBES, GENERA AND SUBGENERA OF TIPULIDAE KNOWN FROM THE GREATER ANTILLES

1. Terminal segment of maxillary palpus commonly elongate; nasus usually distinct; antennae normally with 13 segments (8 in *Megistocera*, 11 in *Brachypremna*); four branches of Media reach margin (figs. 1–4); size large (wing 12 mm or more) . . . . . *Tipulinae* 2

   Terminal segment of maxillary palpus short; no distinct nasus; antennae commonly with 14 or 16 segments (fewer in *Hexatoma*, *Epiphragma*, *Toxorhina*); two or three branches of Media reach margin, four in some Hexatomini (*Polymera*, figs. 55–57); size small (wing commonly less than 10 mm, in local fauna largest in *Hexatoma* and *Epiphragma*, to 15 mm) . . . . . *Limoniinae* 6

(TIPULINAE)

2. Legs unusually long and filiform; wings either with vein R_{1+2} atrophied, with Sc_2 close to origin of *Rs* (*Dolichopeza: Megistomastix*) or, when R_{1+2} is present (*Megistocera*, fig. 1; *Brachypremna*, fig. 2) vein *Sc* is very long, Sc_1 reaching costa as a distinct element opposite to or some distance beyond the fork of *Rs;* cell *2nd A* very narrow (figs. 1, 2) 3

   Legs of normal length and stoutness for the family; wings with R_{1+2} preserved and vein *Sc* of moderate length, Sc_1 weakly preserved or atrophied before fork of *Rs*, Sc_2 ending opposite or before midlength of this vein; cell *2nd A* of normal width (figs. 3, 4) 5

3. Antennae short, 8-segmented; wings with *m–cu* on vein M_4, R_{2+3} angularly bent at near midlength (fig. 1); wing average 16 × 3.3 mm. . . . . *Megistocera* Wiedemann

   Antennae short in *Brachypremna*, 11-segmented, very long in males of *Dolichopeza: Megistomastix;* wings with *m–cu* on vein *M* before fork (figs. 2, 3) or more distally on M_{3+4}; R_{2+3} straight or gently arcuate, not angulated (fig. 2) 4

4. Wings with vein R_{1+2} pale, perpendicular to R_{2+3}; *Rs* elongate, strongly arcuated at origin (fig. 2); wing cells glabrous; wing average 20 × 3.1 mm. . . . . *Brachypremna* Osten Sacken

   Wings with vein R_{1+2} atrophied; *Rs* short, transverse, simulating a crossvein; apical wing cells with macrotrichia; wing average 7.5–10 mm . . . . . *Dolichopeza: Megistomastix* Alexander

5. Wings with *Rs* short and oblique, less than *m–cu;* cell M_1 sessile or very short-petiolate; vein M_4 arising opposite or basad of origin of M_{1+2} (fig. 3); body coloration orange or yellow, patterned with darker, the surface highly polished; wing average 13.5 × 3.5 mm . . . . . *Nephrotoma* Meigen

Wings with *Rs* longer, exceeding *m-cu;* cell M_1 petiolate; vein M_4 arising beyond origin of M_{1+2} (fig. 4); body of local species gray pruinose . . . . . *Tipula* Linnaeus

(LIMONIINAE)

6. Wings with free tip of vein Sc_2 often present; veins R_4 and R_5 fused to margin, there being only two branches of *Rs* (figs. 5–11, 17–21, 30–35, 43–46); antennae usually with 14 segments (Limoniaria) or with 16 (Heliaria, Orimargaria). (Tribe *Limoniini*) 7

Wings with free tip of vein Sc_2 atrophied; veins R_4 and R_5 separate, the former usually transferred to the upper branch of *Rs* to form an element R_{2+3+4}; usually with three branches of *Rs* present (figs. 55-64, 69, 75, 79–81, 89–91); in the local fauna with two such branches in *Atarba* (fig. 65), *Teucholabis* (figs. 70–74), and some *Gonomyia* (figs. 82–84), a single branch in *Toxorhina* (fig. 92); antennae usually with 16 segments (exceptions in *Hexatoma*, *Epiphragma* and *Toxorhina*). (Tribes Hexatomini and Eriopterini) . . 17

7. Wings (figs. 5, 6) with vein R_2 lacking (Subtribe Heliaria) *Helius* St. Fargeau

Wings with vein R_2 present (transverse and simulating a radial crossvein) 8

8. Wings with *m-cu* some distance before fork of *M*, at least three times its own length, usually much more (figs. 7–11); antennae 16-segmented. (Subtribe Orimargaria) 9

Wings with *m-cu* close to or beyond fork of *M*, if before, the distance not or scarcely exceeding the length of the vein itself (figs. 17–21, 30–35, 43–46); antennae 14-segmented. (Subtribe Limoniaria) 10

9. Wings with three branches of *M* reaching the margin, cell M_3 present; *m-cu* moderately retracted, beneath *Rs* (figs. 7, 8) . . . . . *Orimarga: Orimarga* Osten Sacken

Wings with two branches of *M* reaching the margin, cell M_3 lacking; *m-cu* greatly retracted, far before origin of *Rs*, closer to wing base (figs. 9–11) . . . . . *Orimarga: Diotrepha* Osten Sacken

10. Wings with supernumerary crossveins either in cell R_3 or *1st A* (figs. 18, 19); size large (wing over 10 mm) 11

No supernumerary crossveins in the wing cells indicated; size small, wing less than 9 mm, commonly less than 7 12

11. A supernumerary crossvein in cell R_3; vein *Sc* short, Sc_1 ending opposite or before origin of *Rs* (fig. 18); wing average 11.5 × 2.5 mm . . . . . *Limonia: Neolimnobia* Alexander

A supernumerary crossvein in cell *1st A;* vein *Sc* long, Sc_1 ending about opposite fork of *Rs* (fig. 19); wing average 11 × 2.5 mm . . . . . *Limonia: Discobola* Osten Sacken

12. Mouthparts, and especially the labial palpi, lengthened, the rostrum thus formed much longer than remainder of head and commonly about as long as the combined head and thorax; a supernumerary crossvein at near midlength of cell *Sc;* (venation, figs. 34, 43, 46) . . . . . *Limonia: Geranomyia* Haliday

Mouthparts, with the labial palpi, not notably lengthened, shorter than remainder of head 13

13. Antennae with flagellar segments produced into long branches or shorter ventral protuberances, producing a bipectinate, unipectinate or subpectinate appearance in male, subpectinate in the female (figs. 22, 23) . . . . . *Limonia: Rhipidia* Meigen

Antennae with flagellar segments simple in both sexes 14

14. Wings with vein *Sc* short, Sc_1 ending opposite or before origin of *Rs* (figs. 31, 33) . . . . . *Limonia: Dicranomyia* Stephens, in part.

Wings with vein *Sc* long, ending some distance beyond origin of *Rs* (figs. 17, 20, 32) 15

15. Vein *Sc* unusually long, ending beyond the fork of *Rs* (fig. 17) . . . . . *Limonia: Neolimonia* subgen. n.

Vein *Sc* shorter, Sc_1 ending before the fork of *Rs* (figs. 20, 22) 16

16. Male hypopygium without a rostral spine (fig. 29); local species with wings clear except for the darkened stigma. . *Limonia: Caenoglochina* subgen. n.

Male hypopygium with two dististyles, the dorsal style a simple rod (fig. 38); local species with wings conspicuously patterned, the brown and white areas more or less reticulated . . . . *Limonia: Dicranomyia* Stephens, in part.

17. Tibial spurs present (Tribe Hexatomini) 18

Tibial spurs lacking (Tribe Eriopterini) 23

18. Antennae with not more than 10 segments; size large, wing to 15 mm. (Subtribe Hexatomaria) . . . . . *Hexatoma: Eriocera* Macquart

Antennae with more than 14 segments 19

19. Wings with *Rs* having only two branches (*Elephantomyia, Atarba*, fig. 65); vein R_2 lacking 20

Wings with *Rs* three branched (figs. 55–64); vein R_2 preserved 21

20. Rostrum elongate, exceeding one-half the remainder of body, the reduced palpi at extreme apex. (Subtribe Elephantomyaria) . . . . . *Elephantomyia* Osten Sacken

Rostrum short and inconspicuous, not exceeding the remainder of head. (Subtribe Atarbaria) . . . . . *Atarba* Osten Sacken

21. A supernumerary crossvein in cell *C* of the handsomely patterned wings. (Subtribe Epiphragmaria) *Epiphragma* Osten Sacken

No supernumerary crossvein in cell *C* of wings 22

22. Wings with cell M_1 present, very small in the local species (figs. 55–57); outer wing cells deep, the cord at near midlength of wing; cell M_2 open by atrophy of *m*. (Subtribe Polymeraria) . *Polymera; Polymera* Wiedemann

Wings with cell M_1 lacking (figs. 58–61); outer wing cells shallow, the cord at near two-thirds the wing length; cell M_2 open or closed. (Subtribe Limnophilaria) . . . . . *Shannonomyia* Alexander

23. Rostrum very long and slender, approximately one-half the remainder of body or longer, the reduced palpi at apex; setae of legs profoundly bifid; wings (fig. 92) with a single branch of *Rs* reaching the margin. (Subtribe Toxorhinaria) . . . . . *Toxorhina: Toxorhina* Loew

Rostrum short, not exceeding the remainder of head; setae of legs simple; wings with either two or three branches of *Rs* reaching the margin (figs. 69–75, 79–84, 89–91) 24

24. Two branches of *Rs* reach the wing margin (figs. 70–74, 82–84). (Subtribe Gonomyaria, in part) 25

Three branches of *Rs* reach the wing margin (figs. 69, 75, 79–81, 89–91); an incomplete spur in *Rhabdomastix* (fig. 75) 28

25. Wings with vein R_2 present, placed close to fork of *Rs;* vein *Sc* usually long, Sc_1 ending beyond origin of *Rs* (figs. 70–74) . . . . . *Teucholabis: Teucholabis* Osten Sacken

Wings with vein R_2 lacking; vein *Sc* short, Sc_1 ending opposite or before origin of *Rs* (figs. 82–84). (*Gonomyia*, in part) 26

26. Wings with cell M_2 open by atrophy of basal section of vein M_3 (fig. 84) . . . . . *Gonomyia: Neolipophleps* Alexander

Wings with cell *1st* M_2 closed (figs. 82, 83) 27

27. Wings with stigma dark brown, conspicuous; male hypopygium with apex of basistyle produced into a spine (figs. 87, 88) . . . . . *Gonomyia: Paralipophleps* Alexander

Wings with stigma pale to scarcely indicated; male hypopygium with apex of basistyle unarmed (fig. 86) . . . . . *Gonomyia: Lipophleps* Bergroth

28. Wings with veins R_5 and M_{1+2} fused to form the entire cephalic margin of cell *1st* M_2, *r-m* thus obliterated; only two branches of *M* reach the margin; vein *2nd A* short (fig. 69). (Subtribe Trentepohlaria) . . . . . *Trentepohlia: Paramongoma* Brunetti

Wings with vein R_5 entirely distinct from M_{1+2}, the *r-m* crossvein present; three branches of *M* reach the margin; vein *2nd A* of normal length (figs. 75, 79–84, 89–91) 29

29. Wings with cell R_3 short, subequal to or less than its petiole (figs. 75, 81, 89) 30

Wings with cell R_3 deep, longer than its petiole, the cell shortest in *Gonomyia* (*Progonomyia*) (figs. 79, 80) 31

30. Wings with vein R_2 present (fig. 89) . . *Cheilotrichia: Empeda* Osten Sacken
Wings with vein R_2 lacking (figs. 75, 81) 31

31. Wings with vein *Sc* long, Sc_1 extending about to opposite or beyond midlength of *Rs; m-cu* at or beyond fork of *M;* trochanters elongate (fig. 75). (Subtribe Eriopteraria) . . . . . *Rhabdomastix: Sacandaga* Alexander
Wings with vein *Sc* short, Sc_1 ending opposite or before origin of *Rs* (fig. 81); if *Sc* is longer, *m-cu* is more than its own length before the fork of *M;* trochanters short, normal. (Subtribe Gonomyaria) 32

32. Wings with *m-cu* at or very close to fork of *M;* cell *1st* M_2 closed (fig. 81) . . . . . *Gonomyia: Gonomyia* Meigen
Wings with *m-cu* more than its own length before the fork of *M* . . . . . *Gonomyia: Idiocera* Dale

33. Thoracic meron enlarged, widely separating the middle and hind coxae to produce a "pot-bellied" appearance; wings with Sc_2 far retracted, Sc_1 long (figs. 90, 91). (Subtribe Eriopteraria) . . . . . *Erioptera: Mesocyphona* Osten Sacken
Thoracic meron smaller, the middle and hind coxae more approximated. (Subtribe Gonomyaria) 34

34. Wings with vein R_2 at or close to fork of R_{2+3+4}; cell *1st* M_2 closed; outer wing cells with abundant macrotrichia *Gnophomyia: Eugnophomyia* Alexander
Wings with R_2 at or some distance before fork, leaving an element R_{3+4}; cell M_2 open by atrophy of basal section of M_3 (figs. 79, 80); wing cells glabrous. 35

35. Cell M_2 open by atrophy of basal section of M_3; vein R_3 less than one-half R_4 (figs. 79, 80) . . . . . *Gonomyia: Progonomyia* Alexander
Cell *1st* M_2 closed; vein R_3 exceeding two-thirds vein R_4 . . . . . *Gnophomyia: Gnophomyia* Osten Sacken

THE following generic and subgeneric groups in the above key are known from other islands of the Greater Antilles but to this date have not been found in Jamaica. *Dolichopeza: Megistomastix; Epiphragma; Elephantomyia; Gnophomyia: Eugnophomyia* and *G.: Gnophomyia; Gonomyia: Idiocera.* The most puzzling omission is *Dolichopeza*, represented by rather numerous species occurring on all three of the remaining Greater Antillean islands but to this date not found in Jamaica.

The Oriental-Ethiopian subgenus *Atypophthalmus* Brunetti of *Limonia* has been taken in Cuba and apparently has been brought there and to other parts of the New World by commerce. By the key the group would run to couplet 16, being distinguished from *Caenoglochina* and *Dicranomyia*, as there considered, by the slightly patterned wings and the complicated male hypopygium. The head is

holoptic or nearly so in both sexes of the species in question, *Limonia* (*Atypophthalmus*) *umbrata* (de Meijere).

The venational interpretations adopted by me and used in all papers in the past thirty years follow the Comstock-Needham system, as modified by Tillyard for the cubital field and by Alexander for the radial field. Students requiring more information regarding wing venation in the Diptera may consult any of the following references (Alexander, 1918, 1927, 1929, 1934 or 1942; Hendel, 1928). In the last-named reference the above systems have been extended to cover all families of the Diptera.

TIPULINAE

MEGISTOCERA Wiedemann

Megistocera Wiedemann; Aussereur. zweifl. Ins., 1: 55; 1828.
Megistocera Alexander; Jour. N.Y. Ent. Soc., 22: 215–218; 1914.

Megistocera is one of the most primitive genera of crane-flies, known by only two recent species, the one in the New World being quite distinct from the Old World *M. filipes* (Fabricius) by having short antennae in both sexes. The only local species with which it might be confused is *Brachyprenma unicolor* Osten Sacken, readily told by the venation (figs. 1 and 2).

1 MEGISTOCERA LONGIPENNIS (Macquart) Fig. 1.

Tipula longipennis Macquart; Dipt. Exot., 1, 1: 57, pl. 5, fig. 1; 1838.
Tipula tenuis van der Wulp; Notes Leyden Mus., 7: 7; 1885.
Megistocera longipennis Osten Sacken; Berlin. Ent. Zeitschr., 30: 161; 1886.
Megistocera longipennis Alexander; Jour. N.Y. Ent. Soc., 22: 216–217, fig. 5 (ven.); 1914.
Megistocera longipennis Alexander; Jour. Dept. Agr. Puerto Rico, 16: 354, fig. 1 (ven.); 1932.

Widespread throughout Tropical America, from Florida southward to Brazil, Paraguay and Bolivia; Greater Antilles: Cuba; Hispaniola; Puerto Rico.

The distinctive venation is shown (fig. 1).

SAINT ELIZABETH: Luana, January 24, 1961 (Coher).
WESTMORELAND: White House Inn, July 18–20, 1954 (Farr).

BRACHYPREMNA Osten Sacken

Brachypremna Osten Sacken; Berlin. Ent. Zeitschr., 30: 161; 1886.
Brachypremna Alexander; Jour. N.Y. Ent. Soc., 20: 225-236; 1912.

All recent species of *Brachypremna* are restricted to the New World, with the exception of three found in New Guinea and northern Australia. The American species are Neotropical with the exception of *Brachypremna dispellens* (Walker), widespread in South and Middle America but ranging northward into the Nearctic region as far as New Jersey and Indiana. It is surprising that this does not occur in the islands of the Greater Antilles where the only species found to this date is *Brachypremna unicolor* Osten Sacken, as discussed. The characteristic venation of this fly is shown (fig. 2).

2 BRACHYPREMNA UNICOLOR Osten Sacken Fig. 2.

Brachypremna unicolor Osten Sacken; Berlin. Ent. Zeitschr., 31: 239-240; 1887.
Brachypremna unicolor Alexander; Jour. N.Y. Ent. Soc., 20: 235-236, fig. c (ven.) 1912.

Restricted to the Antilles; Greater Antilles: Cuba; Hispaniola; Puerto Rico. Lesser Antilles: Grenada. The venation is shown (fig. 2).
SAINT CATHERINE: Guanaboa Vale, August 14, 1960 (Farr).

NEPHROTOMA Meigen

Nephrotoma Meigen; Illiger's Mag., 3: 262; 1803.
Pachyrrhina Macquart; Hist. Nat. Ins., Diptera, 1: 88; 1834.
Nephrotoma Alexander; Diptera of Connecticut, Conn. Geol. Nat. Hist. Surv. Bull., 64: 222-235; 1942.

Nephrotoma comprises a vast aggregation of medium-sized to large flies, with a marked concentration of species in the Holarctic, Ethiopian and Oriental regions. Two poorly known species have been recorded from the Greater Antilles. The typical venation is shown (fig. 3).

3 NEPHROTOMA CIRCUMSCRIPTA (Loew) Fig. 3.

Pachyrrhina circumscripta Loew; Berlin. Ent. Zeitschr., 7: 296; 1863 (Loew's *Centuries*, 4, no. 38).
Nephrotoma circumscripta Alexander; Jour. Agr. Univ. Puerto Rico, 23: 102; 1939.

Loew's type, a female from Cuba, without exact data, was collected by Friedrich Riehl. I later recorded from Cuba what appears to be this species which seems to be closely allied to *Nephrotoma suturalis* (Loew), a southern representative or cline of the widespread North American *N. ferruginea* (Fabricius).

The mesonotal suture is pale, with the lateral ends and central point blackened; scutellum darkened, parascutella yellow; mediotergite yellow, with a major central darkening on anterior half, on its posterior end expanded and more nacreous. The Green Hills specimen recorded has the abdominal tergites orange yellow, each segment variegated by a blackened area; the second available specimen has the abdomen more uniformly obscure orange, without evident darkened markings. Venation (fig. 3).

PORTLAND: Green Hills, March 24, 1950 (Sibley); 1 ♀.

SAINT THOMAS: Whitfield Hall, 4100 feet, June 12, 1954 (Farr); 1 ♀.

TIPULA Linnaeus

Tipula Linnaeus; Syst. Nat., ed. 10: 585; 1758.

Tipula Alexander; Rev. de Entomologia, 16: 330–356; 1945. *Ibid.*, 16: 415–440; 1945. *Ibid.*, 17: 172–201; 1946. *Ibid.*, 22: 265–314; 1951.

Tipula is one of the largest genera in the Diptera, with many species occurring in continental Tropical America but with very few representatives in the Greater Antilles. The Neotropical species are listed in the four Alexander references cited above. Of the three species presently recorded from the Greater Antilles, *Tipula* (*Eumicrotipula*) *darlingtoni* Alexander is the only member of the extensive subgenus *Eumicrotipula* Alexander, with a host of species in South and Middle America, including two that enter the Nearctic region in Arizona.

4 TIPULA (YAMATOTIPULA) JAMAICENSIS Alexander Fig. 4.

Tipula (*Tipula*) *jamaicensis* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 27–28, fig. 2 (wing); 1928.

Tipula (*Yamatotipula*) *jamaicensis* Alexander; Rev. de Entomologia, 22: 269; 1951.

The unique type female was from CLARENDON, Cumberland, altitude about 3000 feet, taken December 15–18, 1919, collector not indicated. The type is in the American Museum of Natural History and no other specimen is known to me. The nearest relatives appear to be *Tipula* (*Yamatotipula*) *virgo* Osten Sacken, of Mexico, and *T.* (*Y.*) *ludoviciana* Alexander, of the southeastern United States, particularly the latter.

Size relatively small (Female. – Length about 13 mm; wing 11.5 mm); mesono-

tum brownish gray, the praescutum with four brown stripes that are indistinctly bordered by darker brown; antennae with flagellar segments bicolored, the basal third brown, outer ends yellow, outer segments uniformly darkened; femora obscure brownish yellow, the tips more infuscated; wings grayish, stigma and costal border narrowly brown, the latter including cells *C*, *Sc* and anterior parts of cells *R* and R_1, immediately behind the costal darkening with a more whitened longitudinal stripe; venation (fig. 4).

The male antennae of *T.* (*Y.*) *ludoviciana* are of unusual length, being virtually as long as the wing, and it may be found that they are comparably elongated in the present fly.

LIMONIINAE

LIMONIINI

HELIUS St. Fargeau

Helius St. Fargeau; Encycl. Method., Index, p. 831; 1825.
Rhamphidia Meigen; Syst. Beschr. Zweifl. Ins., 6: 281; 1830.
Helius Alexander; Diptera of Connecticut, Conn. Geol. Nat. Hist. Surv. Bull., 64: 332–333; 1942.

An extensive genus, with representatives occurring in all major biotic regions, including Madagascar and New Zealand. Two species are found in Jamaica.

KEY TO HELIUS

1. Wings with cell *1st* M_2 large, *r-m* punctiform or obliterated by the fusion of veins R_{4+5} and M_{1+2} (fig. 5). (Greater Antilles) . . *albitarsis* (Osten Sacken)
   Wings with cell *1st* M_2 smaller, *r-m* long (fig. 6). (Jamaica) . *creper* Alexander

5 HELIUS (HELIUS) ALBITARSIS (Osten Sacken) Fig. 5.

Rhamphidia albitarsis Osten Sacken; Berlin. Ent. Zeitschr., 31: 184; 1887.
Helius (*Helius*) *albitarsis* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 366, fig. 5 (ven.); 1932.

The type was from Puerto Rico where it was collected by Carl A. Moritz. The species also is known from Cuba. The fly is most readily told from *Helius* (*Helius*)

creper Alexander by the venation, as shown. The outer tarsal segments are snowy white, somewhat more yellowed in *creper*.

HANOVER: Askenish, altitude about 500 feet, June 25, 1954 (Farr).

SAINT ANDREW: Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr), January 14, 1961 (Coher).

SAINT JAMES: Montpelier, June 25, 1954 (Farr).

SAINT MARY: One-fourth mile south of Devon Pen Post Office, July 31, 1954 (Farr).

WESTMORELAND: Two miles south of Beeston Springs, 1200 feet, July 18, 1954 (Farr).

6 HELIUS (HELIUS) CREPER Alexander Fig. 6.

Helius creper Alexander; Jour. N.Y. Ent. Soc., 34: 225; 1926.
Helius creper Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 22; 1928.

The type was from Troy, Trelawny, taken May 12–14 by Wight.

PORTLAND: Ecclesdown, January 21, 1961 (Coher). Two miles southwest of Ecclesdown, 2200 feet, August 24, 1954 (Farr). About one-half mile south of Caledonia Peak, 4250 feet, July 4, 1954 (Farr). Hardwar Gap, trail to waterfall, 4000 feet, July 4, December 5, 1954, July 28, 1955 (Farr).

SAINT ANDREW: Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr). Second Breakfast Spring, about 2800 feet, August 26, 1954 (Farr). Trail to Catherine's Peak, about 4500 feet, June 5, 1954 (Farr). Cinchona, July–August 1926 (Crampton).

SAINT THOMAS: Corn Puss Gap, 2200 feet, July 23, 1954 (Farr). Gully about one-half mile west of Whitfield Hall, about 4200 feet, June 10, 1954 (Farr).

WESTMORELAND: Beeston Springs, 1200 feet, July 18, 1954 (Farr).

ORIMARGA Osten Sacken

Subgenus *Orimarga* Osten Sacken; Mon. Dipt. N. Amer., 4: 120; 1869.
Subgenus *Diotrepha* Osten Sacken; Cat. Diptera N. Amer., ed. 2: 219–220; 1878.

Orimarga is a relatively large genus, with species occurring in all major biotic regions. The subgenus *Diotrepha* is restricted to Tropical and Subtropical America. In the New World there are about 35 species of *Orimarga* and 12 of *Diotrepha*.

KEY TO ORIMARGA

1. Wings with three branches of Media - M_{1+2}, M_3 and M_4; *m-cu* moderately retracted, about opposite midlength of *Rs* (figs. 7, 8). (Subgenus *Orimarga* Osten Sacken) 2

   Wings with two branches of Media – M_{1+2} and M_4; *m-cu* far retracted, placed some distance basad of origin of *Rs* (figs. 9-11). (Subgenus *Diotrepha* Osten Sacken) 3

2. Legs black, all tarsi snowy white; wings hyaline, veins black, very distinct; vein *Sc* short, cell *2nd A* very reduced in size (fig. 7). (Jamaica) . . *farriana* sp. n.

   Legs brown, including the tarsi; wings very pale brown or cream colored, veins less distinct; vein *Sc* long, cell *2nd A* large (fig. 8). (Jamaica) *perpallens* sp. n.

3. Legs black, tips of femora narrowly whitened, of tibiae more broadly so, tarsi white (fig. 9). (Jamaica) . . . . . *acroleuca* sp. n.

   Legs yellow, tips of femora very narrowly blackened 4

4. Femoral tips blackened, of tibiae more narrowly so; wings almost uniformly yellowed, the costal third clearer yellow, veins pale; abdomen light yellow, posterior borders of the basal six segments ringed with black, subterminal segments black (fig. 10). (Jamaica) . . . . . *arawak* sp. n.

   Femoral tips very narrowly black, tibiae and tarsi uniformly pale; wings with central third strongly suffused, costal border conspicuously yellow, veins more distinct; abdomen brown, subterminal segments darker (fig. 11). (Jamaica) . . . . . *flavicosta* Alexander

7 ORIMARGA (ORIMARGA) FARRIANA sp. n. Figs. 7, 12.

General coloration gray, thoracic pleura striped longitudinally with more silvery gray; legs with femora and tibiae brownish black, all tarsi abruptly snowy white; wings whitish hyaline, veins dark brown to brownish black, very conspicuous against the ground; vein *Sc* short, Sc_1 ending before origin of *Rs*, R_{1+2} atrophied, *m-cu* about opposite midlength of *Rs*, vein *2nd A* very short, the cell small and narrow; male hypopygium with the inner dististyle very obtuse at tip; phallosome with free ends of the apophyses simple, the outermost terminating in pale membrane; aedeagus very small and weak.

Male. – Length about 8-10 mm; wing 5.2-6 mm.

Female. – Length about 8-9 mm; wing 5-5.5 mm.

Rostrum black, sparsely pruinose; palpi black. Antennae black, scape pruinose; flagellar segments short-oval, subequal to the verticils. Head dark gray; anterior vertex highly elevated; posterior vertex with long coarse black setae.

