

SYNOPSIS OF THE NEW WORLD SPECIES OF THE DIPTEROUS FAMILY ASTEIIDAE¹

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Over ten years ago I published a revision and catalogue of the New World flies of the small family Asteiidae (Sabrosky, 1943). Since that time the discovery of new species and the accumulation of miscellaneous notes and corrections have made it desirable to bring the revision up to date. The present paper, which includes two new genera and 24 new species, raises from 18 to 43 the number of recognized New World species.

Several complexes still remain unclarified, chiefly because of the inadequacy of available material of the tiny and delicate species. Therefore, it seems best merely to record the apparent existence of a number of undescribed species in the *albovaria* complex in *Asteia*, *Loewimyia*, the *bicolor* complex in *Sigaloessa*, and a possible new genus from Panama. For some species, good series will be necessary to study possible variation; for others, good specimens to make possible an adequate description.

The linear interfrontal stripes, formerly sometimes used as a basis for species, are now known to be found only in the males. However, in this sex their length compared with that of the front or with the position of the orbital bristles is often a useful specific characteristic.

The present paper was stimulated especially by an interesting series of specimens kindly submitted for study by Dr. M. Aczél of the Instituto Miguel Lillo at Tucumán, Argentina. I am also indebted particularly to Dr. M. Beier, of the Naturhistorisches Museum in Vienna, for the loan of the holotype of *Leiomyza laevigata* Meigen and the type series of *Sigaloessa dispar* Schiner; C. H. Curran, American Museum of Natural History, New York City, for the loan of the holotype of *Sigaloessa rica* Curran (*insularis*); P. J. Darlington, Jr., of the Museum of Comparative Zoology, Cambridge, Mass., for notes on the holotype of *Sigaloessa bicolor* Loew; P. Ardö, of the University of Lund, Sweden, for notes on the holotype of *Anthophilina curvinervis* Zetterstedt; J. F. McAlpine, of the Canadian Department of Agriculture at Ottawa, for turning over to me his notes and material on *Leiomyza*; and George Steyskal, Detroit, Mich., and M. R. Wheeler, of the University of Texas at Austin, for the loan of especially important material. Scattered specimens are acknowledged as they are recorded. A large part of the material is located in the U. S. National Museum (USNM).

REVISED KEY TO NEW WORLD GENERA OF ASTEIIDAE

1. Hind crossvein absent; alula absent, the wing margin bare in alular region (Asteinae) 2
- Hind crossvein present; alula present, though sometimes narrow, margined with long hairs (Sigaloessinae) 3
2. One pair of strong, erect, reclinate orbital bristles; acrostical hairs absent; arista present (Canada to Argentina) **Asteia**
- No strong orbital bristles; median row of acrostical hairs present; arista absent (Neotropical; Texas) **Loewimyia**
3. Second vein long, ending in costa well beyond first vein; mesopleuron with numerous fine hairs (Nearctic) **Leiomyza**
- Second vein short, ending in costa with or only slightly beyond the first vein, the second costal sector at most the length of anterior crossvein; mesopleuron usually bare, haired only in *Phlebosotera* 4
4. Mesopleuron with numerous hairs; sixth vein and a short, truncate anal cell clearly visible as traces or folds in wing (except in *peculiaris*); one pair of dorsocentral bristles (except in *peculiaris*); acrostical hairs numerous (Nearctic) **Phlebosotera**
- Mesopleuron bare; anal vein absent, the anal cell sometimes weakly indicated but never distally truncate; one or two pairs of dorsocentrals; acrostical hairs few, in a single row, or two rows close together with diverging hairs, rarely absent. 5
5. Head depressed and elongated, in profile its length greater than height at vertex and at least twice the height at base of antennae; eye elongate, its greatest length 1.5 times its greatest width, the long axis nearly parallel to front; one pair of outstanding, erect, reclinate orbital bristles; one pair of dorsocentral bristles; discal cell short, the anterior crossvein midway or slightly beyond **Bahamia**
- Head not depressed and elongated, in profile as high or higher than long; eye large and rounded, not elongated, at most the length slightly greater than the height, the long axis then parallel with lower cheek margin. 6
6. Vibrissal interval narrowed, the facial ridges strongly converging ventrad and lateral oral margins converging cephalad; one pair of strong, erect, reclinate orbital bristles; discal cell short, the anterior crossvein midway, and penultimate section of fourth vein obviously much shorter than ultimate section of fifth vein; two pairs of dorsocentral bristles; scutellum yellow, contrasting with mesonotum (Neotropical; southeastern United States, Maryland to Texas) **Sigaloessa**
- Vibrissal interval wide, the facial ridges parallel and lateral oral margins not strongly converging cephalad; two pairs of weak orbitals, often little more than slightly developed hairs, and generally laterocline; discal cell longer, the penultimate section of fourth vein subequal to or greater than ultimate section of fifth; one or two pairs of dorsocentrals; scutellum yellow (*Astiosoma*) or black (*Tucumyia*) 7
7. One pair of dorsocentral bristles; long axis of eye nearly horizontal; discal cell elongate, the hind crossvein well beyond level of junction of second

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- vein with costa; scutellum black, concolorous with mesonotum (Neotropical)..... **Tucumyia**
- Two pairs of dorsocentrals; long axis of eye vertical; head obviously higher than long, not depressed and flattened, the greatest breadth 1.25 to 1.4 times the height; discal cell only moderately long, the hind crossvein directly behind junction of second vein and costa; scutellum yellow (Nearctic)..... **Astiosoma**

Asteia Meigen

Asteia Meigen, 1830, Syst. Besch., vol. 6, p. 88. Type-species, *Asteia amoena* Meigen, by designation of Westwood (1840).

Asteimyia Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 505. Type-species, *Asteimyia spinosa* Sabrosky, by original designation. NEW SYNONYMY.

A revised key to the New World species is necessary because of the description of six new species, the correction of an error in the original description of *striatifrons*, and the synonymizing of *Asteimyia* Sabrosky. After reviewing the world species of *Asteia* and observing the considerable range of characters and their various combinations, I now feel that *Asteimyia* falls within a necessarily broadened concept of *Asteia*.

KEY TO NEW WORLD SPECIES OF ASTEIA

1. Three pairs of dorsocentral bristles, the foremost pair presutural..... 2
- Two pairs of dorsocentrals, both postsutural..... 4
2. All femora and tibiae with dark brown bands; pleuron below with broad brown stripe across sternopleuron and hypopleuron (El Salvador)..... **fasciata**
- Legs and pleuron pale yellow..... 3
3. Bristles black and conspicuous; two black crossbands on face; third antennal segment rounded, as long as broad (Costa Rica)..... **spinosa**
- Bristles bright yellow, less conspicuous; only one black crossband on face; third antennal segment pyriform or subreniform (Costa Rica, Panama)..... **antennata**
4. Mesonotum yellow, marked with pairs of black to reddish-black spots representing parts of mesonotal stripes (western United States and Canada)..... **multipunctata**
- Mesonotum black..... 5
5. Mesonotum highly polished, not pollinose except for narrow, inconspicuous prescutellar band (Fla. to Argentina)..... 6
- Mesonotum shining, but covered with fine, sparse pollen (Canada and northern U. S., Maine to British Columbia)..... **beata**
6. Lower face with broad or narrow, cream or white crossband; meso- and pteropleuron with or without black stripe along lower margins..... 7
- Face entirely smooth and polished black; broad black stripe across lower portion of meso- and pteropleuron (Peru)..... **striatifrons**
27. Meso- and pteropleuron with broad black stripe across lower portions..... 8
- Meso- and pteropleuron yellow, sometimes deep yellow to orange below but not with a definite black stripe..... 9
8. Mesopleuron with anterodorsal corner shining brown to black; cheek polished dark brown; male interfrontal stripes comparatively short and broad, each approximately as wide as median ocellus and ending barely anterior to level of median ocellus, approximately midway

- between it and an orbital bristle; male genitalia as in fig. 13, the right prong of forceps only slightly enlarged at apex (Peru)..... **albovaria**
- Mesopleuron anterodorsally yellow, except for linear upper margin; cheek yellow; male interfrontal stripes longer and narrower than in *albovaria*, each obviously much narrower than median ocellus and ending only slightly postero-mesad to the base of an orbital bristle, one-fourth the distance from bristle to median ocellus; male genitalia as in fig. 14, the right prong of forceps greatly expanded at apex (Costa Rica, Florida)..... **expansa**
9. Face below with narrow white crossband, whose width is two-fifths that of the brown areas above and below it, and obviously less than that of the median clypeal plate; male genitalia as in fig. 15 (Argentina)..... **lineifacies**
- Face with broader white crossband, obviously (although not greatly) wider than median clypeal plate and at the midline wider than the black area below it; male genitalia not as figured for *lineifacies*..... 10
10. Disk of scutellum at base with semilunar, brownish-black spot, its greatest length nearly half that of scutellum; male genitalia as in fig. 10 (Venezuela)..... **semilunata**
- Disk of scutellum whitish yellow; male genitalia not as figured for *semilunata*..... 11
11. Arista before the distal fork with two side branches above and two below; male interfrontal stripes narrow and half the length of front, ending exactly opposite bases of orbital bristles; male genitalia as in fig. 11, the right prong of forceps broadly expanded distally (S. Brazil)..... **plaumanni**
- Arista before the distal fork with three side branches above and two or three below; male interfrontal stripes longer, over half the length of front and ending anterior to bases of orbital bristles; male genitalia as in fig. 12, the right prong of forceps not broadly expanded apically (Argentina)..... **argentinica**

Asteia fasciata, new species

Species with three pairs of black dorsocentral bristles, brown-banded femora and tibiae, and brown stripe across lower pleuron.

Male.—Brown and yellow, with black bristles; front dark yellow; ocellar tubercle black; occiput brown; rest of head yellow to whitish yellow except for straight black stripe across anterior oral margin between the vibrissae, and black upper two-fifths of third antennal segment. Mesonotum and scutellum brown, a narrow, incomplete, yellow stripe in each dorsocentral position; pleuron whitish yellow above, below with a broad brown stripe extending across sterno- and hypopleuron. Abdomen brown. Legs yellow, marked with brown as follows: broad median band on fore coxa, subbasal band on all femora, all knees, and two narrow bands on all tibiae. Wing light brown. Halter knob brown, the stalk yellow.

Head broader than thorax; front slightly collapsed but apparently broader than long; male interfrontal stripes long, three-fourths the length of front, each ending mesad of the base of an orbital bristle; face broad, the vibrissae widely separated; cheek one-fifth the height of eye and nearly one-half the breadth of third antennal

²For the remaining couplets of the key, see discussion under "The albovaria complex."

segment; palpus with four long, evenly-spaced bristles below; antenna similar to that of *A. antennata* (cf. Sabrosky, 1943, fig. 3) but not as strongly developed above and below; chaetotaxy: strong orbital and inner and outer vertical bristles, the proclinate ocellar pair weaker but distinct; a pair of erect interfrontal hairs on front above bases of antennae; strong vibrissa, followed by a row of five black hairs on lower cheek.

Mesonotum and scutellum finely pollinose, subshining; no acrostical hairs; chaetotaxy: 3 dorsocentral, 1+1 notopleural, 1 postsutural intra-alar, 1 postalar, 2 sternopleural, and 1 scutellar pair of bristles, and a weak hair anterior to each apical scutellar.

Wing venation approximately as figured for *Loewimyia* (Sabrosky, 1943, fig. 1).

Length of body, 1 mm.; of wing, 1.25 mm.

Holotype male, 12 km. northwest of Santa Tecla, El Salvador, April 1954 (W. B. Heed). Type No. 63101 in the U. S. National Museum, deposited by courtesy of M. R. Wheeler.

