FURTHER STUDIES OF TYPES OF AMERICAN MUSCOID FLIES IN THE COLLECTION OF THE VIENNA NATURAL HISTORY MUSEUM

By J. M. Aldrich

Associate Curator, Division of Insects, United States National Museum

The work of classifying the American muscoid flies has been seriously retarded by the impossibility of recognizing many species from the original descriptions, which were written at a time when many important characters had not yet been discovered. For American workers there is the added obstacle that the type specimens are mostly in European museums.

To overcome the difficulty as far as possible the authorities of the Vienna Natural History Museum have generously entrusted to the writer a series of eight shipments of type specimens for study and redescription. The present paper is a report on the latest shipment. The earlier ones were reported in four papers, of which the first three were in the Annals of the Entomological Society of America.[1] The fourth paper was published in the Proceedings of the United States National Museum;[2] it contains a list of all the species included in the first three.

In the present paper the species are numbered consecutively with those already reported.

Genus ZELIA Robineau-Desvoidy

Zelia Robineau-Desvoidy, Myodaires, 1830, p. 314.

Leptoda Van der Wulp, Tijdsch. v. Ent., vol. 28, 1885, p. 196; Biologia, Dipt., vol. 2, 1891, p. 250.—Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 6, 1893, p. 133.—Aldrich, Annals Ent. Soc. Amer., vol. 18, 1925, p. 123.

Melaleuca Van der Wulp, Biologia, Dipt., vol. 2, 1891, p. 247.—Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 6, 1893, p. 183.—Aldrich, Annals Ent. Soc. Amer., vol. 18, 1925, p. 123.

Euzelia Townsend, Proc. Biol. Soc. Washington, vol. 28, 1915, p. 23.

The genus *Zelia* originally included several species, of which Coquillett[3] designated the first, *rostrata* Robineau-Desvoidy, as type, at the same time stating that it is a synonym of *Dexia vertebrata* Say.

[1] Vol. 17, 1924, pp. 209–218; vol. 18, 1925, pp. 107–150 and 456–469.
[2] Vol. 72, art. 7, 1927, pp. 1–35.
[3] Proc. U. S. Nat. Mus., vol. 37, 1910, p. 621.

The type of *Leptoda* is *Dexia gracilis* Wiedemann, by designation of Van der Wulp, 1891; I examined the type of this species and found it to be identical with *Dexia vertebrata* Say.

The type of *Melaleuca* is *Melaleuca spectabilis* Van der Wulp, the sole species; this appears to be the female of *Dexia vertebrata* Say, which has a considerably different appearance from the male.

The type of *Euzelia* was originally designated as *Zelia wildermuthi* Walton, a species closely congeneric with *vertebrata* Say. The genus was established by the mere designation of a type species, without the mention of any characters.

111. ZELIA POTENS Wiedemann

Dexia potens Wiedemann, Auss. Zweifl., vol 2, 1830, p. 368.
Leptoda potens Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 406.

Two males, "Brasilien Coll. Winthem," marked as types and agreeing with description. These have a striking resemblance to the males of the well-known *Zelia vertebrata* Say, which occurs widely in the United States and as far south as Brazil. The differences may be briefly stated in place of a lengthy description. *Potens* is much larger, 16 and 18 mm.; the wings are strongly infuscated, especially along the veins; the legs are entirely black, the femora (one specimen) yellowish-red on basal half. The second and third abdominal segments are elongated and mostly transparent, even more so than in *vertebrata*. The epistoma is more prominent and the third antennal joint a little more slender. The female of this species, judging by our northern form, must be very different in appearance, and I am of the opinion that it will turn out to be the species *phaeoptera* Wiedemann. The very different abdomen in the female would at first sight make this look improbable, but the thoracic pattern, wings, legs, and head agree remarkably well. Only careful collecting in the region where the species occurs can definitely settle this question.

112. ZELIA PHAEOPTERA Wiedemann

Dexia phaeoptera Wiedemann, Auss. Zweifl., vol. 2, 1830, p. 370.
Leptoda phaeoptera Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 406 (gen. ref.).

Two females, "Brazilien, Coll. Winthem," marked as types and agreeing with description; a third female agreeing, but not marked as type, is retained for the National Museum, as we did not have the species. It is labeled "Natt. Bras." They go well in the genus *Zelia* Robineau-Desvoidy, differing from the type, *vertebrata* Say, mainly in having the epistoma considerably more protuberant.

Female.—Front 0.29 of head width at vertex, widening considerably on the upper part, more gradually below; parafrontal, para-

facial and cheek with dense grayish-white pollen slightly tinged with yellow above. The parafrontals bare except for a few small hairs above, each a little wider than the dark brown middle stripe on the upper part. Frontal bristles only about six, reaching the base of antennae; two large proclinate orbitals and one reclinate above them not distinctly connected with the frontal row; ocellars large, proclinate and divergent. Front not prominent, the antennal axis only as long as the vibrissal; cheek nearly half the eye height, with a reddish streak from the eye to the mouth, back of which are a few small black hairs. Vibrissae a little above the oral margin, with several rather large bristles below them and a few small bristles immediately above; facial ridges bare. Antennae dark red, third joint narrow, about four times the second, with long-plumose arista; second joint with a long curved bristle over the arista; palpi yellow, of ordinary size, proboscis also ordinary. Back of head with rather sparse hair which is dark except close to the neck; parafacial almost equalling in width the entire clypeus. Thorax with dense grayish-yellow pollen and four black stripes, the two inner narrow in front. Scutellum black at base, the rest densely yellowish-gray pollinose. Chaetotaxy: Acrostichal 1 or 2, 2; dorsocentral 3, 4; humeral 3; posthumeral 2 or 3; presutural 1; notopleural 2; supraalar 3; intraalar 3 (the two anterior small); postalar 2; scutellum with two pairs of laterals and one equally large apical, and one pair of discals. Sternopleural 2, 1; post-scutellum well developed, with yellow pollen. Calyters of ordinary size.

Abdomen with the first three segments velvety brownish-black, the basal third or more of the second and third segments more shining and with a trace of thin, white pruinosity, not tessellated; fourth segment red, slightly blackish in the middle above, the sides densely yellowish pollinose to the venter, but the pollen does not include the posterior part where the bristles arise. First abdominal segment without median marginals, second with one pair, third with a marginal row, the middle two pairs stout, fourth with a marginal row somewhat smaller, no discals on any of the segments. Legs black, front tibia with one outer bristle, mid tibia with two on outer front side, two on outer hind side, and one flexor. Hind tibia with three on outer hind side, two on inner hind, one on outer front. Wing densely infuscated along the middle and costa, paler behind and in the larger cells. Fourth vein beyond the cross vein bent a little back toward the hind margin, the angle slightly acute, with a short but distinct appendage, thence with a little concavity to the margin distinctly before the apex. First vein bare, third with four or five bristles at base.

Length, 11 and 13 mm.

113. ZELIA ATRIFRONS Wiedemann

Musca atrifrons Wiedemann, Auss. Zweifl., vol. 2, 1830, p. 403.
Leptoda atrifrons Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891. p. 406.—Aldrich, Cat. N. A. Dipt., 1905, p. 505.

The species was originally described from a single female specimen without locality. This specimen, labeled *Leptoda atrifrons* and agreeing with Wiedemann's description, has been received for study. Brauer and Bergenstamm[4] assert that Bigot's *Tromodesia haemorrhoidalis* from Mexico[5] is a synonym of *atrifrons*, from the type. Bigot's description is very brief and superficial, but the same type was redescribed by Van der Wulp;[6] the specimen was evidently a male, though taken for a female by Van der Wulp. Whatever this species may be, I am satisfied it can not be *atrifrons* Wiedemann. It was placed in *Leptoda* by Brauer and Bergenstamm.[7]

Female.—Head at vertex 0.27 of head width, widening a little, then more slowly, toward the antennae, which are attached at about the level of the lowest fourth of the eye; the face flat and strongly receding, about half as long as the front. Vibrissae at oral margin; frontal stripe velvety, almost black, narrower than one parafrontal even at the upper end. Inner verticals large and reclinate; outer but little larger than the cilia behind the eye. Ocellars divaricate, hardly more than hairs. Frontals about 10, the lowest distinctly above the antennae, one upper reclinate and divergent at level of anterior ocellus, much nearer the eye than the remainder; the usual two pairs of orbitals present. The parafrontal and parafacial are broad, densely covered with smooth silvery white pollen, entirely bare except a few minute hairs close to vertex and one or two between the upper and lower orbital. Antennae yellow, as long as the face, the third joint less than twice the second, slightly swollen toward apex; second joint without unusual pile. Arista rather short-plumose almost to tip. Palpi yellow, of ordinary size; proboscis short; cheek one-third the eye height, with dark hairs on posterior part. Back of head flat, the vibrissal axis about three-fourths the antennal. Thorax black with dense whitish pollen, stripes not very prominent. Sternopleural 2, 1; scutellum entirely black, with two lateral bristles, a rather large decussate apical pair and a small sloping discal pair. Calypters white, no infrasquamal spinules. Postscutellum and hypopleural bristles well developed.