Pronotum and cervical region dark brown, pruinose. Mesonotal praescutum dark plumbeous brown, lateral borders light gray pruinose; scutal lobes and scutellum plumbeous brown, median region of scutum, pleurotergite and base of

mediotergite more pruinose. Pleura dark gray, usually with a broad more silvery gray longitudinal stripe over the dorsal sternopleurite and metapleura. Halteres with stem yellowed, knob infuscated. Legs with coxae and trochanters brownish yellow; femora and tibiae dark brown to brownish black, tarsi abruptly snowy white, terminal two segments darkened. Wings (fig. 7) whitish hyaline; veins dark brown to brownish black, very conspicuous against the ground. Macrotrichia on longitudinal veins beyond cord, including also the outer ends of *Rs* and Cu_1. Venation: *h* lying far basad; vein *Sc* short, Sc_1 ending before origin of *Rs*, Sc_2 detached, opposite or beyond this origin; free tip of Sc_2 preserved, R_{1+2} lacking; *Rs* relatively short, cell R_1 broad; R_{2+3} less than one-half the basal section of R_{4+5}; veins M_{3+4} and M_1 subequal; *m-cu* about opposite midlength of *Rs;* vein *2nd A* very short, the cell small and narrow.

Abdomen very long, especially in the male; tergites dark brown, sternites more yellowish brown, hypopygium black. Male hypopygium (fig. 12) with the basistyle, *b*, relatively short, without modified lobes; setae relatively sparse but conspicuous, forming a dense basal group. Dististyles, *d*, fused basally; outer style blackened, relatively stout, gently curved, outer end gradually narrowed into a long black spine; inner style a broad flattened blade, apex obtuse. Phallosome, *p*, with all free ends of the apophyses simple, the outermost sinuous, terminating in a narrow pale membrane, without ornamentation as in some species; inner apophyses with basal rods very stout, extended outwardly into a curved spine, at its base with a small triangular point. Aedeagus very small and weak, straight.

Holotype, male, SAINT ANDREW: Along trail, Clydesdale to Morces Gap, 4000 feet, May 17, 1954 (Farr). *Allotype*, female, SAINT THOMAS: Corn Puss Gap, road at 7th mile post, February 3, 1947 (B. Heineman). *Paratypes:* SAINT ANDREW: 1 male, 1 female, Hermitage Reservoir, 1750 feet, May 30, August 8, 1954 (Farr); 1 male, Nine mile post on Newcastle Road, May 16, 1954 (Farr). SAINT MARY: 1 male, one-fourth mile south of Devon Pen Post Office, without date (Farr); 1 male, Irandy Hole, September 12, 1954 (Farr). SAINT THOMAS: 1 female, Bath, January 16, 1955 (Farr); 1 male, 1 female, six miles northwest of Wheelerfield, about 2000 feet, August 22, 1954 (Farr). TRELAWNY: 1 female, Crown lands, Wilson's Run, (Cockpit Country), about 2000 feet, September 27, 1954 (Farr).

Orimarga (*Orimarga*) *farriana* is dedicated to Dr. Thomas Howard Farr, my long-time friend and former student at the University of Massachusetts. It is readily told from the other regional member of the subgenus by the snowy white tarsi of all legs and the very reduced cell *2nd A* of the wings. *O.* (*O.*) *cubensis* Alexander, of western Cuba, has the venation somewhat the same but with the legs uniformly black. *O.* (*O.*) *niveitarsis* Alexander, of Panama, likewise has cell *2nd A* small but differs in all other details of venation, including the retention of vein R_{1+2}, the very long *Rs* and the more basal position of *m-cu;* likewise, the legs while having the tarsi extensively snowy white have the proximal ends of the basitarsi extensively blackened.

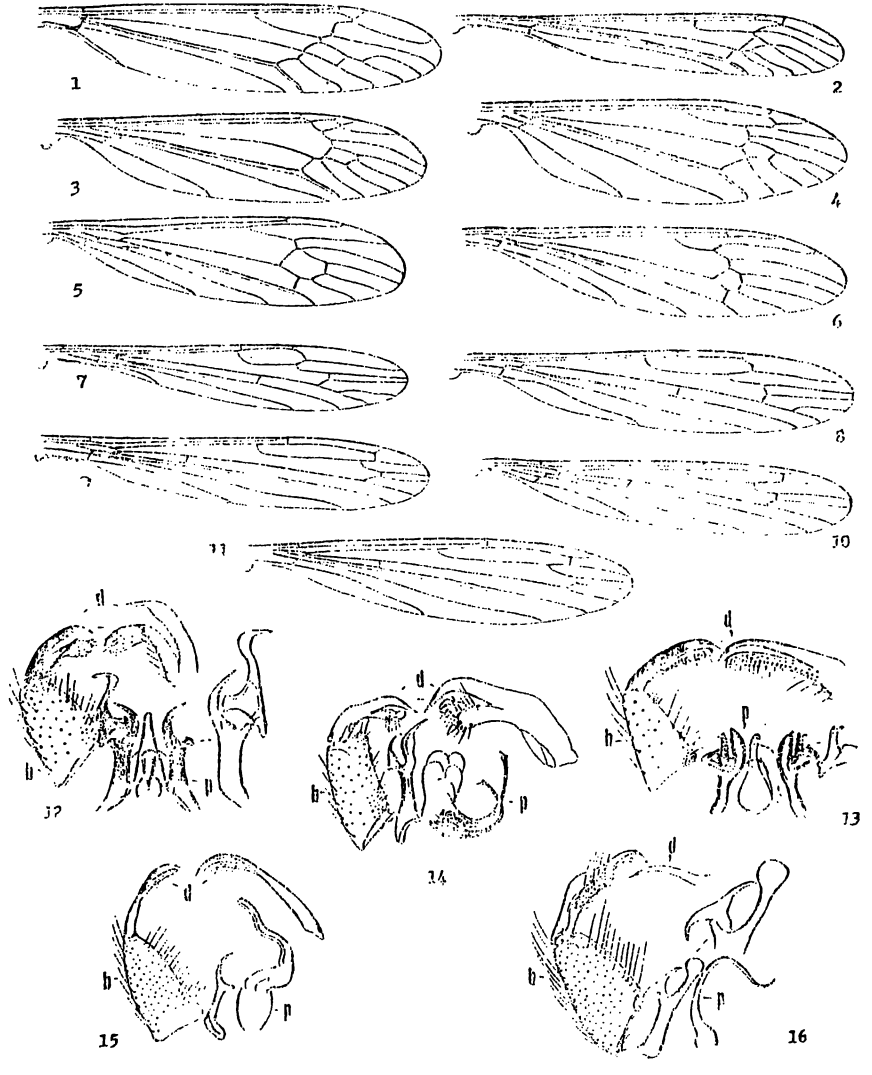

Fig. 1. *Megistocera longipennis* (Macquart); venation. – Fig. 2. *Brachypremna unicolor* Osten Sacken; venation. – Fig. 3. *Nephrotoma circumscripta* (Loew); venation. – Fig. 4. *Tipula* (*Vomatotipula*) *jamaicensis* Alexander; venation. – Fig. 5. *Helius* (*Helius*) *albitarsis* (Osten Sacken); venation. – Fig. 6. *Helius* (*Helius*) *creper* Alexander; venation. – Fig. 7. *Orimarga* (*Orimarga*) *farriana* sp. n.; venation. – Fig. 8. *Orimarga* (*Orimarga*) *perpallens* sp. n.; venation. – Fig. 9. *Orimarga* (*Diotrepha*) *acroleuca* sp. n.; venation. – Fig. 10. *Orimarga* (*Diotrepha*) *arawak* sp. n.; venation. – Fig. 11. *Orimarga* (*Diotrepha*) *flavicosta* (Alexander); venation. – Fig. 12. *Orimarga* (*Orimarga*) *farriana* sp. n.; male hypopygium. – Fig. 13. *Orimarga* (*Orimarga*) *perpallens* sp. n.; male hypopygium. – Fig. 14. *Orimarga* (*Diotrepha*) *acroleuca* sp. n.; male hypopygium. – Fig. 15. *Orimarga* (*Diotrepha*) *arawak* sp. n.; male hypopygium. – Fig. 16. *Orimarga* (*Diotrepha*) *flavicosta* (Alexander); male hypopygium.

(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *p*, phallosome)

8 ORIMARGA (ORIMARGA) PERPALLENS sp. n. Figs. 8, 13.

GENERAL coloration of head and thorax gray, praescutum with three darker brownish gray stripes; pleura dark gray, striped longitudinally with white; legs light brown; wings very pale, including the veins; vein *Sc* long, ending about opposite one-third *Rs*, R_{1+2} atrophied, *m-cu* about opposite one-third *Rs*, cell *2nd A* elongate; male hypopygium with dististyles very long; phallosome with all elements simple; aedaegus very small.

Male. - Length about 7.5-8 mm; wing 5.8-6.5 mm.

Female. -- Length about 7.5-8 mm; wing 5.5-6.5 mm.

Rostrum brown; palpi black. Antennae with scape and pedicel light yellow, flagellum black; flagellar segments oval, exceeding their verticils; terminal segment elongate, about one-half longer than the penultimate. Head light gray; anterior vertex narrow, elevated, presumably as a result of drying.

Prothorax gray, pretergites and lateral praescutal borders whitish gray. Mesonotal praescutum light gray, with three darker brownish gray stripes, scutal lobes similarly darkened; posterior sclerites of notum dark gray. Pleura dark gray, conspicuously striped longitudinally with white, the longer and more conspicuous pale stripe ventral, beginning behind the fore coxae, continued over the nearly dorsal part of sternopleurite onto the metapleural region. Halteres whitened. Legs with coxae brownish yellow, bases brown, more extensive on mid-coxae; trochanters obscure yellow; remainder of legs light brown. Wings (fig. 8) very pale, including the veins, the ground very pale brown to creamy white; veins very pale brown. Macrotrichia on most longitudinal veins beyond cord, including all radial veins and extensively on M_{1+2} and M_3. Venation: *Sc* long, Sc_1 ending about opposite one-third *Rs*, Sc_2 at tip; free tip of Sc_2 weakly preserved, R_{1+2} atrophied or represented by a slight spur; cell M_3 nearly as long as its petiole; *m-cu* about opposite basal third of *Rs* or slightly beyond; vein *2nd A* long, strongly arched on basal half, widening the long cell *2nd A*.

Abdomen elongate, dark brown, hypopygium a little paler. Male hypopygium (fig. 13) with the basistyle, *b*, relatively short, about as long as the dististyles, with a concentration of unusually long delicate setae on mesal face at base but otherwise unmodified. Dististyles, *d*, shortly fused at base, outer style slender, narrowed to the acute gently curved tip; inner style nearly as long and a little broader, pale yellow, with a fringe of long yellow setae that are about as long as the diameter of the style. Phallosome, *p*, with apical points of the inner paler apophyses simple, the elongate base blackened; outer apophyses shallowly bifid at tip. Aedeagus very small and simple, shorter than the inner apophyses.

Holotype, male, PORTLAND: Spring Hill Post Office, one mile south, 2000 feet, July 31, 1954 (Farr). *Allotopotype*, female, with the type. *Paratopotypes*, 5 males and females. *Paratypes:* SAINT ANDREW, 2 broken specimens, Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr); Nine mile post on Newcastle Road, May 16, 1954

(Farr). SAINT MARY: 2 males, one-fourth mile south of Devon Pen Post Office, July 31, 1954 (Farr).

The only other known regional members of the subgenus are *Orimarga* (*Orimarga*) *cubensis* Alexander and *O.* (*O.*) *farriana* sp. n., both readily told from the present fly by the venation, particularly the very short cell *2nd A*.

9 ORIMARGA (DIOTREPHA) ACROLEUCA sp. n. Figs. 9, 14.

GENERAL coloration of thorax brown; femora brown, tips abruptly whitened, tibiae brown with about the distal fifth, together with the tarsi, snowy white; wings weakly darkened, prearcular and costal fields narrowly more yellowed; a restricted pale brown wash in bases of anal cells and narrowly along vein *Cu;* free tip of Sc_2 in transverse alignment with R_2, R_{1+2} lacking; male hypopygium with outer dististyle deflected and bent at near two-thirds the length; phallosome with the aedeagus profoundly divided, the two filaments long and slender.

Male. – Length about 8–9.5 mm; wing 5.3–6 mm.

Female. – Length about 9.5 mm; wing 6 mm.

Rostrum light chestnut brown; palpi brownish black. Antennae black throughout; flagellar segments oval. Head dark gray; anterior vertex silvery, narrow, between two and three times the width of a row of ommatidia.

Thorax almost uniformly medium brown (type) to darker brown (allotype); sides of praescutum behind, scutal lobes, scutellum and mediotergite darker, ventral sternopleurite in cases paler. Halteres with stem whitened, knob dark brown. Legs with coxae and trochanters testaceous yellow; femora restrictedly yellow basally, passing into brown, the tips abruptly whitened; tibiae light brown, with about the distal fifth snowy white, tarsi similarly white, the terminal segment infuscated. Wings (fig. 9) weakly darkened, prearcular and costal fields narrowly yellow to light yellow; a restricted pale brown wash in bases of both anal cells, continued as a narrow seam to margin along vein *Cu;* veins light brown, more yellowed in the brighter areas. Venation: *Sc* relatively long, Sc_1 ending just beyond one-fourth the length of the very long *Rs*, Sc_2 detached; free tip of Sc_2 in transverse alignment with R_2 and a little shorter, R_{1+2} atrophied; R_{2+3} less than twice R_2; *m-cu* far retracted; cell *2nd A* long.

Abdomen with tergites dark brown, sternites more obscure yellow, subterminal segments more uniformly darkened; hypopygium brownish yellow. Male hypopygium (fig. 14) with the basistyle, *b*, relatively stout, inner apical angle slightly produced, provided with two or three strong bristles. Dististyles, *d*, long-fused at base, outer style strongly deflected at near two-thirds the length, thence narrowed into an acute spine; inner style strongly twisted before apex, with several strong setae, tip obtuse. Phallosome, *p*, with apophyses terminating in slender simple pale rods, the basal sclerites relatively slender, strongly expanded at bases. Aedeagus,

and subtending structures distinctive, including four outer obtusely rounded plates, the aedeagus profoundly bifid into two slender filaments.

Holotype, male, SAINT THOMAS: Bath, January 11, 1955 (Farr). *Allotopotype*, female, SAINT THOMAS: Six miles northwest of Wheelerfield, August 22, 1954 (Farr). *Paratype*, male, SAINT ANDREW: Along trail Clydesdale to Morces Gap, 4000 feet, May 17, 1954 (Farr).

Orimarga (*Diotrepha*) *acroleuca* is readily told from all other regional species by the whitened femoral tips. The structure of the male hypopygium is noteworthy but can be described in general terms only on the basis of the material available. The profoundly bifid aedeagus is the single most striking feature.

10 ORIMARGA (DIOTREPHA) ARAWAK sp. n. Figs. 10, 15.

GENERAL coloration of mesonotum almost uniformly pale yellowish brown, pleura light gray; legs whitened, tips of femora narrowly blackened, bases and tips of tibiae more narrowly so; wings with anterior third clear light yellow, the remainder slightly darkened, veins pale; abdomen with proximal segments light yellow, their posterior margins narrowly ringed with black, subterminal segments blackened; male hypopygium with dististyles slender; aedeagus enormous, very long and stout.

Male. — Length about 7–7.2 mm; wing 5–5.2 mm.

Rostrum and palpi dark brown. Antennae with scape brownish black, pedicel brownish, flagellum yellowed; flagellar segments oval, shorter than the verticils but exceeding the shorter white pubescence. Head brown, with long yellow setae; anterior vertex very narrow, about equal to two rows of ommatidia.

Cervical region brown, pronotum obscure yellow. Mesonotum almost uniformly pale yellowish brown, praescutal borders and humeral region light gray. Pleura chiefly light gray. Halteres with stem whitened, knob weakly infuscated. Legs with coxae and trochanters yellowed; femora whitened, the moderately broad tips black; tibiae white, bases narrowly, tips slightly more broadly blackened, the latter nearly as extensive as the femoral tips; tarsi white, terminal two segments very slightly infuscated. Wings (fig. 10) with about the anterior third clear light yellow, the remainder slightly suffused with brown; veins very pale, difficult to detect. Macrotrichia of veins small and weak, present on veins R_{2+3}, R_3, R_{4+5}, M_1 and M_2. Venation: Sc_2 not apparent; R_{1+2} about one-half longer than R_2; *m-cu* oblique, far retracted.

Abdomen elongate, proximal six segments light yellow with the posterior borders narrowly but conspicuously ringed with black; seventh and eighth segments black to form a conspicuous ring, hypopygium yellowed. Male hypopygium (fig. 15) with the basistyle, *b*, simple, with long delicate setae. Dististyles, *d*, fused on nearly the basal half, long and slender, the outer style a slender spine, curved and narrowed to the acute tip; inner style slender. Phallosome, *p*, with the gonapophysis a slender curved spine from an even longer base; aedeagus enormous, as

compared with allied species, very long and stout; in normal position, before mounting on slide, bent ventrad for a short distance, thence dorsad and outwardly, lying between the basistyles. In the paratype specimen shown, the base is distorted, the apex broken.

Holotype, male, SAINT THOMAS: Corn Puss Gap, July 23, 1954 (Farr). *Paratopotype*, male, May 2, 1955 (Farr).

The specific name is that of the Arawaks, aboriginal inhabitants of Jamaica and other Caribbean lands. In its wing coloration, the species is most similar to the larger *Orimarga* (*Diotrepha*) *flavicosta* (Alexander), differing in the coloration of the body and especially in the very different male hypopygium.

11 ORIMARGA (DIOTREPHA) FLAVICOSTA (Alexander) Figs. 11, 16.

Diotrepha flavicosta Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 23; 1928.
Orimarga (*Diotrepha*) *flavicosta* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 380; 1932.

The poorly preserved types were from Cinchona. With more material I am able to provide a re-description and figures of the venation and male hypopygium.

Male. – Length about 8.5–9.5 mm; wing 6–7 mm.

Female. - Length about 10 mm; wing 7 mm.

Rostrum, palpi and antennae black. Head gray; anterior vertex very narrow, about equal to two rows of ommatidia.

Cervical region and pronotum dark brown. Mesonotal praescutum and scutum brownish yellow to castaneous, the former a little darker on sides; scutellum and mediotergite dark brown, pleurotergite and dorsal pleurites more chestnut brown; propleura, sternopleurite and metapleura yellow. Halteres with stem whitened, knob infuscated. Legs with coxae and trochanters yellow; femora pale yellow, tips narrowly black, with a somewhat more whitened subterminal ring; tibiae and tarsi uniformly snowy white. Wings (fig. 11) with costal border broadly pale yellow, the central area broadly infuscated, the anal and cubital cells paler brown; veins brown, yellow in the brightened costal parts. Macrotrichia on outer half of *Rs* and on outer radial and medial veins, lacking on *Sc*, *M*, *Cu*, and the Anals. Venation: R_{1+2} from two to nearly three times R_2; *Rs* very long; *m-cu* far retracted.

Abdomen very long, brown, outer segments blackened, basal sternites more brownish yellow, the incisures, especially the posterior borders, darkened. Male hypopygium (fig. 16) with dististyles, *d*, fused basally, the outer glabrous, strongly sinuous, base expanded, gradually narrowed to the acute tip; inner style slender, conspicuously setiferous, those of mesal face very long. Basistyle unarmed, provided with long setae, especially those of mesal face. Phallosome, *p*, with the apophyses as figured, the inner arm expanded into a large subcircular pale blade; aedeagus curved, long and slender, narrowed gradually to the acute tip.

HANOVER: Logwood, March 25, 1955 (Farr). PORTLAND: male, One-half mile south of Caledonia Peak, July 4, 1954 (Farr). SAINT ANDREW: Cinchona, July 25–August 2, 1926 (Crampton & Gowdey), types. Hardwar Gap, July 31, 1955 (Farr). Trail to Catherine's Peak, about 4500 feet, June 5, 1954 (Farr).

The species still is known only from Jamaica.

LIMONIA Meigen

Limonia Meigen; Illiger's Mag., 2: 262; 1803.
Limnobia Meigen; Syst. Beschr. Zweifl. Ins., 1: 116; 1818.

Limonia is the largest known genus of crane-flies, with more than 1500 species that are placed in approximately 30 subgenera, of which 7 are represented in the local fauna, with 27 species here recorded.

KEY TO LIMONIA

1. Rostrum elongate, much longer than remainder of head, usually subequal to or exceeding the combined head and thorax; wings with a supernumerary crossvein in cell *Sc* at near midlength (figs. 34, 43, 44, 46). (Subgenus *Geranomyia* Curtis) 2
   Rostrum short, less than the remainder of head; no supernumerary crossvein in cell *Sc* 12
2. Wings unpatterned except for the darkened stigma when this is present 3
   Wings with darkened spots and clouds, additional to the stigma 9
3. Legs with tibiae pale, tips of at least the fore pair conspicuously blackened 4
   Tips of tibiae not darker than the remainder, in cases entire tibia uniformly blackened 5
4. Wings yellowed, stigma pale, veins light brown, relatively inconspicuous; tips of fore tibiae broadly black, of the remaining tibiae less evidently so; male hypopygium (fig. 53) with rostral spines very long; apex of mesal-apical lobe of gonapophysis bidentate. (Jamaica: Neotropical, widespread) . . . . . *tibialis* (Loew)
   Wings subhyaline, stigma and veins brown, conspicuous; tips of tibiae blackened, more extensive on fore pair; male hypopygium (fig. 49) with rostral spines shorter; mesal-apical lobe of gonapophysis bearing a lateral flange. (Greater Antilles) . . . . . *myersiana* Alexander
5. General coloration of thorax gray, praescutum more blackened medially; rostrum short, less than one-half the remainder of body; male hypopygium (fig. 41). (Jamaica: Neotropical, widespread) . . *cinereinota* (Alexander)

Thorax brown or yellow, praescutum without a blackened central area; rostrum long (unknown in *amblytylos*) 6

6. Larger species (wing about 6.5 mm); body coloration darker, the praescutum with broad but inconspicuous stripes; wing stigma brown, conspicuous 7

Smaller species (wing about 5 mm); body coloration reddish brown, with greenish tints, especially in living individuals, thorax almost unicolorous; wing stigma pale, inconspicuous. 8

7. Abdomen brown; legs uniformly brownish black; male hypopygium (fig. 39) with rostral spines sessile or virtually so. (Jamaica) . . *amblytylos* sp. n.

Abdominal tergites weakly bicolored, pale, posterior borders broadly more infuscated; legs pale, tips of femora slightly more darkened; male hypopygium (fig. 50) with rostral spines from conspicuous basal tubercles. (Jamaica; southeastern United States) . . . . . *intermedia* (Walker)

8. Male hypopygium (fig. 52) with rostral spines small, pale, shorter than the prolongation, from reduced basal tubercles. (Jamaica) . . . . . *subvirescens jamaicae* Alexander

Male hypopygium (fig. 54) with rostral spines blackened, divergent, longer than the prolongation, from conspicuous basal tubercles. (Jamaica; Mexico) . . . . . *viridula* Alexander

9. Tibiae pale, the tips broadly blackened; male hypopygium (fig. 51). (Greater Antilles) . . . . . *rostrata antillarum* Alexander

Tips of tibiae not blackened 10

10. Mesonotal praescutum whitish yellow, disk with a broad cinnamon brown central stripe, in cases divided by a pale median vitta; basal wing cells conspicuously patterned with brown, including an area at arculus; male hypopygium (fig. 47). (Jamaica) . . . . . *eurymera stenomera* subsp. n.

Disk of mesonotal praescutum with three narrow dark brown stripes, one median; wings with basal cells only slightly patterned with darker, arcular region clear 11

11. Legs with femora weakly darkened, yellowish brown, in cases with the tips paling to yellow; wings with a small darkened spot at base of cell *Sc* beneath *h;* male hypopygium (fig. 42) with rostral spines arising from separate elongate basal tubercles, slightly unequal, inner spine setoid; gonapophyses blackened. (Greater Antilles: Mexico) . . *civica* Alexander

Legs with femora clear yellow, with a distinct brown subterminal ring; wings without a darkened spot in base of cell *Sc;* male hypopygium (fig. 40) with rostral spines short, very unequal, basal spine setoid, placed on base of tubercle of the large inner spine; gonapophyses pale. (Jamaica) . . . . . *anisacantha* sp. n.

12. Supernumerary crossveins in certain of the wing cells (figs. 18, 19) . . . 13

No supernumerary crossveins in wing cells 14

13. A supernumerary crossvein in cell R_3 (fig. 18). (Subgenus *Neolimnobia*

Alexander). (Jamaica: Neotropical, widespread) . . . . . *diva* (Schiner)

A supernumerary crossvein in cell *1st A* (fig. 19). (Subgenus *Discobola* Osten Sacken). (Jamaica: Cuba) . . . . . *gowdeyi* Alexander

14. Antennae with flagellar segments more or less produced into branches to appear subpectinate, unipectinate or bipectinate in the males, subpectinate in the females (figs. 22, 23). (Subgenus *Rhipidia* Meigen) 15

Flagellar segments of antennae simple, not produced. 19

15. Antennae subpectinate in both sexes, black, the subterminal two flagellar segments abruptly whitened 16

Antennae of male bipectinate or unipectinate (fig. 23), of female subpectinate; male sex unknown in *bellingeri;* antennae uniformly black 17

16. Lateral praescutal borders not yellowed; wing cells without brown dots, the dark markings being restricted to the vicinity of the veins. (New World, widespread) . . . . . *domestica* (Osten Sacken)

Lateral praescutal borders broadly yellowed; all wing cells with abundant pale brown dots, additional to darker markings along the veins. (Jamaica: Neotropical, widespread) . . . . . *schwarzi* (Alexander)

17. Antennae of male long-bipectinate; wings darkened, the costal region variegated by cream-colored interspaces, outer cells and axillary region uniformly darkened. (Jamaica: Puerto Rico) . . . . . *luquilloensis* Alexander

Antennae of male long-unipectinate (fig. 23), condition unknown in male of *bellingeri;* wings darkened, variegated by paler, wing tip and axillary region whitened 18

18. Outer wing cells yellowed, with pale brown central markings, darkened costal pattern not including cell *C;* tips of femora narrowly yellowed, posterior tarsi not conspicuously light yellow; antennae of male unknown, of female (fig. 22). (Jamaica). . . . . *bellingeri* sp. n.

Outer wing cells darkened except for the whitened wing apex; darkened costal pattern extensive, including cell *C;* tips of femora broadly black, posterior tarsi conspicuously light yellow; antennae of male long-unipectinate, female subpectinate; in male all flagellar segments branched excepting the last (fig. 23). (Jamaica: Cuba, Central America) . . . *subcostalis* (Alexander)

19. Wings with vein *Sc* short, Sc_1 ending opposite or before origin of *Rs* (figs. 31, 33). (Subgenus *Dicranomyia* Stephens, in part) 20

Wings with vein *Sc* long, Sc_1 ending beyond origin of *Rs*, commonly opposite or beyond midlength of *Rs* (figs. 17, 20, 32), compare also couplet 21 (*Dicranomyia*, in part) 26

20. Wings with a heavy reticulated brown pattern; vein *Sc* long, Sc_1 ending beyond one-third the length of *Rs*, Sc_2 close to tip of Sc_2 21

Wings unpatterned except for the stigmal darkening when this is present; vein *Sc* short, Sc_1 ending opposite or shortly before origin of *Rs*, Sc_2 far retracted 22

21. Legs yellow, femora with a broad black subterminal ring; wings chiefly darkened, with about ten large whitened spots, the reticulated pattern poorly indicated except in costal region (fig. 32). (Jamaica) . . . *farri* sp. n.