This species is closely related to *A. spinosa* and *A. antennata*, both originally described in *Asteimyia*. Like them, it has three pairs of dorsocentral bristles and the orbital pair placed well forward on the front. It is intermediate between *spinosa* and *antennata* in the form of the antenna. As in *spinosa* (but not in *antennata*, q.v.), there is a distinct postsutural intra-alar bristle, as well developed as the posterior notopleural.

***Asteia spinosa* (Sabrosky), new combination**

Asteimyia spinosa Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 505 (Costa Rica).

***Asteia antennata* (Sabrosky), new combination**

Asteimyia antennata Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 506 (Costa Rica).

Study of more material from the type locality in Costa Rica and two excellent specimens from Panama convinces me that this species does not possess the postsutural intra-alar bristles found in *spinosa* and *fasciata*. The fine condition of the Panama specimens makes possible a few additions and corrections to the original description. The dorsal half of the second antennal segment, on the outside only, is concolorous with the black area on the third segment. The mouthparts are large, with rostrum and clypeal plate particularly long and strong. The four mesonotal stripes, with median pair abbreviated, show up clearly as light reddish-brown stripes on the yellow mesonotum. The abdomen is predominantly membranous, with a pair of large, round, black spots about midway on the dorsum. Each wing is marked with two black areas, one strong and including the distal portions of first and second veins, the other a slight infuscation at the apex of the wing, including the apices of the third and fourth veins.

Additional distribution: *Canal Zone*: Two males, Summit, Sept. 1946 (N. L. H. Krauss) [USNM].

***Asteia multipunctata* Sabrosky**

Asteia multipunctata Sabrosky, 1939, Pan-Pacific Ent. 15: 165 (B. C. to N. Mex.).

The recorded range of this species is western North America, British Columbia to New Mexico.

Additional distribution: SASKATCHEWAN: male, Saskatoon, June 28, 1941 (A. P. Arnason) [Dominion Ent. Lab., Saskatoon]. UTAH: two males, one female, Duchesne (M. R. Wheeler) [Wheeler Colln.]. WYOMING: female, Guernsey, Aug. 1, 1950 (R. R. Dreisbach, R. K. Schwab) [Dreisbach Colln.].

***Asteia beata* Aldrich**

Asteia beata Aldrich, 1915, Psyche 22: 95 (Mass.).

Asteia beata was previously recorded from eastern United States, Maine to Illinois, but the following records change that picture considerably.

Additional distribution: MONTANA: male, Glacier Park, Aug. 14, 1916 (A. L. Melander) [USNM]. OREGON: female, Astoria, Aug. 8, 1935 (K. Gray) [Oregon State College Colln.]. BRITISH COLUMBIA: 53, both sexes, Kaslo, June 25 (R. P. Currie) [USNM]; two, Howson Lake, June 24, 1905 (J. C. Bradley) [Acad. Nat. Sci. Phila.]; male, Mission City, June 5, 1953 (Edith Mason [Canad. Dept. Agr.]).

***Asteia striatifrons* Malloch**

Asteia striatifrons Malloch, 1930, Ann. & Mag. Nat. Hist., ser. 10, 6: 323 (Peru).

In my 1943 key I characterized this species on the basis of Malloch's description as having a black stripe along the upper margin of the mesopleuron. However, on examination of the type, I find that Malloch's "upper" was a lapsus for "lower" and that the pleural pattern is actually like that of *A. albovaria*. No synonymy is involved because *striatifrons* is distinct on other characters. I have seen only the holotype, from Peru.

The *albovaria* complex

For *albovaria* and five new species, the key may be reliable only for males. In each couplet, however, a color or structural character is used which should apply to both sexes, judging from experience with other species of the family. The arisal character used in couplet 11 may be a weak distinction, especially in view of variation observed elsewhere and the differences in the two examples of *argentinica*, but it is consistent in the seven specimens of *plummanni*. In the absence of other apparent differences, it may help to distinguish females.

The species have a similar habitus, and but for the unusually distinct male genitalia they could easily be identified as variants of one wide-ranging species. All are characterized by having two pairs of strong dorsocentral bristles; front and occiput black; face below with cream or white crossband, flanked with black above and below; mesonotum polished black, without pollen

except for a narrow and inconspicuous pre-scutellar band; scutellum yellow, brownish black at base of disk in one species (*semilunata*); pleuron chiefly or entirely yellow; legs pale yellow; knob of halter black; wing venation typical of *Asteia* (cf. Curran, 1934, p. 328, fig. 3); length 1.75 to 2 mm.

Figs. 8 to 13 show the outer aspect of the left and right prongs of the genital forceps of the six species. Because of the strong curvature of the right prong, neither posterior nor direct profile views of the hypopygium will show the striking differences in shape. Accordingly, each prong is figured separately, the right as seen in ventrolateral aspect, the left more nearly in lateral aspect.

Asteia albovaria Aldrich

(Fig. 13).

Asteia albovaria Aldrich, 1915, *Psyche* 22: 95 (Peru).

I have seen only the holotype. The diagnostic characters are given in the key. The facial crossband is white and broader than in any of the other species of the complex, at the midline being 1.5 times as wide as the black crossband above it and three times that below it. The sternopleuron is entirely yellow, and this may possibly be another distinction from *expansa*.

Asteia expansa, new species

(Fig. 14).

The diagnostic characters are those given in the key. For the general habitus, see the description under the *albovaria* complex. Other features which may prove to be reliable distinctions from *albovaria* are the yellow and slightly narrower crossband on the lower face (0.80 times the black band above it), and the sternopleural spot edged with black along upper margin.

Holotype male and allotype, San Jose, Costa Rica, July (H. Schmidt). Type No. 63109 in the U. S. National Museum. Paratypes: male, San Miguel, Ecuador, Nov. 30, 1955 (H. R. Yust) [USNM]; female, Gainesville, Florida, Apr. 21, 1952 (O. Peck) [Canad. Dept. Agr.].

The San Jose female was described by Sabrosky (1943, *Ann. Ent. Soc. Amer.* 36: 503) under the name *albovaria*, but the male was not available for study at that time. The male genitalia of *albovaria* and *expansa* proved to be unusually distinct (cf. figs. 13 and 14).

Asteia lineifacies, new species

(Fig. 15).

The diagnostic characters are given in the key, and the general habitus under the "albovaria complex." The male interfrontal stripes are relatively short and broad, and far distant from the ocellar tubercle, each approximately as wide as the median ocellus and ending posteromesad to the base of an orbital bristle.

Holotype male, Cainzo, Quebrada, Tucumán,

Argentina, Apr. 30, 1953 (R. Golbach). In the Instituto Miguel Lillo at Tucumán.

The white facial crossband is almost linear and much narrower than in any other species of *Asteia* known to me.

Asteia semilunata, new species

(Fig. 10).

The diagnostic characters are given in the key, and the general habitus under the "albovaria complex." The male interfrontal stripes are fairly long, half the length of the front and ending opposite and slightly in advance of the bases of the orbital bristles.

Holotype male, Tovar, Merida, Venezuela, Aug. 7, 1943 (Pablo Anduze). Allotype, Caño del Tigre, Venezuela, Sept. 1943 (Anduze). Type No. 63181 in the U. S. National Museum.

The male genitalia show a distinctly expanded right prong of the forceps, though not as extreme as in *expansa*. The color character of brown spot at base of scutellum is not found in any of the other species of this complex before me, and will be a useful means of recognition.

Asteia plaumanni, new species

(Fig. 11).

The diagnostic characters are given in the key, and the habitus in the discussion under "the albovaria complex."

Holotype male, allotype, and two paratypes (male, female), Nova Teutonia, Santa Catarina, Brazil, November 1948 (F. Plaumann) [USNM]; three paratypes (male, two females), same locality and collector, July 5, 7, and 10 (male), 1937 [Mus. Helsingfors]. Type No. 63182 in the U. S. National Museum, deposited by courtesy of Mr. George Steyskal.

This and the following species, *argentinica*, are the least distinctive of the complex, except for male genitalia. The expanded right prong of the forceps of *plaumanni* is quite different than in any of the other species. The number of branches on the arista is consistent in the above series.

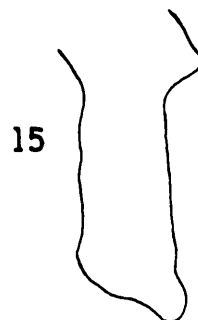
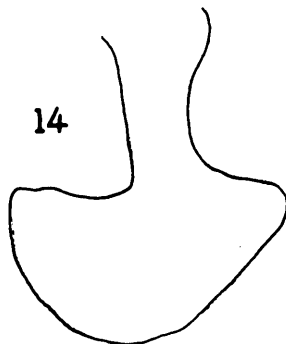
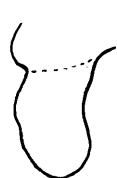
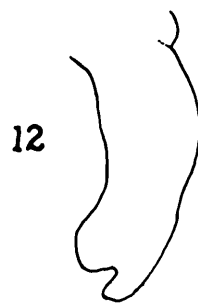
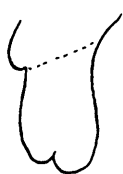
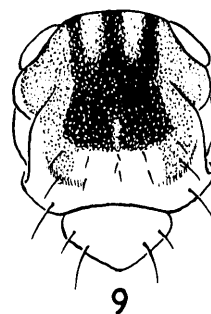
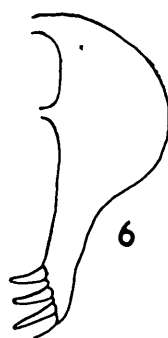
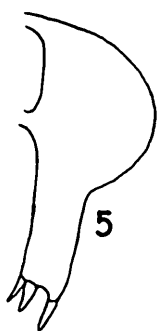
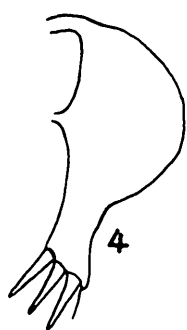
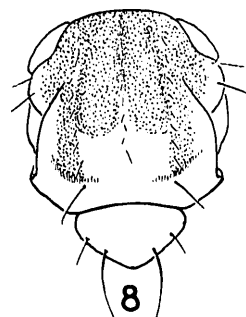
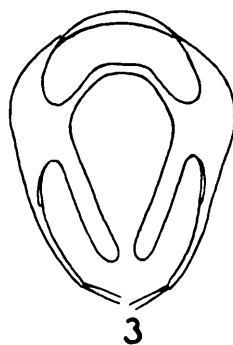
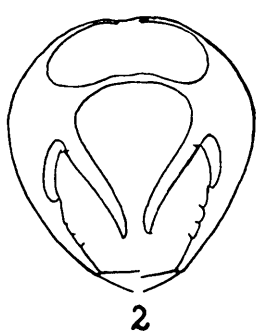
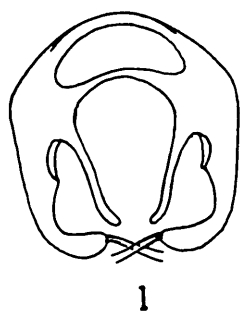
Asteia argentinica, new species

(Fig. 12).

The diagnostic characters are given in the key,

EXPLANATION OF FIGURES

FIGS. 1-3, posterior view of male terminalia of *Leiomysa laevigata* (1), *L. wheeleri* (2), and *L. curvinervis* (3); FIGS. 4-7, profile of ninth tergum and genital forceps of *Sigaloessa semiglabra* (4), *S. nigrifrons* (5), *S. flavifrons* (6), and *S. frontalis* (7); FIGS. 8 and 9, dorsal aspect of mesonotum of *Astiosoma aridum* male (8) and female (9); FIGS. 10-15, outer aspect of left and right prongs of genital forceps of *Asteia semilunata* (10), *A. plaumanni* (11), *A. argentinica* (12), *A. albovaria* (13), *A. expansa* (14), and *A. lineifacies* (15). Drawings 1-3, 8, and 9 by Arthur Cushman, others by the author.



and the habitus in the discussion under "the albovaria complex."