Abdomen mostly shining dark reddish, the first segment black, the following two black along the middle of the dorsum almost to the tip of the third. Second and third segments with narrow sharply

[4] 1893, p. 183.
[5] Annales Soc. Ent. France, 1889, p. 267.
[6] Biologia, Dipt., vol. 2, 1891, p. 238.
[7] 1893, p. 138.

defined basal silvery crossbands widening on the venter where the first is also pollinose. Fourth segment entirely red in ground color without basal crossband, but showing considerable silvery pollen below precisely as described by Wiedemann.

Legs, reddish-brown; front tibia with one outer bristle. Middle tibia with one on outer front side, two on outer hind side, and one flexor. Hind tibia with a series of four of increasing length on the outer hind side to the middle and several smaller in the same row, three on inner hind side, the last about the middle. Wings hyaline, bend of fourth vein nearly rectangular, the cross vein concave and ending a little before the tip, the apical cell rather widely open.

Length, 7 mm.

Not represented in the United States National Museum.

In several characters this species resembles *Metadexia tricolor* Coquillett, but has the first vein bare.

114. ZELIA LIMBATA Wiedemann

Dexia limbata WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 371.
Leptoda limbata BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 406 (gen. ref.).

One female labeled as type and agreeing with Wiedemann's description, especially in the front, which is golden pollinose on the upper half, changing abruptly at the middle to cinereous. The locality is "Brasilien."

The specimen is a *Zelia* and very similar to *Zelia vertebrata* Say, which is common enough in North America to be taken as a basis of comparison. In *limbata* the most striking difference is in the color of the front, already noted. Ocellars minute, proclinate, and widely divergent; antennæ red, third joint four times the second. Arista with long, loose plumosity; scutellum with two laterals and a large apical decussate pair. Abdomen with wide median black stripe narrowly interrupted at base of segments, expanding behind to embrace the segment at its apical two-fifths, wider at sides; the pollinose area of second segment yellow in ground color; fourth segment red on apical third or more. No discals on any segment, a median marginal pair on second, a marginal row on third and fourth. Femora reddish on basal half or more; mid tibia with two bristles on outer front side. Wings subhyaline, but the veins broadly bordered with brown; bend of fourth vein rectangular with distinct, short appendage (probably not specific); third vein with a few hairs. Epistoma not more prominent than in *vertebrata*.

Length, 11 mm.

Not represented in the United States National Museum.

115. ZELIA PLUMOSA Wiedemann

Dexia plumosa WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 370.—MACQUART, Dipt. Exot., 3d Suppl., p. 213 (sep. 53).—BIGOT, in Sagra's Hist. etc., de l'Isle de Cuba, 1857, p. 815.

Leptoda plumosa BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 102 (gen. ref.).

One female, "Brasilien, Coll. Winthem," which has lost the antennæ, palpi, and all of the legs except one front femur. Except as to sex it agrees with Wiedemann's description, and also bears the small red tag of Wiedemann's type material.[8] I do not doubt that this is one of the types.

Pollen of head pale yellow, more silvery on cheek and parafacial, the yellow a little deeper on the middle of the front. Vertex slightly blackish. Width of front at vertex 0.29 of head width, the eyes diverging uniformly to their lowest curve. Frontal stripe dark brown, slightly narrower than the parafrontal, the usual orbital bristles present. Parafacial wide, bare, nearly as wide as the clypeus, which has a very low and indistinct carina above. Epistoma rather strongly projecting. Cheek with four or five bristles next to edge of mouth, above this almost entirely bare. Beard white except its anterior portion, which is black along the ridge extending from the posterior orbit to the mouth. Proboscis small. Thorax gray pollinose, dorsum with four distinct black stripes in front, the inner narrow and extending a little behind the suture, where they disappear and are replaced by a median stripe, also narrow, extending to the scutellum; the outer stripes are as usual interrupted at the suture and abbreviated before and behind. Acrostichal 2, 3; dorsocentral 3, 4; humeral 4; posthumeral 3; presutural 1; notopleural 2; supraalar 3; intraalar 3; postalar 2; sternopleural 2, 1; scutellum with 2 lateral, one large apical and one fairly large discal pair.

Abdomen black with slight reddish tinge along the sides and more distinctly at apex. The pollen seems to have a rather characteristic pattern, as mentioned by Wiedemann. It is partially tessellated or changeable, and on the second segment there is a large triangle, rather opaque black in all directions, its apex just about reaching the front edge, the base reaching the tip of the segment, and extending narrowly toward the sides. The third segment is a little rubbed, but apparently had a similar triangle, and more broadly extended along the hind edge. The rather thin, almost silvery pollen of the remainder of the second and third segments becomes still thinner along the sides, more dense on the venter. First segment with only a lateral pair of bristles, second with a large median marginal pair and

[8] Brauer, Zweifl. Kais. Mus., pt. 1, 1880, p. 105.

one lateral pair; third with a marginal row of about 18 on the entire tergite, extending to the center underneath. The last segment with similar row, about 12; no discal bristles.

Legs black.

Wing rather dark brown on basal third or more and along the costa, the larger cells behind considerably lighter in the middle; fourth vein with rectangular bend, not at all rounded, thence rather evenly concave to the costa, considerably before the tip of the wing; third vein with four or five hairs at base.

Length, 12 mm.

Not represented in the United States National Museum.

Genus TELOTHYRIA Van der Wulp

Telothyria VAN DER WULP, Biologia, Dipt., vol. 2, 1890, p. 167.—BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 377; pt. 6, 1893, p. 132.—TOWNSEND, Rev. Mus. Paul., vol. 15, 1926, p. 210.

Therevops BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 378; pt. 6, 1893, p. 132.—TOWNSEND, Rev. Mus. Paul., vol. 15, 1926, p. 211.

Originally included in *Telothyria* were 38 species, a very heterogeneous group; Brauer and Bergenstamm designated *cupreiventris* Van der Wulp as type in 1893. In the same place they designated *Miltogramma brevipennis* Schiner as the type of *Therevops*, which originally included this and *cupreiventris*. No characters for the separation of the two genera were given. A male of *cupreiventris* is in the National Museum from Porto Bello, Panama (Busck), determined by Townsend. This is clearly congeneric with *brevipennis* Schiner, noted below. In Townsend's key (1926 above), the only difference given is that the posterior crossvein joins the fourth vein somewhat nearer the bend in *Telothyria*. The opposite is the case, as I find in the specimens that in *brevipennis* it joins the fourth vein at two-thirds, in *cupreiventris* at three-fifths, of the distance from the small crossvein to the bend. The principal difference between the two species is that in *brevipennis* the mesonotum is covered with the characteristic pale branched hairs, while in *cupreiventris* these are restricted to the pleurae, the dorsum having black hair and a rather dense glaucous pruinosity.

116. TELOTHYRIA BREVIPENNIS Schiner

Miltogramma brevipennis SCHINER, Novara Reise, 1868, p. 324.

Therevops brevipennis BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 378; pt. 6, 1893, p. 132.

Schiner described *brevipennis* from a single male, which has been received for study. The label is "Novara R. Brasilia," and it is also labeled as type of *brevipennis*. It agrees with Schiner's description, but the third antennal joint is a little longer than his estimate.

Male.—Front 0.22 of head width at vertex, almost the same at base of antennae, thence widening quite rapidly. Cheek one-seventh of eye height, wider posteriorly as the edge of the oral cavity slopes upward toward epistoma. Vibrissae at oral margin, above the level of lower curve of eye. Vibrissal axis equal to antennal, the antennae attached above the level of eye middle, no ocellars; one pair of verticals; frontals about 13, rather small, extending to level of middle of second antennal joint. Antennae small, reaching hardly halfway to vibrissae, third joint twice the second. Arista subplumose on basal third, apical half or more bare. Pollen of head pale yellow (probably faded) parafacials white; hairs of parafrontal and cheek white, delicate. Antennae reddish, tip of third joint infuscated. Palpi slender, yellow, not abbreviated; proboscis small, slender.

Thorax black in ground color, pleurae with dense covering of white plumose hairs which replace the hypopleural bristles and extend upon the coxae; there are two stout black sternopleurals. Mesonotum covered with similar but shorter plumose hairs, the scutellum, however, has none except at the sides and there they extend along the lower edge nearly to the tip. The black bristles of the mesonotum are conspicuous, as follows: Acrostichal 4, 4; dorsocentral 3, 3; humeral 4; posthumeral 1 (and 1 at front edge, interhumeral); presutural 1; supraalar 2; intraalar 2; notopleural 2 (?); scutellum with 2 large lateral, a very minute apical, the disk with coarse black hair. Calypters large, bare, nearly white.