Legs black; wings with an abundant reticulated brown and whitened pattern, the dark areas narrower than the pale interspaces; male hypopygium (fig. 38). (Jamaica: Cuba) . . . . . *reticulata* (Alexander)

22. Wings with cell M_2 open by atrophy of *m*. (Greater Antilles) . . . . . *brevivena torrida* Alexander

Wings with cell *1st* M_2 closed 23

23. Wings strongly blackened (fig. 33); male hypopygium (fig. 37). (Jamaica) . . . . . *lewisi* sp. n.

Wings subhyaline or only slightly tinged with darker 24

24. Ventral dististyle of male hypopygium with three rostral spines; sea-level species. (Neotropical; widespread) . . . . . *distans* (Osten Sacken)

Ventral dististyle of male hypopygium with two rostral spines; commonly higher altitude species 25

25. Male hypopygium with apex of rostral prolongation beyond the spines deeply bifid. (Nearctic, southward into mountains of Greater Antilles) . . . . . *diversa* Alexander

Male hypopygium (fig. 36) with apex of rostral prolongation simple; wings (fig. 31). (Jamaica) . . . . . *coheri* sp. n.

26. Wings with vein *Sc* very long, Sc_1 ending beyond fork of *Rs* (fig. 17). (Subgenus *Neolimonia* subgen. n.) . . . . . *jamaicensis* Alexander

Wings with vein *Sc* shorter, Sc_1 ending before fork of *Rs* (figs. 20, 32) . . 27

27. Male hypopygium with two dististyles, the dorsal style a simple rod; local species with the wing pattern heavily reticulated, brown and pale. (Subgenus *Dicranomyia* Stephens, in part) . . . . . (see couplets 20-21)

Male hypopygium (fig. 29) with a single somewhat complicated dististyle; local species with the wing clear except for the darkened stigma (fig. 20). (Subgenus *Caenoglochina* subgen. n.) . . . . . *basistylata* Alexander

NEOLIMONIA subgen. n.

PROPOSED for the *eiseni* group, as formerly assigned to typical *Limonia* Meigen.

Wings (fig. 17) with vein *Sc* usually long, ending opposite or beyond midlength of *Rs*, short in *ludibunda;* vein R_2 of normal length, not shortened by approximation of veins R_1 and R_{2+3}. Vein *Sc* with trichia at least on distal half, arranged in a single row. Male hypopygium (fig. 24) with ventromesal lobe of basistyle low to very low and appressed to mesal face of style. Ventral dististyle, *d*, profoundly bilobed, the rostral part large and stout, with two pale peglike spines placed on disk or near base of prolongation, the spines surrounded by areas of delicate silken

setae. Gonapophysis, *g*, with mesal-apical lobe simple or bispinous. Aedeagus with genital openings subterminal.

Type of subgenus. – *Limonia* (*Neolimonia*) *eiseni* (Alexander) – Neotropical.

The following species in the Greater Antilles belong here - *L.* (*N.*) *borinquensis* Alexander (Puerto Rico), *L.* (*N.*) *caribaea* Alexander (Cuba), *L.* (*N.*) *domballah* Alexander (Dominican Republic), and *L.* (*N.*) *jamaicensis* Alexander (Jamaica). Other species include the Nearctic *L.* (*N.*) *argenteceps* (Alexander) and *L.* (*N.*) *rara* (Osten Sacken) and the following continental Neotropical members: *L.* (*N.*) *amazonica* Alexander, *L.* (*N.*) *arrogantia* Alexander, *L.* (*N.*) *bimucronata* Alexander, *L.* (*N.*) *cordillerensis* Alexander, *L.* (*N.*) *deceptrix* Alexander, *L.* (*N.*) *dicax* Alexander, *L.* (*N.*) *euryleon* Alexander, *L.* (*N.*) *hesione* Alexander, *L.* (*N.*) *huacapistanae* Alexander, *L.* (*N.*) *hyperphallus* Alexander, *L.* (*N.*) *immodica* Alexander, *L.* (*N.*) *indomita* Alexander, *L.* (*N.*) *lawlori* Alexander, *L.* (*N.*) *ludibunda* Alexander, *L.* (*N.*) *lustralis* Alexander, *L.* (*N.*) *macintyrei* Alexander, *L.* (*N.*) *optabilis* Alexander, *L.* (*N.*) *pastazicola* Alexander, *L.* (*N.*)*porrecta* Alexander, *L.* (*N.*) *rorainicola* Alexander, *L.* (*N.*) *sanctae-martae* Alexander, *L.* (*N.*) *subdomita* Alexander, and *L.* (*N.*) *velasteguii* Alexander. By further slight modifications of the hypopygial characters the following further species may be included: *L.* (*N.*) *austera* Alexander, *L.* (*N.*) *horrenda* Alexander, and *L.* (*N.*) *lachesis* Alexander.

12 LIMONIA (NEOLIMONIA) JAMAICENSIS Alexander Figs. 17, 24.

Limonia jamaicensis Alexander; Jour. N.Y. Ent. Soc., 34: 223-224; 1926.

Limonia (Limonia) jamaicensis Alexander; Rev. de Entomologia, 21: 183, fig. 17 (♂ hyp.); 1950.

The types were from near Troy, Jamaica, taken by A. E. Wight. Wing venation (fig. 17); male hypopygium (fig. 24).

PORTLAND: Hardwar Gap, trail to waterfall, about 4000 feet, March 14, July 4, 1954 (Farr). About two miles southwest of Ecclesdown, about 2200 feet, August 24, 1954 (Farr). SAINT ANDREW: Hermitage Reservoir, 1750 feet, May 30, August 8, 1954 (Farr). Newcastle, 3700 feet, May 3, 1954 (Farr). Second Breakfast Spring, about 2800 feet, August 26, September 1, 1954 (Farr). SAINT ANN: Fern Gully, July 11, 1954 (Farr). SAINT THOMAS: Gully about one-half mile west of Whitfield Hall, about 4200 feet, June 10, 1954 (Farr). Six miles northwest of Wheelerfield, 2000 feet, August 22, 1954 (Farr). TRELAWNY: Windsor Cave, August 25, 1955 (Farr). WESTMORELAND: One mile south of Beeston Springs, 1250 feet, July 18, 1954 (Farr).

13 LIMONIA (NEOLIMNOBIA) DIVA (Schiner) Figs. 18, 25.

Limnobia diva Schiner; Novara Reise, Diptera, p. 46; 1868.
Dicranomyia (Neolimnobia) diva Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 20–21; 1928.
Limonia (Neolimnobia) diva Alexander; Jour. Dept. Agr. Puerto Rico, 16: 357; 1932.

Widespread in Tropical America, from Mexico into northern South America, in the Greater Antilles also from Cuba and Puerto Rico. A further discussion of the species as it occurs in Jamaica, with a re-description of the type of *diva*, is in the 1928 Alexander reference cited, where the subgenus *Neolimnobia* Alexander is proposed.

Male. – Length about 6–8 mm; wing 8–10 mm.

Rostrum and palpi black. Antennae chiefly dark brown, flagellar incisures restrictedly pale. Head in front velvety black, posterior genae paler. Mesonotal praescutum with the ground color blackish, the three usual stripes more brownish yellow, the median one somewhat blackened on posterior half; scutellum and median area of scutum yellow pollinose; mesal margins of scutal lobes brownish black; mediotergite broadly blackened in front. Pleura chiefly yellow pollinose. Halteres yellow. Legs with femora yellow, banded with brownish black, fore and middle pairs with two rings, posterior femora with three; remainder of legs obscure orange. Wings (fig. 18) pale yellow, prearcular and costal fields more saturated, disk with an abundant reticulated or muscoid pale brown pattern, appearing as transversely parallel zigzag lines in most cells, before level of origin of *Rs* and along cord more approximated and subconfluent to form broken bands. Male hypopygium (fig. 25) with tergite ,*t*, transverse, posterior border with a broad U-shaped emargination, lobes narrow, with a concentration of moderately long setae. Basistyle, *b*, small, in area about one-third the ventral dististyle. Dorsal dististyle, *d*, strongly curved, gradually narrowed to the slightly recurved tip; ventral style large and fleshy, rostral prolongation short, subrectangular in outline, the two rostral spines at the extreme outer angle. Gonapophysis, *g*, with mesal-apical lobe slender, the notch very narrow.

PORTLAND: About one-half mile south of Caledonia Peak, 4250 feet, July 4, 1954 (Farr). Hardwar Cap, trail to waterfall, about 4000 feet, March 14, May 3, 1954 (Farr). SAINT ANDREW: Bellevue, Port Royal Mts., April 24, 1954 (Farr). Cinchona, July–August 1926 (Crampton & Gowdey); September 20, 1924 (Martinez); October 21–23, 1954 (Farr). Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr). Newcastle, 3700 feet, May 13, 1954 (Farr). 16 mile post on Newcastle Road, May 16, 1954 (Farr).

CAENOGLOCHINA subgen. n.

PROPOSED for the *apicata* group, as formerly assigned to typical *Limonia* Meigen. Characters closest to those of *Limonia* s.s. Antennae 14-segmented, the flagellar segments commonly with abrupt apical pedicels; terminal segment not conspicuously elongated, outer end pointed. Claws with teeth basal in position, including a major outer spine and a varying number of reduced spinules nearer the base. Wings (fig. 20) with vein *Sc* long, Sc_1 ending beyond two-thirds *Rs;* *Sc* with scattered trichia over the whole length, usually more crowded outwardly. Male hypopygium (fig. 29) with a single dististyle, as in *Limonia*, this commonly a variously modified flattened blade, the apex an acute spine. Mesal face of basistyle, *b*, with various lobes and protuberances that are tufted with setae. Aedeagus, *a*, commonly long and slender, with two apical lobes.

Type of subgenus. – *Limonia* (*Caenoglochina*) *apicata* Alexander-Neotropical. Other members of the subgenus are widespread in Tropical and Subtropical America, ranging from the southeastern United States into South America. In the Nearctic region, the following occur in Georgia and Florida – *L.* (*C.*) *rogersiana* (Alexander), *L.* (*C.*) *rogersiana longistylata* Alexander, and *L.* (*C.*) *subapicata* Alexander. Neotropical species include *L.* (*C.*) *acuminata* Alexander, *L.* (*C.*) *basistylata* Alexander, *L.* (*C.*) *egae* Alexander, *L.* (*C.*) *hoffmani* Alexander (Cuba and Puerto Rico), *L.* (*C.*) *napoensis* Alexander, *L.* (*C.*) *paucilobata* Alexander, *L.* (*C.*) *pugnax* Alexander, *L.* (*C.*) *rapax* Alexander, *L.* (*C.*) *sica* Alexander, and *L.* (*C.*) *vorax* Alexander.

14 LIMONIA (CAENOGLOCHINA) BASISTYLATA Alexander Figs. 20, 29.

Limonia basistylata Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 19–20; 1928.

The types were from Cinchona, collected by Crampton and Gowdey. In the series now available there is an unusual range in size, with very large individuals taken at the highest altitutes of the Blue Mountains, with the smallest specimen having been taken at sea-level. The male hypopygium of all of these is so similar that I must consider all as representing a single species.

Wings (fig. 20). Male hypopygium (fig. 29) with the tergite, *t*, transverse, posterior border convex, with a broad sclerotized margin, provided with numerous weak setae. Basistyle, *b*, long, the mesal face with strong lobes, the most basal one largest, ventral in position, elongate and gently curved, apex slightly bilobed, each lobule provided with long yellow setae and bristles, more distally with a smaller lobe provided with very long yellow setae that exceed the lobe; still more distad with a small slender lobule tipped with a very long seta that is three or four times as long as the lobule itself. Dististyle, *d*, a flattened blade, gently widened outwardly,

terminating abruptly in an acute spine; base of style with an oval setiferous lobe and a small sclerotized point at base of outer margin. Gonapophysis, *g*, pale, mesal-apical lobe produced caudad into a slender spinoid rod. Aedeagus, *a*, very long, straight, at apex with two recurved lobules.

PORTLAND: About one-half mile south of Caledonia Peak, 4250 feet, July 4, 1954 (Farr). Hardwar Gap, on trail to waterfall, about 4000 feet, May 3, 1954 (Farr), 4300 feet, July 31, December 5, 1954 (Farr). SAINT ANDREW: Cinchona, July 25, 1926 (Crampton & Gowdey), types; October 21, 1954 (Farr). Trail to Catherine's Peak, about 4500 feet, June 5, 1954 (Farr). About one-half mile east of Chestervale on trail to Morces Gap, about 3000 feet, May 17, 1954 (Farr). One mile west of Newcastle, about 3700 feet, May 3, 1954 (Farr). New Haven Gap, 5750 feet, October 23, 1954 (Farr). Bellevue, Port Royal Mountains, 3750 feet, April 24, 1954 (Farr). SAINT THOMAS: Blue Mountain Peak, 7400 feet, June 11, 1954 (Farr). Whitfield Hall, Clydesdale, 4100 feet, June 10, 1954 (Farr). TRELAWNY: Windsor, 500–2000 feet, August 22, 1955, September 27, 1954 (Farr). WESTMORELAND: White House Inn, sea-level, July 20, 1954 (Marie L. Farr).

The range of size in the above extensive series has males from 6.5–9 mm in length, wing 5–8.2 mm; antenna about 1.8–2 mm. Females, length about 9–10 mm, wing 8 mm.

15 LIMONIA (DISCOBOLA) GOWDEYI Alexander Figs. 19, 26.

Limonia (*Discobola*) *gowdeyi* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 384–385, fig. 26 (♂ hyp.); 1932.

The types were from Jamaica and Cuba. Named in honor of Mr. C. C. Gowdey, former Government Entomologist of Jamaica, who collected part of the type material.

Male. – Length about 9–10 mm; wing 11–13 mm.

Female. – Length about 7.5 mm; wing 9–9.5 mm.

General coloration yellow and black; praescutum yellow, with five more or less confluent brown lines on posterior half; pleura greenish yellow, patterned with black posteriorly, including a major ventral area that includes the middle coxae, mesepisternum, dorsal pleurotergite and mediotergite. Knobs of halteres blackened. Legs with femora obscure yellow, with a subterminal brown annulus subtended by clearer yellow rings; tibiae yellow, narrowly blackened near bases. Wings (fig. 19) cream-yellow, the brown pattern more or less ocelliform, arranged in five more or less complete parallel-sided fasciae, the supernumerary crossvein in cell *1st A* lying in the first ground interspace. Male hypopygium (fig. 26) with outer angle of the ventral dististyle strongly produced.

The only regional crane-fly that at all resembles the present fly is *Limonia* (*Neolimnobia*) *diva* (Schiner), having banded legs and wings but differently patterned.

SAINT ANDREW: Cinchona, June 1889 (W. Fawcett), type; August 2, 1923 (Gowdey); October 21–23, 1954 (Farr). SAINT THOMAS: Whitfield Hall, 4100 feet, on window December 27, 1954 (G. R. Proctor).

16 LIMONIA (RHIPIDIA) BELLINGERI sp. n. Figs. 21, 22.

SIZE relatively large (wing of female 8.5 mm); antennae uniformly black; mesonotum gray, patterned with brown, the praescutum darkened centrally and on lateral borders; pleura brown with a longitudinal black stripe; halteres dark brown; femora light brown, tibiae and tarsi pale yellow, outer two segments dark brown; wings whitish yellow, costal border pale yellow, a restricted dark pattern that does not include cell *C;* abdominal tergites light brown, sternites light yellow, pleural membrane dark brown; cerci conspicuously bidentate.

Female. – Length about 8.5 mm; wing 8.5 mm; antenna about 1.5 mm.

Rostrum and palpi black; mouthparts brown, slightly produced beyond the insertion of the palpi. Antennae of female (fig. 22) black, including the flagellar pedicels; all flagellar segments excepting the last more or less produced, the first and penultimate least developed, the maximum at near midlength of the organ, the spurs stout, nearly as long as the segment. Head dark brownish gray, with long black verticils; anterior vertex very narrow, elevated, less than the width of two rows of ommatidia.

Prothorax small, light yellowish brown, darker laterally. Mesonotum low, praescutum produced cephalad over the pronotum; praescutum infuscated on anterior half and broadly on sides, with a further brown central spot before suture, the extreme cephalic border blackened; praescutum of type badly discolored, yellow, probably light gray pruinose like the more posterior sclerites; scutum and scutellum yellow, light gray pruinose, scutal lobes dark brown, postnotum darkened, pruinose. Pleura brown, with a conspicuous black longitudinal stripe extending from the region of the anterior spiracle to base of abdomen; ventral sternopleurite gray dorsally with a shorter dark brown line. Halteres dark brown. Legs with coxae and trochanters yellow, mid-coxae restrictedly darkened at base; femora light brown, the extreme tip vaguely paler; tibiae and tarsi pale yellow, outer two tarsal segments dark brown. Wings (fig. 21) with the ground whitish yellow, costal border pale yellow; cell *Sc* with four dark brown dashes that do not include cell *C*, the two basal marks larger; stigma oval, pale brown, outer end over the fork of *R* darker; narrow slightly darker brown seams over origin of *Rs*, cord and outer end of cell *1st* M_2; still paler brown washes in centers of cells R_2 through M_4, the wing apex pale; other clouds in cells *R*, *M* and marginally in the Anal cells; veins pale brown, yellow in the subcostal interspaces, including all of vein *C*. Venation: *Sc* long, Sc_1 ending about opposite two-thirds *Rs*, Sc_2 near its tip; *Rs* long, angulated at origin; R_{2+3} about one-half *Rs;* cell *1st* M_2 narrow, its inner end strongly arcuated; *m-cu* about one-fourth to one-third its length before fork of *M*.

Abdominal tergites light brown, the first yellowed; sternites clear light yellow, pleural membrane dark brown. Ovipositor with cerci (fig. 21, *c*) stout, conspicuously bidentate at outer end, the broader subterminal tooth triangular, dorsal in position. The cercus of *Limonia* (*Rhipidia*) *subcostalis* is shown for comparison (fig. 30, *c*).

Holotype, female, SAINT ANDREW: Vicinity of Morces Gap, 5000 feet, November 24, 1954 (Bellinger).

The species is dedicated to the collector, Dr. Peter F. Bellinger, of the San Fernando Valley State College, California. In its general appearance it suggests flies such as *Limonia* (*Rhipidia*) *bryanti* (Johnson) or *L.* (*R.*) *domestica* (Osten Sacken). It is quite distinct from other regional members of the subgenus, especially in the bidentate cerci of the ovipositor, all other species having these elongate, slender and simple.

17 LIMONIA (RHIPIDIA) DOMESTICA (Osten Sacken)

Rhipidia domestica Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia, 1859: 208; 1859.

Rhipidia domestica Alexander; Bull. Brooklyn Ent. Soc., 8: 15–16, fig. 9 (wing); 1912.

Rhipidia domestica Alexander; Cornell Univ., Mem. 25, 893, fig. 40 (wing); 1919.

Limonia (*Rhipidia*) *domestica* Alexander; Diptera of Connecticut, Conn. Geol. Nat. Hist. Surv. Bull., 64: 328, fig. 37 c (♂ hyp.); 1942.

Limonia (*Rhipidia*) *domestica* has a vast distribution in the New World, ranging from New York and southern New England, southward to Brazil and Bolivia, being known from all islands of the Greater Antilles.

CLARENDON: Frankfield, January 6–7, 1955 (Farr). One mile north of Milk River, Bath, sea level, December 27, 1954 (Farr). MANCHESTER: Balaclava (Cockerell), *vide* Alexander, 1912: 16. SAINT ANDREW: Beverly Hills, December 13, 1954, April 25, 1955 (Bengry). Cross Roads, October 28, 1954 (Farr). Golden Spring, March 20, 1954 (Lewis). Hermitage Reservoir, 1750 feet, August 8, 1954 (Farr). Long Mountain House, June 12–30, 1953 (Bellinger). Mona, May 8, 1954 (Farr). Swallowfield, March 25, 1954, April 13, 1954, May 9, 1954 (Farr). Upper Mountain View, December 15, 1952 (Lewis); March 22, October 31, December 6, 1954 (Lewis). SAINT ANN: St. Ann's Bay, June 22, 1954, March 19, 1955 (Farr). SAINT CATHERINE: One-half mile south of flat bridge over Rio Cobre, April 17, 1954 (Farr). SAINT THOMAS: Bath, January 13, 1955 (Farr). Corn Puss Gap, 2200 feet, July 23, 1954 (Farr). Whitfield Hall, 4100 feet, June 9, 1954 (Farr). TRELAWNY: Windsor Estate, 500 feet, August 21–22, 1955 (Farr). WESTMORELAND: White House Bay, July 17, 1954 (Farr).

18 LIMONIA (RHIPIDIA) LUQUILLOENSIS Alexander Fig. 27.

Limonia (*Rhipidia*) *luquilloensis* Alexander; Rev. de Entomologia, 21: 207–208, fig. 34 (♂ hyp.); 1950.

The types were from El Yunque, Luquillo National Forest, Puerto Rico, 2000 feet, collected in November 1943 by Pratt and Maldonado. Male hypopygium (fig. 27).

PORTLAND: Ecclesdown, January 21, 1961 (Coher). Two miles southwest of Ecclesdown, about 2200 feet, August 24, 1954 (Farr). SAINT THOMAS: Corn Puss Gap, May 8, 1955 (Farr).

19 LIMONIA (RHIPIDIA) SCHWARZI (Alexander)

Rhipidia (*Arhipidia*) *schwarzi* Alexander; Bull. Brooklyn Ent. Soc., 13: 13–14, fig. e (wing); 1912.

Limonia (*Rhipidia*) *schwarzi* Alexander; Rev. de Entomologia, 21: 200; 1950.

The types were from Santo Domingo and Cuba; from the mainland ranges from southern Florida to Venezuela. The only other regional member of the subgenus having subpectinate antennae, with the two subterminal segments yellowed, is *Limonia* (*Rhipidia*) *domestica* (Osten Sacken) which is readily told by the coloration of the mesonotum and the absence of spots and dots in the wing cells.

MANCHESTER: Mandeville, 2130 feet, January 6–7, 1920. SAINT ANDREW: Cinchona, October 21, 1954 (Farr). Cross Roads, November 26, 1954 (Farr). Port Royal Mountains at Bellevue, 3750 feet, April 23–24, 1954 (Farr). Swallowfield, April 12, 1954 (Farr). Upper Mountain View, October 31, 1954 (Lewis). SAINT THOMAS: About three miles southwest of Ecclesdown, 1500 feet, June 15, 1955 (Farr). WESTMORELAND: White House Inn, at sea level, July 17, 1954 (Farr).

20 LIMONIA (RHIPIDIA) SUBCOSTALIS (Alexander) Figs. 23, 28, 30.

Rhipidia (*Rhipidia*) *subcostalis* Alexander; Proc. U.S. Nat. Mus., 60, art. 25: 3–4; 1922.

Rhipidia (*Rhipidia*) *subcostalis* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 21–22; 1928.

The type, a male with broken antennae, was from Costa Rica. Later it was recorded from Jamaica, based on the female sex. The material now available shows the male sex to have single branches on the antennal flagellum and thus would be referrable to *Monorhipidia* Alexander, if further subdivision of the subgenus was considered advisable. Known also from Cuba.

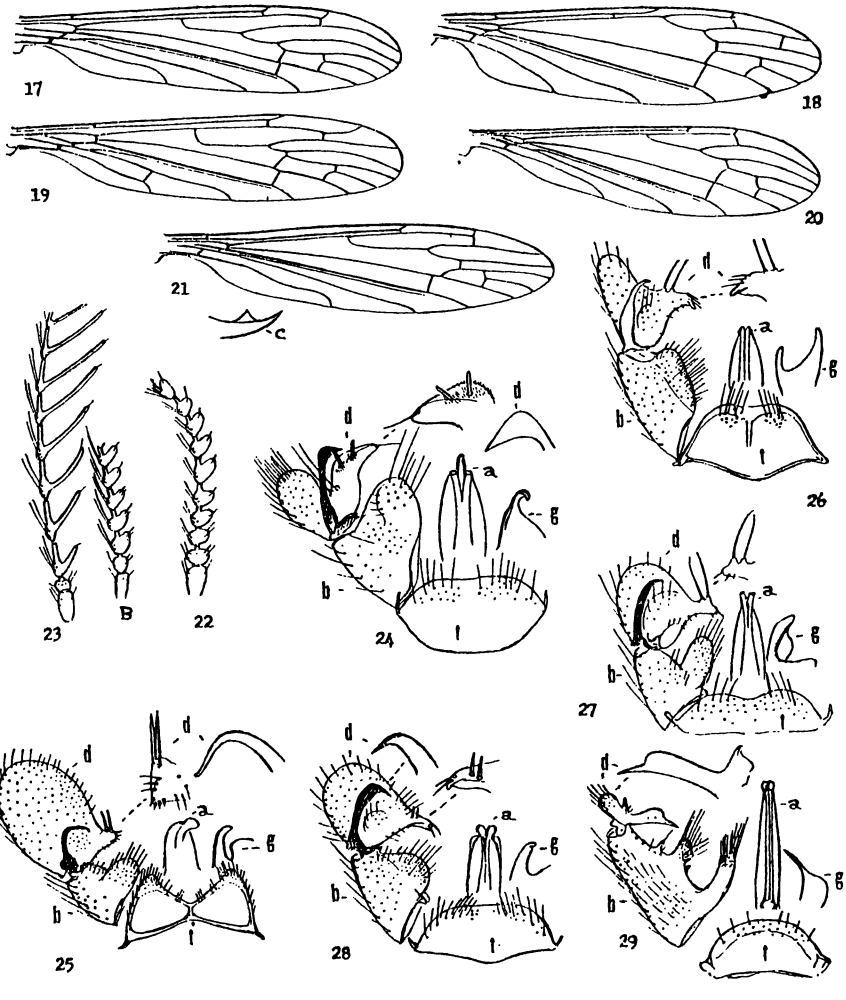

Fig. 17. *Limonia* (*Neolimonia*) *jamaicensis* Alexander; venation. – Fig. 18. *Limonia* (*Neolimnobia*) *diva* (Schiner); venation. – Fig. 19. *Limonia* (*Discobola*) *gowdeyi* Alexander; venation. – Fig. 20. *Limonia* (*Caenoglochina*) *basistylata* Alexander; venation. – Fig. 21. *Limonia* (*Rhipidia*) *bellingeri* sp. n.; venation, ovipositor, cercus. – Fig. 22. *Limonia* (*Rhipidia*) *bellingeri* sp. n.; antenna of female. – Fig. 23. *Limonia* (*Rhipidia*) *subcostalis* (Alexander); antennae, male and female. – Fig. 24. *Limonia* (*Neolimonia*) *jamaicensis* Alexander; male hypopygium. – Fig. 25. *Limonia* (*Neolimnobia*) *diva* (Schiner); male hypopygium. – Fig. 26. *Limonia* (*Discobola*) *gowdeyi* Alexander; male hypopygium. – Fig. 27. *Limonia* (*Rhipidia*) *luquilloensis* Alexander; male hypopygium. – Fig. 28. *Limonia* (*Rhipidia*) *subcostalis* (Alexander); male hypopygium. – Fig. 29. *Limonia* (*Caenoglochina*) *basistylata* Alexander; male hypopygium.

(Symbols: *a*, aedeagus; *b*, basistyle; *c*, cercus; *d*, dististyle; *g*, gonapophysis; *t*, tergite)

Male. – Length about 6–7 mm; wing 7.5–8 mm; antenna about 3–3.1 mm.

Female. – Length about 5.5–5.7 mm; wing 6.5–8 mm.

Antenna of male (fig. 23) elongate, black throughout; flagellar segments very long-unipectinate, the longest branches about twice the segment, all but the terminal segment branched; in the female (fig. 23, B) flagellum subpectinate, the apical pedicels of the flagellar segments abrupt. Thoracic dorsum pinkish gray, conspicuously patterned with dark brown, including a broad central stripe that is variegated with reddish brown on central half, with further darkened areas on scutal lobes, mediotergite and less evidently on scutellum; pleura yellow, with two very conspicuous black longitudinal stripes, the dorsal line broader; halteres black, only the base of stem yellowed. Legs with fore and middle femora blackened, posterior pair paler; tarsi paling to obscure yellow, more brightened and conspicuous on segments two to four of posterior legs. Wings (fig. 30) darkened, variegated by still darker costal areas that exceed the pale interspaces in size; whitened areas include pre- and post-stigmal brightenings, the wing tip, axillary area in both Anal cells, and a spot in cell *1st A* adjoining vein *2nd A*. Male hypopygium (fig. 28) with the two rostral spines, *d*, short. Ovipositor with cercus (fig. 30, c) as shown (compare with *bellingeri*, fig. 21, c).