Holotype male, Clorinda, Formosa, Argentina, November 1949 (R. Golbach). Allotype, Colonia Benitez, Chaco, Argentina, Dec. 1-7, 1948 (Golbach). In the collection of the Instituto Miguel Lillo, Tucumán.

As noted above, this species and *plumanni* are the least distinctive of the complex as far as external characters are concerned. The arista character given in the key for separating the two may not hold true when more material is available. The number of side branches is very consistent in the seven specimens of *plumanni*, but in *argentinica* the single remaining arista in the female has three branches above and three below, before the distal fork, but the aristae in the male have three above and two below.

Loewimyia Sabrosky

Loewimyia Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 503. Type-species, *L. bifurcata* Sabrosky, by original designation and monotypy.

I have now seen a total of ten specimens of the genus, and in each the third antennal segment bears a fringe of unusually long hairs, but no arista can be seen. Three of the specimens are in excellent condition for study, and the absence of the arista appears to be truly characteristic, an unusually interesting feature of the genus.

Loewimyia bifurcata Sabrosky

Loewimyia bifurcata Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 504 (Panama).

In addition to the original two from Panama, only three specimens have been seen, all from Ecuador and collected by Dr. R. Levi-Castillo at the following localities: Hacienda San Miguel, one kilometer from Milagro, Guayas, Oct. 21, 1955; Chilcales, Guayas; Machala, El Oro, December 1955.

Loewimyia species

Five specimens are available which represent one or possibly two undescribed species, but their poor condition makes it inadvisable to describe them. They differ from the type species of the genus, *L. bifurcata* Sabrosky, in having the margin of the third antennal segment entire or only weakly indented, not deeply notched. They are recorded here because of the important extension of distribution of the genus, previously known only from two specimens from Panama.

Specimens examined: TEXAS: Waco, Aug. 4, 1949 (W. B. Lattimore; swept from cotton); Brownsville, Aug. 24, 1954, collected in airplane studies of insects in the upper air currents [USNM]. BAHAMAS: Rum Cay, near Port Nelson, Mar. 16, 1953, and Driggs Hills near South Bight, Andros Island, April 27, 1953 (E. B. Hayden & L. Giovannoli) [Amer. Mus. Nat. Hist.]. EL SALVADOR: Puerto Triunfo, April 1954 (W. B. Heed) [M. R. Wheeler Colln.].

Leiomyza Macquart

Leiomyza Macquart, 1835, Hist. nat. Dipteres, vol. 2, p. 605. Type-species, *Agromyza glabricula* Meigen = *L. scatophagina* (Fall.), by designation of Blanchard, 1840, in Castelnau, Hist. Nat. Animaux articulés, vol. 3, p. 629.

Leiomyza is Holarctic except for one species described from Australia. The long second vein readily distinguishes it from all other asteiids in the Western Hemisphere. In addition, the hitherto overlooked character of hairs on the mesopleuron is shared only with the genus *Phlebosotera*.

Aldrich (1919, Ent. News 30: 137-141) recorded the genus from North America based on two new species, *slossonae* and *melanderi*, distinguished by differences in the proportions of the fore and hind femora compared with the mid femur. However, study of a long series of approximately 230 specimens of *Leiomyza* from Europe and North America reveals that the femoral proportion is only a sexual character throughout the genus, and Aldrich's species are opposite sexes of the same species. Even with this synonymy, four species can now be recorded from North America.

In addition to the stouter fore and mid femora, males may be recognized by the narrow, yellow interfrontal stripes along the mesal margin of the dark upper orbital plates and opposite to but slightly shorter than the ocellar tubercle. In dark specimens the stripes may be somewhat obscure. The genitalia are small, and separation of the sexes is not always easy unless the genitalia are extruded or the above features are evident. A general color difference which is sometimes useful is that the cerci are blackish in the females and whitish in the males.

It is interesting to note that many specimens are recorded as having been collected on fungi.

KEY TO NEARCTIC SPECIES OF LEIOMYZA

1. Halter knob black..... 2
- Halter knob yellow..... 3
2. Legs yellow, at most the femora, especially the hind femur, weakly browned on distal third; male genitalia as in fig. 1, the outer forceps strongly curved and distally enlarged (Holarctic)... *laevigata*
- Legs yellow, all femora more or less distinctly infuscated on entire length; male genitalia as in fig. 2, the outer forceps straight or only gently curved, narrowing to the apex (New Mexico, Utah)..... *wheeleri*
3. Dorsocentral bristles in line with or slightly posterior to level of postalar bristles; front dull or subshining, finely pollinose up to ocellar tubercle and upper orbits, and usually yellow or pale brown and contrasting with the black tubercle and orbits (Holarctic)..... *curvinervis*
- Dorsocentrals well forward, little behind the level of posterior notopleurals and far in advance of postalars; front polished, not pollinose, usually black or dark brown, narrowly yellow at anterior margin (Holarctic)..... *scatophagina*

Leiomyza laevigata (Meigen)

Agromyza laevigata Meigen, 1830, Syst. Besch., vol. 6, p. 179.

Diagnosis: Black species with yellow legs and

yellow to brownish-yellow front, face, cheek, palpus, basal antennal segments and ventral half of third segment, and stalk of halter, the halter knob black; legs yellow, at most the femora, especially the hind femur, weakly browned on distal third, and distal segment of all tarsi brown. Front shining, sometimes sparsely and very indistinctly pollinose on anterior half; orbital bristles strong but usually shorter than inner vertical bristles. Thorax and abdomen smooth and highly polished, scutellum finely pollinose; dorsocentral bristles inserted well back on posterior slope of mesonotum, slightly posterior to level of postalar bristles and obviously less than their own length from the scutellum. Male genitalia as figured (fig. 1), the outer forceps strongly curved and distally enlarged, each bearing two strong bristles.

Laevigata was long recognized as the one *Leiomyza* with black halter knob, and the character was so distinct that no junior synonyms are known. However, in specimens with this character I find that there are three different kinds of male genitalia, which are fortunately associated with some small external differences that apply to both sexes. One species, the true *laevigata* is Holarctic, one is central European, and one occurs in the southwestern United States. The new European species has been described elsewhere in a revision of the Old World Asteiidae now in press.

Laevigata is clearly distinguished from *L. wheeleri* n. sp. by the male genitalia, but in external appearance the two are very close. In material before me, the difference in leg coloration is sufficient to separate them, but paler and teneral specimens of *wheeleri* might be confused with *laevigata*. It is possible that the two occupy quite different ranges, and should this prove to be the case their separation would be much easier.

In dried specimens with genitalia extruded, the outer forceps are usually turned so that their apices and apical bristles are directed laterad. The flexure is basal, however, and does not affect the sharp curvature of the arms of the forceps.

Specimens examined: MICHIGAN: Male, Detroit, June 6, 1939, "on agaric" (G. Steyskal) [Steyskal Colln.]. ONTARIO: 34 (27 males, 7 females), Marmora, various dates from Aug. 7 to 25, 1952, one labeled "on fungi" and five "from toadstool" (J. F. McAlpine); male, Ottawa, June 7, 1951, "bleeding elm" (McAlpine); male, Ottawa, July 26, 1951, at light (McAlpine); two males, Ottawa, Aug. 7, 1952, "on agaric in hollow elm" (J. R. Vockeroth) [Canad. Dept. Agr.]. Also 26 European specimens, including the holotype of *laevigata*, from Austria, Germany and Finland.

Leiomyza wheeleri, new species

Male, female.—As described for *laevigata*, but the front more often reddish brown, all femora

infuscated except at knees, and distal segment of all tarsi black; male genitalia as figured (fig. 2), the outer forceps straight or only gently curved, narrowing to the apex, with strong bristles distally.

Length of body, 1.75 mm.; of wing, 2.25 mm.

Holotype male, Silver City, N. Mex., Aug. 5, 1950 (M. R. Wheeler). Allotype, Cliff, N. Mex., Aug. 29, 1950 (Wheeler). Paratypes: Ten males, same data as type; one female, same data as allotype; two females, Glenwood, N. Mex., Aug. 7, 1950 (Wheeler); one female, Heber, Utah, Aug. 17, 1940 (R. H. Beamer). Type No. 63102 and paratypes in the U. S. National Museum; paratypes in Wheeler Collection; Utah paratype in Snow Colln., University of Kansas.

The species is named in honor of the collector, who has taken many asteiids in connection with his field work on Drosophilidae. The infuscated femora are distinctive, though in some specimens they are only lightly browned, quite possibly because of immaturity.

Leiomyza curvinervis (Zetterstedt)

Anthophilina curvinervis Zetterstedt, 1838, *Insecta Lapponica*, Diptera, p. 785 (Lapland) (Cited in error as *curvipennis* by Zetterstedt, 1848, *Diptera Scandinaviae*, vol. 7, p. 2677).

Leiomyza slossonae Aldrich, 1919, *Ent. News* 30: 140 (N. H., Wash., Idaho). NEW SYNONYMY.

Leiomyza melanderi Aldrich, 1919, *Ent. News* 30: 141 (Idaho, Wash., Quebec). NEW SYNONYMY.

Leiomyza opacifrons Duda, 1927, *Deut. Ent. Ztschr.* 1927: 122 (Germany). NEW SYNONYMY.

Diagnosis: As described for *laevigata*, except halter and legs yellow; front dull or subshining, finely pollinose up to ocellar tubercle and upper orbits; male genitalia as figured (fig. 3), the outer forceps nearly straight, elongate and slender.

As already noted, the femoral proportions upon which Aldrich based his species are only secondary sexual characters. *Slossonae* is the male and *melanderi* the female of the same species. I have also compared European and American specimens, including the male genitalia, and believe that they represent one Holarctic species. As a result of studies on the European species, reported elsewhere in a paper on the Old World Asteiidae, I find that the oldest name is *curvinervis* Zetterstedt. In recent European literature, the species has been called *opacifrons* Duda because *curvinervis*, long buried in the synonymy of *scalophagina*, had been overlooked.

Distribution: Widespread in Canada and northern and western United States and Alaska. Sixty-one specimens (36 males, 25 females) have been examined from the following localities: ALASKA: Three miles south of Lake Spenard, Aug. 9, 1948, on toadstool (R. I. Sailer). ARIZONA: Heber, Long Valley, Mogollon Rim Road. CALIFORNIA: Arcadia, Honda, Monrovia, Pasadena, Prairie Creek State Park (Humboldt Co.), Rio Hondo. IDAHO: Malad, Moscow, Mt. Moscow. NEW HAMPSHIRE: Franconia, Lake of the Clouds on

Mt. Washington. NEW MEXICO: Silver City. OREGON: Gold Beach, Scappoose, Triangle Lake. WASHINGTON: Almota, Bellingham, Bogachiel, Peshastin, Sequim. WYOMING: Teton Pass. BRITISH COLUMBIA: Mission. ONTARIO: Ottawa, Waynooth. QUEBEC: Great Whale River. Seasonal range: June 10 (Ottawa, Ont.) to Dec. 31 (Pasadena, Calif.; over half of the specimens collected in August. European material examined: 48, both sexes, Germany and Sweden, including holotype of *curvinervis* and 44 specimens determined by Duda as *opacifrons*.

Leiomyza scatophagina (Fallén)

Heteroneura scatophagina Fallén, 1823, Diptera Sueciae, Agromyzides, p. 3 (Sweden).

Leiomyza scatophagina (Fallén), Zetterstedt, 1848, Diptera Scandinaviae, vol. 7, p. 2676.

Diagnosis: As described for *laevigata* except as follows: Front usually black or dark brown, narrowly yellow at anterior margin; halter and legs yellow; dorsocentral bristles well forward, as given in key; male genitalia similar to *wheeleri* (cf. fig. 2) but the inner and outer forceps shorter and slightly more curved.