Abdomen brownish-yellow, the ground color quite uniform, the segments covered with thin whitish pollen uniformly distributed; in some lights, a denser white crossband at base of second, third, and fourth segments; all the sternites wholly covered; lateral margins of second and third segments with one large bristle each, no others on second, third with a pair of very faintly developed marginals hardly larger than adjacent hairs; fourth with a marginal row (broken off). Genital segments minute, retracted.

Legs brownish-black, in some lights a little paler; front pulvilli not enlarged; mid tibia with one bristle on outer front side, hind with fine, appressed ciliation on outer hind side and one large on outer front.

Wings subhyaline, shorter than abdomen; fourth vein with rounded, oblique bend; thence barely concave, ending a little before apex; first posterior cell open; third vein with one distinct hair at base, first vein bare; the costal segment before the second vein equal to that beyond it; hind cross vein oblique, almost straight, joining fourth at two-thirds the distance from small cross vein to bend.

Length, 10 mm.

Not represented in the United States National Museum, although we have several specimens rather close to it. The group appears to be a difficult one, and the females probably differ from the males in some of the characters. Another male from the Vienna Museum, labeled "Novara R. Brasilia," the same as the type, but not mentioned by Schiner, is also labeled "brevipennis"; it has the same characters except that the antennae are wholly yellow, the scutellum has a mixture of pale and black hairs, the abdomen has an indistinct median dark stripe, its third segment has two pairs of large marginals (scars), the legs are decidedly yellow, and the middle tibia has two bristles on outer front side. Another male, "Natt. Bras.," agrees with the last, as do two more labeled simply "S. America." All of these are labeled "brevipennis," but disagree with Schiner's description in having well-developed median marginals on the third segment, so there is no doubt as to which specimen is the type.

117. STOMATODEXIA COTHURNATA Wiedemann

Stomoxys cothurnata WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 249.
Stomatodexia cothurnata BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 4, 1889, Fig. 195; pt. 6, 1893, p. 133.—VAN DER WULP, Biologia, Dipt., vol. 2, 1891, p. 239.—GIGLIO-TOS, Mem. R. Acad. Sci. Torino, ser. 2, vol. 45, 1895, p. 64.

Eight specimens, all males, were received, each of which is separately labeled *cothurnata*. Two of these are labeled type and two more have old identifications. All of these four agree with the description and may be considered the original type series. They are from "Brasilien." The other four, although "det. B. B.," are quite different and belong to two species. The species is the genotype of *Stomatodexia*.

Male.—Front very narrow, only 0.09 of head width at vertex, continuing in about the same width nearly to antennae; in profile the front becomes a little prominent at the antennae, which are at a level with the middle of the eye. Face in profile rather deeply concave a little below the middle. Vibrissal axis equal to antennal; cheek about one-fifth the eye height; parafacial very narrow, only one-third the width of third antennal joint. Ocellar bristles proclinate, parallel, of the same size as the frontals; vertical bristles hairlike. The whole head except the back is pale in ground color with light yellow pollen, more whitish on face; epistoma brown. Antennae pale yellow, the third joint slender, more than twice the second. Arista with longer plumosity than in most of the related forms, the longest hairs being about equal to the width of the third antennal joint. There are only two small black hairs below the vibrissae; even these are absent in one specimen. Proboscis slender, with minute erect setules, projecting forward from the epistoma

to a distance equal to the vibrissal axis. Palpi a little elongated and slender, not clavate.

Thorax yellow in ground color except the median part of the mesonotum. The best preserved specimen shows the following chaetotaxy: Acrostichal 1,0; dorsocentral 2,2; humeral 2; posthumeral 1; presutural 1; notopleural 2 (the posterior hairlike); supraalar 2 (posterior hairlike); intraalar 2; postalar 1; scutellum with only two pairs of laterals, no apical or discal; sternopleural 2,1.

Abdomen very slender, the first segment entirely yellow, the second with a lateral black spot on each side at the hind edge, and one above including the median marginal bristles; third and fourth segments narrowly bordered with black behind, in one specimen the dark markings extend forward on the middle of the dorsum of the second and third segments and there are three minute spots on the hind edge of the first segment. First abdominal segment with no median marginals, one pair of lateral marginals and two or three smaller bristles before the latter. Second segment with one pair lateral; third and fourth segments with a marginal row of about six. The genital segments are small, entirely yellow, the inner forceps yellow, combined into a minute, sharp point turned a little backward; the outer forceps are also entirely yellow, considerably elongated, stout at base, the slender apex curving inward and backward.

Legs yellow, the hind femora very slightly infuscated toward the tip, the hind tibiae more or less infuscated; the tarsi brown, front ones paler at base; all the tarsi are decidedly elongated, much longer than their tibiae. The front tibiae and tarsi measure 52 and 99 micrometer units respectively, the latter including 9 for pulvilli. All the claws and pulvilli much elongated.

Wings slightly brownish, long and narrow, the costa with unusually coarse and rough looking hairs as far as the end of the first vein; fourth vein with a long, oblique curve at the bend, toward the tip a little concave, ending just before the apex; first posterior cell rather narrowly open, but its apex not abruptly narrowed. First vein bare, second with about three bristles at base. Calypters light brown, translucent.

Length, 8–8.5 mm.

A badly preserved male from Tabasco, Mexico, in the United States National Museum collection, was identified as *cothurnata* by Townsend. It agrees very well with the type as far as can be judged except that the costa has only the ordinary smooth setules. No females have been seen which could be definitely associated with *cothurnata*. One of the type males is retained by permission of the Vienna museum.

118. STOMATODEXIA BIBENS Wiedemann

Stomoxys bibens Wiedemann, Auss. Zweifl., vol. 2, 1830, p. 249.
Stomatodexia bibens Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 102 (gen. ref.).

One female, "Brasilien, Coll. Winthem," with small, red tag of Wiedemann type and so labeled. Wiedemann's description deals with some characters which are not well preserved now, but there are no serious discrepancies and the specimen may be accepted as the type. It is of robust build like *Eumyobia flava* Townsend (female type), *Trochiloleskia flava* Townsend (female paratype), and *Stomatodexia similigena* Van der Wulp (females determined by Bezzi). The males of none of these are in the collection, but they are probably of more slender proportions. The location of the present species in *Stomatodexia* is provisional, as it has a shorter and stouter proboscis than that of *cothurnata* Wiedeman, type of the genus, and is much unlike the slender males of that species in appearance.

Female.—Vertex 0.26 of head width, widening considerably in a short distance, the eyes then diverging gradually to their lower curvature. Ocellar bristles represented only by a cluster of hairs. Frontals extending to base of second antennal joint, the usual two orbitals present. Parafrontals and parafacials broad, the former considerably wider than the middle stripe, the latter about twice as wide as the third antennal joint. Cheek one-third of eye height. Epistoma strongly projecting so that the face is deeply concave in profile in its lower part. Vibrissae a little above the oral margin, the vibrissal axis of the head equal to the antennal axis. Proboscis from the elbow barely equal to head height; palpi about three-fifths as long, slender, with a rather striking black hair below at tip and several smaller toward the base. Antennae reddish-yellow, the third joint rather distinctly infuscated from about the middle. Arista with rather short plumosity, the longest hairs about two-thirds as long as the width of the third antennal joint. Beard very pale yellow, only a single thin row of about six small black bristles along edge of mouth. Pollen of parafrontals, parafacials, and posterior orbit white with a slight tinge of yellow.

Thorax yellow, except on the dorsum, which is considerably damaged; humeri and sides of dorsum yellow, as well as the scutellum. Sternopleural 2, 1; scutellum with two lateral pairs and one discal pair; no apicals. Calypters almost white, translucent.

Abdomen reddish yellow, the first segment with a black spot under the tip of the scutellum, the second segment with a large, poorly defined, black triangle nearly reaching the front border, not quite connected on the hind edge with a lateral mark which runs down on the venter. Third segment damaged, but with considerably larger

black mark extending to the side and underneath along the hind edge, and barely reaching the front edge in a considerable width; fourth segment damaged but apparently black on the anterior half in the middle part. First segment without marginals, the second slightly abnormal but showing one marginal. The third with a row of six, fourth with a row of six or eight somewhat smaller; no discals.

Legs yellow, with black tarsi which are considerably elongated for a female. Pulvilli small; middle tibia with one bristle on outer front side (a small second above it on one side).

Wing of ordinary form, the fourth vein with an oblique curve, slightly concave near the tip, so that the first posterior cell is open a little before the apex and the third and fourth veins are almost parallel where they reach the costa. First vein bare, second with about four bristles.

Length, 9 mm.

Not represented in the United States National Museum.

119. LESKIOPALPUS FAMELICUS Wiedemann

Stomoxys famelica WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 250.
Stomatodexia famelica BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 102 (gen. ref.).

One female, "Brasilien, Coll. Winthem," labeled as type and agreeing with Wiedemann's description. Wiedemann indicates that he had several specimens, but this was apparently one of them. On account of the short proboscis I put it in *Leskiopalpus* instead of *Stomatodexia*, but it has longer palpi than any other species of the genus. One female in the United States National Museum from Cayuga, Guatemala (William Schaus), agrees with the type.