Limonia (*Rhipidia*) *unipectinata* (Williston, 1896) was described from a single male, taken in Saint Vincent, Lesser Antilles, and still very insufficiently known. In the coloration of the body, legs and wings it agrees well with the present fly, differing evidently in the antennal structure, there being eight unipectinate flagellar segments, the longest branch, on segment seven, about one-half longer than the segment; outer four flagellar segments simple.

PORTLAND: Ecclesdown, January 21, 1961 (Coher). SAINT ANDREW: Cinchona, July 2, August 1, 1923 (Gowdey); October 21–23, 1954 (Farr). SAINT THOMAS: Whitfield Hall, 4100 feet, June 9–12, 1954 (Farr).

21 LIMONIA (DICRANOMYIA) BREVIVENA TORRIDA Alexander

Limonia (*Dicranomyia*) *brevivena torrida* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 358; 1932.

The types were from Vieques Island, Puerto Rico, taken in September 1931 by Mortimer D. Leonard.

CLARENDON: One mile north of Milk River, Bath, sea level, December 22, 1954 (Farr). SAINT ANDREW: Mona, May 8, 1954 (Farr). SAINT CATHERINE: Along Rio Cobre, about one-half mile south of flat bridge, about 300 feet, April 17, 1954 (Farr).

22 LIMONIA (DICRANOMYIA) COHERI sp. n. Figs. 31, 36.

SIZE relatively small (wing of male to 6 mm); mesothorax yellowed, antennae black throughout; wings subhyaline, stigma pale brown, Sc_1 longer than *Rs;* male hypopygium with ventromesal lobe of basistyle large, unequally bilobed, the apical lobe extended into a fingerlike rod; ventral dististyle with rostral prolongation simple, with two long straight spines on lower margin near base; gonapophysis with mesal-apical lobe short, curved to an acute point.

Male. – Length about 4.5–5 mm; wing 5–6 mm; antenna about 1–1.2 mm.

Female. – Length about 6.5–7 mm; wing 6.5–7.5 mm.

Rostrum and palpi black. Antennae black throughout; basal flagellar segments suboval, the outer ones more elongate, subequal to the longest verticils; terminal segment a little exceeding the penultimate. Head dark gray; eyes large, anterior vertex reduced to a linear strip.

Pronotum brownish yellow, paler laterally; setae of the large scutum relatively long, erect. Mesonotum yellowed; praescutum more brownish yellow medially in front; praescutal vestiture very short and sparse. Pleura yellow. Halteres relatively long, stem yellow, knob dark brown. Legs with coxae and trochanters yellow; remainder of legs medium brown throughout; claws nearly straight; spines unusually well-developed, occupying almost the proximal half of claw, including a strong outer spine and about four small slender points that are progressively smaller toward the base. Wings (fig. 31) subhyaline to very faintly tinted, stigma oval, pale brown; veins brown. Macrotrichia on longitudinal veins beyond cord, including also the outer third of *M*, and more restrictedly on *2nd A* and basal section of Cu_1. Venation: *Sc* short, Sc_1 ending a little before origin of *Rs*, Sc_2 far retracted, Sc_1 slightly exceeding *Rs;* cell *1st* M_2 subequal in length to vein M_4; *m-cu* close to fork of *M*.

Abdominal tergites medium brown, basal sternites more yellowed. Male hypopygium (fig. 36) with tergite, *t*, transverse, thickened margins very narrow and inconspicuous; posterior border very gently emarginate to form two low lobes that are provided with numerous setae. Basistyle, *b*, smaller than the ventral dististyle; ventromesal lobe large, unequally bilobed, the apical part extended into a slender fingerlike rod provided with several very long black setae; second lobe more caudad, setae numerous, shorter, brown. Dorsal dististyle, *d*, gently curved to the long acute terminal spine; ventral style fleshy, setae relatively small and inconspicuous; rostral prolongation flattened, spines two, on lower margin near base, directed outwardly, close together, relatively long and straight. Gonapophysis, *g*, with mesal-apical lobe short, curved laterad into an acute point.

Holotype, male, PORTLAND: Ecclesdown, 2000 feet, January 21, 1961 (Coher). *Allotype*, female, SAINT THOMAS: Portland Gap, 5500 feet, June 11, 1954 (Farr). *Paratopotypes*, 2 males, 2 females, with type. *Paratypes*, 2 males, 1 female, with the allotype, August 29, 1954, January 15, 1955 (Farr). SAINT ANDREW: One mile south

of Morces Gap, 5000 feet, October 22, 1954 (Farr); Second Breakfast Spring, about 2800 feet, September 1, 1954 (Farr). SAINT THOMAS: 3 females, East slope of John Crow Mts., two miles southwest of Ecclesdown, January 14–15, 1955 (Farr); 1 male, Corn Puss Gap, 2200 feet, July 24, 1954 (Farr).

Limonia (*Dicranomyia*) *coheri* is dedicated to the collector, student of the Nematocerous Diptera, to whom I am indebted for many new Tipulidae from various parts of the world. Among the regional species it is most similar to *L.* (*D.*) *divisa* Alexander, from which it differs evidently in the structure of the male hypopygium. Other related species include the Neotropical *L.* (*D.*) *apposita* Alexander and, more distantly, the Nearctic *L.* (*D.*) *particeps* (Doane) and *L.* (*D.*) *sphagnicola* (Alexander).

23 LIMONIA (DICRANOMYIA) DISTANS (Osten Sacken)

Dicranomyia distans Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 211; 1859.

Limonia (*Dicranomyia*) *distans* Rogers; Ecol. Mon. 3: 51 (larval habits); 1933.

Limonia (*Dicranomyia*) *distans* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 358–359, fig. 7 (♂ hyp.); 1932.

Limonia (*Dicranomyia*) *distans* Alexander; Diptera of Connecticut, Conn. Geol. Nat. Hist. Surv. Bull., 64: 315, fig. 35 c (♂ hyp.); 1942.

The types were from Florida, collected by Osten Sacken in March 1858. Very widely distributed throughout the New World. Also known from Puerto Rico.
WESTMORELAND: White House Inn, at sea-level, July 17–20, 1954 (Farr).

24 LIMONIA (DICRANOMYIA) DIVISA Alexander

Dicranomyia diversa Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 212 (name preoccupied); 1859.

Limonia (*Dicranomyia*) *divisa* Alexander; Philippine Jour. Sci., 40: 247; 1929.

Limonia (*Dicranomyia*) *divisa* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 359, fig. 8 (♂ hyp.); 1932.

Limonia (*Dicranomyia*) *divisa* Alexander; Diptera of Connecticut, Conn. Geol.Nat. Hist. Surv. Bull., 64: 315, fig. 35 d (♂ hyp.); 1942.

Eastern North America, recurring in the mountains of the Greater Antilles (Hispaniola, Puerto Rico).
PORTLAND: Hardwar Gap, December 5, 1954 (Farr). SAINT ANDREW: 17 mile post on Newcastle Road, May 15, 1954 (Farr).

25 LIMONIA (DICRANOMYIA) FARRI sp. n. Fig. 32.

ALLIED to *reticulata;* mesonotum variegated with cinnamon brown, darker brown and pruinose areas; pleura dark brown, conspicuously striped longitudinally with silvery; knobs of halteres blackened; legs yellow, femora with a very broad black subterminal ring; wings dark brown, conspicuously patterned with major white spots and more obscure yellow areas; cell and vein *Sc* with a series of about 16 brown marks that are slightly narrower than the interspaces; cell *1st* M_2 large, *m-cu* before fork of *M*.

Female. – Length about 7 mm; wing 6.8–7 mm.

Rostrum black, dusted with gray; palpi black. Antennae short; scape brown, pedicel and first flagellar segment obscure yellow, remainder of organ brownish black; basal flagellar segments short-oval, the outer ones slightly longer, segments about as long as the verticils. Head behind variegated with gray and dark brown, more cinnamon brown in front; anterior vertex pale yellow pollinose, very broad, about four times the diameter of the scape.

Pronotum brownish yellow. Mesonotal praescutum chiefly cinnamon brown, including the broad lateral borders and much of the disk, interspaces gray pruinose, central area bordered by still darker brown; scutal lobes dark brown, central area and the scutellum yellowish gray; mediotergite chiefly dark brown, lateral borders and pleurotergite lighter brown; notal vestiture sparse, very short on praescutal interspaces. Pleura dark brown, with a broad silvery longitudinal stripe, extending from behind the fore coxae across the sternopleurite, ending on the pleurotergite; meron and bases of coxae similarly light gray pruinose, dorsopleural region more yellowed. Halteres short, stem yellow, the large knob blackened. Legs with coxae blackened, pruinose as described; trochanters yellow; femora yellow, with a very broad black subterminal ring, approximately three times the yellow tip; remainder of legs yellow, terminal three tarsal segments black. Wings (fig. 32) chiefly dark brown, conspicuously patterned with major white spots and more obscure yellow areas; prearcular and costal fields more yellowed, cell *C* with a series of about 16 brown marks that are slightly narrower than the interspaces, this alternating pattern including also the costal vein; the most conspicuous white areas are circular spots in cell *R* and both Anal cells, with an almost unbroken band crossing the wing before the cord; further such areas in outer radial field in cells R_2 and R_3 and more obscurely in cells *1st* M_2 and bases of R_5 and *2nd* M_2; the remaining darkened ground is almost unbroken on anterior half of wing, on posterior half variegated by vague more yellowed areas that alternate with dusky spots and clouds; veins dark. Venation: *Sc* moderately long, Sc_1 ending beyond one-third the length of *Rs*, Sc_2 near its tip; *Rs* long-spurred at origin; cell *1st* M_2 large, longer than any of the veins beyond it; *m-cu* before fork of *M*, a little longer than distal section of *Cu*.

Abdomen dark brown, proximal tergites paler brown. Ovipositor with both cerci and hypovalvae elongate, the former very slender.

Holotype, female, SAINT ANDREW: Cinchona, October 22, 1954 (Farr). *Paratype*, female, PORTLAND: Hardwar Gap, 4300 feet, March 7, 1954 (Farr).

I take great pleasure in dedicating this attractive fly to Dr. Farr. The closest ally is *Limonia (Dicranomyia) subreticulata* Alexander, of Ecuador, which differs conspicuously in the wing and leg patterns. Other related species in Tropical America include *L. (D.) ariadne* Alexander, *L. (D.) atritarsis* Alexander, *L. (D.) calliergon* Alexander, *L. (D.) elegantula* (Alexander), *L. (D.) jujuyensis* (Alexander), *L. (D.) pampoecila* (Alexander), *L. (D.) perpuncticosta* Alexander, *L. (D.) reticulata* (Alexander), and some others. Certain of these species have vein *Sc* short, ending about opposite the origin of *Rs* while others have this well beyond this point.

26 LIMONIA (DICRANOMYIA) LEWISI sp. n. Figs. 33, 37.

GENERAL coloration of thorax dark brown; antennae, halteres and legs blackened; wings strongly darkened; male hypopygium with the ventral dististyle very large and fleshy, its area nearly five times that of the basistyle; gonapophysis with mesal-apical lobe slender, curved gently to the acute tip.

Male. – Length about 6.8–7 mm; wing 7–7.5 mm; antenna about 1.2–1.3 mm.

Rostrum obscure yellow at base, blackened outwardly, palpi black. Antennae black throughout; flagellar segments suboval, longer than the weak verticils; terminal segment about one-third longer than the penultimate. Head blackened, sparsely pruinose; anterior vertex narrow, about equal to the diameter of the scape.

Cervical region and prothorax brownish black, the scutellum more testaceous yellow; scutum relatively long, with erect black setae along posterior border. Mesonotum chiefly dark brown, the humeral and lateral regions of praescutum paler; median area of scutum pale; pleura paler brown. Halteres brownish black. Legs with coxae brownish black; trochanters strongly tinged with greenish; remainder of legs brown, femoral tips not brightened; claws with five teeth, the outermost large, the others progressively smaller basad, apex of claw straight. Wings (fig. 33) strongly infuscated; stigma oval, dark brown; veins brown. Longitudinal veins beyond cord with macrotrichia, including also small weak trichia on outer ends of veins *M* and *2nd A*. Venation: Sc_1 ending nearly opposite origin of *Rs*, Sc_2 retracted, Sc_1 alone about one-half *Rs;* cell *1st* M_2 long, subequal to distal section of M_{1+2}; *m-cu* shortly beyond fork of *M;* tips of all outer veins pale to subevanescent.

Abdominal tergites dark brown, including the very large hypopygium, basal sternites paler. Male hypopygium (fig. 37) with the tergite, *t*, relatively small, transversely rectangular; posterior border with a narrow emargination, the lobes very broad, nearly truncate, each with numerous long setae. Proctiger semioval, with stiff setae over the whole extent. Basistyle, *b*, small, ventromesal lobe oval, with long setae. Dorsal dististyle, *d*, a small curved hook, gradually narrowed into a long straight spine, the tip subacute; ventral style very large, its area nearly five

times that of the basistyle, setae numerous but small; rostral prolongation short, the two long acute spines placed far out before the obtuse tip. Gonapophysis, *g*, with mesal-apical lobe slender, gently curved to the acute tip. Aedeagus relatively narrow, the genital tubes slender, approximated.

Holotype, male, PORTLAND: Hardwar Gap, December 5, 1954 (Farr). *Paratopotype*, male. *Paratype*, a damaged male, SAINT THOMAS: Gully one-half mile west of Whitfield Hall, 4200 feet, June 10, 1954 (Farr).

I am pleased to dedicate this fly to Director C. Bernard Lewis, of the Institute of Jamaica, who has aided materially in the work of making known the crane-flies of the island. Other species that have the legs and wings uniformly darkened and with the ventral dististyle of the hypopygium greatly enlarged are distinguished by their greater size and in the details of structure of the male hypopygium. Such species include *Limonia* (*Dicranomyia*) *dampfi* Alexander, of Mexico; *L.* (*D.*) *indefensa* Alexander, of Haiti, *L.* (*D.*) *itatiayana* Alexander, of southeastern Brazil, *L.* (*D.*) *mulsa* Alexander, of Peru and Bolivia, and some others.

27 LIMONIA (DICRANOMYIA) RETICULATA (Alexander) Fig. 38.

Furcomyia reticulata Alexander; Canad. Ent., 44: 334–335, fig. p (wing); 1912.
Limonia (*Dicranomyia*) *reticulata* Alexander; Jour. Agr. Univ. Puerto Rico, 21: 525; 1937.

The types were from Pinar del Rio, Cuba. Additional material from Cuba and the available local specimens are darker than the types but unquestionably seem to be conspecific.

The male hypopygium had not been described or illustrated. Ninth tergite, fig. 38, *t*, transverse, posterior border shallowly emarginate, the lobes broadly rounded. Dorsal dististyle, *d*, a gently curved rod, narrowed to the acute tip; ventral style about two-thirds the size of the basistyle; rostral prolongation conspicuous, spines very unequal, the outer one largest, from a strong basal tubercle, the smaller inner spine about one-half as long, straight, placed at base of the tubercle.

SAINT ANDREW: Bellevue, Port Royal Mountains, 3750 feet, April 24, 1954 (Farr).
SAINT THOMAS: Whitfield Hall, 4100 feet, June 10, 1954 (Farr).

28 LIMONIA (GERANOMYIA) AMBLYTYLOS sp. n. Figs. 34, 39.

MESONOTAL praescutum appearing almost unicolorous, the three broad stripes only slightly differentiated; femora brownish black, bases more obscure yellow; wings weakly darkened, stigma oval, dark brown, conspicuous, *Sc* long, Sc_1 ending about opposite midlength of *Rs;* male hypopygium with rostral prolongation of the

ventral dististyle very short and obtuse, spines two, longer than the prolongation, gonapophysis with mesal-apical lobe pale, tip acute.

Male. – Length, excluding rostrum, about 6 mm; wing 6.5 mm.

Mouthparts broken, with no vestige of the rostrum. Antennae with scape and pedicel black, flagellum broken. Head dark brown; anterior vertex narrower than the scape.

Pronotum testaceous brown. Mesonotal praescutum appearing almost uniformly obscure yellow, the three usual stripes only vaguely differentiated from the ground, all stripes broad; scutal lobes concolorous with the praescutal stripes, scutellum paler, brownish yellow; mediotergite faintly darkened, yellow on sides. Pleura testaceous yellow, the anepisternum slightly darker. Halteres blackened, base of stem narrowly yellowed. Legs with coxae and trochanters yellow; femora brownish black, the bases more obscure yellow; tibiae brownish yellow, tips narrowly darkened; tarsi black; claws apparently simple. Wings (fig. 34) narrow, weakly darkened, stigma oval, dark brown, conspicuous; costal border not different in color; veins brown. Longitudinal veins beyond general level of origin of *Rs* with long coarse macrotrichia. Venation: *Sc* long, Sc_1 ending opposite or just beyond midlength of the straight *Rs*, Sc_2 near its tip, atrophied in one wing of type; free tip of Sc_2 in transverse alignment with R_2; *m-cu* shortly before fork of *M;* cell *2nd A* long and narrow.

Abdomen brown. Male hypopygium (fig. 39) badly broken, with only certain parts preserved, these including the critical ventral dististyle. Dorsal dististyle, *d*, slender, the long tip acute; ventral style large and fleshy, dark-colored, its area about four times that of the basistyle; rostral prolongation short and very obtuse, the two spines longer than the entire prolongation; spines subequal in length, placed close together, the outer from a low basal tubercle, inner spine sessile. Gonapophysis, *g*, with mesal-apical lobe pale, unusually narrow, especially outwardly, the acute tip blackened.

Holotype, a broken male, PORTLAND: Two miles southwest of Ecclesdown, 2200 feet, August 24, 1954 (Farr).

In its general appearance this fly is most similar to *Limonia* (*Geranomyia*) *myersiana* Alexander, differing in the entirely distinct male hypopygium. In this respect it bears some resemblance to *L.* (*G.*) *brevispinula* Alexander, which differs in the leg coloration and in the details of the hypopygium.

29 LIMONIA (GERANOMYIA) ANISACANTHA sp. n. Figs. 35, 40.

GENERAL coloration of mesonotum brownish yellow, praescutum with five brown stripes; femora yellow with a narrow brown subterminal ring; wings brownish yellow, restrictedly patterned with brown, without marginal darkenings at ends of veins; male hypopygium with rostral prolongation of the ventral dististyle very short and stout, the two spines very unequal, the major one short and stout arising

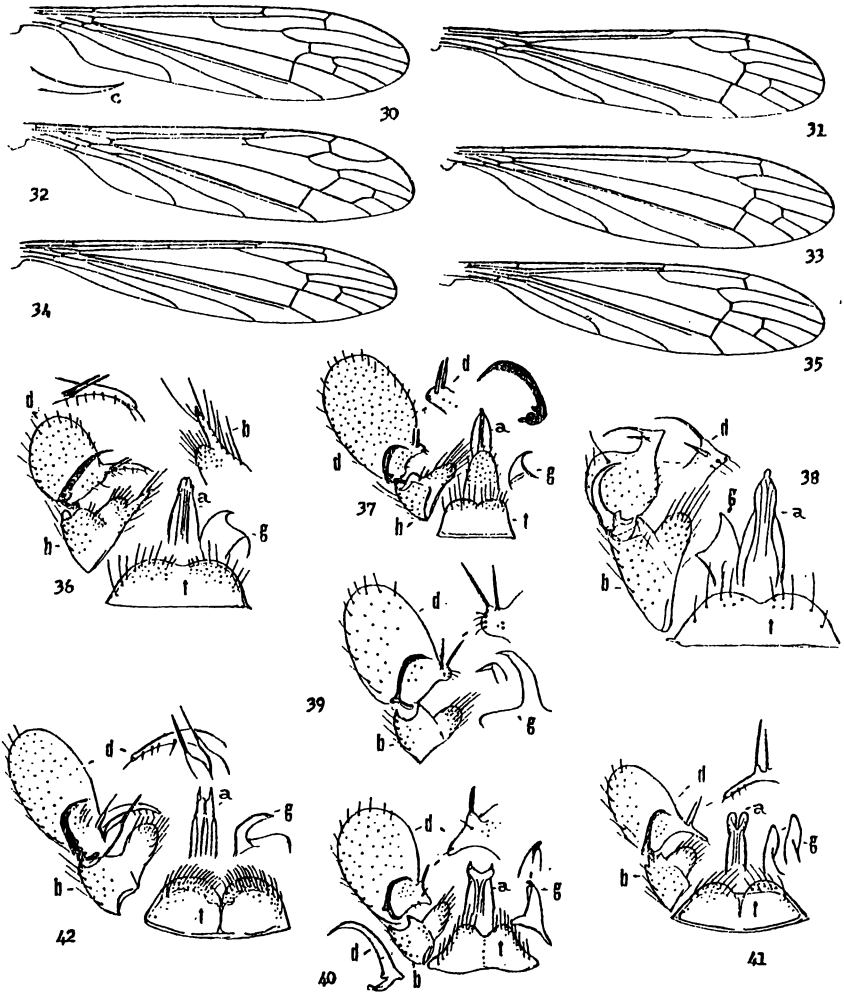

Fig. 30. *Limonia* (*Rhipidia*) *subcostalis* (Alexander); venation, ovipositor, cercus. – Fig. 31. *Limonia* (*Dicranomyia*) *coheri* sp. n.; venation. – Fig. 32. *Limonia* (*Dicranomyia*) *farri* sp. n.; venation. – Fig. 33. *Limonia* (*Dicranomyia*) *lewisi* sp. n.; venation. – Fig. 34. *Limonia* (*Geranomyia*) *amblytylos* sp. n.; venation. – Fig. 35. *Limonia* (*Geranomyia*) *anisacantha* sp. n.; venation. – Fig. 36. *Limonia* (*Dicranomyia*) *coheri* sp. n.; male hypopygium. – Fig. 37. *Limonia* (*Dicranomyia*) *lewisi* sp. n.; male hypopygium. – Fig. 38. *Limonia* (*Dicranomyia*) *reticulata* (Alexander); male hypopygium. – Fig. 39. *Limonia* (*Geranomyia*) *amblytylos* sp. n.; male hypopygium. – Fig. 40. *Limonia* (*Geranomyia*) *anisacantha* sp. n.; male hypopygium. – Fig. 41. *Limonia* (*Geranomyia*) *cinereinota* (Alexander); male hypopygium. – Fig. 42. *Limonia* (*Geranomyia*) *civica* Alexander; male hypopygium.

(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *t*, tergite)

from summit of a basal tubercle, second spine a microscopic setoid bristle at base of this tubercle; lobes of aedeagus extended into pale acute spines.

Male. – Length, excluding rostrum, about 5–5.3 mm; wing 6.5–7 mm; rostrum alone about 2.5–2.7 mm.

Female. Length, excluding rostrum, about 5.5–6.3 mm; wing 5.8–7 mm; rostrum alone about 2.3–2.7 mm.

Rostrum and antennae black. Head black, dark gray pruinose, posterior vertex with a central light gray line; anterior vertex very narrow, about one-fourth the diameter of the scape.

Mesonotal praescutum brownish yellow, with five brown stripes, including three on disk, broader than the interspaces, the median vitta darker and a trifle narrower; lateral darkening short, paler brown; intermediate praescutal stripe crossing the suture over the mesal edge of scutal lobe; scutellum pale brown, the posterior border and a vague central line paler. Pleura almost uniformly brownish yellow. Knobs of halteres brown. Femora yellow, with a narrow clearly defined brown subterminal ring, subequal to the yellow apex; tibiae and tarsi more obscure yellow. Wings (fig. 35) weakly brownish yellow, prearcular and costal fields light yellow; a restricted brown pattern, besides the small stigma, including darkenings over the supernumerary crossvein in cell *Sc* and very narrowly over the cord and outer end of cell *1st* M_2; a common darkened area over origin of *Rs* and tip of *Sc;* no distinct darkenings at ends of longitudinal veins or in arcular region; a vague darkened streak in center of cell *R;* veins light brown, more yellowed in the basal and costal fields. Venation: *Sc* short, Sc_1 ending just beyond origin of *Rs*, the latter slightly angulated near origin; *m-cu* close to the fork of *M*.

Abdomen brown. Male hypopygium (fig. 40) with the tergite, *t*, transverse, narrowed outwardly, posterior border with a deep U-shaped emargination, the lobes slightly broader in outline, with strong marginal and apical setae; lateral margins of tergal lobes gently sinuous. Basistyle, *b*, with ventromesal lobe about one-third the body of the style. Dorsal dististyle, *d*, subangular, narrowed to the acute slightly decurved tip; ventral style large, its area about four times that of the basistyle, setae small; rostral prolongation short and stout, with a single well-developed spine from a low basal tubercle; second rostral spine reduced to a small setoid bristle placed on face of style at base of tubercle. Gonapophysis, *g*, pale, mesal-apical lobe erect, narrowed to a point, on the concave margin subtended by a paler obtuse flange. Aedeagus terminating in two divergent lobes, their apices produced into pale membranous points, as in many other members of the subgenus.

Holotype, male, SAINT ANDREW: Bellevue, Port Royal Mountains, 3750 feet, April 23, 1954 (Farr). *Allotopotype*, female, April 25, 1954 (Farr). *Paratopotypes*, 1 male, 1 female, April 24, 1954 (Farr). *Paratypes*, 1 male, 1 female, SAINT ANDREW: 16-mile post on Newcastle Road, May 16, June 27, 1954 (Farr). SAINT THOMAS: 2 females, Bath, January 13, 1955 (Farr).

Among the regional species, *Limonia* (*Geranomyia*) *anisacantha* is most similar to

L. (*G.*) *civica* Alexander, differing in the pattern of the legs and wings and especially in the very different male hypopygium, particularly the rostral prolongation of the ventral dististyle and its armature.

30 LIMONIA (GERANOMYIA) CINEREINOTA (Alexander) Fig. 41.

Geranomyia cinereinota Alexander; Ent. News, 24: 407–408, pl. 14, fig. 4 (ven.); 1913.

Limonia (*Geranomyia*) *cinereinota* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 362; 1932.

Limonia (*Geranomyia*) *cinereinota* Alexander; Rev. Ecuat. Ent. Par. 1: 89–90, fig. 4 (♂ hyp.); 1953.

Geranomyia (*Geranomyia*) *domingensis* Alexander; Proc. Acad. Nat. Sci., 1916: 490–491; 1916.

The type of *cinereinota* was from Bolivia, taken by Fassl. Widespread in Tropical America, including Hispaniola (type of *domingensis*) and Puerto Rico.

The characteristic male hypopygium is shown (fig. 41).

CLARENDON: Frankfield, January 7, 1955 (Farr). SAINT ANDREW: One-half mile east of Chestervale, on trail to Morces Gap, about 3000 feet, May 17, 1954 (Farr). Trail between Clydesdale and Morces Gap, 4000 feet, May 17, 1954 (Farr). Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr & Bengry). Newcastle Road at about the 17-mile post, June 5, 1954 (Farr). Second Breakfast Spring, about 2800 feet, August 26, 1954 (Farr). SAINT CATHERINE: One mile east of Zion Hill, March 20–21, August 8, 1954 (Farr). SAINT MARY: Grandy Hole, September 12, 1954 (Farr). SAINT THOMAS: Abbey Green, 4100 feet, June 10, 1954 (Farr). Bath, January 13–16, 1955 (Farr). Corn Puss Gap, July 23, 1954 (Farr). East slope of John Crow Mts., two miles southwest of Ecclesdown, about 2000 feet, January 14, 1955 (Farr). Six miles northwest of Wheelerfield, about 2000 feet, August 22, 1954 (Farr). TRELAWNY: Crown Lands, Wilson's Run (Cockpit Country), about 2000 feet, September 27, 1954 (Farr).