European and American specimens have been compared and appear to me to belong to the same species.

Specimens examined: MICHIGAN: Female, Detroit, July 11, 1943 (G. Steyskal) [Steyskal Colln.]. NEW HAMPSHIRE: Female, Franconia (Mrs. Slosson) [USNM]. NEW YORK: Female, Aurora, June 30, 1952 (A. Stone); female, Mecklenburg, June 1, 1940 (A. Stone) [USNM]. TENNESSEE: Female, Beach Gap, 5500 ft., Gatlinburg, July 2, 1947 (R. H. Whittaker) [USNM]. ONTARIO: Female, Bell's Corners, Sept. 21, 1951 (G. E. Shewell); male, female, Marmora, Aug. 7 (♀) and 12, 1952, the female labeled "at toadstool on locust stump" (J. F. McAlpine); male, Ottawa, Oct. 2, 1951, at bleeding elm (J. F. McAlpine) [Canad. Dept. Agr.]. European material examined: 13 males, 10 females, from Germany, Sweden, and Finland, including the original pair of *scatophagina*.

Phlebosotera Duda

Phlebosotera Duda, 1927, Deut. Ent. Ztschr. 1927: 119, 125. Type-species, *P. mollis* Duda, by original designation (n. gen., n. sp.) and monotypy.

This genus was first recorded from North America in my 1943 revision. Two new species have since been found, one represented by a good series of males, the other by two females. Both species are easily separated from *setipalpis* Sabrosky by the much narrower cheek, but the distinctions between the two are less clear cut.

A peculiar new species, intermediate among three genera, is also referred here.

KEY TO NEW WORLD SPECIES OF PHLEBOSOTERA

1. Two pairs of dorsocentral bristles; wing without trace of sixth vein, and the weakly defined anal cell not truncate (Virgin Islands)..... **peculiaris**

- One pair of dorsocentrals; sixth vein and a short, truncate anal cell clearly visible as traces or folds in wing (Nearctic)..... **2**
2. Cheek relatively broad, one-fifth to one-sixth the head height and nearly three-fourths the breadth of third antennal segment; bristles yellowish to brown; antenna yellow; occiput yellow with bidentate, brown to black spot centrally above the occipital foramen; greatest width of first posterior cell equal to or greater than that of submarginal cell (1.00 to 1.1 times) (Utah, N. Mex., Ill.)..... **setipalpis**
- Cheek narrow, one-tenth the head height and one-third the breadth of third antennal segment; bristles predominantly black..... **3**
3. Greatest width of first posterior cell less than that of submarginal cell (0.81 to 0.94 times), the former obviously narrower; third antennal segment yellow; occiput predominantly yellow, with bidentate fuscous spot centrally above foramen, each side sometimes appearing to extend dorsally to bases of vertical bristles; ocellar tubercle centrally yellow, each ocellus edged with black (Texas)..... **angustigena**
- Greatest width of first posterior cell slightly greater than that of submarginal cell (1.05 to 1.06 times); third antennal segment fuscous to black, except narrowly at base; occiput dark brown to black except narrowly behind eyes and below; ocellar tubercle black (Ontario, Quebec)..... **shewelli**

Phlebosotera setipalpis Sabrosky

Phlebosotera setipalpis Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 511 (Utah).

Nine specimens have come to my attention in the years since this species was described from a single male from Utah. The holotype is now in the U. S. National Museum, through the courtesy of Dr. G. F. Knowlton. The Illinois locality is an unusual record, being far removed from the other known localities. The cheek is slightly narrower than in western specimens, but by no means as narrow as in the new species.

Additional distribution: ILLINOIS: Male, Urbana, July 23, 1920 [Ill. Nat. Hist. Survey]. NEW MEXICO: Female, Reserve, June 27, 1951 (M. R. Wheeler) [Wheeler Colln.]. UTAH: Female, Moab, June 8, 1948 (Knowlton, S. F. Wood); male, Delta, June 28, 1949 (G. E. Bohart, Knowlton); male, Myton, July 15, 1953 (Knowlton, Lieberman) [USNM]; four females, Junction, Aug. 14, 1951 (M. R. Wheeler) [Wheeler Colln.].

Phlebosotera angustigena, new species

Yellow species with narrow cheek, reddish brown disk of mesonotum, brownish stripe across lower pleuron, and first posterior cell narrower than submarginal cell.

Male.—Head deep yellow above and behind, whitish yellow below; ocellar tubercle centrally yellow, with black edge along each ocellus; occiput with bidentate fuscous spot centrally above occipital foramen, the sides of the spot sometimes appearing extended dorsally to bases of vertical bristles, but possibly only discoloration; antenna yellow, arista black with yellow basal segment; mouthparts yellow; vertical bristles black. Thorax with disk of mesonotum light reddish brown up to humeri and notopleura,

which are whitish yellow along with upper pleuron and scutellum; pleuron with broad brown to fuscous stripe below, including the propleuron, lower two-fifths of mesopleuron, sternopleuron except anterodorsal margin, and hypopleuron; postscutellum fuscous; thoracic bristles and hairs predominantly dark brown; mesopleural hairs whitish yellow. Male genitalia shining yellow. Legs yellow. Wing clear, veins yellow to light brown; halter whitish yellow.

Head slightly higher than long; front dull, moderately broad, at vertex only slightly narrower than its length, 1.5 times the width of an eye and slightly over two-fifths the width of the head; linear interfrontal stripes of male over half the length of front and ending well in advance of the median ocellus; ocellar tubercle not unusually large, its width across posterior ocelli barely over one-third the width of front; cheek narrow, one-tenth the eye height and one-third the breadth of third antennal segment; arista slender, under high magnification weakly zigzag with distinct though minute side hairs; palp with long, pale distal bristle, not as long as the palp itself and not as conspicuous as in *setipalpis*; inner and outer vertical bristles well developed, the ocellars and postverticals weak, short and hairlike; uppermost orbital hair longer than usual in the genus, subequal to ocellars.

Thorax shining, the mesonotum only sparsely pollinose, pleuron more heavily so; chaetotaxy, 1+1 notopleural, 1 postalar, 1 posterior dorso-central, 2 scutellar, and 1 sternopleural pairs of bristles; two somewhat irregular rows of acrostical hairs.

Venation as figured by Sabrosky, 1943, p. 504, fig. 4, but the first posterior cell is a bit narrower, its greatest width 0.81 to 0.94 times that of the submarginal cell.

Length of body, 1.5 mm.; of wing, 1.75 mm.

Holotype and eight paratypes, all males, Austin, Texas, Apr. 28, 1955, "sweeping elm trunk" (M. R. Wheeler). Type No. 63183 in the U. S. National Museum, paratypes in USNM and Wheeler Colln.

***Phlebosotera shewelli*, new species**

Yellow species with narrow cheek, reddish front, black third antennal segment, predominantly black occiput, and reddish disk of mesonotum.

Female.—Head whitish yellow below, the front reddish yellow, ocellar tubercle black, and occiput dark brown to black except narrowly behind eyes and below; basal antennal segments reddish yellow, the third segment black except narrowly at base; arista black, basal segments yellow; palpus yellow; vertical bristles black. Thorax with yellow ground color, the disk of mesonotum up to humeri and notopleura reddish brown, narrowly margined with dark brown to black anteriorly and on sides, becoming reddish yellow

on posterior slope; pleuron broadly brown to black below, the propleuron black and continuous with dark stripe along lower two-fifths of mesopleuron, and sterno- and hypopleuron predominantly black, narrowly yellow margined above; scutellum yellow, the disk faintly browned towards base; thoracic bristles predominantly black; mesonotal hairs black, mesopleural hairs whitish yellow. Terga of preabdomen and the pregenital terga and sternum black. Legs yellow. Wing clear, veins light brown; halter whitish yellow.

Head as described for *angustigena*, but the third antennal segment unusually large for the genus, its breadth one-half the width of the front at vertex.

Thorax as described for *angustigena*.

Terga of preabdomen shining but thinly pollinose; pregenital terga and sternum smooth and polished.

Venation as figured by Sabrosky, 1943, p. 504, fig. 4.

Length of body, 1.75 mm.; of wing, 2.25 mm.

Holotype female, Ottawa, Ontario, July 21, 1946, on basement window (G. E. Shewell). In collection of Canadian Department of Agriculture, Ottawa. Paratype, female, Wakefield, Ontario, July 9, 1946 (G. E. Shewell) [USNM].

One female, Grosse Ile, Wayne County, Michigan, June 13, 1948 (G. Steyskal) [USNM] is intermediate between *shewelli* and *angustigena*. In wing venation, it resembles *angustigena*, but in color and size it agrees with *shewelli*, and I place it tentatively with the latter.

***Phlebosotera peculiaris*, new species**

Reddish-yellow species with halter knob black, and two pairs of dorsocentral bristles.

Female.—Head yellow in ground color, the front brownish on upper three-fourths, occiput brown centrally, cheek silvery white pruinose except for shining dark brown lower margin and epistoma, clypeus shining dark brown. Thorax with mesonotum light reddish brown up to the white humeri, notopleura, and scutellum; pleuron chiefly whitish yellow with broad brown stripe across lower portions of meso- and pteropleuron; sternopleuron reddish below; postscutellum brown. Abdominal terga dark brown, genitalia yellow. Legs yellow. Wing clear, veins yellow; halter knob predominantly black, stalk yellow. All bristles black; hairs chiefly black, the pleural hairs yellow.

Head and eye slightly longer than high, the long axis of eye nearly horizontal; front subshining, narrower than long, wider than an eye and 0.42 times the width of head; ocellar tubercle two-fifths the width of front; cheek moderately broad, widening posteriorly, at its narrowest one-fifth the eye height and slightly over half the breadth of third antennal segment; arista slender, very weakly zigzag, appearing bare under low

magnification, but with minute and barely perceptible stubs of side hairs (70 X magnification); inner and outer vertical bristles distinct but not long; ocellars and postverticals more distinct than usual; uppermost two orbital hairs only slightly stronger than the preceding hairs in the row.

Mesonotum shining, but finely pollinose; chaetotaxy as described for *P. angustigena* except for two pairs of strong dorsocentral bristles; two well separated rows of acrostical hairs.

Venation approximately as figured by Sabrosky, 1943, *l.c.*, p. 504, fig. 4, except for shorter second vein which throughout its length approximately parallels the first vein, separated from it by a distance only half the width of the costal cell, and enters costa with the first vein, eliminating the second costal sector.

Length of body, 1.5 mm.; of wing, 1.5 mm.

Holotype female, West Indies Company Pier, St. Thomas, Virgin Islands, Aug. 26, 1956 (R. Delgado, in fruit fly trap). Paratype, female, St. Croix, Virgin Islands, Sept. 8, 1956 (R. Delgado, in fruit fly trap). Type No. 63343 in the U. S. National Museum.

This distinct species is intermediate among *Phlebosotera*, *Astiosoma*, and *Tucumyia*. If referred to any of these, it appears as a discordant element, but at the present stage of knowledge I do not wish either to propose a new genus for it or to synonymize any of the above too hastily. For present convenience I have placed it in *Phlebosotera*, principally on the basis of the haired mesopleuron and numerous acrostical hairs. It differs from all other known species of that genus in having two pairs of dorsocentral bristles and longer head and eye, and in lacking traces of the anal vein and truncate anal cell. The wing venation, arista, and head proportions are suggestive of *Tucumyia*, and possibly the species belongs there although its general habitus seems so unlike the other species. It is interesting to note that *peculiaris* is outside of the known range of both *Astiosoma* and *Phlebosotera*, neither being known hitherto from the Neotropical Region. It appears quite unrelated to *Sigaloessa*, the dominant Neotropical genus.

Bahamia, new genus

Diagnosis: Characters used in key.