Female.—Front 0.26 of head width, not widening perceptibly to the antennae, the face only a little wider. Vibrissal axis equal to antennal; cheek about one-fifth the eye height; parafacial as wide as third antennal joint, the usual orbital bristles present. Frontals reaching base of second antennal joint. Antennae red to the arista, the remainder black; third joint three times the second; arista short-plumose; proboscis from elbow less than head height; palpi long and clavate, just reaching tip of proboscis when the latter is retracted: no ocellar bristles; dorsum of thorax black, yellow along sides and scutellum yellow to base, the latter with only two pairs of lateral bristles, no apicals.

Abdomen yellow, translucent, shining, with a black median triangle at apex of second segment, third with similar triangle and a black lateral spot; fourth with slight indistinct black markings at sides and around bases of bristles; second segment with one pair of median marginals; third with a marginal row of six; fourth with a submarginal row of about the same.

Legs yellow.

Wing slightly infuscated; fourth vein with rounded and oblique bend, thence slightly concave, ending barely before the apex; third vein with two to four hairs at base, first vein bare. Calypters pale yellow.

Length, 8 mm.

120. GENEA MACULIVENTRIS Rondani

Genea maculiventris RONDANI, Nuovi An. Sci. Nat., Bologna, ser. 3, vol. 2, 1850, p. 172.—BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 6, 1893, p. 132.—ALDRICH, Ent. News, vol. 25, 1924, p. 210.

One male labeled *Spathipalpus maculiventris*, from Bahia. This is not a type, but agrees perfectly with Rondani's excellent description, quoted by me in the reference above. As there stated, I think *Spathipalpus* Rondani is an entirely different genus. The United States National Museum still contains only the single female of *maculiventris* that was mentioned by me. As compared with the Vienna male, the former has the palpi decidedly more clavate; in the latter they are of uniform diameter, very slender, projecting forward beyond the epistoma to a distance equal to fully three-fourths the vibrissal axis of the head; they reach almost to the middle of the exposed part of the proboscis when it is directed forward as in this specimen. The proboscis, except at base, is covered with minute erect hairs. The ocellars are minute, in the female spreading almost laterally, in the male somewhat more proclinate. The male has no orbitals, a point left a little in doubt by Rondani's statement that there are two rows of frontals. He evidently included both sides.

Length of male, 6.3 mm; of female, 7 mm; Rondani gives 7 mm.

Genus CHOLOMYIA Bigot

Cholomyia BIGOT, Bull. Soc. Ent. France, 1884, p. 42.—VAN DER WULP, Biologia, Dipt., vol. 2, 1891, p. 246.—BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 375, note.—ADAMS, in Williston's Manual, 1908, p. 356.

The type species is *inaequipes* Bigot, new, equals *Musca longipes* Fabricius preoccupied.

121. CHOLOMYIA INAEQUIPES Bigot

Musca longipes FABRICIUS, Syst. Antl., 1805, p. 298 (preoc. Scopoli, Ent. Carn., 1763, p. 336).

Dexia longipes WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 379.

Cholomyia longipes JOHNSON, Psyche, vol. 19, 1912, p. 102.—BROOKS, U. S. Dept. Agr. Bull. No. 1066, 1922, pp. 7, 11, 13, 16, rearing records.

Choloymia inaequipes BIGOT, Bull. Soc. Ent. France, 1884, p. 42.—VAN DER WULP, Biologia, Dipt., vol. 2, 1891, p. 247, pl. 6, Fig. 12—TOWNSEND, Muscoid Flies, 1908, p. 66, rearing record.—JOHNSON, List Dipt. New Eng., 1925, p. 209.

Thelairodes basalis GIGLIO-TOS, Boll. R. Univ. Torino, vol. 8, No. 147, p. 3; Ditteri del Mess., pt. 3, 1894, p. 65.

Four males received; two (Brazilien, Coll. Winthem) are identified as *longipes* Wiedemann, one (Mexico, Bilimek) as *inaequipes* Bigot, and one (Brasilia, Alte Sammlung) unidentified. These all agree with each other and with Wiedemann's description, though none are labeled type. They also agree with the description of *inaequipes* except for the infuscation of the femora and tibiae and a slight discrepancy in Bigot's description of the dark color of the third and fourth abdominal segments. Giglio-Tos's description is of a female and agrees exactly with our only tropical female in the United States National Museum from Vera Cruz.

Male.—Front at narrowest about as wide as the distance between the posterior ocelli, widening considerably and uniformly to the lower curve of the eye. Ocellars large, proclinate, not divergent. A small pair of post-ocellars directed forward; frontals beginning below the narrowest part, six or seven in number hardly reaching base of antennae. Parafrontal widening rapidly to the parafacial which is considerably wider than the third antenal joint and bears perceptible minute hairs, mostly dark. Face flat, without keel, slightly receding. The vibrissae considerably above the lower edge of the head, but not approximated; edge of the mouth with only two or three small black bristles; cheek more than one-third the eye height. Transverse impression brownish, rather large. Antennae entirely yellow, third joint rather slender, more than three times the second. Arista rather short, densely plumose to tip. Palpi yellow, of normal size; proboscis small. Thorax with pale yellow, almost silvery dense pollen to the suture when viewed directly from behind; this sometimes seems to extend to the scutellum, but in a rear view the portion behind the suture is dark brown. Scutellum black with thin brown pollen; pleura with a silvery stripe from the notopleural suture down across the sternopleura. Chaetotaxy: Acrostichal 2, 1; dorsocentral 2, 3; humeral 2; posthumeral 1; presutural 1; notopleural 2; supraalar 1 (and a large hair just behind it); intraalar 1; postalar 2; sternopleural 1, 1; scutellum with two large marginal, a long apical decussate pair and a small discal; postscutellum well developed. Posterior calypter quite large, almost transparent but with a slight brown tinge; infraquamal setules very distinct, about a dozen.

Abdomen translucent yellow, the posterior third of the second segment with a dark shade; third segment black on about the posterior two-fifths which extends forward on the dorsum to the middle or more; fourth segment wholly black, with silvery pollen all the way round except at tip, but thinner on the dorsum; no discal bristles even on the fourth segment. First without marginals, second with a small pair, third with a row of four rather large, fourth with a row of six.

Legs yellow; middle and hind femora, and sometimes the front ones, infuscated on the apical third or more; middle and hind tibiae decidedly infuscated; all the tarsi black, the middle femora approximately twice as long as the hind ones, longer than the entire head and body of the insect; their tibiae are only a little shorter and the tarsi are also much elongated, about equal to the femur. The length of the middle legs is subject to some variation. The front and hind legs are moderately elongated, with long tarsi. Front pulvilli much elongated, the others less so.

Wings distinctly and rather evenly infuscated, the fourth vein with an oblique rounded bend, thence slightly concave, ending barely before the extreme tip of the wing. The apical cell rather narrowly open. The wing is considerably elongated and narrowed, but not so much so as in some related species. There is no costal spine; the third vein has several hairs at base, sometimes extending halfway to the cross vein. The first vein is distinctly hairy on the apical part, beginning where the auxiliary vein diverges from it; the basal portion frequently shows two or three scattered hairs, rarely more.

Length, 7 mm.

Female.—Body, legs, and wings all much shorter than in male, head rounder, the front 0.26 of head width; third antennal joint infuscated from near the base. Front legs entirely yellow, except tarsi; middle and hind femora with a trace of infuscation and their tibiae rather distinctly brown. Tarsi black. Wings as in the male, but shorter and broader. Abdomen yellow at base, the black occupying all of the third and fourth segments and about half of the second, in the middle extending forward almost to the first. The second, third, and fourth segments with broad silvery crossbands at base.

Length, 6 mm.

The description of the male is drawn from the Brazilian specimens, that of the female from a specimen in the United States National Museum collected at San Rafael, Vera Cruz, by C. H. T. Townsend; the National Museum has three additional males from the Tropics, from Frontera, Tabasco (Townsend); Cayuga, Guatemala (Schaus and Barnes); and Higuito, San Mateo, Costa Rica (Pablo Schild). Our only tropical female is the one described above.

The United States National Museum also contains specimens from the United States which are apparently of the same species. Four of these were reared at French Creek, W. Va., by F. E. Brooks, as parasites of the species of the weevil genus *Balaninus*. One is from Mound, La., reared in 1897 from *Conotrachelus juglandis*. Other specimens are from Washington, D. C.; Peaks of Otter, Va.; Lexington, Ky.; Lawrence, Kans.; La Fayette, Ind.; and Dawson Camp, Salt River, Ariz.; collectors being R. C. Shannon, J. M. Aldrich, Wil-

liam Palmer, and C. H. T. Townsend. In all, 23 specimens, of which only six are males. None of these northern specimens have hairs on the first vein except on the apical part, where they are very constant. The males have the femora and tibiae yellow in most cases, although sometimes with slight infuscation. Wishing to ascertain beyond question whether the variations observed could have any specific significance I asked C. W. Johnson to look over his tropical material. From his notes and a careful study of our material I believe we are safe in regarding the northern form as belonging to the same species. The color of the legs shows some variation, and among the tropical specimens there is considerable range in the hairs on the basal two-thirds of the first vein which are entirely absent in some of the specimens.