31 LIMONIA (GERANOMYIA) CIVICA Alexander Fig. 42.

Limonia (*Geranomyia*) *civica* Alexander; Ann. Ent. Soc. America, 32: 70–71; 1939.

The type was from Chiapas, Mexico, collected by Dampf. I can see no significant differences between the present material and the type except for slight colorational changes probably caused by internal decay. The relationship of *civica* to the earlier described *Limonia* (*Geranomyia*) *recondita* (Alexander) remains in question but it may prove to represent a more northern race or cline. In the original description of *civica* I had indicated that the bases of the gonapophyses were setuliferous. It now

appears that this effect on the unique type slide was caused by superimposed proctigeral membrane and actually the apophyses are glabrous as in the present material. The femora chiefly are darkened but in most material the extreme tips pass into yellow. Male hypopygium (fig. 42).

SAINT ANDREW: Bellevue, Port Royal Mountains, 3750 feet, April 24, 1959 (Farr). Second Breakfast Spring, about 2800 feet, September 1, 1954 (Farr). Hermitage Reservoir, 1750 feet, May 30, 1954 (Farr). SAINT THOMAS: Bath, January 13, 1955 (Farr).

32 LIMONIA (GERANOMYIA) EURYGRAMMA STENOMERA subsp. n. Figs. 43, 47, 48.

Geranomyia eurygramma Alexander; Ann. Ent. Soc. America, 21: 107–108; 1928.

The types of *eurygramma* were from Cordoba, Mexico, collected by Dampf. The present specimens seem undoubtedly to be close to *eurygramma*, agreeing well with this in the peculiar pattern of the praescutum and in the wing venation and coloration. The single male in the short series available has lost both dististyles of the hypopygium which should provide distinctive characters. However the phallosome is preserved and shows the gonapophyses to be quite different from those of typical *eurygramma* (fig. 48) and the local material is described as representing a new subspecies.

Male. – Length, excluding rostrum, about 6.5 mm; wing 6.8 mm; rostrum about 3.2 mm.

Female. – Length, excluding rostrum, about 7 mm; wing 6.4–7 mm; rostrum about 2.5–2.6 mm.

Rostrum black, relatively long. Head gray, sides of posterior vertex restrictedly darker; anterior vertex narrow, about one-third the diameter of the scape.

Pattern of mesonotum about as in *eurygramma* and allies, the ground color of praescutum whitish yellow, with a single or vaguely divided broad cinnamon brown central stripe that is fully as wide as the ground interspaces, the lateral borders broadly darker brown; scutal lobes cinnamon brown, scutellum light yellow, postnotum more darkened, yellowed laterally. Pleura and pleurotergite yellow. Legs with coxae and trochanters yellow; remainder of legs broken in all specimens. Wings (fig. 43) as in *eurygramma; Sc*$_1$ ending about opposite one-third the length of *Rs;* general coloration yellowed, with a conspicuous brown pattern, including four costal darkenings, the first at and adjoining *h*, the second over the supernumerary crossvein in cell *Sc*, third at tip of *Sc*, not or scarcely connected with a spot at origin of *Rs*, and the stigma; other darkenings over cord, outer end of cell *1st* M_2 and marginally at tips of all longitudinal veins, smallest at R_{4+5} and M_{1+2}, larger on the other veins; border of cell *2nd A* with a weak cloud. Male hypopygium (fig. 47) with posterior border of tergite, *t*, subtruncate, the emargination very shallow, the lowl obes scarcely developed. Basistyle, *b*, with ventromesal lobe small, oval. Both

dististyles of type broken. Gonapophyses, *g*, distinctive, the mesal-apical lobe slender, nearly straight, with no indication of a lateral flange, as in *eurygramma* (fig. 48).

Holotype, male, SAINT ANDREW: Second Breakfast Spring, 2800 feet, October 27, 1954 (Farr). *Allotopotype*, female, pinned with type. *Paratopotypes*, 3 broken females on a single pin.

33 LIMONIA (GERANOMYIA) INTERMEDIA (Walker) Figs. 44, 50.

Limnobia intermedia Walker; List Dipt. Brit. Mus., 1: 47; 1848.
Limonia (Geranomyia) intermedia Alexander; Jour. Dept. Agr. Puerto Rico, 16: 380; 1932.
Limonia (Geranomyia) remingtoni Alexander; Ent. News, 57: 247–249; 1941; new synonymy.

The type of *intermedia* was collected in Jamaica by Philip Henry Gosse, without further data. For years the species remained in question but what now seems unquestionably to be this fly has been found in some numbers, particularly in and near Kingston. On the basis of this later material I regard *remingtoni*, described from Louisiana, as representing this same species.

Wings (fig. 44). Male hypopygium (fig. 50) with the tergite, *t*, transverse, posterior border broadly emarginate, the relatively narrow lobes with two groups of setae, the outer group comprising about seven or eight stouter and blackened, the inner group of about ten longer, more slender pale brown bristles. Basistyle, *b*, with ventromesal lobe very large, about equal in length to body of style, the lower surface with conspicuous setae. Dorsal dististyle, *d*, unusually slender, gently curved to the obtuse deflected tip; ventral style very large and fleshy, its area exceeding twice that of the basistyle, setae small; rostral prolongation very short and blunt, with two subequal spines from unequal tubercles, the inner tubercle about twice the outer one. Gonapophyses, *g*, pale, mesal-apical lobe elongate, slender, gently curved to the acute tip. Aedeagus, *a*, terminating in two blunt lobes, base with abundant delicate setulae, more sparse outwardly.

CLARENDON: Frankfield, January 7, 1955 (Farr). HANOVER: Askenish, 500 feet, June 25, 1954 (Farr). KINGSTON: Mostly in and around the Institute of Jamaica, March 13, 1947 (Shaw), June 3, 1952, May 3, 1953 (Lewis), May 14, June 16, 1954 (Farr), January 14, 27, 1955 (Farr); February 10, 1903 (Grabham). PORTLAND: Hardwar Gap, 4300 feet, March 25, 1954 (Farr). SAINT ANDREW: Long Mountain House, June 12–15, 1953 (Bellinger). Upper Mountain View, February 24, May 17, 1954 (Lewis). SAINT THOMAS: Bath, January 13, 1955 (Farr).

34 LIMONIA (GERANOMYIA) MYERSIANA Alexander Figs. 45, 49.

Limonia (*Geranomyia*) *myersiana* Alexander; Jour. N.Y. Ent. Soc., 37: 397–398; 1929.

The type was from Cuba. Most similar to *tibialis* in the unpatterned wings and general structure of the male hypopygium.

Male. – Length, excluding rostrum, about 4–6 mm; wing 5.3–7 mm; rostrum 2.3–2.8 mm.

Female. – Length, excluding rostrum, about 6–6.5 mm; wing 7 mm; rostrum about 3 mm.

Mesonotal praescutum light brown to brownish yellow, the three darker stripes inconspicuous to virtually lacking. Legs with femora dark brown to brownish black, the bases paler; tibiae light brown, tips blackened, long and conspicuous on fore tibiae, narrower and slightly paler on remaining pairs. Wings (fig. 45) tinged with dusky, stigma darker brown; veins brown. Venation: Sc_1 ending opposite origin of *Rs*. Male hypopygium (fig. 49) with rostral spines of ventral dististyle, *d*, relatively long and slender but shorter than in *tibialis*. Gonapophysis, *g*, virtually simple, with a low triangular flange on concave margin of the lobe, not blackened and bidentate as in *tibialis*. Aedeagus, *a*, very broad, outer apical angles membranous, produced into acute spines as in *tibialis*.

The specimens from Jamaica generally are larger than the Cuban type but undoubtedly are conspecific.

PORTLAND: Hardwar Gap, 4300 feet, March 25, 1954 (Farr). SAINT ANDREW: Bellevue, Port Royal Mountains, 3750 feet, April 24, 1954 (Farr). Newcastle Road, near milepost 17, about 3000 feet, March 3, May 15, July 4, 1954 (Farr). SAINT THOMAS: Corn Puss Gap, 2200 feet, June 24, 1954 (Farr). Ecclesdown, 2000 feet, January 15, 1955 (Farr).

35 LIMONIA (GERANOMYIA) ROSTRATA ANTILLARUM Alexander Figs. 46, 51.

Geranomyia (*Geranomyia*) *rostrata* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 22; 1928 (erroneous determination).

Limonia (*Geranomyia*) *antillarum* Alexander; Jour. N.Y. Ent. Soc., 37: 395–396; 1929.

Limonia (*Geranomyia*) *antillarum* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 379; 1932.

I am considering this fly to represent a southern race or cline of *Limonia* (*Geranomyia*) *rostrata* (Say).

Male. – Length, excluding rostrum, about 8–8.5 mm; wing 7.5–9 mm; rostrum about 3.5 mm.

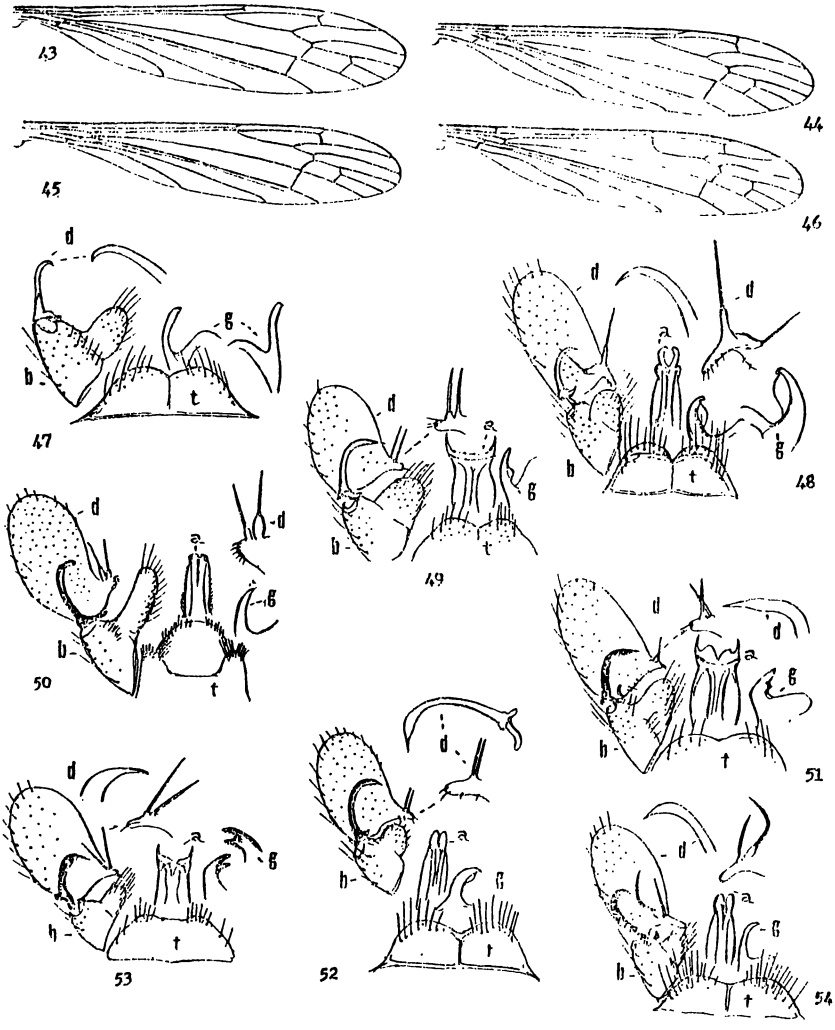

Fig. 43. *Limonia* (*Geranomyia*) *eurygramma stenomera* subsp. n.; venation. – Fig. 44. *Limonia* (*Geranomyia*) *intermedia* (Walker); venation. – Fig. 45. *Limonia* (*Geranomyia*) *myersiana* Alexander; venation. – Fig. 46. *Limonia* (*Geranomyia*) *rostrata antillarum* Alexander; venation. – Fig. 47. *Limonia* (*Geranomyia*) *eurygramma stenomera* subsp. n.; male hypopygium. – Fig. 48. *Limonia* (*Geranomyia*) *eurygramma eurygramma* Alexander; male hypopygium. – Fig. 49. *Limonia* (*Geranomyia*) *myersiana* Alexander; male hypopygium. – Fig. 50. *Limonia* (*Geranomyia*) *intermedia* (Walker); male hypopygium. – Fig. 51. *Limonia* (*Geranomyia*) *rostrata antillarum* Alexander; male hypopygium. – Fig. 52. *Limonia* (*Geranomyia*) *subvirescens jamaicae* Alexander; male hypopygium. – Fig. 53. *Limonia* (*Geranomyia*) *tibialis* (Loew); male hypopygium. – Fig. 54. *Limonia* (*Geranomyia*) *viridula* Alexander; male hypopygium.

(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *t*, tergite)

Female. – Length, excluding rostrum, about 8–9 mm; wing 8–9 mm; rostrum about 3–3.5 mm.

Mesonotal praescutum brownish gray, with three narrow dark brown stripes that represent the interspaces. Knobs of halteres black. Legs obscure yellow, femora with a narrow diffuse brown subterminal ring; tips of all tibiae broadly black. Wings (fig. 46) whitish subhyaline, conspicuously spotted with dark brown, including areas at arculus, the supernumerary crossvein in cell *Sc*, origin of *Rs*, cord and outer end of cell *1st* M_2, together with marginal spots at ends of all longitudinal veins, largest at R_3 and the Anals. Vein *Sc* short, Sc_1 ending nearly opposite origin of *Rs*. Male hypopygium (fig. 51) with spines of rostrum of ventral dististyle, *d*, shorter than in typical *rostrata*, about one-fourth the dorsal dististyle. Gonapophysis, *g*, with mesal-apical lobe simple, with a low darkened flange. Aedeagus, *a*, very broad as compared with typical *rostrata*.

KINGSTON: Hope Gardens, January 3, 1926 (M. C. Gowdey), recorded as *rostrata*. SAINT ANDREW: Long Mountain House, June 13, 1953 (Bellinger). Mona, May 27, 1953 (Underwood), May 8, 1954 (Farr). SAINT ANN: St. Ann's Bay, June 22, 1954 (Farr). SAINT THOMAS: Bath, January 13, 1955, November 7, 1957 (Farr). Blue Mountain Peak, 7400 feet, June 11, 1954 (Farr). About six miles northwest of Wheelerfield, about 2000 feet, August 22, 1954 (Farr). Whitfield Hall, 4100 feet, June 9–12, 1954 (Farr), December 1954 (Proctor).

36 LIMONIA (GERANOMYIA) SUBVIRESCENS JAMAICAE Alexander Fig. 52.

Limonia (*Geranomyia*) *subvirescens jamaicae* Alexander; Jour. Agr. Univ. Puerto Rico, 23: 115–116; 1939.

Distinguished from other local species, with the exception of *viridula*, by the almost uniform orange-yellow body coloration, with greenish tints that presumably are much more evident in living specimens. Legs yellow. Wings pale yellow, the subcircular stigma very pale brown; veins brownish yellow, inconspicuous. Vein *Sc* ends beyond midlength of *Rs*. Veins much paler than in typical *subvirescens* Alexander, of Cuba. Male hypopygium (fig. 52) with posterior border of tergite, *t*, shallowly emarginate, the lobes with numerous long setae. Dorsal dististyle, *d*, slender, outer half curved, terminating in a spine; ventral style with rostral prolongation narrow, the two spines subequal, about as long as the prolongation beyond their insertion; styla large and fleshy, setae relatively small. Gonapophysis, *g*, pale, the concave margin with a low flange.

PORTLAND: Port Antonio (A. E. Wight). SAINT ANDREW: Long Mountain House, June 13, 1953 (Bellinger). Mona, September 12, 1954 (Bellinger). SAINT ANN: Windsor Hotel, September 20, 1954, March 19, 1955 (Farr). SAINT THOMAS: Bath, January 13, 1955 (Farr). Mammee Bay, November 28, 1954 (Farr). Six miles northwest of Wheelerfield, 2000 feet, August 22, 1954 (Farr).

37 LIMONIA (GERANOMYIA) TIBIALIS (Loew) Fig. 53.

Aporosa tibialis Loew; Linnaea Entomol., 5: 397–398; 1851.
Limonia (Geranomyia) tibialis Alexander; Rev. Ecuat. Ent. Par., 2: 60–61, fig. 27 (♂ hyp.); 1954.

The type was from Brazil, collected by Sellow. Widespread in Tropical America, including the outlying Pacific islands of Juan Fernandez and the Galapagoes. In the Greater Antilles, known also from Cuba and Puerto Rico. Materials from the type locality and elsewhere have the three darkened discal praescutal stripes more evident than in local specimens but the identification seems to be correct. The most similar regional species is *Limonia (Geranomyia) myersiana* which differs in slight colorational details and in the structure of the male hypopygium, particularly the shorter rostral spines of the ventral dististyle and the conformation of the gonapophyses (compare figs. 49 and 53).

SAINT ANDREW: Cross Roads, September 12, October 28, 1954 (Farr), October 20, 1954 (Lewis). Mona, May 8, 1954 (Farr). Upper Mountain View, October 31, 1954 (Farr). SAINT CATHERINE: Along Rio Cobre, about one mile north of flat bridge, about 300 feet, April 12–17, 1954 (Farr). SAINT THOMAS: Corn Puss Gap, May 8, 1955 (Farr). Mammee Bay, sea level, November 28, 1954 (Farr).

38 LIMONIA (GERANOMYIA) VIRIDULA Alexander Fig. 54.

Limonia (Geranomyia) viridula Alexander; Jour. N.Y. Ent. Soc., 38: 110–111; 1930.

The type was from Yucatan, Mexico, collected by Dampf. The fly is similar to *Limonia (Geranomyia) subvirescens* Alexander, differing especially in the hypopygial structure. It also is very close to *L. (G.) virescens* (Loew) and may prove to be identical.

Male. – Length, excluding rostrum, about 3.6–4 mm; wing 4.4–5.2 mm; rostrum about 3.1–3.3 mm.

A small reddish fly, in living specimens almost entirely light green, including the halteres, legs and wing veins. Rostrum unusually long, only a little less than the remainder of body. Male hypopygium (fig. 54) with the rostral spines of the ventral style, *d*, long, blackened, arising from unequal basal tubercles, the outer spine more nearly straight, from a very small tubercle, inner spine larger, stouter, conspicuously curved at near midlength, its basal tubercle large. Gonapophysis, *g*, with mesal-apical lobe very long, suberect, curved gently to the acute tip, without a flange, as in *subvirescens*.

SAINT JAMES: One-half mile from Reading, sea level, June 23, 1954 (Farr).

HEXATOMINI

POLYMERA Wiedemann

Polymera Wiedemann; Dipt. exot., p. 40; 1821.
Polymera Alexander; Rev. de Entomologia, 19: 182–190; 1948.

An essentially Neotropical group, with very few species ranging into the southeastern Nearctic region and other more aberrant forms in Asia. The fullest discussion of the genus is in the Alexander reference cited above.

KEY TO POLYMERA

1. Wings brownish yellow, conspicuously patterned with brown 2
   Wings unpatterned. (Jamaica) . . . . . *geniculata pallipes* subsp. n.
2. Wing spots small, dark brown, clearly defined, those of fork of R_{2+3+4} and over R_2 widely separated; vein R_{2+3+4} shorter than R_{2+3} (fig. 56). (Jamaica) . . . . . *cavernicola* sp. n.
   Wing spots more diffuse, larger, paler brown, those at fork of R_{2+3+4} and over R_2 approximated; vein R_{2+3+4} subequal to or longer than R_{2+3} (fig. 55). (Jamaica) . . . . . *arawak* sp. n.

39 POLYMERA (POLYMERA) ARAWAK sp. n. Fig. 55.

MESONOTUM almost uniformly dark brown, pleura extensively brownish black; femora yellowish brown, with a dark brown subterminal ring, tip very narrowly yellow; wings strongly suffused, with a diffuse medium brown pattern, the darkened areas at fork of R_{2+3+4} and over R_2 approximated; cell m_1 very reduced; vein R_{2+3+4} long and straight, subequal to or exceeding R_{2+3}.

Female. – Length about 6.8–7 mm; wing 6.8–7 mm; antenna about 1.9–2 mm.

Rostrum yellowed, palpi brown, terminal segment paler. Antennae with scape and pedicel black, flagellum dark brown, the bases of the more proximal segments pale; flagellar segments elongate, shorter than the longest verticils. Head dark brown.

Pronotum obscure yellow. Mesonotum almost uniformly dark brown, the central praescutal stripe, lateral praescutal borders and scutal lobes darker, postnotum more pruinose. Pleura extensively brownish black, the dorsopleural region yellowed. Halteres brownish yellow, base of stem pale yellow, knob dark brown. Legs with fore coxae brownish black, tips narrowly yellowed, remaining coxae and all trochanters yellow; femora yellowish brown with a dark brown subterminal ring, the tips very narrowly yellow; tibiae brown, basitarsi paler brown, outer tarsal

segments pale yellow. Wings (fig. 55) strongly suffused, the costal border concolorous or slightly darker; a diffuse medium brown pattern includes the prearcular field, post-arcular area, and large spots at origin of *Rs*, fork of R_{2+3+4} and over R_2, cord and fork of M_{3+4}; veins brown, darker in the clouded areas. The darkened clouds are larger than in *cavernicola* and less clearly delimited; spots in the outer radial field approximated, subequal to or more extensive than the intervening ground area. Venation: R_{2+3+4} subequal to or slightly longer than R_{2+3}, the latter from about twice to one-half longer than R_{1+2}; cell M_1 very reduced.

Abdominal tergites dark brown, sternites slightly more cinnamon brown.

Holotype, female, SAINT ANDREW: Hermitage Reservoir, 1750 feet, August 8, 1954 (Farr). *Paratopotype*, female, May 30, 1954 (Farr).

Polymera (*Polymera*) *arawak* is readily distinguished from *P.* (*P.*) *cavernicola* sp. n., by the details of venation and nature and distribution of the darkened wing pattern.

40 POLYMERA (POLYMERA) CAVERNICOLA sp. n. Fig. 56.

SIZE relatively large (wing of male to 7 mm); antennae of male very long, about one-half longer than the body, flagellar segments weakly bicolored, binodose, each node with very long outspreading setae; mesonotal praescutum brown, yellow pollinose, margins blackened, pleura black; legs with femora obscure yellow, with a darker subterminal ring, tarsi paling to white; wings strongly brownish yellow, conspicuously patterned with brown; cell M_1 very small; abdomen, including hypopygium, brownish black.

Male. – Length about 6–6.5 mm; wing 6–7 mm; antenna about 8.5–10 mm.

Female. – Length about 6.5–7 mm; wing 6–6.5 mm; antenna about 3.5 mm.

Rostrum dark brown, palpi yellow, especially outwardly. Antennae of male very long, about one-half longer than the body; scape, pedicel and first flagellar segment dark brown, succeeding segments bicolored, dark brown, the incisures broadly whitened; individual flagellar segments binodose, each node with very long outspreading setae, the longest exceeding the segments; outer segments passing into simple elongate cylindrical but with similar very long setae. Antennae of female much shorter, more uniformly darkened, with long blackened verticils and smaller setae, the segments not nodose. Head brown; anterior vertex broad, exceeding the diameter of the scape.

Pronotum brown, pretergites vaguely more yellowed. Mesonotal praescutum with disk virtually covered by confluent dark brown stripes that are sparsely yellow pollinose, anterior and lateral borders more brownish black; posterior sclerites of notum chiefly dark brown, posterior borders of scutum and scutellum somewhat paler, of the mediotergite more blackened. Pleura black, dorsopleural membrane paler. Halteres yellowed, base of knob vaguely darker. Legs with coxae black, tips of middle and posterior pairs paling to yellow; trochanters yellow; femora obscure

yellow, tips narrowly yellowed, with a slightly wider brown subterminal ring; tibiae obscure yellow, tips narrowly darkened; tarsi dirty white, somewhat clearer outwardly, last segment weakly darkened. Wings (fig. 56) strongly tinged with brownish yellow, prearcular and costal fields clearer yellow; conspicuous clearly defined brown spots at origin of *Rs*, cord, forks of R_{2+3+4} and M_{3+4} and over R_2, with a large paler brown cloud in bases of cells *R* and *M* beyond the arculus; veins brownish yellow, darker in the clouded areas. Venation: Sc_1 ending about opposite two-thirds R_{2+3+4}, Sc_2 near its tip; R_{2+3+4} and *Rs* subequal, R_{2+3} longer; R_{1+2} about three times R_2; cell M_1 very small, evidently in process of atrophy; *m-cu* variable in position, from close to fork of *M* to about two-thirds its length beyond.

Abdomen, including hypopygium, brownish black, sternites a trifle paler brown.

Holotype, male, SAINT CATHERINE: St. Clair Cave, on wall of cave about two-fifths of a mile from entrance, 1 mile ESE of Riverhead. *Allotopotype*, female, with type. *Paratopotypes*, 10 males and females, with types. *Paratypes*, 1 male, 1 female, PORTLAND: Hardwar Gap, 4300 feet, March 25, 1954 (Farr); collector's note "very similar to specimens from St. Clair Cave". SAINT ANDREW: Hermitage Reservoir, 1750 feet, August 8, 1954 (Farr). SAINT THOMAS: 1 male, Six miles northwest of Wheelerfield, 2000 feet, August 22, 1954 (Farr). Whitefield Hall, 4100 feet, June 12, 1954 (Farr).

This interesting fly is told readily from other regional species by the unusually conspicuous darkened wing pattern, suggestive of *Polymera* (*Polymera*) *obscura* Macquart, but much more intense and differing in arrangement. The occurrence of part of the series rather deep in caves is of interest and certain of the populations may prove to be permanent troglophiles. The unusually long male antennae with very developed setae may be a correlation to such a habitat although the condition is the same in the various specimens found in the open.

41 POLYMERA (POLYMERA) GENICULATA PALLIPES subsp. n. Fig. 57.

Male. -- Length about 5 mm; wing 5.5 mm; antenna about 8.5 mm.

Antennae with scape brown, pedicel light yellow, flagellum pale brown, the incisures dirty white; flagellar segments long-binodose, with extremely long outspreading setae on the nodes, these exceeding the individual segments. Head dark brown; anterior vertex a little less than twice the diameter of the scape.

Pronotum testaceous. Disk of mesonotal praescutum with three yellow pollinose stripes, the anterior and lateral borders dark brown; posterior sclerites of notum reddish brown, including the postnotum. Pleura brownish black. Halteres with stem yellowed, knob weakly darkened. Legs with fore coxae darkened, remaining coxae yellowish white, their extreme bases vaguely darker; trochanters yellow; femora and tibiae brownish yellow, the former with a very vague and indistinct darker subterminal ring; tarsi snowy white. Wings (fig. 57) very weak yellowish brown, costal border lighter yellow, this color continued to the wing apex; no

distinct darkenings on wing, at most with vaguely indicated clouds at origin of *Rs*, cord and fork of M_{3+4}, with no indication of darkening near wing base. Venation: *Sc* long, Sc_1 ending opposite or beyond fork of R_{2+3+4}; *Rs* rather strongly arcuated; cell M_1 very small.

Abdomen, including hypopygium, dark brown, the sternites a trifle more reddened.

Holotype, male, TRELAWNY: Windsor Cave, August 25, 1955 (Farr).

I am considering this fly to represent a subspecies of *Polymera* (*Polymera*) *geniculata* Alexander, of Puerto Rico, but when more material becomes available it may prove to be a valid species. The latter was described from specimens taken in crab holes beneath rocks, possibly indicating an approach to a troglophilous habit. The same species later was reared from immatures collected in rapidly flowing streams.

SHANNONOMYIA Alexander

Shannonomyia Alexander; Dipt. Patagonia & South Chile, 1: 142–143; 1929.
Shannonomyia Alexander; Rev. de Entomologia, 19: 518–523; 1948.

An extensive genus of essentially Tropical American crane-flies, with a few species occurring in the Nearctic region. The genus is well represented in all of the islands of the Greater Antilles with the various species apparently restricted to a particular island.