Head wider than thorax, moderately concave behind, conspicuously depressed and elongated, in profile its length greater than the height at vertex and almost twice the height at antennae; eye narrow and elongated, its greatest length 1.5 times its greatest width, the long axis nearly parallel to front, ocelli conspicuously enlarged on anterior and posterior thirds of eye; face as wide as front and slightly wider than high, the sides only slightly converging below and vibrissal angles well separated; lateral oral margins only weakly converging cephalad; arista with short side branches above and below, weakly zigzag as

usual in asteiids; chaetotaxy, one outer vertical and one outstanding orbital on each side, the inner vertical and postvertical bristles minute and hairlike, and ocellars weak; orbitals erect, reclinate, inserted well anterior to level of median ocellus and preceded by a row of hairs; lower cheek margin with row of long, anteriorly curved hairs, ending in a distinct vibrissa. *Thorax* slender, longer than broad, with 1 dorsocentral, 1+1 notopleural, 1 postalar, 1 sternopleural, 1 weak subapical and 1 strong apical pairs of bristles; a few acrostical hairs on anterior half of notum; mesopleuron bare; postscutellum enlarged, in profile extending beyond apex of scutellum. *Wing* similar to that of *Sigaloessa* (cf. Curran, 1934, p. 328, fig. 1), but third vein nearly straight, and anal area of wing narrow, its greatest width subequal to or less than that of submarginal cell, the wing thus appearing more elongated than usual. Legs slender. Abdomen chiefly membranous.

Type-species, *Bahamia longiceps*, new species.

The elongate head and eye set this off as an unusual member of the family. The head in profile resembles the published figure of *Nothasteia platycephala* Malloch from Australia (1936, p. 260, fig. 2), though not as extreme. The latter is a much different genus, however, with long second vein, hind crossvein lacking, and anal vein present though incomplete, and the similarity in head form does not indicate any close relationship.

Reduction of the inner vertical bristle is not necessarily a generic character. In *Phlebosotera*, it is true only of the type-species, *P. mollis* Duda, whereas in the other species the inner verticals are well developed. They are also long in the species of *Astiosoma*. In *Sigaloessa* and *Tucumyia*, they are weak and short compared with the outer verticals, but still conspicuous and usually not as reduced as in *Bahamia*.

Bahamia longiceps, new species

Yellow species with reddish brown mesonotum and scutellum, elongated and depressed head, and elongated eye.

Male, female.—Yellow, the arista and ocellar tubercle chiefly black, occiput light brown behind central two-thirds of front; mesonotum reddish brown up to humeri and notopleura, paler on posterior slope, the scutellum concolorous with latter; reddish spots along lower margin of meso- and pteropleuron and large reddish spots on sterno- and hypopleuron; abdomen chiefly membranous, collapsed and discolored, the male terminalia yellow; knob of halter infuscated.

Structure as given in generic description; front dull, much longer than broad, by 1.5 to 1.6 times, but the width still wider than an eye and 0.45 times the width of the head; narrow, shining interfrontal stripes of male conspicuous, each as wide as median ocellus and two-thirds the length

of front, ending in advance of the level of the orbital bristles; cheek at narrowest point slightly over one-fifth the height of eye directly above it and nearly one-third the breadth of third antennal segment; the latter broader than long and subpyriform, anterodorsally reduced. Thorax pollinose, subshining.

Holotype male, and three paratypes (two males, one female), Driggs Hills near South Bight, Andros Island, Bahamas, Apr. 27, 1953 (E. B. Hayden, L. Giovannoli), collected on the Van Voast-Amer. Mus. Nat. Hist. Bahama Islands Expedition. In the American Museum of Natural History, paratype in USNM.

Sigaloessa Loew

Sigaloëssa Loew, 1865, Berliner Ent. Ztschr. 9: 186 (Centuria 6, no. 100). Type-species, *S. bicolor* Loew, by monotypy. Not Blackwall, 1864, Hist. Spiders, vol. 2, p. 198.

Crepidohamma Enderlein, 1915, Wiener Ent. Ztg. 34: 185. Type-species, *C. brasiliense* Enderlein, by original designation and monotypy.

The species of *Sigaloessa* are similar in habitus. In addition to the characters used in the generic key, others which occur in all species and will not be repeated in individual descriptions are as follows: Front slightly longer than broad, wider than an eye, and approximately two-fifths the width of the head, the sides parallel; eye large, long axis nearly horizontal; cheek brilliant silvery pruinose, narrowly black below at oral margin; second antennal segment with slender and erect dorsal bristle; third segment approximately as broad as long, but appearing ovate because of sloping anterodorsal margin; arista weakly zigzag, with a side branch at each angle, approximately seven on each side, the longest about half the length of dorsal bristle on second antennal segment; outer vertical bristles long and strong, the inner verticals, proclinate ocellars, and diverging postverticals short, weak and hairlike; each lower cheek margin with row of eight to ten, evenly spaced, anteriorly curved hairs, following a longer, bristlelike vibrissa. Mesonotum sparsely haired, typically only the acrostical (back to level of foremost dorsocentral bristles), dorsocentral and intraalar rows present, the acrosticals absent only in *semiglabra*; notopleural bristles 1+1, the anterior weaker and less distinct; scutellum with one pair of long, slightly curved apical bristles, and a pair of weak, hairlike subapicals, the latter usually pale and indistinct. Abdomen chiefly membranous and collapsed, usually dark but apparently chiefly discolored. Wing hyaline, veins yellow, sometimes brownish yellow, venation approximately as figured for *S. rica* by Curran (1934, p. 328, fig. 1); knob of halter large and black.

In my revision (1943), I adopted *Crepidohamma* in preference to *Sigaloessa* Loew on the ground that the latter was preoccupied by the citation of a *Sigaloessa* in synonymy by Blackwall.

However, according to the interpretation adopted by the International Congress of Zoology at Paris in 1948 (Hemming, 1950, pp. 350-1, paragraph 36), generic names are not validated if they appear only as part of a binomen in a specific synonymy. *Sigaloessa* Loew is therefore not technically preoccupied and may be restored to good standing. The family is so rarely recorded that the reversal will cause no difficulty.

A number of distinct species have been recognized in this genus, but there still remains an apparent complex of species with yellow legs and predominantly black, sparsely pollinose mesonotum. Available material shows some slight differences suggestive of distinct species, but poor condition of the specimens and inadequate series preclude definite conclusions. Unfortunately, this complex includes the type species of the genus, *S. bicolor* Loew. It might also include the type species of *Crepidohamma*, *brasiliensis* Enderlein, although the mesonotum of that species was described as "poliert schwarz." If that is literally correct, *brasiliensis* belongs to the group of species with polished black mesonotum (*semiglabra*, etc.). Whatever its group, the description of *brasiliensis* is too generalized for present recognition.

The known species are all Neotropical except for *S. insularis* Malloch, a typical *Sigaloessa* which was described from Tahiti in the Society Islands.

Sigaloessa dispar Schiner (1868, p. 237) from South America is a drosophilid, as discovered by examination of the type series kindly loaned for study by Dr. Max Beier of the Vienna Museum. It is being placed in a new genus, *Zapriothrica*, by Dr. M. R. Wheeler (1956).

KEY TO NEW WORLD SPECIES OF SIGALOESSA

1. Legs marked with black, at least narrow subapical black bands on mid and hind femora..... 2
 - Legs yellow, at most a small subapical black spot on outer surface of fore femur..... 8
- (Legs black banded)
2. Mesonotum pollinose, at least between dorso-central rows..... 3
 - Mesonotum polished, without pollen except for narrow prescutellar band..... 6
 3. Tibiae entirely yellow..... 4
 - At least some of tibiae black on basal third..... 5
 4. Femora black on distal third to half except for yellow knees; palpus infuscated, broadened distally; humerus bright yellow, contrasting with mesonotum; anterior thoracic spiracle of female at lower end of a swollen protrusion extending ventrad to lower margin of pleuron (Panama)..... *cinctipes*
 - Fore femur yellow, mid and hind femora as in *cinctipes*; palpus yellow; humerus brown, anterior thoracic spiracular area of female ordinary, small and inconspicuous (Costa Rica)..... *schildi*
 5. Front predominantly black, the narrow yellow anterior margin only one-fifth the distance to median ocellus; knees broadly yellow, the femora with subapical black bands; hind tibia yellow, the fore and mid tibiae with narrow subbasal

- black bands, opposite the femoral bands (Costa Rica).....**pseudocinctipes**
- Front broadly yellow anteriorly, at least half way to median ocellus; knees black, at most narrowly pale at the joints, the femora more broadly infuscated distally; all tibiae black on basal third (except in variant with yellow fore leg) (Argentina).....**nigra**
6. Fore leg yellow, the mid and hind femora each with narrow subapical black ring; anterior thoracic spiracular area ordinary, inconspicuous and not protruding; palpus yellow (Panama).....**blantoni**, male
- Fore femur also with narrow subapical black ring; anterior thoracic spiracle situated on conspicuous protrusion, which is either rounded and papilliform or elongate; palpus at least partly infuscated
7. Anterior thoracic spiracular protrusion black, rounded and papilliform; sternopleuron with large spot, black above, reddish below (Panama, El Salvador).....**blantoni**, female
- Spiracular protrusion yellow to yellowish white, subcylindrical, elongated to ventral margin of pleuron; sternopleuron yellow, unspotted (Costa Rica).....**hillifera**

(Legs yellow)

8. Mesonotum polished black, without pollen except for narrow prescutellar band..... 9
- Mesonotum sparsely pollinose..... 12
9. Acrostical hairs absent; occiput yellow behind ocellar tubercle and broadly so on sides below; front predominantly yellow; genital forceps of male as figured (fig. 4) (Florida).....**semiglabra**
- One row of acrostical hairs on anterior half of mesonotum; occiput more extensively infuscated, without yellow behind ocellar tubercle and with black on upper half or more as seen from above; genital forceps of male not so..... 10
10. Epistoma yellow, the shining black of oral margin thus discontinuous anteriorly between the vibrissae; front broadly yellow anteriorly, at least approximately half way to median ocellus; genital forceps of male somewhat tapering, with spines on mesal margin (cf. fig. 6); male linear interfrontal stripes shorter than in **nigrifrons**... 11
- Epistoma black, the oral margin thus continuously black anteriorly and on sides; front predominantly black, narrowly yellow anteriorly, obviously much less than half way to median ocellus; genital forceps of male subtruncate at apex, the spines along distal margin (fig. 5); male linear interfrontal stripes long, extending well before level of median ocellus and half way between it and anterior margin of front (Costa Rica).....**nigrifrons**
11. Front predominantly dull yellow, only the ocellar tubercle and short upper orbits shining black, sharply delimited; epistoma, between the vibrissae, nasute and anteriorly rounded; posthumeral area and notopleuron brownish yellow, not strikingly contrasted with disk of mesonotum; genital forceps of male as figured (fig. 6); anterior thoracic spiracle of female ordinary, small and inconspicuous (Florida, Bahamas).....**flavifrons**
- Front on posterior two-thirds black to brownish and more or less shining, the ocellar tubercle and upper orbits not sharply marked; epistoma anteriorly acute, with sharp median carina; posthumeral area and notopleuron yellow, and with the yellow humerus forming a sharply defined stripe on side of mesonotum; genital forceps of male similar to fig. 6 but more rounded distally; anterior thoracic spiracle of female with swollen protrusion extending ventrad to lower margin of pleuron (Puerto Rico).....**rica**

12. Mesonotum on each side with sharply bounded yellow stripe, formed by yellow humerus, posthumeral area, and notopleuron; front not broadly yellow anteriorly, the yellow at most about one-third the length of front..... 13
- Mesonotum without yellow lateral stripes, the humerus in large part yellow but posthumeral area and notopleuron infuscated; front broadly yellow on anterior half (Maryland, Texas).....**obscura**
13. Postalar callus and postalar declivity bright yellow. 14
- Postalar callus and postalar declivity black, concolorous with mesonotum (Argentina)..... new species
14. Male with genital forceps as in fig. 7, with strong mesal arm at right angles to vertical axis of hypopygium; front yellow on anterior fourth (Peru, Ecuador, Panama).....**frontalis**
- Genital forceps not so, without mesal arm.... **bicolor**

Sigaloessa cinctipes (Sabrosky),

new combination

Crepidohamma cinctipes Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 509 (Panama).