XANTHODEXIA Van der Wulp

Xanthodexia VAN DER WULP, Biologia, Dipt., vol. 2, 1891, p. 256.—BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, pp. 372, 377; pt. 6, 1893, p. 131.

Minthodexia BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, pp. 371, 376; pt. 6, 1893, p. 131.—TOWNSEND, Ins. Ins. Menst., vol. 4, 1916, p. 7; Rev. Mus. Paul., vol. 15, 1927, p. 218.

The type of *Xanthodexia* is *Tachina sericea* Wiedemann, the only species so far referred to the genus. *Minthodexia* originally contained two species, *gravipes* and *flavicornis*, both new, of which Townsend designated the former as type in 1916. I take the type to be the female of *sericea* Wiedemann. The characters are all discussed under the species. Brauer and Bergenstamm in 1893 erred in the statement that *gravipes* has a hairy first vein; it is *flavicornis* which has it.

122. XANTHODEXIA SERICEA Wiedemann

Tachina sericea WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 316.

Xanthodexia sericea VAN DER WULP, Biologia, Dipt., vol. 2, 1891, p. 256, pl. 6, Fig. 11.—BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 377.

Minthodexia gravipes BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 376.

The type of *Tachina sericea* Wiedemann is a male from Brazil, in poor condition, as Wiedemann said, on account of having been treated with a preserving fluid which has somewhat damaged the surface of the head and body as well as the wings. The type of *gravipes* is a female from Venezuela (Lindig, 1864). It is in excellent condition and the description will be drawn largely from this specimen. Besides the close correspondence between the two types there is a rather unique character in both, which has confirmed my belief that they belong to the same species. It is in the chaetotaxy of the abdomen. The second segment in *gravipes* has a large pair of

discal bristles located at the front edge and another pair equally large of marginals at the hind edge: the third segment has no discals, a peculiar fact when they are so well developed on the second. In the type of *sericea* there are evident scars of the large discals on the front edge of the second segment and also a pair of marginals at the hind edge, the third segment having no scars of discals.

Brauer and Bergenstamm as well as Van der Wulp were in error in overlooking the scars on the second segment. The principal difference between the two specimens is in the parafrontals, which in the male are so broad that they reduce the frontal stripe to a mere groove in its narrowest part before the ocelli. The female has broad and conspicuous parafrontals, but the frontal stripe still retains at the narrowest a width of nearly one-half of one parafrontal.

Female.—Front 0.31 of head width at the vertex, slightly wider at the antennae, the face becoming narrower again at the lower edge of the eyes. Frontal bristles about six, barely reaching the base of the antennae. Two proclinate orbitals, ocellars minute, diverging forward. Parafrontals silvery except on the upper part, the same smooth shining surface extending down the parafacial and across the face. The transverse impression is very narrow, extending from the vibrissa backward under the eye. In profile the head is hemispherical; the eye occupies all but a narrow rim of this figure. Back of the head flat and the cheek only about one-tenth of the eye height. The lateral edge of the mouth is black in ground color, in a narrow triangle extending hardly to the vibrissa and bearing three bristles behind it which are at the oral margin; face flat, with bare ridges. Antennae yellow as far as arista, the remainder infuscated; third joint more than twice the second, slender, but a little swollen at tip, the arista with delicate plumosity; palpi yellow, rather small; proboscis decidedly small but with large yellow labella. Lunule unusually prominent, yellow, contrasting with the dark brown frontal stripe Thorax black in ground color except the humeri, postalar calli, and the margin of the scutellum. Mesonotum covered with golden pollen, which is quite thin in the middle region, more distinct on the sides, front, and hind edges and scutellum. Pleurae silvery-pollinose from the notopleural suture on all but the posterior part. Chaetotaxy: Acrostichal 3, 3(?); dorsocentral 3, 3; humeral 2; posthumeral 1; intraalar 2; supraalar 2 (posterior small); postalar 2; presutural 1; notopleural 2; scutellum with two lateral pairs and a good-sized decussate apical pair, no discals; sternopleural 1, 1; postscutellum well developed. Calypters pale yellow, the hind ones large, with rim and fringe of same color.

Abdomen shining yellow without pollen, the tip shining black including the last third of the third segment and all of the fourth

except a narrow front edge, the yellow color, however, continuing to the apex on the venter. Bristles of abdomen as described above, a single lateral on the first and second segments; one ventral pair on the first, second, and third segments arising from the margins of the tergite, which come entirely together; third segment with a marginal row of six or eight.

Legs yellow, tibiae somewhat infuscated, tarsi black; front tibia with one outer bristle, middle tibia with one on outer front, one on inner front, none on inner hind sides; hind tibia on the outer hind side with a row of small slanting bristles from base to middle, the last larger; also one small on outer front side and one very small on inner hind side before the middle.

Wing broad, somewhat infuscated throughout along the veins and the apical part before the third vein more uniformly so; fourth vein with rounded bend, thence with very slight concavity, ending considerably before the apex; the first posterior cell open, hind cross vein almost straight, joining fourth vein at two-thirds of the distance from the small cross vein to the bend. First vein bare, third with coarse hairs almost to the cross vein. No costal spine.

Length, 8 mm.

Male.—The third antennal joint is entirely yellow, the thoracic chaetotaxy is considerably damaged, but agrees in large part, otherwise as in female.

Not represented in the United States National Museum.

123. XANTHODEXIA FLAVICORNIS Brauer and Bergenstamm

Minthodexia flavicornis Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 376.

Since the genotype of *Minthodexia* is identical with that of *Xanthodexia* I place this species provisionally in the latter genus. The specimen is hardly in good enough condition to base a new genus upon and perhaps in spite of the hairy first vein it should be allowed to remain here. The type, which is a female from Venezuela (Lindig, 1864) has been quite badly broken and the third antennal joint is now gone. The head apparently has about the same shape as in the female of *sericea*, but the uppermost of the two orbitals is strongly reclinate (lower broken off); the ocellars are very minute and hairlike, proclinate. The scars show two verticals close together on each side, some distance in front of which there is one strong reclinate bristle, followed by one equally strong which is proclinate; somewhat farther forward are two orbitals, the upper large and reclinate, the lower represented only by a scar; below these and closer to the middle are two more frontals (scars) the lowest rather large and just on a level with the upper edge of the first antennal joint; the frontal stripe seems to blend with the parafrontals and is hairy to the center.

The front is yellow pollinose above, silvery below, which color extends down around the eye and across the face. The parafrontals are much narrower than in *sericea* except below. Palpi and proboscis small and yellow. Thorax with cinereous pollen above; humeri yellow in ground color; pleurae with silvery pollen extending down the middle part. Thoracic chaetotaxy as in *sericea*, but the acrostichals are very small and the scutellum has a small pair of discal bristles; the abdomen shining yellow to about the middle of the third segment, the remainder shining black except below; a very distinct silvery pollinose crossband on the base of the third and fourth segments; first segment without median marginals; second with one pair and one lateral; third and fourth each with marginal row of six; on the venter there is a marginal pair of bristles close together on the second and third segments, arising from the tergites, which in the specimen overlap considerably.

Wing almost as in *sericea*, the infuscation a little more diffused; third vein with distinct hairs extending far beyond the cross vein; first vein hairy from base to tip, no costal spine. Coxae and femora yellow (the front femora missing); middle tibia slightly infuscated, with two good-sized bristles on outer front side, two smaller on outer hind side, and one small on flexor surface; tarsi black; hind tibia more densely infuscated, with almost villous hairs on the flexor surface, four bristles of varying size on outer hind side; four on outer front side, only the last of which is of noticeable size.

Length, 5.5 mm.

Not represented in the United States National Museum.

124. CALLESTHES DILECTA Wiedemann

Musca dilecta WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 419.

? *Zosteromyia dilecta* BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 406.

One male indicated as type, "Brasilien, Coll. Winthem." Agrees with original description, but is in rather poor condition. All of the legs are gone but one (middle). The head is pressed in from below, which must have occurred when the specimen was fresh a century ago or more; this prevents a complete description of the head structures. The thorax has been damaged by the pin. Undoubtedly the type. I refer the species provisionally to my recently described genus *Callesthes*[9] of which the type is *Callesthes histrio* Aldrich, from Ecuador, described in the same place. *Callesthes dilecta* differs in having much narrower parafrontals, the wing distinctly brown, bend of fourth vein much more abrupt. The two species agree in the striking transverse band just before the suture, extending down to the sternopleurae, and

[9] Proc. U. S. Nat. Mus., vol. 74, art. 1, p. 11.

in having interrupted silvery basal crossbands on the abdominal segments. The head structure is very similar and both have the first posterior cell ending in the apex of the wing. The following description is as complete as can be made from the type; the species is certainly recognizable from this on account of the striking thoracic crossband.