KEY TO SHANNONOMYIA

1. Wings with cell *1st* M_2 closed (fig. 61); (mesonotum with praescutum brownish black, disk with four dull orange yellow stripes; antennae of male black throughout, short, about one-half the wing). (Jamaica) . . *pomerantzi* sp. n.
   Wings with cell M_2 open by atrophy of *m* (figs. 58–60) 2
2. Wings without macrotrichia in cells (fig. 60) 3
   Wings with macrotrichia in outer cells (figs. 58, 59) 4
3. Antennae of male short, about one-half the wing, yellowish white; thoracic dorsum brownish gray, clearer gray behind. (Jamaica) . *nacrea* (Alexander)
   Antennae of male very long, subequal to or exceeding the body or wing, brown, the incisures narrowly whitened, the segments with very long pale erect setae; thoracic dorsum light brownish yellow, praescutum restrictedly darkened medially in front; venation (fig. 60). (Jamaica) . . . . . *nudipennis* sp. n.
4. Antennae of male very long, approximately equal to the body, flagellar segments with long erect dark-colored setae; venation (fig. 59). (Jamaica) . . . . . *myersiana* Alexander

Antennae of male short, about one-half the body or wing; flagellar segments stout, the longest vestiture subequal to the segments; venation (fig. 58). (Jamaica) . . . . . *crassicornis* sp. n.

42 SHANNONOMYIA CRASSICORNIS sp. n. Figs. 58, 66.

GENERAL coloration of thorax light brown, dorsal pleurites darker; antennae of male brown, relatively short, a little more than one-half the body or wing; wings brownish yellow, stigma very small, pale brown; cells beyond cord with macrotrichia; male hypopygium with outer dististyle unequally bispinous at tip; aedeagus relatively short and stout, sinuous.

Male. – Length about 5.5 mm; wing 6 mm; antenna about 3.2 mm.

Female. – Length about 5.5 mm; wing 6 mm.

Rostrum and palpi black. Antennae with scape brownish black, remainder of organ brown; relatively short, slightly more than one-half the wing, proximal flagellar segments only about 3.5 to 4 times as long as thick, outer segments more slender; longest vestiture subequal to or slightly exceeding the segments in length. Head brown, more pruinose on anterior vertex, the latter unusually narrow, only a little wider than the diameter of the scape.

Prothorax brown. Mesonotum almost uniformly light brown, pleura light brown beneath, dark brown above to produce a diffuse longitudinal stripe. Halteres obscure yellow. Legs with coxae and trochanters obscure yellow, remainder of legs light brown. Wings (fig. 58) faintly tinged with brownish yellow, prearcular and costal fields somewhat clearer yellow; stigma very small and faint, pale brown; veins pale brown. Numerous trichia in wing cells beyond cord, lacking in their basal portions (their location indicated by stippling). Venation: Sc_1 ending nearly opposite the fork of Rs, Sc_2 near its tip; Rs relatively long, more than one-half longer than R_{2+3+4}, angulated at origin; veins R_3 and R_4 strongly divergent, R_{1+2} and R_3 approximated at margin, in one wing virtually closing cell R_2; cell M_2 open by atrophy of *m; m-cu* just before midlength of M_{3+4}.

Abdominal tergites dark brown, proximal sternites more brownish yellow. Male hypopygium (fig. 66) with the dististyles, *d*, small, outer style blackened and unequally bispinous at tip, the axial spine larger; inner style smaller, apex obtuse. Gonapophysis, *g*, with more than basal third enlarged, the remainder gently curved to the subacute tip. Aedeagus, *a*, relatively short and stout, sinuous.

Holotype, male, SAINT ANDREW: Cinchona, October 21, 1954 (Farr). *Allotopotype*, female, with the type.

Shannonomyia crassicornis is readily told from other regional species having cell M_2 of the wings open and with macrotrichia in the outer cells by the relatively short brown antennae.

43 SHANNONOMYIA MYERSIANA Alexander Fig. 59.

Shannonomyia myersiana Alexander; Jour. N.Y. Ent. Soc., 39: 112–113; 1931.

One of the commonest species in the island. General coloration of mesonotum chestnut brown, pleura darker; antennae approximately as long as the body, brownish black, flagellar segments with long erect chiefly darkened setae. Wings (fig. 59) with the macrotrichia of outer cells variable in number, apparently being somewhat fewer in the females. *Male.* – Length about 6–7 mm; wing 6–7 mm; antenna about 6–6.5 mm.

PORTLAND: Hardwar Gap, 4300 feet, March 25, December 5, 1954 (Farr), trail to waterfall, about 4000 feet, March 14, May 3, July 4, 1954 (Farr). SAINT ANDREW: Blue Mountains, 6000 feet, January 29–30, 1930 (Myers), type. Cinchona, October 21–23, 1954 (Farr). Port Royal Mts., Bellevue, 3750 feet, April 23, 1954 (Farr). Trail between Clydesdale and Morces Gap, 4000 feet, May 17, 1954 (Farr). High Peak, 6812 feet, October 23, 1954 (Farr). Morces Gap, 4800 feet, May 17, 1954 (Farr). One mile west of Newcastle, 3700 feet, May 3, 1954 (Farr). SAINT THOMAS: Portland Gap, 5500 feet, June 11, 1954 (Farr).

44 SHANNONOMYIA NACREA (Alexander)

Limnophila nacrea Alexander; Proc. U.S. Nat. Mus., 44: 544–545, fig. 19 (ven.); 1913.

The unique type, a female, was from Cinchona, taken by Grossbeck in 1911. A male from the type locality is characterized as allotype.

Male. – Length about 6.2–6.5 mm; wing 6.3–7 mm; antenna about 3.2–3.5 mm.

Characters generally as in the type as described. Antennae of male elongate but shorter than in some other regional species, about one-half the wing; yellowish white; flagellar segments relatively short, with a dense snowy white pubescence, these setae scarcely as long as the diameter of the segment opposite their insertion, scape and pedicel a little darker. Head clear light gray; eyes large.

Pronotum whitened above, infuscated laterally and on propleura, pretergites whitened. Mesonotum brownish gray, clearer gray on sides, the usual praescutal stripes scarcely differentiated, pseudosutural foveae and tuberculate pits not evident; posterior sclerites of notum clearer gray. Dorsal pleurites weakly infuscated, ventrally paling to yellow. Halteres with knob weakly infuscated. Legs with coxae yellow, the fore pair slightly darker, especially on anterior face; remainder of legs chiefly obscure yellow. Wings milky white, the small subcircular stigma pale brown; veins brownish yellow. Longitudinal veins of about the outer half of wing with conspicuous macrotrichia, lacking in the cells. Venation: R_2 close to fork of R_{2+3+4}; cell M_2 open by atrophy of *m*.

Abdomen elongate, dark brown, including the hypopygium, proximal sternites more yellowed.

Allotopotype, male, SAINT ANDREW: Cinchona, October 22, 1954 (Farr).

SAINT ANDREW: Hardwar Gap, 4000 feet, April 14, 1947 (Thompson); July 4, 1954 (Farr). SAINT THOMAS: Abbey Green, 4000 feet, Pair in copula, June 10, 1954 (Farr). Whitfield Hall, 4100 feet, June 9, 1954 (Farr).

45 SHANNONOMYIA NUDIPENNIS sp. n. Fig. 60.

GENERAL coloration of thorax light brownish yellow, ventral pleurites clearer yellow, dorsally with a broad more darkened longitudinal stripe; antennae of male very long, subequal to or exceeding the body or wing; flagellar segments brown, the incisures narrowly whitened to produce a vague bicolored appearance; setae of flagellar segments very long, whitened, erect, antennae of female short; legs obscure yellow; wings yellowed, base and costal region clearer yellow, stigma small, pale brown, a more or less distinct brown seam over the cord; no macrotrichia in outer wing cells; abdominal tergites brown, basal sternites and hypopygium yellowed.

Male. - Length about 6.8–7.5 mm; wing 6–8 mm; antenna about 7–8.2 mm.

Female. - Length about 8 mm; wing 6.3 mm; antenna about 1.5 mm.

Rostrum dark brown, palpi black. Antennae of male very long, subequal to or exceeding the body or wing; scape and pedicel dark brown, flagellum brown to dark brown, the bases and tips very narrowly whitened to produce a vague bicolored appearance, more distinct in some specimens than in others; flagellar segments very long-cylindrical, with abundant long outspreading white setae, the longest about two-thirds the segments or more, verticils lacking. Antennae of female short, proximal six or seven segments whitened, the outer ones infuscated; segments about equal to the long black verticils, the white setae shorter. Head brown, sparsely pruinose.

Pronotum brown. Mesonotum light brownish yellow, praescutum more or less darkened medially, especially in front. Pleura more yellowed ventrally, the dorsal pleurites with a more or less distinct broad brown longitudinal stripe. Halteres relatively long and slender, stem yellowed, knob dark brown. Legs with coxae and trochanters obscure yellow; remainder of legs obscure yellow. Wings (fig. 60). yellowed, base and costal region clearer yellow; a restricted pale brown pattern, including the small oval stigma and a narrow seam over the cord; veins very pale brown. No macrotrichia in wing cells, as in *myersiana;* macrotrichia on longitudinal veins beyond cord. Venation: *Sc* moderately long, Sc_1 ending shortly before fork of *Rs*, Sc_2 near its tip; R_2 before fork, subequal to R_{1+2}; cell M_2 open; *m-cu* before midlength of M_{3+4}.

Abdomen elongate, tergites brown, basal sternites yellowed, hypopygium obscure yellow.

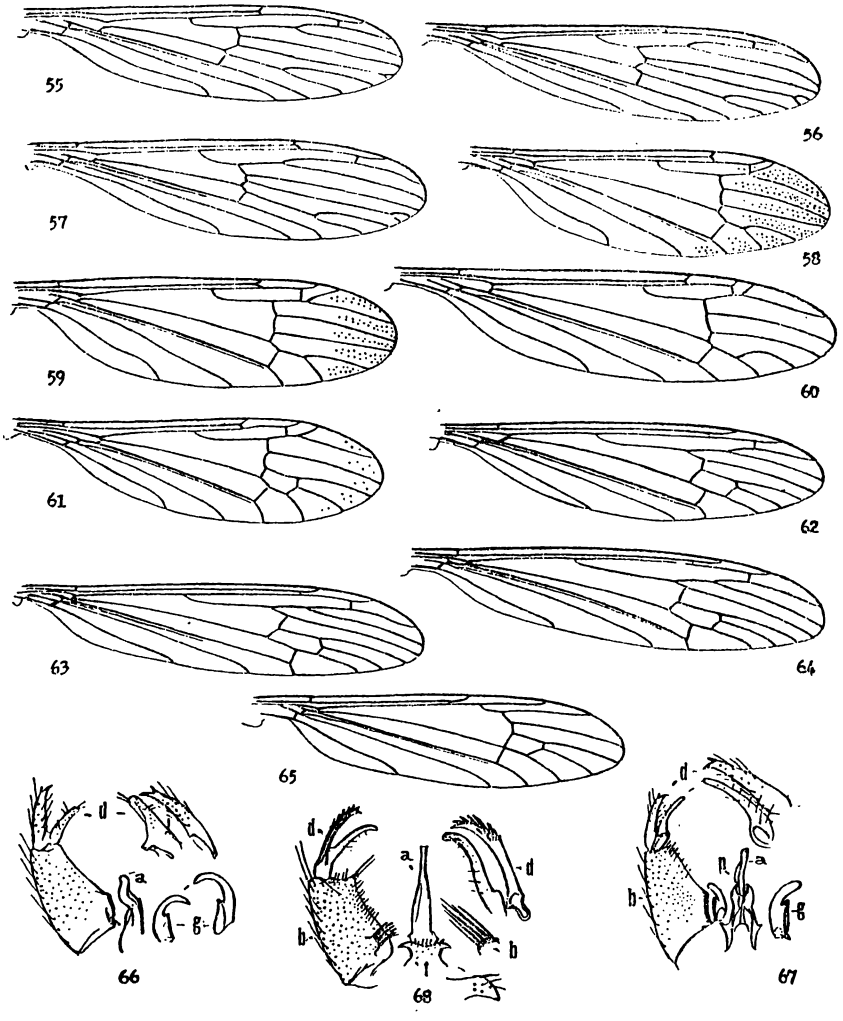

Fig. 55. *Polymera* (*Polymera*) *arawak* sp. n.; venation. – Fig. 56. *Polymera* (*Polymera*) *cavernicola* sp. n.; venation. – Fig. 57. *Polymera* (*Polymera*) *geniculata pallipes* subsp. n.; venation. – Fig. 58. *Shannonomyia crassicornis* sp. n.; venation. – Fig. 59. *Shannonomyia myersiana* Alexander; venation. – Fig. 60. *Shannonomyia nudipennis* sp. n.; venation. – Fig. 61. *Shannonomyia pomerantzi* sp. n.; venation. – Fig. 62. *Hexatoma* (*Eriocera*) *farriana* sp. n.; venation. – Fig. 63. *Hexatoma* (*Eriocera*) *luteitarsis* sp. n.; venation. – Fig. 64. *Hexatoma* (*Eriocera*) *subocellata* sp. n.; venation. – Fig. 65. *Atarba* (*Atarba*) *setilobata* sp. n.; venation. – Fig. 66. *Shannonomyia crassicornis* sp. n.; male hypopygium. – Fig. 67. *Shannonomyia pomerantzi* sp. n.; male hypopygium. – Fig. 68. *Atarba* (*Atarba*) *setilobata* sp. n.; male hypopygium.

(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *p*, phallosome; *t*, tergite)

Holotype, male, SAINT ANDREW: Newcastle, 3700 feet, May 3, 1954 (Farr). *Allotype*, female, SAINT THOMAS: Whitfield Hall, 4100 feet, June 9, 1954 (Farr). *Paratypes*, PORTLAND: Hardwar Gap, along trail to waterfall, about 4000 feet, March 14, May 3, 1954 (Farr); Hardwar Gap, 4300 feet, March 14, 25, 1954; December 5, 1954; January 26, February 27, 1955 (Farr). SAINT ANDREW: Female, on trail to Catherine's Peak, about 4500 feet (Farr). Cinchona, October 21–23, 1954 (Farr). SAINT THOMAS: Male, Corn Puss Gap, 2200 feet, June 24, 1954 (Farr). Male, East slope of John Crow Mts., Ecclesdown, 2000 feet, June 14, 1955 (Farr). Portland Gap, 5500 feet, June 11, 1954 (Farr).

The most similar species is *Shannonomyia myersiana* Alexander, which is of approximately the same size and general appearance, including the elongate antennae of the male. It differs evidently in the glabrous wings and in the male antennae, including the very long whitened erect setae on the flagellum.

46 SHANNONOMYIA POMERANTZI sp. n. Figs. 61, 67.

SIZE small (wing of male to 4.5 mm); mesonotum brown, praescutum (of type) with four orange yellow stripes; antennae of male relatively short, about one-half the wing, black throughout; flagellar segments with relatively short vestiture; legs light brown; wings strongly suffused with brown, vein R_2 some distance before the radial fork, cell *1st* M_2 closed; male hypopygium with both dististyles slender.

Male. – Length about 4–4.2 mm; wing 4–4.5 mm; antenna about 2–2.2 mm.

Rostrum brown, palpi black. Antennae of male moderately long, about one-half the wing, black throughout; flagellar segments long-subcylindrical, the vestiture dark, the longest setae slightly more than one-third the segment. Head dark brown.

Pronotum brown. Mesonotal praescutum of the holotype with the restricted ground brownish black, disk with four broad dull orange-yellow stripes that greatly restrict the interspaces, the median dark vitta especially distinct; posterior sclerites of notum dull orange yellow or testaceous yellow, vaguely patterned with darker, including the median region of scutum; in the paratype the mesonotum is more uniformly dark brown. Pleura light brown above, the sternopleurite in cases more yellowed ventrally. Halteres unusually long, stem obscure brownish yellow, knob dark brown. Legs with coxae and trochanters brownish yellow; remainder of legs medium to light brown, tarsi a trifle paler. Wings (fig. 61) strongly suffused with brown, unpatterned, stigma not differentiated; veins pale brown. Macrotrichia of outer wing cells sparse, especially in the paratype (as shown), in the holotype somewhat more numerous but small; longitudinal veins beyond cord with trichia, lacking on R_{2+3+4}, base of R_3 and first two sections of M_{1+2}; before the cord with trichia on outer ends of *Sc*, *M* and basal section of Cu_1. Venation: Sc_1 ending before fork of *Rs*, Sc_2 near its tip; R_2 faint, placed some distance before the radial fork, leaving a relatively long element R_{3+4}; cell *1st* M_2 closed, *m* being present; *m-cu* about one-half to two-thirds its length beyond the fork of *M*.

Abdomen, including hypopygium, dark brown, proximal sternites a little brightened. Male hypopygium (fig. 67) with both dististyles, *d*, slender, especialle the inner style. Phallosome and gonapophyses, *p*, differing in details from *crassicornis*, as shown.

Holotype, male, SAINT ANDREW: Cinchona, October 21, 1954 (Farr). *Paratype*, male, High Peak, Blue Mts., 6312 feet, October 23, 1954 (Farr).

Named for Mr. Charles Pomerantz, whose intuition and subsequent investigations proved the interrelationships existing between mites, mice and men in the human disease Rickettsialpox.[1] The fly is most similar to *Shannomyia crassicornis* sp. n., in the structure of the male hypopygium and in the venation, as the basal position of vein R_2 and the closed cell *1st* M_2.

HEXATOMA Latreille

Hexatoma Latreille; Gen. Crust. et Ins., 4: 260; 1809.
Hexatoma Alexander; Rev. de Entomologia, 19: 528–535; 1948.
Subgenus *Eriocera* Macquart; Dipt. exot., 1, pt. 1: 74; 1838.

The subgenus *Eriocera* includes a host of chiefly tropical crane-flies abundantly represented in the Neotropical and Oriental regions but with fewer species elsewhere, in all biotic regions, including Madagascar. About a dozen species are known from the Greater Antilles, with each island having its own forms.

KEY TO ERIOCERA

1. Wings with abundant pale brown dots in all cells 2
   Wings without a dotted pattern, the dark markings larger, restricted to the vicinity of the veins 3
2. Legs black. (Jamaica) . . . . . *cramptoni* (Alexander)
   Legs black, the tarsi and outer third of tibiae light yellow (fig. 63). (Jamaica) . . . . . *luteitarsis* sp. n.
3. Wings fulvous yellow, unpatterned except for the darkened costal border (fig. 62). (Jamaica) . . . . . *farriana* sp. n.
   Wings brownish yellow, conspicuously patterned with brown, certain of the areas with paler centers to appear subocellate (fig. 64). (Jamaica) . . . . . *subocellata* sp. n.

[1] Roueché, Berton. A reporter at large. The New Yorker Magazine, Aug. 30, 1947.

47 HEXATOMA (ERIOCERA) CRAMPTONI (Alexander)

Eriocera cramptoni Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 23–24; 1928.

Hexatoma (Eriocera) cramptoni Alexander; Rev. de Entomologia, 19: 532; 1948.

The types and only known specimens were from Cinchona, SAINT ANDREW, taken July 25, 1926, by G. Chester Crampton, for whom the species was named.

Male. – Length about 11 mm; wing 11.5 mm.

General coloration of thoracic notum rich dark fulvous, narrowly margined laterally with pale yellow, on praescutum narrowly patterned internally with brown; legs black; wings yellowish gray, costal margin brighter, the cells with brown spots and abundant dusky dots.

48 HEXATOMA (ERIOCERA) FARRIANA sp. n. Fig. 62.

SIZE above medium (wing to 15 mm); mesonotal praescutum brownish gray, with four more plumbeous gray stripes that are narrowly bordered by brownish black, scutellum and mediotergite light gray; knobs of halteres brownish black; legs black, femoral bases broadly yellow; wings fulvous yellow, costal border and prearcular field darker; abdomen, including hypopygium, polished black.

Male. – Length about 13–14 mm; wing 13–15 mm; antenna about 3–3.1 mm.

Female. – Length about 18 mm; wing 15 mm.

Rostrum and palpi black. Antennae (male) 7-segmented, short; scape and pedicel blackened, proximal two segments of flagellum obscure yellow, outer ones passing into brown; proximal flagellar segments stout, the setae of moderate length, outer segments more slender, with elongate verticils. Head dark gray, the small vertical tubercle light gray pruinose.

Pronotum brown. Mesonotal praescutum brownish gray, with four more plumbeous gray stripes that are narrowly bordered by brownish black, the posterior interspaces more reddened or brown; scutal lobes blackened; posterior sclerites of notum light gray, pleurotergite and pleura darker brown to plumbeous; vestiture of praescutal interspaces sparse and delicate. Halteres with stem yellow, knob brownish black. Legs with coxae brownish black; trochanters light yellow; remainder of legs black, femoral bases conspicuously yellow, narrower on fore and middle legs where about the proximal fourth or less is included, on the posterior pair involving about the proximal third or more. Wings (fig. 62) strongly fulvous yellow, prearcular field, with cells *C* and *Sc*, dark brown; veins delicate, yellow, more infuscated in the darkened parts. Longitudinal veins beyond cord with abundant macrotrichia, lacking on distal section of Cu_1. Venation: R_{1+2} and R_{2+3} subequal or the former longer, about two-thirds to three-fourths R_{2+3+4}; cell *1st* M_2 about equal to distal section of vein M_3; *m-cu* at or before midlength of

M_{3+4}, subequal to or longer than distal section of Cu_1; vein *2nd A* unusually straight.

Abdomen, including hypopygium, polished black. Valves of ovipositor long, cerci slender, paling to yellow outwardly.

Holotype, male, PORTLAND: Hardwar Gap, July 31, 1955 (Farr). *Allotopotype*, female, August 3, 1958 (Farr). *Paratopotypes*, 5 males and females, July 31, 1954, July 28–31, 1955, August 3, 1958, May 24, 1960 (Farr). *Paratype*, one male, PORTLAND, Green Hills, May 20, 1950 (Sibley).

This is still another species that is named for Dr. Farr. It is entirely different from other regional species, especially in the pattern of the wings.

49 HEXATOMA (ERIOCERA) LUTEITARSIS sp. n. Fig. 63.

VERY similar to *cramptoni*, agreeing in the general coloration of the body and wings, differing especially in the pattern of the legs.

Sex? – Wing 12 mm.

Rostrum and palpi black. Antennae 7-segmented; scape obscure yellow, faintly darkened both above and beneath; pedicel yellow; proximal two flagellar segments light yellow, remainder brown; first flagellar segment about one-half longer than the second; verticils of outer segments very long. Head dark gray, vertex with a dark brown central stripe extending from the small vertical tubercle to the occiput; tubercle with a small circular cicatrice on either side behind the antennal fossa.

Pronotum and pretergites light yellow. Mesonotal praescutum with four cinnamon brown stripes, differentiated by light brown interspaces, slightly darker brown laterally, posterior border adjoining the suture with four small yellowed spots; posterior sclerites chiefly cinnamon brown, laterobasal impressions of mediotergite conspicuous, more yellowed. Pleura brown, more darkened dorsally, paler on venter; a small dark brown spot beneath the posterior spiracle. Halteres with stem light brown, knob dark brown. Legs with coxae and trochanters brownish yellow; femora black; tibiae brown, paling to yellow on outer third or fourth, tarsi light yellow. Wings (fig. 63) with the restricted ground pale yellow, all cells with microscopic pale brown dots, with larger brown spots at origin of *Rs*, tip of *Sc*, R_2, and cord; veins brownish yellow, darker in the spotted portions. Longitudinal veins beyond cord with abundant macrotrichia, basad of cord on outer ends of *M* and basal section of Cu_1. Venation: R_{2+3+4} subequal to R_{2+3}; cell *1st* M_2 long and narrow, with *m-cu* at near midlength.

Abdomen broken beyond base; first tergite infuscated, second testaceous yellow, basal sternite clearer yellow.

Holotype, Sex?, SAINT THOMAS: Whitfield Hall, 4100 feet, June 12, 1954 (Farr).

50 HEXATOMA (ERIOCERA) SUBOCELLATA sp. n. Fig. 64.

SIZE large (wing of male 14.5 mm); mesonotum plumbeous gray, praescutum with a blackened area surrounding the lateral stripe, broadest outwardly; antennal flagellum yellow; femora yellow, blackened at tips, broadly so on fore legs, tibiae light brown, tarsi yellow; wings weakly brownish yellow, with a conspicuous brown pattern, the areas in part with paler centers to appear subocellate; no darkened dots or spots in cells; abdominal tergites dark brown, their bases restrictedly brightened, hypopygium black.

Male. – Length about 17 mm; wing 14.5 mm; antenna about 2.5 mm.

Rostrum black, sparsely pruinose; palpi black. Antennae of male 7-segmented, short; scape black, sparsely pruinose, pedicel dark brown, flagellum yellow, outer segments slightly darker; first flagellar segment stout, nearly twice as long as the second; three outer flagellar segments subequal, with long verticils. Head dull blackish gray, restrictedly lighter pruinose on the low bifid vertical tubercle.

Pronotum brownish gray, scutum above, with the pretergites, restrictedly brownish yellow. Mesonotal praescutum almost covered by confluent plumbeous gray stripes, the lateral pair delimited by a more blackened ∩-shaped ring, much more conspicuous on outer margin, anterior and lateral borders of praescutum clearer gray; posterior sclerites of notum dark plumbeous gray, very vaguely brightened at midregion of scutum and near base of mediotergite; vestiture of praescutal interspaces long and conspicuous, whitened. Pleura chiefly brownish black, subnitidous, dorsopleural membrane paler brown. Halteres with stem dark brown, base restrictedly brightened, knob blackened. Legs with all coxae brownish black, trochanters abruptly yellow; fore femora black, basal sixth yellowed, middle and hind femora more yellowed, the tips narrowly blackened; tibiae light brown; tarsi yellowed. Wings (fig. 64) with the ground weakly brownish yellow, with a conspicuous dark brown pattern, as follows: Costal border, except at base; major areas at origin of *Rs* and basad of this in cells *R* and *M*, both with paler centers and tending to be subocellate; other solid darkenings over fork of *Rs*, stigma and wing tip, the last continued into cell *1st A* as a broad border; narrower brown seams over remainder of cord and outer end of cell *1st* M_2 with slightly paler centers to appear subocellate; veins brown, not differently colored in the ground areas. Longitudinal veins beyond cord with conspicuous trichia; basad of cord with sparse trichia at outer ends of *Rs*, *M* and Cu_1. Venation: R_{2+3+4} a little longer than R_{2+3}; cell *1st* M_2 a trifle longer than vein M_4; *m-cu* much longer than distal section of Cu_1, beyond midlength of M_{3+4}.

Abdomen elongate; tergites dark brown, the segments vaguely more reddened at bases, sternites more uniformly reddish brown; hypopygium black.

Holotype, male, PORTLAND: Hardwar Gap, 4000 feet, June 27, 1954 (Farr).

Hexatoma (*Eriocera*) *subocellata* is entirely distinct from the other members of the subgenus known from Jamaica.

ATARBA Osten Sacken

Atarba Osten Sacken; Mon. Dipt. N. Amer., 4: 127; 1869.
Atarba Alexander; Rev. de Entomologia, 19: 536–552; 1948.

A major genus of small or medium-sized crane-flies, the species most numerous in Tropical America. There is a single local species, with one further species in Cuba. The characteristic wing venation and male hypopygium are shown (figs. 65, 68).

51 ATARBA (ATARBA) SETILOBATA sp. n. Figs. 65, 68.

GENERAL coloration of thorax fulvous; antennae relatively long, flagellar segments bicolored, black, the bases yellowed; legs yellow throughout; wings strongly yellowed, *Sc* and *Rs* short; abdominal tergites bicolored, yellow, the apices broadly medium brown, subterminal two segments blackened to form a ring; male hypopygium with a strong tubercle on mesal face of basistyle near proximal end, this tufted with about eight powerful bristles.