No specimens of this species have been seen other than the holotype female. An additional character of interest, whose importance was not realized when the species was described, is the conspicuous protrusion in the region of the anterior thoracic spiracle, the spiracular opening thus being at the lower edge of the pleuron. This is quite unlike the structure of the females of the other three species with pollinose notum, viz., *schildi*, *nigra* and *pseudocinctipes*, in which the spiracular area is ordinary, small and inconspicuous. The male of *cinctipes* may not show the character, however, as there is some indication from material of other species that it occurs only in females.

Sigaloessa pseudocinctipes (Sabrosky),

new combination

Crepidohamma pseudocinctipes Sabrosky, 1943, Ann. Ent. Soc. Amer. 36: 510 (Costa Rica).

The species was described from eight specimens now recognized to be one male and seven females, and then considered to represent one somewhat variable species. I now find from study of better material and more experience in the group that three species were confused. The holotype and two paratypes, all females, plus another female of the same data found later in the collection, are typical *pseudocinctipes* as diagnosed in the present key. For the other paratypes, see *schildi* and *hillifera*, new species.

Sigaloessa schildi, new species

Tiny species with mesonotum black and thinly pollinose, pleuron partly yellow and legs yellow with narrow subapical black bands on mid and hind femora.

Male.—Yellow and black, the posterior four-fifths of front, occiput, arista, narrow oral margin, mesonotum (up to humeri and notopleura), postscutellum, a broad stripe across propleuron and lower meso- and pteropleuron, sternopleuron except narrow upper margin, narrow subapical ring on distal third of mid and

hind femora, and knob of halter, black, the rest yellow; cephalic bristles black, the thoracic yellow to brown.

Front with linear interfrontal stripes well developed, extending forward slightly over two-thirds the length of front and ending cephalad of the orbital bristles; cheek narrow, one-eighth the eye height. Mesonotum and scutellum shining but thinly pollinose; anterior thoracic spiracular area ordinary, not swollen and protruding.

Female.—As described for male, but interfrontal stripes lacking and notopleuron infuscated.

Length of body and of wing, 1.5 mm.

Holotype male and allotype, Higuito, San Mateo, Costa Rica (Pablo Schild). Type No. 63103 in the U. S. National Museum.

These specimens were originally in the type series of *pseudocinctipes*. *Schildi* resembles the latter, but has the fore leg and all tibiae yellow, and the front more broadly yellow anteriorly.

Sigaloessa nigra, new species

Dark species, the thorax, femora except bases, basal third of all tibiae, and posterior half or more of front, black.

Male.—Predominantly black, including the posterior half to three-fifths of front (except for linear yellow interfrontal stripes), occiput, arista, narrow oral margin, mesonotum except for yellow spot on each side of notopleuron and posthumeral area, entire pleuron, postscutellum, distal half to two-thirds of all femora, proximal third of all tibiae, and knob of halter, black.

Front with linear interfrontal stripes half as long as front, ending opposite bases of orbital bristles; height of cheek one-fifth the eye height and two-thirds the breadth of third antennal segment. Mesonotum sparsely brown pollinose, but nevertheless highly shining; mesopleuron smooth and polished, the pleuron otherwise sparsely brown pollinose; anterior thoracic spiracular area ordinary, not swollen and protruding.

Female.—As described for male, but linear interfrontal stripes lacking, notopleuron and posthumeral area brown and thus paler than rest of mesonotum, fore coxa in part and fore femur almost entirely black.

Length of body, 2 mm.; of wing, 2.5 mm.

Holotype male and allotype, La Toma, Quebrada, Tucumán, Argentina, Dec. 21, 1950 (R. Golbach). In the Instituto Miguel Lillo, Tucumán. Paratypes, three females, same data as type; male, Cainzo, Quebrada, Tucumán, Dec. 18–19, 1950 (Golbach); male, Lacavera, Tucumán, Nov. 23–28, 1951 (Aczél & Golbach) [Instituto Miguel Lillo and USNM].

One female, same data as last paratype, has yellow fore legs but agrees otherwise and may be a variant of *nigra*. The broadly yellow front and basally black mid and hind tibiae will separate this female from *schildi*, with which the yellow fore leg would cause it to be confused.

The more extensive infuscation of notopleuron and fore leg in the female resembles that in *blantoni*. The existence of two such series, with males and females consistently differing in those particulars, reinforces the belief that sexual dimorphism is involved in both cases, rather than different species represented by chance by only one sex.

Sigaloessa blantoni, new species

Mesonotum chiefly polished black, fore leg yellow, and mid and hind femora narrowly black ringed.

Male.—Yellow and black, the posterior four-fifths of front, except for the linear interfrontal stripes, occiput, narrow oral margin, arista, mesonotum (except for rectangular spot on each side including humerus, posthumeral area, and notopleuron), postscutellum, stripe across propleuron and lower halves of meso- and pteropleuron, large spot on sternopleuron, narrow subapical ring on mid and hind femora, and knob of halter, black, the rest yellow; third antennal segment infuscated dorsally; cephalic bristles black, the thoracic yellow to brown.

Front with interfrontal stripes conspicuous, half as long as front and ending distinctly cephalad of the orbital bristles; cheek narrow, one-seventh to one-eighth the eye height. Mesonotum polished, without pollen except for narrow prescutellar band; anterior thoracic spiracular area ordinary, small and inconspicuous, without protrusion.

Female.—As described for male except as follows: Palpus yellow, infuscated distally; no interfrontal stripes; lateral yellow areas of mesonotum less extensive, often including only the humerus and a narrow area behind it; mesopleuron broadly black, yellow posterodorsally; all femora with narrow subapical black ring, widest on hind femur; pregenital terga polished black; anterior thoracic spiracle situated on a rounded, papilliform protrusion.

Length of body, 1.5 mm.; of wing 1.75 mm.

Holotype and allotype, Jaqué, Darien Province, Panama, July 25 (holotype) and 28, 1952, at light (F. S. Blanton). Type No. 63104, U. S. National Museum. Paratypes, three males, three females, same locality and collector, July 24, 25, and 28, 1952, at light [USNM]; female, Puerto Triunfo, El Salvador, April 1954 (W. B. Heed) [M. R. Wheeler Colln.].

The species is named in honor of Lt. Col. F. S. Blanton, in recognition of his productive collecting and study of the Diptera of Panama.

Sigaloessa hillifera, new species

Mesonotum chiefly polished black, all femora with narrow preapical black ring, and anterior thoracic spiracular area with swollen, elongate cylindrical protrusion.

Female.—Yellow and black, the posterior four-fifths of front, occiput, narrow oral margin, arista,

palpus, mesonotum up to humeri and small posthumeral areas, postscutellum, mesopleuron except posterodorsal angle, lower half of pteropleuron, narrow subapical ring on all femora, pregenital terga, and knob of halter, black; cephalic bristles black, the thoracic yellow to brown.

Cheek narrow, one-ninth the eye height. Mesonotum polished, without pollen except for narrow prescutellar band; anterior thoracic spiracular protrusion elongate cylindrical, extending to ventral margin of pleuron, the spiracular opening at apex of protrusion.

Male.—Unknown.

Length of body, 1.5 mm.; of wing, 1.75 mm.

Holotype and two paratypes, Higuito, San Mateo, Costa Rica (Pablo Schild). Type No. 63105 in the U. S. National Museum.

The three specimens were formerly included in the type series of *pseudocinctipes*. The strongly developed spiracular protrusion is a unique feature of the species, probably found only in the female sex, if one may judge from *blantoni*. Dissection of a protrusion showed that it opened directly into a trachea.

Sigaloessa semiglabra, new species

Mesonotum chiefly polished black, legs yellow, front predominantly yellow, and acrostical hairs absent.

Male.—Predominantly yellow, the ocellar tubercle, occiput centrally, narrow oral margin below each cheek, arista, mesonotum except sides and postalar calli, postscutellum, oval spot on lower edge of mesopleuron, and knob of halter, black; bristles chiefly brownish; shining upper orbits reddish, but possibly darker in more mature specimens; occipital black area small, formed by two rounded spots on each side of a median postocellar yellow stripe, and each spot well separated from eye; each side of mesonotum with a well-defined stripe formed by the yellow humerus, posthumeral area, and notopleuron.

Front with linear interfrontal stripes extending slightly anterior to bases of orbital bristles, half the length of front; orbitals well back on front, opposite the median ocellus; cheek one-fifth the eye height.

Mesonotum smooth and polished, not pollinose except for narrow prescutellar band, and sparsely haired, the acrostical row entirely lacking; anterior thoracic spiracular area ordinary, small and inconspicuous. Profile of ninth tergum and genital forceps as in fig. 4, the apex of latter subtruncate and with spines ranged along distal margin.

Female.—Unknown.

Length of body and of wing, 1.5 mm.

Holotype male, Long Key, Florida, June 23, 1953 (M. R. Wheeler). Type No. 63106 in the U. S. National Museum, deposited by courtesy of the collector.

The absence of acrostical hairs is unusual in the genus *Sigaloessa*, and contributes to the comparatively bare appearance of this species.

Sigaloessa nigrifrons, new species

Mesonotum chiefly polished black, legs yellow, and front predominantly black.

Male.—Yellow and black, the posterior four-fifths of front except for linear interfrontal stripes, occiput except narrowly below, narrow oral margin including sides and epistoma, arista, mesonotum up to sides and postalar calli, postscutellum, stripe across propleuron and lower meso- and pteropleuron, spots on upper sterno- and hypopleuron, and knob of halter, black; bristles and hairs yellow to brown; humerus, posthumeral area, and notopleuron yellow and forming a well-defined stripe on each side of mesonotum.

Front with unusually long and conspicuous interfrontal stripes, which extend forward to a point halfway between median ocellus and anterior margin of front, and anterior to bases of orbital bristles, the latter well in advance of median ocellus; cheek one-sixth the eye height.

Mesonotum smooth and polished, not pollinose except for narrow prescutellar band; anterior thoracic spiracular area ordinary, small and inconspicuous; ninth tergum and genital forceps as figured (fig. 5), the apex of latter subtruncate and with spines ranged irregularly along distal margin.

Female.—Unknown.

Length of body, 1.75 mm., of wing, 2 mm.

Holotype male, San Jose, Costa Rica, "V: 15: VII" (H. Schmidt). Type No. 63107 in the U. S. National Museum.

A headless female, same data as type, may be conspecific with it. If correctly associated, it shows the anterior spiracular area to be small and inconspicuous as in the male.

The predominantly black front, long interfrontal stripes, and black epistoma will easily separate the species from the other three with yellow legs and polished black mesonotum. The genital forceps are also distinctive.

Sigaloessa flavifrons, new species

Mesonotum chiefly polished black, the epistoma, front predominantly, and legs yellow.

Male.—Yellow and black, the ocellar tubercle and upper orbits, upper half of occiput, narrow oral margin on each side below cheek, arista, mesonotum up to humeri and postalar calli, postscutellum, pleural stripe across propleuron and lower margins of meso- and pteropleuron, sterno- and hypopleural spots partially, and knob of halter, black; bristles and hairs brown to black; posthumeral area and notopleuron brownish yellow, only weakly contrasting with mesonotum.