Male.—Hypopleurals and postscutellum well developed. Front at narrowest 0.07 of head width, or just about the width of ocellar triangle; the parafrontals are very narrow, so that the frontal stripe at its narrowest is wider than one of them. Eyes bare, the facets rather large in the region above the middle and toward the median line of the head. The front was apparently a little prominent, and the cheek was certainly rather broad, about one-third the eye height as nearly as can be estimated. Vibrissae well developed, at or near epistoma. Palpi of normal size, rather brown, proboscis short, fleshy. The orbit is white or probably silvery all the way round the eye; parafacial at least as wide as third antennal joint, apparently with a few minute black hairs in a single row. Antennae black, third joint one and one-half times the second, red at base; arista plumose, its base thickened. Frontal bristles beginning far before the ocelli and ending barely below the attachment of the antennae, perhaps even before it. The thorax shows very little on account of its damaged conditions, except the silvery crossband, which lies against the suture, occupying over one-third of the space to the anterior edge of the mesonotum and at the sides expanding to hind edge of humeri; on the pleura it includes the posterior half of the mesopleura and a part of the sternopleura.

Abdomen black; second and third segments with wide basal interrupted crossbands of white or perhaps silvery pollen; the median interruption is narrow at extreme base, widening posteriorly. First segment with a row of about 10 rather widely spaced slender marginal bristles, second and third segments with scars of a similar row but perhaps stouter. No discals. Fourth segment in bad condition, but apparently has some pale pollen at base and a few apical bristles. Genitalia small, black, concealed between the large plates of the fifth sternite.

Wing hyaline, first vein bare, third with one or two hairs at base; hind cross vein very straight, halfway between small and bend of fourth vein, the latter very oblique, concave beyond, ending in the exact apex, the first posterior cell open. The second vein ends near tip of third so that the costal section before it is about three times as long as the one beyond. Wiedemann gives the length as 4 mm.

The species is not represented in the United States National Museum.

Genus CALODEXIA Van der Wulp

Calodexia Van der Wulp, Biologia, Dipt., vol. 2, 1891, p. 257.—Brauer and Bergenstamm, Zweif. Kais. Mus., pt., 6, 1893, p. 131.—Townsend, Rev. Mus. Paul., vol. 15, 1926, p. 219.

Oestrogaster Townsend, Proc. U. S. Nat. Mus., vol. 43, 1912, p. 309; Ent. News, vol. 26, 1915, p. 28; Rev. Mus. Paul., vol. 15, 1926, p. 223.

Oestrogastropsis Townsend, Proc. U. S. Nat. Mus., vol. 49, 1915, p. 424; Rev. Mus. Paul., vol. 15, 1926, p. 223.

Oestrogastrodes Townsend, Proc. U. S. Nat. Mus., vol. 49, 1915, p. 425; Rev. Mus. Paul., vol. 15, 1926, p. 225.

The genus *Calodexia* originally included three species, of which Coquillett (Proc. U. S. Nat. Mus., vol. 37, 1910, p. 517) designated *Calodexia majuscula* Van der Wulp as type. He identified a male specimen from Cuernavaca, Mexico, as belonging to this species. I recently sent this specimen to the British Museum, where Major Austen kindly compared it with Van der Wulp's type, and reports it to be correctly identified.

Townsend proposed all three of his genera on female specimens. The type and sole species of *Oestrogaster* is *Oestrogaster fumosus* Townsend; that of *Oestrogastropsis* is *Oestrogastropsis mexicana* Townsend; and that of *Oestrogastrodes* is *Oestrogastrodes similis* Townsend. A male undoubtedly belonging to *similis* has since been discovered in our material, and we have a female of *flavipes* Schiner; so there are two species in which both sexes are known.

In order to elucidate the following species of Schiner it is necessary to consider the characters of the genotype of *Calodexia*.

The type specimen of *Calodexia majuscula* is a male, and the female has not yet been associated with this species. It must be very much like *similis* Townsend. In the male the eye is very large, front in profile not prominent, antennal axis short, vibrissal about three-fourths as long; the front is 0.16 of the head width above, widening but little to the antennae and the face still quite narrow; ocellars merely hairs; outer vertical not developed; two large upper frontals reclinate, remainder smaller, decussate, lowest barely at insertion of antennae, which is at middle of eye, third antennal joint two and a half times the second, arista thickened at base, subplumose for a short distance beyond the thickening, the plumosity rapidly diminishing in length and the apical half practically bare. Parafacials very narrow; vibrissae at oral margin, ridges bare above them and rather flat. Cheek about one-fifteenth of eye height. Palpi and proboscis normal. Infrasquamal hairs present but pale (in our other species usually only one or two hairs present, sometimes none). Abdomen slender and pointed; first and second segments with a pair of erect median marginals, third with a marginal row; second and third with a large erect, discal pair; fourth as long

as third, pointed, with a discal row and two irregular marginal rows. Male genitalia small and concealed, the tergite overhanging them somewhat as in the less developed species of *Uramyia*. Wing rather narrow, fourth vein with rounded oblique bend, not concave except near tip, ending but little before apex of wing, beyond the bend almost parallel with hind margin of wing. First posterior cell open, close to costa its sides are almost parallel. Third vein with several hairs at base; hind crossvein joining fourth vein at two-thirds the distance from small to bend.

Antennae, palpi, proboscis, coxae, femora, tibiae, and sides of first three abdominal segments yellow. Femora not thickened, under side of middle and hind ones with distinct whitish cilia on apical two-thirds, quite long and dense and apparently a good specific character for the male. Front tibia with one bristle on outer hind side, mid tibia with one on outer front, hind tibia with two smallish pairs behind, at, and before middle, and a pair subapical; on the inner flexor side at base some sloping villous hairs, which diminish and disappear near middle. Claws and pulvilli moderately elongated. Basal half of abdomen below with long delicate white hairs.

The female of *majuscula* is not known, but from what is known of the related species may be expected to have the abdomen short and deep, more or less keeled, the fourth segment narrow and elongated forward underneath, so that its discal row of bristles becomes two longitudinal and almost parallel rows, and the genital opening is pushed forward underneath almost or quite to the middle of the venter. This remarkable peculiarity makes the females look different from the males, but the other characters agree well in both sexes.

125. CALODEXIA FLAVIPES Schiner

Meigenia flavipes Schiner, Novara Reise, 1868, p. 326.
Calodexia flavipes Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 376.
Myobia (?) flavipes Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 6, 1893, p. 131.

One male, the undoubted type, "Novara R. Brasilia."

Male.—Closely related to *Calodexia majuscula*. The head is of the same shape, much higher than long in profile, almost circular from in front. The height, length, and width are 53, 32, and 56 in micrometer units. The eyes are very large, both front and face narrower than in most tachinids, and the cheek only one-twentieth of the eye height. The front is very little projecting in profile, even less than in *majuscula*. It measures the same from the middle to the vertex, 0.17 of the head width, the eyes gradually diverging farther downward. Ocellars hairlike, proclinate; outer vertical not developed; frontals forming a denser and more homogeneous series than in

majuscula, the upper two or three pairs reclinate, the following gradually becoming decussate, but there is no break in the series, which extends just to the base of the second antennal joint. Antennae brown, third joint slender, red at base, almost three times the second, arista slender, a little enlarged at base, distinctly pubescent on about the basal third. This pubescence is shorter than what I have called short plumosity in *majuscula*. The narrow parafrontals and still narrower parafacials are bare, with dull yellowish pollen in the ancient type; palpi and labella yellow.

Thorax black in ground color with dense yellow pollen, on which two pairs of black stripes are distinct, the inner blending just at the suture into a large heart-shaped spot not quite reaching the scutellum, and showing a reddish brown color in an oblique view; the outer tapering abruptly to a point before the scutellum. Scutellum opaque black, with yellow-pollinose border. Chaetotaxy: Acrostichal 1, 1; dorsocentral 2, 3; humeral 2; post-humeral 1; presutural 1; notopleural 2; supraalar 2; intraalar 3; postalar 2; sternopleural 1, 1; scutellum with 3 lateral pairs, a minute divergent apical pair hardly distinguishable from hairs, and a small subapical pair on disk. Several distinct dark infrasquamal setules.

Abdomen rather slender, dark yellow with a broad ill-defined black median stripe; the second tergite is deformed in the specimen. First segment with median marginal pair of bristles; second with discal and marginal pairs; third with discal pair and marginal row; fourth with discal row and irregular marginal row partly double.

Front legs rather dark yellow, including coxae, tarsi black; middle femora yellow on basal half, the rest blackish, their tibiae brown; hind femora yellow on more than basal half, their tibiae brown, but in the middle yellowish. The middle femora are densely ciliated with dark yellowish pile on the anterior flexor side from about the middle; the hind femora have similar cilia on both the anterior and posterior flexor sides. The hind tibiae have rather dense and long appressed hair on the flexor side at base. Claws and pulvilli moderately elongated.