Male. – Length about 6.5 mm; wing 6.2 mm; antenna about 2 mm.

Rostrum orange yellow; palpi brownish yellow, terminal segment long. Antennae relatively long; scape and pedicel yellow, flagellar segments conspicuously bicolored yellow and black, on the more proximal segments with about the basal half yellow, outer half black, the amount of yellow decreasing on intermediate segments, outer six or seven segments virtually uniformly black; segments with a dense short erect pubescence and sparse black verticils, on the more proximal segments the latter shorter than the segments, longer on the intermediate segments, the longest only a little less than the segment. Head dull fulvous, sparsely pruinose on sides behind; anterior vertex a little wider than the diameter of the scape; vertex and genae with few but very long black setae, the anterior ones subporrect.

Thoracic dorsum fulvous, the pleura somewhat more yellowed; vestiture of notum sparse, chiefly pale, praescutal interspaces behind with one to few long erect bristles. Halteres with stem obscure yellow, knob weakly infuscated. Legs yellow throughout. Wings (fig. 65) relatively narrow, strongly yellowed, prearcular and costal regions clearer light yellow; stigma not indicated; veins deeper yellow. Macrotrichia on longitudinal veins beyond cord, more basally on outer halves of *Sc*, basal section of Cu_1 and *2nd A*, narrowly on *M* and *1st A*. Venation: Sc_1 ending shortly before origin of *Rs*, Sc_2 retracted, Sc_1 about one-half to three-fourths the short *Rs;* cell *1st* M_2 rectangular, nearly as long as vein M_4; *m-cu* close to fork of *M*.

Proximal abdominal tergites bicolored, bases obscure yellow, apices broadly medium brown, sternites more nearly uniform yellow; two subterminal segments blackened to form a ring; hypopygium yellow. Male hypopygium (fig. 68) with the median region of tergite, *t*, produced, at apex forming divaricate flattened blades,

the apex provided with scattered setae. Basistyle, *b*, relatively long, near base of mesal face with a strong tubercle tufted with about eight powerful reddish bristles, these longer than the lobe; near apex of mesal face with a small slender tubercle bearing one or two long delicate setae. Outer dististyle, *d*, blackened, gently curved, apical point small, outer margin of distal half with about eight appressed spines, the intermediate ones longest; on face of style at near midlength with about four similar spines; inner style subequal in length, with a slight basal flange, gently curved outwardly, apex obtuse. Aedeagus, *a*, straight, simple, gradually narrowed to the slightly flaring apex.

Holotype, male, PORTLAND: Hardwar Gap, December 5, 1954 (Farr).

The only other regional species are *Atarba* (*Atarba*) *angustipennis* Alexander, of Cuba, and *A.* (*A.*) *bellamyi* Alexander, of Florida and Georgia, both quite different in hypopygial characters. The modified lobe of the basistyle in the present fly has suggested the specific name and provides an unusually strong character for the recognition of the species.

ERIOPTERINI

TRENTEPOHLIA Bigot

Trentepohlia Bigot; Ann. Soc. Entomol. France, (3) 2: 456, 473; 1854.
Trentepohlia Alexander; Ann. Mag. Nat. Hist., (11) 1: 353–355; 1938.
Trentepohlia Alexander; Rev. de Entomologia, 18: 69–72; 1947.

Subgenus *Paramongoma* Brunetti; Rec. Indian Mus., 6: 295; 1911 (synonym, *Mongomella* Enderlein; Zool. Jahrb., Syst., 32: 61; 1912.)

Trentepohlia is a vast genus of tropical crane-flies, in America with about 38 species presently recorded, distributed in four subgenera (Alexander, 1938, 1947). A single species is known from the Greater Antilles, with three others in the Lesser Antilles, including Dominica and Saint Vincent.

52 TRENTEPOHLIA (PARAMONGOMA) NIVEITARSIS (Alexander) Fig. 69.

Mongoma niveitarsis Alexander; Proc. U.S. Nat. Mus., 44: 501, fig. 13 (ven.); 1913.
Trentepohlia (*Paramongoma*) *niveitarsis* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 375, fig. 17 (ven.); 1932.

Described from Puerto Rico. In its general appearance, including the somewhat darkened wings and snowy white tarsi, the fly suggests the actually very different *Helius* (*Helius*) *albitarsis* (Osten Sacken). Venation (fig. 69).

HANOVER: Logwood, at sea level, March 25, 1955 (Farr). PORTLAND: Hardwar Gap,

4300 feet, March 14, 1954 (Farr). SAINT ANDREW: Hermitage Reservoir, 1750 feet, January 14, 1961 (Coher). Nine-mile post on Newcastle Road, May 16, 1954 (Farr). Cinchona, July 25, 1926 (Crampton). SAINT THOMAS: About six miles northwest of Wheelerfield, about 2000 feet, August 22, 1954 (Farr). Whitfield Hall, 4100 feet, June 12, 1954 (Farr).

TEUCHOLABIS Osten Sacken

Teucholabis Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 222; 1859.
Teucholabis Alexander; Encycl. Ent., Diptera, 4: 17–27; 1927.
Teucholabis Alexander; Rev. de Entomologia, 17: 375–400, 14 figs.; 1946.

A very extensive genus of chiefly tropical and subtropical crane-flies, with more than 150 species known from the New World, virtually all being tropical although the genotype, *Teucholabis complexa* Osten Sacken, is Nearctic. The most recent listing of the New World species is in the Alexander 1946 reference cited. Of the four subgenera there treated only typical *Teucholabis* is found in the United States and in the Antillean islands. All species are of small to medium size, the body highly polished and usually with bright contrasting colors, particularly black and yellow. The characteristic venation is shown (figs. 70–74).

KEY TO TEUCHOLABIS

1. Wings with cell M_2 open by atrophy of basal section of vein M_3 (fig. 71); ground color of wings pale yellow, with three pale brown crossbands that are narrower than the ground areas, placed before origin of *Rs*, beyond cord and at wing tip. (Jamaica) . . . . . *gowdeyi* Alexander

   Wings with cell *1st* M_2 closed (figs. 70, 72–74); wings, if patterned, not regularly crossbanded 2

2. Wings unpatterned, except for the stigma, a vague narrow seam over the cord, and in cases the wing tip 3

   Wings pale, with a brown pattern 4

3. Legs uniformly black; wings hyaline, tip narrowly darkened, veins black, very conspicuous; branches of *Rs* generally parallel to one another, cell R_2 at margin more extensive than cell R_4 (fig. 70); abdomen brilliant greenish purple, the outer segments more blackened. (Cuba, Jamaica) . . . . . *chalybeiventris* (Loew)

   Legs yellow, femora with a narrow brown subterminal ring; wings pale yellow, unpatterned except for the stigma and a narrow darkened seam over the cord, veins pale brown, inconspicuous; branches of *Rs* strongly divergent, cell R_2

at margin less extensive than cell R_4 (fig. 74); abdominal tergites black, incisures more reddened, sternites yellowed, ringed with brown. (Jamaica) . . . . . *wighti* Alexander

4. Wing tip darkened; no brown clouds in centers of cells *M* and *2nd A* (fig. 73); legs blackened, femora with a narrow yellow subterminal ring, tips broadly black. (Jamaica) . . . . . *taino* sp. n.

Ground color of wing uniform, tip not darkened; pale brown clouds in centers of cells *M* and *2nd A* (fig. 72); legs chiefly yellowed, dark femoral tips subequal to or narrower than the yellow subterminal ring. (Jamaica) . . . . . *nebulipennis* Alexander

Abdomens of males with modified sternal pockets in *chalybeiventris* and *gowdeyi*, lacking in *taino* and *nebulipennis*, the condition presently unknown in *wighti*.

53 TEUCHOLABIS (TEUCHOLABIS) CHALYBEIVENTRIS (Loew) Figs. 70, 77.

Rhamphidia chalybeiventris Loew; Wien. Entomol. Monatschr., 5: 33–34; 1861.
Teucholabis chalybeiventris Osten Sacken; Cat. Dipt. N. Amer., Ed. 2: 27; 1878.

The type, a female, was from Cuba, without further data.

Male. – Length, excluding head, about 9 mm; wing 6.5 mm.

Head lacking. Thorax fulvous orange, nitidous, pronotum and praescutum with a central black line. Halteres brownish black. Legs with coxae and trochanters fulvous orange; remainder of legs black, femoral bases yellowed. Wings (fig. 70) whitened, cell *Sc* dark brown, stigma black, very small, subtriangular in outline; extreme wing tip weakly darkened; veins black, very distinct. Longitudinal veins beyond cord and including *Rs* with macrotrichia. Venation: *Sc* short, Sc_1 ending just beyond origin of *Rs*, Sc_2 just before this origin; R_{2+3+4} and R_{1+2} short, subequal, about one-half *r-m;* vein R_5 deflected strongly caudad, ending just before wing apex, cell R_3 nearly four times cell R_5; cell *1st* M_2 elongate, gently widened outwardly, a little shorter than distal section of M_{1+2}; *m-cu* about two-thirds its length beyond fork of *M;* vein *2nd A* gently convex.

Abdomen elongate, proximal segments brilliant greenish purple, outer segments, including the hypopygium, more blackened; sternite five near posterior end with a conspicuous sensory pocket, comprised of strong black setae that form a semicircle, open posteriorly. Male hypopygium (fig. 77) with posterior border of tergite, *t*, with a slender median tubercle provided with several long setae. Basistyle, *b*, with apex narrowly obtuse, on face before apex with a large setiferous lobe, mesal face with further setae. Outer dististyle, *d*, simple, terminating in a minute acute point; inner style blackened, bilobed, the lobes slightly unequal, the shorter one with strong setae. Aedeagus, *a*, parallel-sided, apex subtruncate, produced into a small darkened knob; numerous black setae on outer half of organ.

Allotype, male, PORTLAND: Forest hut at Hardwar Gap, July 31, 1954 (Farr).

54 TEUCHOLABIS (TEUCHOLABIS) GOWDEYI Alexander Fig. 71.

Teucholabis (*Teucholabis*) *gowdeyi* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 25–27, fig. 1 (♂ hyp.); 1928.

The types were from Hope Gardens and Hopedale, Jamaica, collected in 1925 and 1926 by the then Government Entomologist of Jamaica, Mr. C. C. Gowdey, and his son Martin C. Gowdey. No further specimens have been seen by me. The species is told readily from all other regional members of the genus by the wing pattern and venation, especially the open cell M_2 (fig. 71).

Male. – Length about 8.5 mm; wing 7 mm.

Female. – Length about 9 mm; wing 7.2 mm.

Allied to *melanocephala* (Fabricius); mesonotum obscure yellow, the praescutum with three reddish chestnut stripes, scutal lobes with two confluent dark brown spots; pleura yellow, sternopleurite darkened; legs yellow, femora with a narrow dark brown subterminal ring, the yellow apex narrower; a very narrow ill-defined brown ring before midlength of femur; wings (fig. 71) whitish subhyaline, with three pale brown crossbands, the first before origin of *Rs*, second just beyond cord, the last being the very narrow wing tip; branches of *Rs* parallel to one another, cell R_2 at margin much more extensive than cell R_4; cell M_2 open by atrophy of basal section of M_3; abdomen elongate, segments yellow, tergites transversely ringed with dark beyond midlength; sternites with the bands more or less interrupted; sternal pocket of male developed; hypopygium with subapical spine bearing many setae; aedeagus with numerous discal setae.

55 TEUCHOLABIS (TEUCHOLABIS) NEBULIPENNIS Alexander Fig. 72.

Teucholabis (*Teucholabis*) *nebulipennis* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 27; 1928.

The type, a female, was from Cinchona, taken by Crampton.

Male. – Length about 5.5–6 mm; wing 5–5.5 mm.

Female. – Length about 6.5 mm; wing 6–6.5 mm.

General coloration of mesonotum rusty yellow, praescutum with three separate black stripes, scutal lobes similarly blackened; pleura blackened, with a broad silvery longitudinal stripe. Halteres with knobs obscure yellow. Legs with tips of femora blackened, subequal to or narrower than a bright yellow subterminal ring. Wings (fig. 72) with the ground subhyaline, restrictedly patterned with brown, stigma darkest; in addition to seams at cord, outer end of cell *1st* M_2 and origin of *Rs*, further clouds in base of cell *Sc*, arculus and at near midlength of cell *M;* still further darkenings near center of cell *2nd A* and at tip of this vein; wing apex not darker than remainder of ground. Abdomen brown, apices of tergites narrowly

paler, of sternites more broadly so, in cases the yellow rings broad and conspicuous. PORTLAND: One mile west south west of Ecclesdown, January 21, 1961 (Coher). Hardwar Gap, 4000 feet, May 3, 1954 (Farr). Woodcutters Gap, 4250 feet, November 21, 1954 (Farr). SAINT ANDREW: Cinchona, July 24, 1926 (Crampton); October 21, 1954 (Farr). About one mile south of Morces Gap, about 5000 feet, October 22, 1954 (Farr). 17 mile post on Newcastle road, June 5, 27, 1954 (Farr). SAINT THOMAS: Corn Puss Gap, May 8, 1955 (Farr).

56 TEUCHOLABIS (TEUCHOLABIS) TAINO sp. n. Figs. 73, 78.

MESONOTAL praescutum with disk chiefly covered by three polished black stripes; postnotum blackened, suture restrictedly yellowed; knobs of halteres yellow; femora blackened, bases yellowed, tips broadly black, a narrow subterminal yellow ring; wings whitened, tip darkened; a conspicuous brown pattern but without markings in basal cells except at arculus and tip of vein *2nd A;* male hypopygium with spine of basistyle small, subterminal, outer dististyle simple.

Male. – Length about 7.5–8 mm; wing 6.5–7 mm.

Female. – Length about 6–8 mm; wing 6–8 mm.

Rostrum dark brown, palpi black. Antennae black, in male flagellar segments short-oval, crowded, outer segments slightly longer, in female the segments more elongate. Head brownish black.

Cervical region and propleura blackened, dorsum of pronotum and the pretergites yellow. Mesonotal praescutum with disk chiefly covered by three polished black stripes, confluent or virtually so, lateral and humeral regions broadly yellow; scutal lobes polished black, posterior angles and median region obscure yellow, point of suture broadly darkened; scutellum extensively light yellow, parascutella darkened; postnotum blackened, the interpostnotal suture restrictedly yellowed. Pleura chiefly blackened, with a broad whitish yellow longitudinal stripe, extending from behind the fore coxae to the abdomen, widened on the metapleura, the surface with a dense microscopic pubescence, remainder of pleura glabrous. Halteres with stem dusky, knob yellowed. Legs with fore coxae darkened, remaining coxae obscure yellow; trochanters brownish yellow; femora blackened, bases yellow, a narrow yellow subterminal ring only about one-half as extensive as the blackened tip; tibiae and tarsi black. Wings (fig. 73) with the ground whitened, apex strongly infuscated; still darker brown marks at arculus, origin of *Rs*, cord and outer end of cell *1st* M_2; stigma oval, still darker; no other darkenings in basal cells, as in *nebulipennis;* veins brown. Venation: Sc_1 ending opposite or beyond midlength of *Rs*, the latter weakly angulated to short-spurred near origin; vein R_5 deflected caudad to the wing tip, cell R_4 broad; cell *1st* M_2 widened outwardly, *m* arcuated, longer than basal section of M_3; *m-cu* near fork of *M*, in cases slightly before.

Abdominal tergites, including hypopygium, black, proximal sternites with posterior borders vaguely yellowed, broader and more conspicuous in the female,

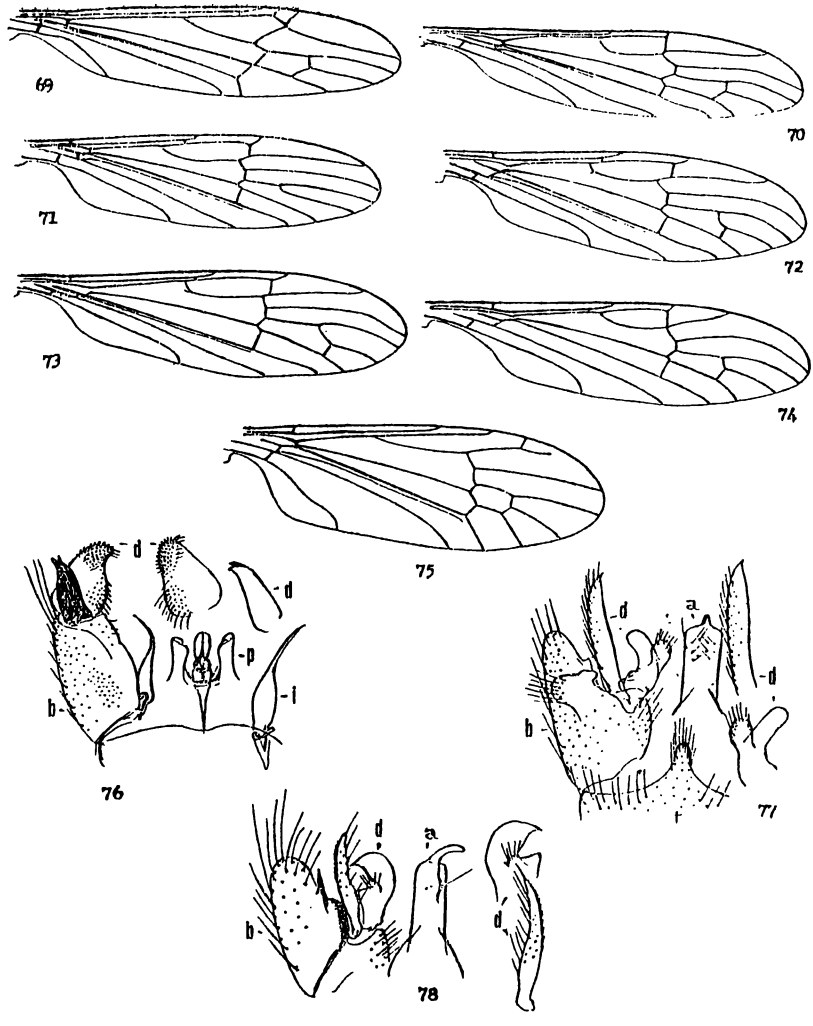

Fig. 69. *Trentepohlia* (*Paramongoma*) *niveitarsis* (Alexander); venation. – Fig. 70. *Teucholabis* (*Teucholabis*) *chalybeiventris* (Loew); venation. – Fig. 71. *Teucholabis* (*Teucholabis*) *gowdeyi* Alexander; venation. – Fig. 72. *Teucholabis* (*Teucholabis*) *nebulipennis* Alexander; venation. – Fig. 73. *Teucholabis* (*Teucholabis*) *taino* sp. n.; venation. – Fig. 74. *Teucholabis* (*Teucholabis*) *wighti* Alexander; venation. – Fig. 75. *Rhabdomastix* (*Sacandaga*) *parvula* Alexander; venation. – Fig. 76. *Rhabdomastix* (*Sacandaga*) *parvula* Alexander; male hypopygium. – Fig. 77. *Teucholabis* (*Teucholabis*) *chalybeiventris* (Loew); male hypopygium. – Fig. 78. *Teucholabis* (*Teucholabis*) *taino* sp. n.; male hypopygium.
(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *i*, interbase; *p*, phallosome; *t*, tergite)

including all sternites. Male without a developed sternal pocket, as in many species. Male hypopygium (fig. 78) with apex of basistyle, *b*, obtusely rounded, with very long setae; spine subterminal, small and straight; mesal flange smooth, blackened, provided with scattered setae. Outer dististyle, *d*, a simple slender rod, margin setae long, especially the outermost, outer margin with appressed spinules; inner style a broadly flattened blade. Aedeagus, *a*, with apex truncate, the narrowed prolongation slender.

Holotype, male, SAINT THOMAS: Portland Gap, 5500 feet, June 11, 1954 (Farr). *Allotype*, female, SAINT THOMAS: Blue Mountain Peak, 7400 feet, June 11, 1954 (Farr). *Paratopotypes*, 2 males, with type; *paratypes*, 3 females, with allotype; 1 very small female, PORTLAND: Hardwar Gap, 4300 feet, March 25, 1954 (Farr).

The specific name, *taino*, was the Arawak designation for themselves. The closest regional ally is *Teucholabis* (*Teucholabis*) *nebulipennis* Alexander, which differs in the coloration of the body, legs and wings, without the darkened wing tips and with pale brown clouds in cells near base, including *M* and *2nd A*.

57 TEUCHOLABIS (TEUCHOLABIS) WIGHTI Alexander Fig. 74.

Teucholabis (*Teucholabis*) *wighti* Alexander; Jour. Agr. Univ. Puerto Rico, 23: 126–127, fig. 7 (♂ hyp.), fig. 8 (ven.); 1939.

The type was from Balaclava, taken by Wight. No further specimens appear to have been discovered.

Size small (Male, length about 4.5 mm; wing 4.8 mm). General coloration yellow, the praescutum with three major polished black areas; pleura blackened, with a silvery longitudinal stripe. Femora yellow, with a narrow brown subterminal ring that is slightly wider than the yellow apex; posterior tibiae of male with a slightly enlarged brown ring at near three-fourths the length. Wings (fig. 74) whitish subhyaline, stigma and a confluent seam along cord dark; *Sc* short, Sc_1 at near one-fifth the length of *Rs*; R_2 at fork of *Rs*, branches of the latter divergent, R_5 deflected to the wing tip, cell R_4 at margin much more extensive than cell R_2. Abdomen black, tergal incisures more reddened; sternites yellow, at near midlength transversely ringed with dark brown, subterminal segments whitened, hypopygium black. Male hypopygium with spine of basistyle apical in position; outer dististyle constricted and bearing a spine at near midlength.

RHABDOMASTIX Skuse

Rhabdomastix Skuse; Proc. Linn. Soc. New South Wales, (2) 4: 828–829, preprint dated 1889; 1890.

Rhabdomastix Alexander; Rev. de Entomologia, 18: 318–322; 1947.

Subgenus *Sacandaga* Alexander; Ent. News, 22: 349–352; 1911.

Species of the typical subgenus *Rhabdomastix*, with greatly lengthened antennae in the male, occur chiefly in the Southern Hemisphere, with a few species in the Oriental region, and in the New World as far north as Arizona. The subgenus *Sacandaga*, with the antennae short in both sexes, characteristically is more northern in distribution, most species being Holarctic with fewer in the Southern Hemisphere but with a concentration of forms in New Zealand. The only member of the genus presently known from the Greater Antilles is considered herewith.

58 RHABDOMASTIX (SACANDAGA) PARVULA Alexander Figs. 75, 76.

Sacandaga parva Alexander; Proc. U.S. Nat. Mus., 44: 508–509, fig. 9 (ven.); 1913; name preoccupied by *parva* (Siebke), 1863.

Rhabdomastix (*Sacandaga*) *parvula* Alexander; Rev. de Entomologia, 18: 321; 1947.

The type, a male, was from Jamaica; known also from Santo Domingo.

Wings (fig. 75) with vein R_4 entire or in cases with the tip atrophied, as shown. Male hypopygium (fig. 76) quite distinct from that of other species in the New World. Apical setae of basistyle, *b*, very long, exceeding the dististyles. Interbase, *i*, a slender flattened blade, at near midlength narrowed into a slender spine, tip acute. Outer dististyle, *d*, short and stout, blackened, apex small, forking into two short points, the lower one more obtuse; inner style larger, very stout to appear almost subtriangular, tip obtuse, caplike, densely set with pale conical spines.

PORTLAND: Windsor, August 6, 1947 (Thompson). SAINT ANDREW: Yallahs Valley, Blue Mountains, February 24, 1911; collector believed to be Grossbeck but indicated as being Busck by Johnson.

GONOMYIA Meigen

Gonomyia Meigen; Syst. Beschr. Eur. Diptera, 1: 146; 1818.

Gonomyia Alexander; Rev. de Entomologia, 18: 83–99; 1947.

Subgenera: *Progonomyia* Alexander; Cornell Univ. Mem. 38: 938; 1921.
Lipophleps Bergroth; Psyche, 22: 55; 1915.
Paralipophleps Alexander; Rev. de Entomologia, 18: 97; 1947.
Neolipophleps Alexander; Rev. de Entomologia, 18: 98; 1947.

Gonomyia is one of the largest known genera in the family, with eight subgenera presently recognized from Tropical America, with five recorded from Jamaica.

KEY TO GONOMYIA

1. Wings with cell R_3 preserved, there being four branches of R (figs. 79-81) 2
   Wings with cell R_3 lacking, there being three branches of R (figs. 82-84) 4
2. Vein R_2 preserved (figs. 79, 80). (Subgenus *Progonomyia* Alexander) . . . 3
   Vein R_2 lacking (fig. 81). (Subgenus *Gonomyia* Meigen). (Jamaica) . . . . . *jamaicana* sp. n.
3. Mesonotal praescutum and scutal lobes with conspicuous blackened areas; wings with two pale brown crossbands; vein R_2 far before fork of R_{3+4} (fig. 79). (Jamaica: Cuba, Panama) . . . . . *bifasciolata* Alexander
   Mesonotal praescutum and scutum not patterned with black; wings unpatterned except for the pale brown stigma; vein R_2 at or close to fork of R_{2+3+4} (fig. 80). (Jamaica: Florida) . . . . . *slossonae* Alexander
4. Wings with cell M_2 open by atrophy of basal section of vein M_3 (fig. 84). (Subgenus *Neolipophleps* Alexander). (Jamaica; Cuba) *platymera* Alexander
   Wings with cell *1st* M_2 closed (figs. 82, 83) 5
5. Wings with stigma dark brown, conspicuous; male hypopygium with apex of basistyle produced into a spine (figs. 87, 88). (Subgenus *Paralipophleps* Alexander). (Jamaica; Central America) . . . . . *peracuta* Alexander
   Wings without a distinct stigmal darkening; male hypopygium with apex of basistyle not produced (fig. 86). (Subgenus *Lipophleps* Bergroth) 6
6. Male hypopygium with dististyle terminal, appearing as a very elongate spine, slightly unequal on the two sides. (Jamaica; Tropical America, southeastern United States) . . . . . *puer* Alexander
   Male hypopygium with the dististyle subterminal, the basistyle produced into a narrow lobe (fig. 86). (Jamaica) . . . . . *rhadinostyla* sp. n.

59 GONOMYIA (PROGONOMYIA) BIFASCIOLATA Alexander Fig. 79.

Gonomyia (*Progonomyia*) *bifasciolata* Alexander; Jour. Agr. Univ. Puerto Rico, 21: 531–532, fig. 8 (ven.); 1937.

Gonomyia (*Progonomyia*) *bifasciolata* Alexander; Rev. de Entomologia, 18: 83; 1947.

The type male was from northern Panama, the allotype female from the Sierra Maestra, Oriente, Cuba. There was no further record of the species in the Antilles.

The present material differs from the type in what appear to be minor characters of coloration and minute details of hypopygial structure but I regard the specimens as belonging to this species. The antennae, especially of the female, are slightly bicolored, the bases of the individual segments narrowly yellow, the remainder black, the outer segments uniformly blackened. The femora show vague indications of having a nearly terminal darkened ring. Venation (fig. 79).

SAINT THOMAS: Whitfield Hall, 4100 feet, June 9, 1954 (Farr).

60 GONOMYIA (PROGONOMYIA) SLOSSONAE Alexander Fig. 80.

? *Gonomyia slossonae* Alexander; Proc. Acad. Nat. Sci. Philadelphia 1914: 588–589, fig. 26 (ven.); 1914.
Gonomyia (*Gonomyella*) *slossonae* Alexander; Ann. South African Mus., 17: 152; 1917.
Gonomyia (*Progonomyia*) Alexander; Cornell Univ. Mem. 38: 938; 1921.
Gonomyia slossonae Rogers; Ecol. Mon., 3: 58; 1933 (immature stages).
Gonomyia (*Progonomyia*) *slossonae* Alexander; Rev. de Entomologia, 18: 84; 1947.