Front predominantly dull, the shining upper orbits short, barely longer than ocellar tubercle;

interfrontal stripes shorter than usual, barely half the length of front, and ending opposite the orbital bristles, only slightly in advance of level of median ocellus; cheek slightly over one-seventh the eye height and half the breadth of third antennal segment; epistoma rounded and slightly nasute.

Mesonotum smooth and polished, not pollinose except for narrow prescutellar band; anterior thoracic spiracular area ordinary, small and inconspicuous; profile of ninth tergum and genital forceps as figured (fig. 6), the forceps tapering and spines on mesal margin.

Female.—As described for male, but the interfrontal stripes lacking, upper orbits shining brown, and whole front even more predominantly yellow than in male.

Length of body, 1.5 mm.; of wing, 1.75 mm.

Holotype male, Miami, Florida, Dec. 20, 1912 (F. Knab). Type No. 63108 in the U. S. National Museum. Allotype, Alicetown, North Bimini Island, Bahamas, Dec. 30, 1952 (E. B. Hayden & L. Giovannoli) [Amer. Mus. Nat. Hist., collected on the Van Voast-AMNH Bahamas Islands Expedition].

Sigaloessa rica Curran

Sigaloessa insularis Curran, 1931, Amer. Mus. Novitates 456, p. 13. Preoccupied.
S. rica Curran, 1934, Families & Genera N. Amer. Diptera, p. 328 (for *insularis* Curran).

Mesonotum chiefly polished black, legs yellow, front broadly yellow on anterior two-thirds, and anterior thoracic spiracular area of female conspicuously protruding.

Male.—Color as described for *S. flavifrons* except as follows: Front shining black to brownish on posterior two-thirds, broadly yellow anteriorly; humerus, posthumeral area, and notopleuron yellow and forming a distinct stripe on each side of mesonotum.

Front with moderately long interfrontal stripes, over half the length of front and ending well in advance of level of median ocellus and anterior to the orbital bristles; cheek narrower than in *flavifrons*, one-tenth the eye height and less than one-third the breadth of third antennal segment; epistoma nasute as sharp ridge (obviously exaggerated in drying in the lone available male).

Mesonotum smooth and polished, not pollinose except for narrow prescutellar area; anterior thoracic spiracular area ordinary, small and inconspicuous; profile of ninth tergum and genital forceps similar to *flavifrons* (cf. fig. 6), with spines on mesal margin of distal portion, but the latter broader and rounded apically.

Female.—As described for male except as follows: Interfrontal stripes lacking; epistoma with sharp median carina, acutely nasute, but less so than in the slightly teneral male, and more probably the normal appearance; anterior thoracic spiracular area with elongate, swollen protrusion extending ventrad to lower margin of pleuron.

Length of body, 1.5–1.75 mm.; of wing, 1.75–2 mm.

Material examined: Holotype female of *S. rica* (= *insularis* Curran, preoc.) [Amer. Mus. Nat. Hist.]; female, Bayamon, Puerto Rico, April 8, 1932, on banana leaf (C. G. Anderson); male, Henry Barracks, Puerto Rico, June 19, 1952 (F. S. Blanton) [USNM].

The holotype was kindly loaned for study by Dr. C. H. Curran of the American Museum of Natural History. It was originally described as having the thorax pale ferruginous, but I believe that it is typically black for this species. The mesonotum of the type is not fully colored and is somewhat transparent because the body contents are withdrawn from the surface.

The female from Bayamon was the basis for the published records of *S. bicolor* Loew from Puerto Rico by Wolcott (1936, p. 388; 1951, p. 523).

Sigaloessa obscura, new species

Mesonotum shining black but thinly pollinose, without lateral yellow stripes, legs yellow, front broadly yellow on anterior half.

Male.—Color as described for *S. flavifrons*, the posthumeral and notopleural area concolorous with mesonotum; sterno- and hypopleural spots usually reddish.

Front and interfrontal stripes as described for *flavifrons*; cheek one-eighth the eye height and one-third the breadth of third antennal segment; epistoma rounded, slightly nasute.

Mesonotum shining, thinly pollinose; anterior thoracic spiracular area ordinary, small and inconspicuous; genital forceps tapering, but apically broader and more rounded than shown in fig. 6, and like it showing three stout spines on mesal margin in profile.

Female.—As described for male, but the interfrontal stripes lacking, and front black on upper half.

Length of body, 1.5 mm.; of wing, 1.7 mm.

Holotype male, allotype, and seven paratypes (four males, three females), Cabin John, Maryland, June 6 (female), Sept. 19 (male, two females), Sept. 21 (allotype), and Oct. 21 (four males, including holotype), (J. M. Aldrich), all 1931 except the June 6 paratype (year not given). Type No. 63110 in the U. S. National Museum. Also two female paratypes, Austin, Texas, May 29, 1951 and Oct. 10, 1950 (M. R. Wheeler) [Wheeler Colln.].

In the shortened upper orbits and interfrontal stripes, this species resembles *flavifrons*, but the polished, non-pollinose mesonotum of the latter is distinctive.

Sigaloessa new species

The distinct color character of black postalar callus and postalar declivity is found in a male specimen from Aconquija, Tucumán, Argentina,

Dec. 6-10, 1950 (R. Golbach) [Instituto Miguel Lillo]. Undoubtedly it represents an undescribed species, but the specimen is somewhat broken and no description will be presented at this time.

Sigaloessa frontalis Aldrich

Sigaloessa frontalis Aldrich, 1915, Psyche 22: 98 (Peru).

In my 1943 revision, I referred this species to the synonymy of *S. bicolor* Loew. Since then I have studied the type of *frontalis* and other material from Peru, and I believe that it is a distinct species. The male genitalia are especially characteristic (fig. 7), but I have thus far found no definitive characters in the female sex. The anterior thoracic spiracular area in both sexes is ordinary, small and inconspicuous.

Besides the holotype from Lima, Peru, I have seen the following specimens [all USNM]: PERU: ten males, one female, Cañete, May 17, 1941 (P. A. Berry); one female, Cañete, May-June 1941, from caged cotton buds infested with *Anthonomus* (P. A. Berry); one female, Lima, March 1910 (C. H. T. Townsend); three females, Puente Piedra, March 1910 (Townsend). ECUADOR: three males, two females, Pichinche, Manabi, Feb. 10, 1955, swept from cotton (H. R. Yust). PANAMA: male, Taboga Island, October 1946 (N. L. H. Krauss); male, Nata, September 1946 (Krauss); male, Summit, Canal Zone, September 1946 (Krauss).

Sigaloessa bicolor Loew complex

Sigaloessa bicolor Loew, 1866, Berl. Ent. Ztschr. 9: 186 (Cuba).

In the material before me, there remains a series of specimens in which there are some slight differences, but none that appear to me reliable, or that are uncomplicated by poor condition of the material or uncertainty of association of sexes. Certain males show some features that are probably specific, but the females seem to be lacking in distinctive characters. Careful notes by Dr. P. J. Darlington of the Museum of Comparative Zoology on the holotype of *bicolor* Loew from Cuba have supplemented the original description and assured me that it falls in this group of species. As the type is a female, the name cannot at present be definitely associated with a known species. As far as I can tell from the description, *S. brasiliensis* (Enderlein) is also one of this complex.

Material before me ranges from southern Brazil (Nova Teutonia in Santa Catarina) to Panama, the Canal Zone, Costa Rica, Guatemala, Puerto Rico, Cuba, Texas (Aransas County), Illinois (Carlinville).

Tucumyia, new genus³

Diagnosis: Characters used in key.

Small dark flies with typical asteiid habitus:

Head wider than thorax and strongly concave

behind, appearing somewhat depressed and broadened, especially in anterior aspect, its greatest breadth 1.5-1.75 its height; eye large, the long axis horizontal, 1.25 times the vertical height; face broad, the sides parallel and vibrissal angles widely separated; lateral oral margins not converging cephalad; arista with minute branches above and below, and with the characteristically asteiid zigzag appearance, although visible only under high magnification; chaetotaxy of head: one pair each of inner and outer verticals (the former obviously weaker and shorter than the strong outer), weak proclinate ocellars, weak and parallel or slightly divergent postverticals, and two pairs of weak orbital bristles on upper half of front, the orbitals actually no more than slightly stronger hairs in the orbital row; lower cheek margin with row of anterodorsally curving hairs, ending in a vibrissa which is only slightly longer. *Thorax* with 1 dorsocentral, 1+1 notopleural, 1 postalar, 1 sternopleural, 1 weak subapical and 1 strong apical scutellar pairs of bristles; a median row of acrostical hairs, ending opposite the dorsocentral bristles; mesopleuron bare; scutellum black, concolorous with mesonotum; postscutellum enlarged, in profile extending caudad as far as the end of the scutellum. *Wing* venation similar to that of *Sigaloessa* (cf. Curran, 1934, p. 328, fig. 1), but second vein lying close to and almost parallel with first vein and ending in costa barely beyond it; third vein straight; discal cell elongate, the fore crossvein opposite basal third to two-fifths of discal cell, hind crossvein well beyond level of junction of second vein and costa, and penultimate section of fourth vein obviously longer than ultimate section of fifth; no trace of anal vein or anal cell except for weak curving fold in the position of the latter; alula narrow, with a few long marginal hairs on distal portion.

Type-species: *Tucumyia aczeli*, new species.

The black scutellum, concolorous with thorax, may not be a significant generic character, but it is not common in this family and will aid in recognition. In the Western Hemisphere, of those genera with hind crossvein present, only *Leiomyza* and a peculiar undescribed species from Panama (possibly a new genus) also have black scutellum. In *Bahamia*, the scutellum is reddish brown, concolorous with the posterior slope of the mesonotum.

KEY TO SPECIES OF TUCUMYIA

1. Cheek relatively broad, subequal to breadth of third antennal segment; front broadly yellow anteriorly. 2
- Cheek narrower, at most little over one-third the breadth of third antennal segment; front entirely black. 3
2. Mesonotum predominantly polished black, finely brown pollinose on posterior slope caudad to the dorsocentral bristles; mesonotal hairs rather long and conspicuous, especially the acrostical and dorsocentral rows (Argentina). *aczeli*
- Mesonotum subshining, but entirely covered by fine

³From Tucu[man] + myia.

- brown pollen; mesonotal hairs less conspicuous (Argentina, Brazil).....**pollinosa**
 3. Legs pale yellow; cheek linear (Panama).....**linearis**
 — All femora chiefly black; cheek narrow, one-third the breadth of third antennal segment (Argentina).....**angustigena**

Tucumyia aczeli, new species

Predominantly polished black, with conspicuous silver white band across lower face and upper half of cheek, the latter relatively broad.

Male, female.—Black, the anterior third of front, ground color of face and upper half of cheek, antenna except arista, palpus, stalk of halter, all trochanters, narrow bases of femora, proximal two or three segments of fore tarsus and proximal four segments of other tarsi, yellow; genitalia black; wing hyaline, veins brown.

Front dull anteriorly, on posterior two-thirds minutely striate but still highly shining, and appearing to form an anteriorly rounded frontal triangle reminiscent of Chloropidae; linear interfrontal stripes of male rather obscure and inconspicuous, although long, extending almost the full length of the shining area of front; entire oral margin narrowly, and the posteroventral two-fifths of cheek polished black, the remainder of cheek beginning at lower posterior angle of the eye shining silvery pruinose, as is the lower half of face, all together forming a broad U-shaped silvery area; cheek narrowing slightly cephalad, its height midway subequal to breadth of third antennal segment, in direct profile the height slightly over half the breadth of third antennal segment and nearly one-fourth the height of an eye; third antennal segment small, rounded, its length and breadth subequal.

Thorax predominantly polished, with fine brown pollen on scutellum, a prescutellar area up to the dorsocentral bristles, narrowly before base of wing, sternopleuron, posterior slope of pleuron, and metanotum; mesonotal hairs relatively long and conspicuous, especially the acrostical and dorsocentral rows. Wing relatively long and narrow, nearly three times as long as its greatest breadth, the anal region only moderately developed; apical cell narrowed distally, the third and fourth veins separated by a distance subequal to length of fore crossvein.