Wings rather uniformly brown, deeper along the veins. Venation as in *majuscula*.

Female.—A female in the United States National Museum (Higuito, Costa Rica, collected by Pablo Schild) shows the following additional characters: Front 0.26 of head width at vertex and antennae, but widening to 0.28 in the middle; pollen of head cinereous, not yellow; arista with a little longer pubescence on basal third; intermediate thoracic stripes hardly confluent behind suture; pollen of thorax cinereous; posterior acrostichals 3, all but the hindmost small; abdomen short and thick, keeled below; the female genitalia ending in

a blunt tube projecting straight down from the abdomen at about its middle; pollen of abdomen gray, with large dots at bases of the hairs and bristles, apices of second and third segments subshining black; fourth segment wholly pollinose, the discal row of bristles distorted into the shape of a narrow ellipse or almost into two parallel longitudinal rows. The abdomen is not yellow at the sides as in the male. Legs brownish black, the front femora yellowish underneath on apical half, middle and hind femora without distinct ciliation underneath.

Wings of a lighter and more uniform brown.

Length of male, 9.6 mm.; of female, 7 mm.

126. CUPHOCERA MACROCERA Wiedemann

Tachina macrocera WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 290.
Cuphocera macrocera SCHINER, Novara Reise, 1868, p. 330.
Elachipalpus macrocera BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 406.

Schiner gives only a brief note on a pair from Brazil. Brauer and Bergenstamm give only the generic reference.

The material received from Vienna under this name is as follows:

1. A male labeled *Tachina macrocera* Wiedemann and also "Brasilia, Coll. Winthem," it also bears a recently added red "Type" label. This, however, can not be Wiedemann's type, as it has antennae of ordinary size, while Wiedemann says "Antennis maximis," and "Mit sehr grossen Fühlern." We have additional specimens of this species, and I am describing it below as *Copecrypta orbitalis* new species.

2. A male and female each labeled "macrocera det. B. B.," and "Novara R. Brasilia." These are apparently the pair mentioned by Schiner as *macrocera*, since they differ in the antennae as he says. The female belongs to *Copecrypta nitens* Wiedemann, mentioned below, and the male I identify with *Copecrypta nitidifrons* Van der Wulp, on comparison with two female paratypes of that species from Mexico donated to the United States National Museum by the authorities of the British Museum. It has antennae of ordinary size and differs from *orbitalis* most obviously in not having orbital bristles.

None of the three specimens belongs to *macrocera* Wiedemann, but a male sent along for identification and belonging to a related species is, I am confident, the true *macrocera*, and very likely the type specimen, as it dates from the same period.

The species is here referred to the genus *Cuphocera*, the genotype of which (*ruficornis* Macquart of Europe) has rudimentary, minute palpi and no ocellar bristles, while *macrocera* has no palpi and a distinct pair of ocellars. Townsend has proposed the genus *Deo-*

palpus for an American species (*hirsuta* Townsend) with neither palpi nor ocellars, and *Spanipalpus* for one (*miscelli* Coquillett) which like *macrocera* has ocellars but no palpi. These distinctions are, I think, too slight to base genera upon.

Male (fig. 1).—Front wide, at vertex 0.41 of head width; two pairs of large verticals; one pair of ocellars as large as the averge of the frontals, the latter extending somewhat below the base of the antennae with a supplementary outer row of four along the broadest part of the parafrontal, all of these directed toward the middle except the upper two or three which are reclinate. Parafrontals broad, subshining except next to the eye, considerably wider than the middle stripe. Entire face, including cheeks, pale in ground color with silvery pollen, which is distinctly tinged with yellow on the cheeks and very faintly so on the parafacials; the middle of the face somewhat bulging, the ridges very flat, bare; edge of mouth moderately protuberant. Parafacial with one stout black bristle on lower part and a few pale hairs above and below it. Antennae red, third joint dark on apical half, very large and triangular as shown in figure; the arista has a long penultimate joint, the apical one pubescent, flattened on the basal third or more. Palpi absent. Proboscis beyond elbow about equal to height of head. Beard white, rather bushy. Thorax gray, with four distinct blackish stripes. Presutural acrostichals, three pairs. Scutellum with two lateral pairs and a small decussate apical. Some pale hairs on pleurae not very striking; one large pteropleural bristle nearly equal to the largest scutellars.

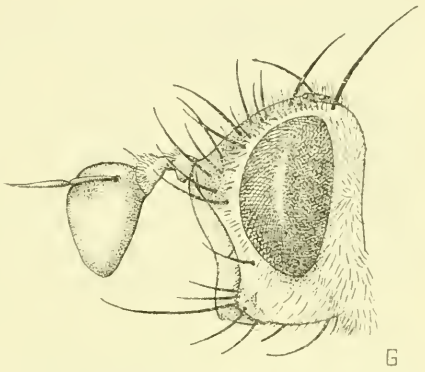

FIG. 1.—HEAD OF CUPHOCERA MACROCERA WIEDEMANN, MALE (SUPPOSED TYPE). DRAWN BY C. T. GREENE

Abdomen black, subshining, with thin gray pollen which is quite changeable in different angles of view. The fourth segment yellow on apical two-fifths, this color extending forward on the median line to three-fifths. First segment without median marginals; second with one pair rather close together; third with one pair and three at the side; fourth with several bristles on apical half.

Legs black, under side of femora reddish on apical half; middle and hind tibia with reddish tinge except at base; front pulvilli not much enlarged; middle tibia with several stout bristles on outer front side. Hind tibia with a few not so large on outer hind side and others on inner hind side.

Wing slightly brownish, bend of fourth vein rectangular with a slight appendage; beyond the right angle the vein is concave, thence straight in a diagonal direction toward the costa. Third vein bristly almost to cross vein. Calypters white.

Length, 11 mm.

Described from one male, "Brasilia, Alte Sammlung," another label reads "ad. Elachipalpus det. B. B."

Not represented in the United States National Museum.

COPECRYPTA ORBITALIS, new species

Male.—Front at vertex 0.35 of head width; two pairs of verticals, no ocellars, upper two frontals reclinate, only five anterior to them in a single row, two large proclinate orbitals. Ground color of parafrontals black, of parafacials, face and cheeks pale, all overlaid with golden pollen; upper half of the parafrontals with thinner pollen and rather dense erect black hair; parafacial with two stout macrochaetae and some pale pile, the latter continuing on the cheek; beard yellow. Antennae red except apical part of third joint; second joint fully equal to third, the latter convex in front, more straight behind, rather pointed, not very broad. No palpi; proboscis beyond joint barely equal to height of head. Thorax black with thin plumbeous pollen on dorsum in best specimens, nearly shining in others; the pollen shows two narrow submedian black stripes in front, between two wider ones. Acrostichal 3, 4; dorsocentral 3, 4; scteullum with two large lateral with a small between them, and a small decussate apical pair. Sternopleural 4, with a stout pteropleural about equal to the largest scutellar. Calypters yellow. Abdomen sub-shining black with fourth segment deep red on apical half dorsally, less below, and a trace of red on the sides of the second segment. The pollen and bristles are as in *macrocera*. Legs black; front pulvilli distinctly elongated; several bristles on outer front side of middle tibia, hind tibia with a few on outer and inner hind sides. Wings distinctly brownish, fourth vein bent at right angle; concave immediately beyond the angle, thence straight in a rather upright course to the margin; third vein bristly less than halfway to cross vein.

Female.—Front of exactly the same width as in the male, but the third antennal joint smaller and less convex, about three-fourths as long as second. The abdomen is broader and has no trace of red at the sides. The three intermediate joints of the front tarsi are distinctly flattened.

Length, 7–8 mm.

Described from two males and three females (including the type) Posorja, Ecuador (Prof. F. Campos R.); one female from Peru (Townsend); and one male from Brazil (Coll. Winthem.) which

will be returned to the Vienna Natural History Museum. The latter specimen has faded so the pollen of the head is almost silvery and the calypters are whitish yellow, but in other details agrees perfectly.

Type.—Male, Cat. No. 41.082, U.S.N.M.

127. COPECRYPTA NITENS Wiedemann

Tachina nitens WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 294.
Cuphocera nitens SCHINER, Novara Reise, 1868, p. 330.

One female specimen, "Brasilia, Coll. Winthem," which has lost one wing. It is labeled as type and agrees with Wiedemann's description and Schiner's comments.

It is clear that the common form in the United States, *ruficauda* Van der Wulp, type of the genus, can not be more than a variety of this, and I consider it a synonym. Wiedemann's specimen has darker antennae than usual, all the joints being decidedly brown except the tip of second and broad base of third. The abdomen is only very slightly red at tip and vaguely in certain lights on second and third segments, not so definitely as indicated by Schiner. These differences can be almost or quite matched in northern specimens of *ruficauda*. The antennae in *nitens* type are of the usual form in females of *ruficauda*, the third joint only a little longer than the second, widening gradually and subtruncate at tip. There are two parafacial bristles on one side, one on the other. I see no structural differences between the two forms except as noted.