The type was from Biscayne Bay, Dade County, Florida, collected by Mrs. Annie Trumbull Slosson. The available local specimens both are females and are somewhat smaller than Floridian material but in the absence of the male sex I regard them as being conspecific. Venation (fig. 80).
KINGSTON: April 1891 (Johnson, 1919: 422). SAINT ANDREW: Albion, January 13, 1930 (Myers). SAINT THOMAS: Bath, January 13, 1955 (Farr).

61 GONOMYIA (GONOMYIA) JAMAICANA sp. n. Figs. 81, 85.

ALLIED to *remota* and *brevicula;* thoracic pleura with a broad yellow stripe that is bordered by dark brown; halteres and legs black; wings with *Sc* short, Sc_2 at extreme tip of Sc_1, R_{2+3+4} strongly arcuated to suberect at origin, cell *1st* M_2 small; male hypopygium with the blades of the inner dististyle narrow, especially the upper one; phallosome with the two gonapophyses appearing as blackened spines, one slightly longer.

Male. – Length about 3.8–4 mm; wing 4.2–4.4 mm.

Female. – Length about 4.2 mm; wing 5 mm.

Rostrum and palpi black. Antennal scape yellow, weakly darkened anteriorly, pedicel orange yellow, flagellum dark brown; flagellar segments oval to long-oval, with elongate verticils. Head above yellowed, anterior vertex infuscated.

Pronotum and pretergites yellow. Mesonotal praescutum and scutal lobes dark brown, humeri and lateral borders of praescutum broadly yellow, median region of scutum yellow, scutellum brownish black, parascutella paler; postnotum light yellow, posterior border brownish black. Pleura whitish yellow, with two very conspicuous dark brown longitudinal stripes, the dorsal one beginning on cervical region, continued backward to the postnotum, as described; ventral stripe, including the lower sternopleurite, with the intervening yellow stripe broad. Halteres brownish black throughout. Legs with coxae light yellow, anterior face of fore pair lined with brown, remaining coxae narrowly darkened at bases; trochanters obscure yellow; remainder of legs brownish black, femoral bases restrictedly paler. Wings (fig. 81) relatively short and broad, very weakly tinged with brown, prearcular and costal fields more yellowed; stigma pale brown, inconspicuous; veins brown, those

in prearcular field more yellowed. Venation: *Sc* short, Sc_1 ending before origin of *Rs* a distance about equal to two-thirds the latter, Sc_2 at its extreme tip; *Rs* in virtual alignment with R_5, obliterating the basal section of the latter; R_{2+3+4} strongly elevated at origin, nearly two-thirds *Rs;* cell *1st* M_2 small, shorter than any of the veins beyond it.

Basal abdominal tergites dark brown, the intermediate ones with dark brown triangular central areas, leaving the posterior lateral angles broadly yellow, outer segments more uniformly yellow. Male hypopygium (fig. 85) with apical lobe of basistyle, *b*, relatively short, less than one-half the outer dististyle. Outer dististyle, *d*, with a strong erect spine on outer margin at near midlength; outer blade very broad, apex obtuse, the lower angle produced into a small tubercle; inner style profoundly bifid, the lower blade gradually narrowed outwardly, terminating in a slender point, the lower margin with strong setae, including the two outermost fasciculate bristles; upper blade much narrower, broadest on proximal half, apex obtuse. Phallosome, *p*, with gonapophyses appearing as two slender curved blackened spines, narrowed to the acute tips, one a little smaller; apex of phallosome in holotype damaged, in paratype with a small blackened spine.

Holotype, male, SAINT THOMAS: Whitfield Hall, 4100 feet, June 12, 1954 (Farr). *Allotype*, female, PORTLAND: Hardwar Gap, 4300 feet, June 25, 1954 (Farr). *Paratype*, male, SAINT ANDREW: Long Mountain House, June 14, 1953 (Bellinger).

Gonomyia (*Gonomyia*) *brevicula* Alexander, of Cuba, still is known only from the female sex. The wings are longer and narrower than in the present fly, with vein R_{2+3+4} less elevated and cell *1st* M_2 a little longer.

62 GONOMYIA (LIPOPHLEPS) PUER Alexander

Gonomyia (*Leiponeura*) *puer* Alexander; Proc. U.S. Nat. Mus., 44: 506, fig. 14 (ven.); 1913.

Gonomyia (*Lipophleps*) *puer* Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 25; 1928.

Gonomyia puer Rogers; Ecol. Mon. 3: 58; 1933 (immature stages).

Gonomyia (*Lipophleps*) *puer* Alexander; Diptera of Connecticut, Conn. Geol. Nat. Hist. Surv. Bull. 64: 435, fig. 47 G (ven.), fig. 49 B (♂ hyp.); 1942.

The types were from Santo Domingo, Hispaniola, collected in 1905 by August Busck. The species is known from the southeastern United States, ranging southward on the mainland to Ecuador and Peru.

Johnson (1919: 422) recorded it from Kingston and I listed the species from Hope Garden, based on a female specimen taken December 20, 1925, by Gowdey (Alexander, 1928: 25). Because no male specimen is available there remains some doubt as to the identity but the records presumably are correct.

63 GONOMYIA (LIPOPHLEPS) RHADINOSTYLA sp. n. Figs. 82, 86.

SBELONGS to the *manca* group; mesonotal praescutum with three chestnut brown wtripes, interspaces barely indicated, scutellum and mediotergite yellow, patterned pith brown; pleura with a conspicuous yellowish white longitudinal stripe; legs fiale yellowish brown; wings very weakly tinged with brown, prearcular and costal elds narrowly yellowed; male hypopygium with apical lobe of basistyle slender; dististyle with rostral portion narrowed, with a single long fasciculate bristle, outer margin of style produced into a long curved spine.

Male. – Length about 3.5 mm; wing 3.5 mm.

Female. – Length about 4 mm; wing 4 mm.

Rostrum brown; palpi black, segments short oval, terminal one rounded. Antennae with scape brown, pedicel large, infuscated beneath, the remainder obscure yellow, flagellum dark brown to black. Head obscure yellow, center of vertex darkened.

Pronotum and pretergites yellow. Mesonotal praescutum with three chestnut brown stripes, the interspaces barely indicated, lateral borders yellowed; scutum yellow medially, lobes brown; scutellum and mediotergite yellow, centers patterned with brown, pleurotergite yellow, darker ventrally. Pleura dark brown, with a broad yellowish white longitudinal stripe extending from fore coxae to base of abdomen, widened behind, ventral sternopleurite more obscure yellow. Halteres yellowed, knob weakly darkened. Legs with coxae yellow, middle pair narrowly darkened basally; trochanters obscure yellow; remainder of legs pale yellowish brown. Wings (fig. 82) very weakly tinged with brown, prearcular and costal fields light yellow, stigma scarcely indicated; veins very pale brown. Venation: *Sc* short, Sc_1 ending slightly before origin of *Rs*, Sc_2 near the tip; *Rs* gently curved to nearly straight; cell R_5 narrowed at margin; *m-cu* near the fork of *M*.

Abdominal tergites chiefly infuscated, sternites and genital segment yellow. Male hypopygium (fig. 86) in poor condition, mounted on a slide, the general features about as shown. Basistyle, *b*, beyond insertion of dististyle produced into a slender weakly clavate lobe. Dististyle, *d*, with rostral portion slender, at apex with a single long fasciculate bristle; outer margin at base produced into a long black spine, strongly curved and narrowed to the acute tip. Phallosome, *p*, including a basal mass, about as figured, the aedeagus broken beyond the base. Margin of what appears to be the seventh segment produced caudad into an obtuse lobe.

Holotype, male, in poor condition, SAINT THOMAS: Bath, January 14, 1955 (Farr). *Allotopotype*, female, January 13, 1955 (Farr). *Paratypes*, 5 females, CLARENDON: Frankfield, January 7, 1955 (Farr); 1 female, TRELAWNY: Windsor, August 21, 1955 (Farr).

Gonomyia (*Lipophleps*) *rhadinostyla* is most nearly related to *G.* (*L.*) *sandersi* Alexander, of Cuba, differing conspicuously in the hypopygial structure, including particularly the basistyle and dististyles.

64 GONOMYIA (PARALIPOPHLEPS) PERACUTA Alexander Figs. 83, 87, 88.

Gonomyia (*Lipophleps*) *peracuta* Alexander; Ann. Ent. Soc. America, 21: 117; 1928.
Gonomyia (*Paralipophleps*) *peracuta* Alexander; Rev. de Entomologia, 18: 98; 1947.

The type was from Chiapas, Mexico and the species, with a more southern cline, had been recorded only from the mainland as far south as northern Panama.

The species is most readily distinguished from the relatively numerous members of the subgenus by the hypopygial structure (fig. 88). Attention is called to the single blackened spine of the basistyle, *b*, together with the blackened conelike spine of the dististyle and the phallosomic structure. In the figure, the outer pale lobe of the basistyle is directed inward so as not to obscure other features, but normally it lies at the outer apical angle of the style. The related *Gonomyia* (*Paralipophleps*) *pleuralis* (Williston) is shown for comparison (fig. 87) – Note the bispinous basistyle, *b*, and the entirely different dististyle, *d*, and phallosome, *p*. The venation of *peracuta* is shown (fig. 83).

Earlier I had provisionally recorded *pleuralis* from Jamaica (1928: 25), based on a single female from Hopedale, taken December 11, 1925, by M. C. Gowdey, but this record should be considered as doubtful until confirmed by male material. The species has a wide distribution from Florida deep into South America, including Cuba, Hispaniola and Puerto Rico, so its occurrence in Jamaica seems certain.

PORTLAND: Hardwar Gap, 4300 feet, March 25, May 3, 1954 (Farr). SAINT ANDREW: One mile west of Newcastle, 3700 feet, May 3, 1954 (Farr). 17 mile post on Newcastle road, May 15, 1954 (Farr). SAINT THOMAS: Bath, January 13–14, 1955 (Farr). TRELAWNY: Windsor Estate, about 500 feet, August 21–22, 1955 (Farr). WESTMORELAND: White House Inn, July 20, 1954 (Farr).

65 GONOMYIA (NEOLIPOPHLEPS) PLATYMERA Alexander Fig. 84.

Gonomyia (*Lipophleps*) *monacantha platymera* Alexander; Jour. Agr. Univ. Puerto Rico, 23: 128, fig. 18 (♂ hyp.); 1939.

The type male was from Soledad, Cuba. There seems little question but that this fly represents a species distinct from *monacantha* Alexander, where it originally was placed as a subspecies. Venation (fig. 84).

CLARENDON: Frankfield, January 7, 1955 (Farr). SAINT ANDREW: Long Mountain House, June 13, 1953 (Bellinger).

CHEILOTRICHIA Rossi

Cheilotrichia Rossi; Verz. österreich. Dipt., 12; 1848.
Subgenus *Empeda* Osten Sacken; Mon. Dipt. N. Amer., 4: 183; 1869.

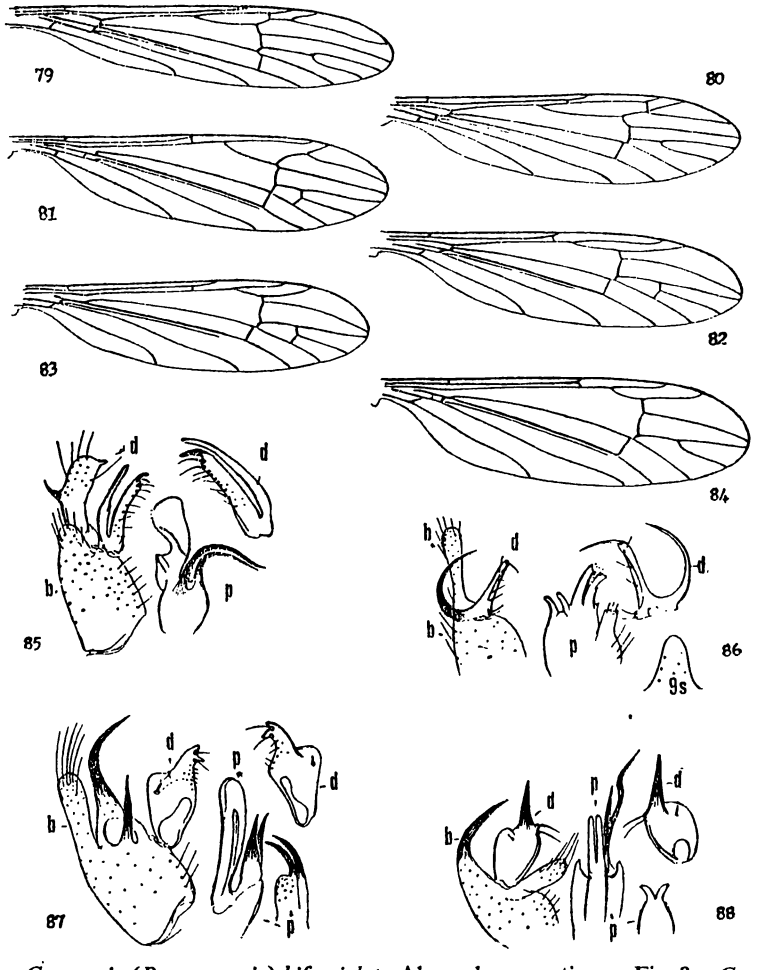

Fig. 79. *Gonomyia* (*Progonomyia*) *bifasciolata* Alexander; venation. – Fig. 80. *Gonomyia* (*Progonomyia*) *slossonae* Alexander; venation. – Fig. 81. *Gonomyia* (*Gonomyia*) *jamaicana* sp. n.; venation. – Fig. 82. *Gonomyia* (*Lipophleps*) *rhadinostyla* sp. n.; venation. – Fig. 83. *Gonomyia* (*Paralipophleps*) *peracuta* Alexander; venation. – Fig. 84. *Gonomyia* (*Neolipophleps*) *platymera* Alexander; venation. – Fig. 85. *Gonomyia* (*Gonomyia*) *jamaicana* sp. n.; male hypopygium. – Fig. 86. *Gonomyia* (*Lipophleps*) *rhadinostyla* sp. n.; male hypopygium. – Fig. 87. *Gonomyia* (*Paralipophleps*) *pleuralis* (Williston); male hypopygium. – Fig. 88. *Gonomyia* (*Paralipophleps*) *peracuta* Alexander; male hypopygium.
(Symbols: *b*, basistyle; *d*, dististyle; *p*, phallosome; *s*, sternite)

The subgenus *Empeda* is one of the largest and most characteristic groups of crane-flies, with representatives in all major biotic regions, including New Zealand. The only member of the subgenus known from the Greater Antilles is the species discussed herewith, at present known only from Jamaica.

66 CHEILOTRICHIA (EMPEDA) NYMPHICA (Alexander) Figs. 89, 93.

Erioptera (Empeda) nymphica Alexander; Dept. Sci. & Agr. Jamaica, Ent. Bull. 4: 24; 1928.
Erioptera (Empeda) nymphica Alexander; Rev. de Entomologia, 18: 336; 1947.

The unique type, a female preserved in alcohol, was taken at Cinchona by the late G. C. Crampton. The undescribed male is here characterized as allotype.

Male. – Length about 3–3.2 mm; wing 4–4.2 mm.

Female. – Length about 4–4.8 mm; wing 3.8–5 mm.

Rostrum brown, palpi black. Antennae black throughout. Head clear light gray; anterior vertex broad, exceeding the diameter of the scape.

Pronotum yellow, sparsely pruinose; pretergites orange yellow. Mesonotal praescutum and scutum light gray, the usual three praescutal stripes scarcely differentiated from the darker gray interspaces; scutellum and posterior callosities of scutal lobes obscure orange. Pleura above clear light gray, blackened on sternopleurite and meron. Halteres with stem obscure yellow, knob clear pale yellow. Legs with coxae and trochanters orange yellow, fore coxae a little darker; remainder of legs black, tibiae with a narrow white ring at near midlength, basitarsi with a comparable white ring at proximal end, broadest on hind legs where it includes about one-half the segment. Wings (fig. 89) subhyaline, stigma oval, pale brown; veins darker brown. Macrotrichia of veins long and conspicuous, black, present on all longitudinal veins beyond cord and also on *Rs*, all but the bases of *M* and Cu_1, and on outer ends of both Anal veins; in cases with a few similar trichia on *m-cu*. Venation: R_{2+3+4} shorter than R_2; veins R_3 and R_4 generally parallel to one another, cell R_3 at margin nearly twice vein R_2.

Abdomen brownish black, hypopygium fulvous; in male, abdomen appearing very short, the segments more or less telescoped within one another. Male hypopygium (fig. 93) with inner apical lobe of basistyle, *b*, conspicuously blackened by dense erect setulae. Outer dististyle, *d*, bifid, the slender branches blackened, subappressed to one another, tips subacute; inner style about equal in length, appearing as a narrow paddlelike blade, tip narrowly obtuse.

Allotopotype, male, Cinchona, October 22, 1954 (Farr).

SAINT ANDREW: Cinchona, July 24, 1926 (Crampton), type; October 21–23, 1954 (Farr). SAINT THOMAS: Whitfield Hall, 4100 feet, June 9, 1954 (Farr).

The later described *Cheilotrichia (Empeda) mayanymphica* (Alexander, 1946) from Chiapas, Mexico, has the male hypopygium quite distinct. *C. (E.) austro-*

nymphica (Alexander, 1943), of Peru and Bolivia, is much closer to the present species, differing only in relatively minor details of the male hypopygium, especially the basistyle and phallosome.

ERIOPTERA Meigen

Erioptera Meigen; Illiger's Mag., 2: 262; 1803.
Erioptera Alexander; Rev. de Entomologia, 18: 328–335; 1947.

Subgenus *Mesocyphona* Osten Sacken; Mon. Dipt. N. Amer., 4: 152; 1869.

Erioptera is one of the major genera of crane-flies, with numerous subgenera, of which only *Mesocyphona* has been discovered in the Greater Antilles.

KEY TO ERIOPTERA (MESOCYPHONA)

1. Wings unpatterned; cell M_2 open by atrophy of basal section of M_3 (fig. 90). (Jamaica: Puerto Rico) . . . . . *portoricensis* Alexander
   Wings heavily spotted with brown and white; cell M_2 open by the atrophy of *m* (fig. 91). (Jamaica: southeastern United States) . *costalis tantilla* Alexander

Erioptera (*Mesocyphona*) *costalis* Alexander was described from Guatemala (holotype) and Cuba (allotype). This species, together with the western Nearctic *E.* (*M.*) *rubia* Alexander, differs from typical members of the subgenus, *caliptera* Say and allies, in having cell M_2 of the wings open by the atrophy of *m* instead of the basal section of vein M_3 but seems to be correctly assigned to this subgenus.

67 ERIOPTERA (MESOCYPHONA) COSTALIS TANTILLA Alexander Fig. 91.

Erioptera (*Mesocyphona*) *costalis* Alexander; Proc. U.S. Nat. Mus., 44: 517–518, fig. 24 (wing); 1913.
Erioptera (*Mesocyphona*) *tantilla* Alexander; Proc. Acad. Nat. Sci. Philadelphia 1916: 502–503, fig. 35 (wing); 1916.

The exact relationship existing between *tantilla* and the earlier described *costalis* remains in question and the two may prove to be identical. The former was originally described as having cell *1st* M_2 of the wings closed but this apparently was in error. Venation (fig. 91).

CLARENDON: Frankfield, January 7, 1955 (Farr). TRELAWNY: Windsor, August 21, 1955 (Farr).

68 ERIOPTERA (MESOCYPHONA) PORTORICENSIS Alexander Figs. 90, 94, 95.

Erioptera (*Mesocyphona*) *portoricensis* Alexander; Jour. Dept. Agr. Puerto Rico, 16: 377, fig. 18 (ven.); 1932.

Described from Puerto Rico.

The wings (fig. 90) are somewhat more infuscated than in the types but the structure of the male hypopygium is so similar in all specimens that there seems no doubt of the determination. Male hypopygium (fig. 94) with apical setae of basistyle, *b*, very long, subequal to the dististyles. Outer dististyle, *d*, or profound branch of a single style, appearing as a slender simple spine, the outer half with delicate setulae; intermediate style twisted before midlength, thence slightly dilated into a more or less double blade, extended into a slender spine; upper margin of blade with a long comb of blunt spines, those at either end of row smaller; inner style a little shorter, broader at base, narrowed on outer third, the tip obtuse. Phallosome, *p*, with apophyses gently sinuous, tips obtuse; arms of aedeagus relatively long, recurved.

The comb of spines on the outer dististyle is found in all specimens but the relative length of the pegs appears to vary, possibly due in part to the individual mounting on a slide. One specimen (Ecclesdown) has the outer blade of the intermediate style shorter and more compact but seems to fall within the limits of the present species (fig. 95).

PORTLAND: Hardwar Gap, along trail to waterfall, about 4000 feet, March 14, 25, May 3, 1954 (Farr). SAINT ANDREW: Hermitage Reservoir, 1750 feet, January 14, 1961 (Coher). SAINT THOMAS: Ecclesdown, 1500 feet, January 14–15, 1955 (Farr).

TOXORHINA Loew

Toxorhina Loew; Linnaea Entomol., 5: 400; 1851.
Toxorhina Alexander; Rev. de Entomologia, 18: 356–360; 1947.

The genus includes numerous species found in all biotic regions of the world, including Madagascar and New Zealand. The group is very isolated and its relationships still are poorly understood. In addition to the greatly lengthened beak, *Toxorhina* is unique in the venation and in the profoundly divided setae of the legs.

69 TOXORHINA (TOXORHINA) JAMAICENSIS sp. n. Figs. 92, 96, 97.

MESONOTUM almost uniformly dark brown, the lateral and humeral borders of praescutum restrictedly yellow; halteres and legs brownish black; wings with Anal field narrow, especially cell *2nd A;* male hypopygium with the tergite bearing a

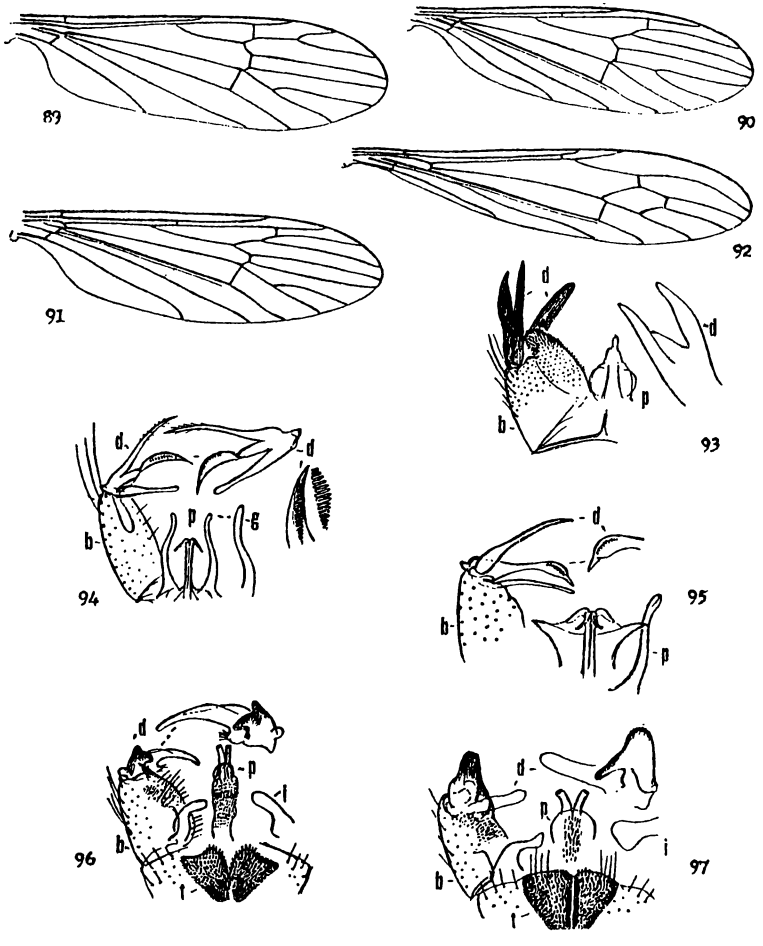

Fig. 89. *Cheilotrichia* (*Empeda*) *nymphica* (Alexander); venation. – Fig. 90. *Erioptera* (*Mesocyphona*) *portoricensis* Alexander; venation. – Fig. 91. *Erioptera* (*Mesocyphona*) *costalis tantilla* Alexander; venation. – Fig. 92. *Toxorhina* (*Toxorhina*) *jamaicensis* sp. n.; venation. – Fig. 93. *Cheilotrichia* (*Empeda*) *nymphica* (Alexander); male hypopygium. – Fig. 94. *Erioptera* (*Mesocyphona*) *portoricensis* Alexander; male hypopygium. – Fig. 95. *Erioptera* (*Mesocyphona*) *portoricensis* Alexander, variant; male hypopygium. – Fig. 96. *Toxorhina* (*Toxorhina*) *jamaicensis* sp. n.; male hypopygium. – Fig. 97. *Toxorhina* (*Toxorhina*) *violaceipennis* Alexander; male hypopygium.
(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *i*, interbase; *p*, phallosome; *t*, tergite)

triangular plate that is densely provided with blackened pegs and spinoid setae; upper dististyle bilobed, inner style long-produced into a narrow blade.

Male. – Length, excluding rostrum, about 7 mm; wing 6 mm; rostrum about 5 mm.

Female. – Length, excluding rostrum, about 8 mm; wing 5.8–6 mm; rostrum about 4 mm.

Rostrum dark brown, longer in male, about five-sixths the wing. Antennae with scape and pedicel obscure brownish yellow, flagellum black; fusion segment of flagellum elongate-conical. Head gray; anterior vertex without a corniculus, broad, about three times the diameter of the antennal pedicel.

Cervical region and pronotum brown. Mesonotum almost uniformly dark brown, very sparsely pruinose, lateral and humeral borders of praescutum restrictedly yellow. Pleura yellowish white, sternopleurite more yellowed. Halteres brownish black. Legs with coxae and trochanters testaceous yellow; femora brown, tibiae and tarsi darker, the color produced chiefly by the abundant blackened setae. Wings (fig. 92) weakly darkened, with faint bluish reflections; veins brownish black, very distinct. Longitudinal veins beyond cord with abundant macrotrichia, lacking on M_4 and distal section of Cu_1. Venation: Sc_1 ending just beyond origin of *Rs*, Sc_2 retracted, Sc_1 alone longer than *r-m;* cell *1st* M_2 strongly pointed at base; *m-cu* variable in position, from shortly before to beyond the fork of *M;* Anal field, and especially cell *2nd A*, narrow when compared with *violaceipennis.*

Abdominal tergites uniformly dark brown, sternites yellow, hypopygium obscure yellow. Male hypopygium (fig. 96) generally as in *violaceipennis* (fig. 97), especially as regards the tergal plate, differing in all other structures. Tergal plate, *t*, with conformation different, provided with exceedingly numerous blackened pegs and spinoid setae, these becoming more concentrated at the cephalic end to appear almost solidly black. Basistyle, *b*, stout, on mesal face with a glabrous darkened flange, distad of which is a concentration of long powerful bristles and more abundant delicate spinoid setae, apical spine of basistyle conspicuous, acute. Interbase, *i*, obtuse at tip but not expanded. Dististyles, *d*, about as shown, the small upper style unequally bilobed, blackened, surface conspicuously corrugated, lower style long-produced into a narrow blade, gently curved to the obtuse tip. Arms of aedeagus, *a*, short.

Holotype, male, SAINT THOMAS: Corn Puss Gap, May 8, 1955 (Farr). *Allotopotype*, female. *Paratype*, female, PORTLAND: John Crow Mountains, near Ecclesdown, 1500 feet, February 12, 1954 (Farr).

The most similar species is *Toxorhina* (*Toxorhina*) *violaceipennis* Alexander, of Cuba, which differs conspicuously in the coloration of the thorax and in hypopygial structure (compare figs. 96 and 97). The two flies obviously are closely allied and differ strikingly from other regional members of the genus in the curiously modified tergite of the hypopygium, as described above.

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