Length of body, 1.75–2 mm.; of wing, 2.25–2.5 mm.

Holotype male, allotype, and two female paratypes, La Toma de Tafi Viejo, Quebrada, Tucumán, Argentina, Dec. 21, 1950 (R. Golbach); paratype (abdomen damaged), San Javier, Tucumán, Argentina, Oct. 21, 1950 (M. Aczél). In the collection of the Instituto Miguel Lillo at Tucumán, two paratypes in the U. S. National Museum.

The species is dedicated to Dr. M. Aczél, who is actively and outstandingly advancing the taxonomic study of Diptera in Argentina, and who has kindly loaned this and several other interesting species for study.

Tucumyia pollinosa, new species

As described for *T. aczeli*, but with entire mesonotum finely brown pollinose, subshining; pleuron and legs with more yellow areas, apices of tibiae yellow and bases of femora more broadly yellow; mesonotal hairs less conspicuous than in *aczeli*, perhaps more because of the difference in background.

Length of body, 1.5–2 mm.; of wing, 2–2.5 mm.

Holotype male and allotype, La Toma de Tafi Viejo, Quebrada, Tucumán, Argentina, Dec. 21, 1950 (R. Golbach). In the Instituto Miguel Lillo, Tucumán. Paratypes: male, two females, same data as type; two males, one female, Cainzo, Quebrada, Tucumán, Argentina, Nov. 18–19, 1950 (female) and Dec. 18–19, 1950 (Golbach); three males, V. Padre Monti, Burruyacu, Tucumán, Argentina, Jan. 17–Feb. 7, 1948 (Golbach) [Inst. Miguel Lillo and USNM]; male, Puerto Bemberg, Misiones, Argentina, Oct. 13, 1927 (R. C. Shannon) [USNM]; female, Nova Teutonia, Santa Catarina, Brazil, Sept. 1949 (Fritz Plaumann) [USNM]; female, Nova Teutonia, Santa Catarina, Brazil, July 7, 1937 (Plaumann) [Mus. Helsingfors].

Tucumyia angustigena, new species

Smaller species than its congeners, with narrow cheek; mesonotum finely pollinose.

Female.—Black, the lower half of face, anterior corner of cheek, first two antennal segments, posteroventral third of the third segment, stalk of halter, and all knees, tibiae, and tarsi yellow; lower half of face and anterior corner of each cheek silvery-white pruinose, forming a broad, conspicuous, straight band across lower part of face but not extending far beneath each eye and thus not broadly U-shaped.

Eyes partly collapsed, and true proportions of head uncertain; cheek narrow, only one-third the breadth of third antennal segment and probably about one-eighth the height of an eye; third antennal segment not orbicular, the length and breadth subequal, but anterodorsal margin sloped. Thorax with fine brownish pollen as in *T. pollinosa*, the mesonotal rows of hairs only moderately conspicuous. Wing essentially as in the other species but apical cell not so strongly narrowed, the interval between apices of third and fourth veins twice the length of the fore crossvein.

Length of body and wing, 1.5 mm.

Holotype female, V. Padre Monti, Burruyacu, Tucumán, Argentina, Jan. 17–Feb. 7, 1948 (R. Golbach). In the Instituto Miguel Lillo at Tucumán, Argentina.

Tucumyia linearis, new species

Tiny species, with linear cheek and pale yellow legs.

Male.—As described for *angustigena*, but the legs pale yellow; eye large and occupying most

of head in profile, the cheek linear; length 1.25 mm.

Holotype male, Cativa, Colon Province, Panama, Aug. 27, 1952, at light (F. S. Blanton). Type No. 63111 in the U. S. National Museum.

One female, Port of Spain, Trinidad, Oct. 1950 (N. L. H. Krauss) [USNM] is not in the best of condition for comparison, but appears to be the same species.

This species resembles *T. angustigena* in small size, narrow cheek, and general habitus. The face and anterior part of the front are slightly collapsed so that the head appears more rounded than usual in this genus.

Astiosoma Duda

Astiosoma Duda, 1927, Deut. Ent. Ztschr. 1927: 119, 127.

Type-species, *A. rufifrons* Duda, by original designation (n. gen., n. sp.) and monotypy.

The previous key (1943) is here revised to include an unusually interesting new species from the California deserts. The name is neuter, but I neglected previously to alter the endings of the specific names.

KEY TO NEARCTIC SPECIES OF ASTIOSOMA

1. Disk of mesonotum polished black, not pollinose.... 2
— Disk of mesonotum not so, reddish yellow or dull and heavily pollinose..... 3
2. Mesopleuron yellow with broad black stripe on upper portion bordering the notopleuron (Idaho, Wash., Calif., N. Mex.)..... **lineatum**
— Mesopleuron yellow with narrow black stripe along lower margin adjacent to sternopleuron (Idaho, ? N. C.)..... **hirtum**
3. Mesonotum subshining, thinly fine pollinose, the disk reddish yellow; bristles black; knob of halter black on outer surface (eastern U. S., N. H. to Fla. and west to Kansas)..... **flaveolum**
— Mesonotum dull, heavily pollinose, anteriorly gray with brown pattern, whitish yellow on posterior slope (figs. 8, 9); bristles whitish yellow; halter entirely pale yellow (Calif.)..... **aridum**

Astiosoma lineatum (Aldrich)

Sigaloessa lineata Aldrich, 1915, Psyche 22: 96 (Idaho).

This species was described from "1 ♂, 2 ♀ ♀, coll. on window in the large sawmill of the Potlatch Lumber Company at Potlatch, Latah County, Idaho, on Sept. 6, 1912," but without specified type. There is an obvious lapsus in recording, for the three specimens now in the National Museum labeled as "type" and two "paratypes" are as follows: Male "Type", Moscow, Idaho, Sept. 6, 1912, on window (J. M. Aldrich) and two female paratypes, Potlatch, Idaho, Sept. 9, 1912, sawmill window (J. M. Aldrich). Strictly speaking, lectotype designation is required, for none has ever been published. Accordingly, I designate one of the females as lectotype and have labeled the other a lectoparatype. Inasmuch as the Moscow locality was not mentioned in the original publication, despite the detailed statement of the collecting circumstances of the type series, I do not consider that specimen the type or even a paratype.

Additional distribution: CALIFORNIA: two males, Kern River, Aug. 28, 1949 (M. R. Wheeler); six males, two females, Dark Canyon, July 16, 1951 (M. R. Wheeler) [Wheeler Colln.]. NEW MEXICO: female, Silver City, Aug. 5, 1950 (M. R. Wheeler) [Wheeler Colln.]; male, Las Vegas, Aug. 15 (H. S. Barber) [USNM]. WASHINGTON: female, West Point (H. E. Burke) [USNM]. These specimens are notable extensions of range for this species, previously known only from Idaho.

Astiosoma hirtum (Aldrich)

Sigaloessa hirta Aldrich, 1915, Psyche 22: 97 (Idaho).

Additional distribution: CALIFORNIA: male, Dark Canyon, July 16, 1951 (M. R. Wheeler) [Wheeler Colln.]. The species was previously known only from Idaho, except for the North Carolina specimen tentatively determined as *hirta* in the 1943 revision.

Astiosoma flaveolum (Coquillett)

Sigaloessa flaveola Coquillett, 1898, Jour. New York Ent. Soc. 6: 49 (N. H. to Fla.).

This species was described from eight specimens from three localities, with the statement "Type No. 3810, U. S. Nat. Museum." One specimen bears a red U. S. National Museum "Type" label and Coquillett's handwritten determination label, in addition to the labels "D. C.," "July," and "Collection Coquillett." Difference of opinion may exist as to whether or not this must be recognized as the holotype, or whether there is still only a series of syntypes as far as publication is concerned. To eliminate any further question, I have labeled in the collection and hereby designate the above-mentioned "type," a female in good condition, as lectotype, and have labeled the remainder of the series lectoparatypes.

Additional distribution: FLORIDA: male, Crestview, June 15, 1933 (M. R. Wheeler) [Wheeler Colln.]. ILLINOIS: male, four females, Urbana, Aug. 23, 1914, June 9, 11, 18, and Sept. 3, 1915, all labeled "window" [Ill. Nat. Hist. Survey]. OHIO: Columbus, May 9, 1925 (R. H. Painter) [Kansas State College]. VIRGINIA: two males, Holmes Run, Fairfax Co., June 19, 1952 (W. W. Wirth; on window of house under construction) [USNM].

Astiosoma aridum, new species

Tiny whitish-yellow species with gray to brown pattern on anterior three-fifths of disk of mesonotum.

Male.—Whitish yellow, the ocellar tubercle, arista, occiput in part, anterior three-fifths of disk of mesonotum, narrow spots on lower margin of meso- and pteropleuron, and larger spots on sterno- and hypopleuron, more or less infuscated, generally appearing grayish black because heavily pollinose, the mesonotal pattern

as in fig. 8; postscutellum shining black, partly polished; all bristles and hairs pale whitish yellow; third antennal segment yellow, antero-dorsally infuscated; genitalia shining yellow.

Head somewhat collapsed and proportions cannot be stated definitely; front obviously longer than broad, dull, with narrow, shining interfrontal stripes peculiar to the males; cheek moderately narrow, half the breadth of third antennal segment, the latter ovate and slightly longer than broad; bristles of head not conspicuous, the inner and outer verticals best developed, the inner slightly shorter and weaker than outer, the proclinate divergent ocellars, divergent postverticals, and vibrissae weak and hairlike; orbital hairs minute, the two slightly stronger upper hairs in each row barely evident; arista short pubescent, under high power with the characteristic asteiid zigzag form.

Mesonotum dull, heavily pollinose, the pattern on anterior part appearing to consist of two broad shortened median and two longer lateral stripes fused into a broad, posteriorly bidentate spot (fig. 8); one median acrostical row of hairs and the dorsocentral rows short and pale, the former doubled just before ending opposite foremost dorsocentral bristles; chaetotaxy: 1+1 notopleural, 2 dorsocentral (both well back on posterior slope), 1 long and 1 or 2 short and hairlike sternopleural, 1 subapical and 1 apical scutellar pairs of bristles, the subapical scutellar more developed than usual.

Wing more like *Sigaloessa* than *Astiosoma*, the first and second veins ending together in costa, third vein nearly straight, third and fourth veins at apex of wing separated by distance approximately equal to length of hind crossvein, fore crossvein slightly before middle of discal cell, opposite basal two-fifths of cell, the penultimate section of fourth vein only slightly over half the length of ultimate section of fifth vein.

Female.—Like male, but the front entirely dull, without differentiated interfrontal stripes; disk of mesonotum (fig. 9) with conspicuous broad brown spot, anteriorly tridentate, posterior

margin ending abruptly opposite wing bases, the spot contrasting strikingly with the whitish-yellow posterior slope and the scutellum; apparently a few scattered acrostical hairs outside the median row about opposite the foremost dorsocentral bristle.

Length of body, 1.5 mm.; of wing, 1.6 mm.

Holotype male and allotype, Palo Verde, Imperial County, Calif., April 8, 1949 (W. W. Wirth). Paratypes: male, female, same data as type; male, same locality but April 7, 1949; female, Death Valley, Calif., April 1891 ("K"), labeled "*Sigaloessa* n. sp." by Coquillett. Type No. 63112 in the U. S. National Museum.

One male, Hot Mineral, Riverside County, Calif., April 30, 1952 [Univ. of Calif. at Davis] is badly discolored but is apparently the same species.

The wing venation is not usual for the genus *Astiosoma*, which generally has a longer second vein, ending in costa beyond the first vein and leaving a short but distinct second costal sector. The difference in mesonotal color between males and females is noteworthy.

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