128. ARCHYTAS PILIFRONS Schiner

Echinomyia pilifrons SCHINER, Novara Reise, 1868, p. 331.

One male marked as type and agreeing with the description. The locality label is "Novara R. S. America," but Schiner says it is from Chile. The species is represented in the United States National Museum by five specimens, as follows: One male, Southern Chile (M. J. Rivers); one male, Angol, Chile (D. S. Bullock); two males and one female, Chile (E. C. Reed).

In brief, the species is close to *Archytas piliventris* Van der Wulp, a common species in the Tropics, but differs in having the hairs of the parafacials black and the posterior half or more of abdominal segments two to four shining. It has the same median erect transparent membrane on the back of the penis as in *piliventris*, which hitherto has been the only *Archytas* in the National Museum having this peculiarity. With Schiner's description and these items the species should be recognizable.

129. PELETERIA ROBUSTA Wiedemann

Tachina robusta Wiedemann, Auss. Zweifl., vol. 2, 1830, p. 290.
Echinomyia robusta Van der Wulp, Tijdsch. v. Ent., vol. 26, 1883, p. 19.
Peleteria robusta Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 408 (gen. ref.)—Giglio-Tos, Mem. R. Acad. Sci. Torino, ser. 2, vol. 44, 1894, p. 9.—Coquillett, Revis. Tachin., 1897, p. 140.—Curran, Trans. Roy. Soc. Canada, ser. 3, vol. 19, 1925, pp. 225, 245, fig.
Peleteria robusta marmorata Townsend, Ins. Ins. Menst., vol. 2, 1914, p. 185.
Peleteria texensis Curran, Trans. Roy. Soc. Canada, ser. 3, vol. 19, 1925, p. 246, Fig. 27.
Peleteria inca Curran, Trans. Roy. Soc. Canada, ser. 3, vol. 19, 1925, p. 247.

There are many other references in the literature, but the group is so difficult that it is almost impossible to determine the species without examining male genitalia, and this was never done until Curran's paper; even he, not having seen the material in the Vienna Museum, had the wrong species as *robusta*. There is no great probability that any of the writers after Wiedemann identified the species correctly; it is certain that Coquillett confused several species under this name; his synonomy and that of Van der Wulp and Giglio-Tos is no doubt largely erroneous. The type being a female, it might seem that a positive identification of the species would be impossible. The material received from Vienna under this name includes the undoubted female type from Montevido; one male and one female, "Brasilien, Alte Sammlung"; and one female, "Beske, Brasilien." The last is *robusta* of Curran, according to a female specimen from Paraguay which he identified in the National Museum. It has much wider parafacials and red epaulets, but the other Brazilian female agrees with the type of *robusta* and is accompanied by a male with the same label and agreeing well. I therefore decide that this male is undoubtedly *robusta* and have spread its genitalia for study. I find it agrees with Townsend's and Curran's species as indicated. The epaulet is black in all three specimens, hence the species does not run to *robusta* in Curran's key.

The parafrontals are pollinose, abdominal segments mostly so; second antennal joint red, rather long and slender, third black, convex on dorsal side, not very large (a little larger in male); palpi long and slender as in nearly all the species; fourth abdominal segment mostly black in male, entirely reddish in female. The front at vertex in the type female is 0.43, in male 0.35 of head width. The second antennal joint in male is one and a fourth times, in female one and a half times, the third; the parafacial at narrowest is 0.27 in male, 0.29 in the female, of the greatest clypeal width (between the arms of the ptilinal suture).

The male genitalia are very difficult to draw in this genus. The specific differences are mostly in the united inner forceps. In

robusta (the Brazilian specimen from Vienna) these are very deeply grooved, the ridges widening a little toward the tip, which is concave at apex with a slight projection in the center. I am unable to make out, in the paratypes returned by Curran, the differences he mentions in the width of the male abdomen and the tip of the inner forceps, on which he separated *inca* and *texensis*.

Represented in the United States National Museum by 14 paratypes of *texensis*, from Oklahoma, Texas, Arizonia, Mexico, and Costa Rica; 3 paratypes of *inca* from Peru; type, allotype, and 12 paratypes of *marmorata* from Peru; and 9 other Peruvian specimens. Several specimens from Dallas, Tex., were reared from *Cirphis unipuncta* Haworth, the army worm.

The type of *robusta* has on the second abdominal segment only a small depressed median marginal on one side, none on the other, while both of the Brazilian specimens which I have considered the same have a normal large pair. On examining the paratypes of *texensis*, I find one female which has this pair small and depressed, while another has one bristle small and depressed, the other represented by a scar. This character is evidently subject to a slight degree of variation and I do not think raises a serious question. Mr. Curran, who revised the genus *Peleteria* a few years ago, has seen this Brazilian material and the type, and agrees with me that *texensis* is the same.

130. DIAPHANOMYIA DIAPHANA Brauer and Bergenstamm

Paragymnomma diaphana BRAUER and BERGENSTAMM, Zweifl. Kais. Mus., pt. 5, 1891, p. 384.

Three males and one female, labeled as types; one of the males is from Venezuela (Lindig. 1864), the rest of the series are from Ypanema, Brazil (Natterer). The only locality mentioned by Brauer and Bergenstamm is Brazil, hence the Venezuelan specimen can not be considered a type, although it is the same species.

The genotype of *Paragymnomma* is *hystrix* Brauer and Bergenstamm (syn. *Gabanimyia hystricosa* Townsend), which belongs to the genus *Trichophora* Macquart. It differs considerably from *diaphana* in having the abdomen densely bristly. Townsend has proposed *Diaphanomyia aurea* new genus and species[10] for a species almost exactly like *diaphana*, yet differing in several slight characters. His tabulation of the differences between his *aurea* and *diaphana* Brauer and Bergenstamm is mostly illusory, as shown by the types, which are nearer to *aurea* than he supposed. He was endeavoring to interpret the description of *diaphana* without specimens. All the differences I can make out are the following: The front in *aurea* is

[10] Bull. Amer. Mus. Nat. Hist., vol. 37, 1917, p. 229.

less pollinose, translucent when viewed from above; the third antennal joint is a little narrower; the parafacial hairs are all light yellow, while in *diaphana* there are one or two darker in male (more in female); the male paratype of *aurea* in the United States National Museum has only one marginal macrochaeta on the second abdominal segment, the right, and one discal, the left, on the third segment, indicating an unusual instability in this character; all the specimens of *diaphana* have one regular discal pair on second and third and a marginal pair on second; the abdomen is more shining in *aurea*, a little dull in *diaphana*, but possibly such old specimens have become dulled by age. The genus *Diaphanomyia* is barely distinct from *Trichophora* in having fewer abdominal bristles, but *diaphana* may be left here with *aurea* until longer series are examined.

The species *diaphana* is rather striking in appearance, with the abdomen yellow except the fourth segment, which is sharply set off by opaque black color; the legs, pleurae, humeri, and scutellum are yellow. The genus resembles *Copecrypta* in having no palpi, rather elongate proboscis; parafacial with one bristle and some hairs; second antennal joint about equal to third, penultimate joint of arista elongate; no ocellars, etc. It differs in the less erect apical crossvein and in having discal bristles on the abdomen.

One of the males from Brazil is retained, by courtesy of the Vienna Museum, as the species was not represented in our collection.

131. CYLINDROMYIA DORSALIS Wiedemann

Ocyptera dorsalis WIEDEMANN, Auss. Zweifl., vol. 2, 1830, p. 264.

One male, "Brasilia Coll. Winthem," marked type and agreeing with description except in the legs. It is a typical *Cylindromyia*, like the European and North American. The scutellum has two pairs of strong lateral bristles, no apicals; the antennae are red except the apical and upper part of the third joint; the legs are red except the tarsi now (Wiedemann says "femora reddish, on the hindmost also the tibiae, elsewhere black," but perhaps they have faded in a century). The hind femur has three bristles in a close-set row on the outer side below at tip, other leg bristles about as in *brassicaria*. Wing yellow at base, extending along costa past the tip of first vein; from about the small crossvein the veins toward apex and costa are heavily bordered with brownish black, which fills the whole submarginal cell except its base; the petiole of the third vein turns more strongly forward than in *brassicaria*, joining the costa at a right angle. The male genital segments and organs are wholly red, probably somewhat faded; the genitalia are strongly like those of *brassicaria*, but the fifth sternite of the latter has two projections in the middle bearing tufts of setules and separated by

deep notch; while in *dorsalis* there is a single median process bearing two tufts of setules close together. The North American species studied by me in my paper on *Cylindromyia*[11] included none with two lateral pairs of scutellar bristles and no apicals, and *dorsalis* is not now represented in the United States National Museum.

Genus LEPIDODEXIA Brauer and Bergenstamm

Lepidodexia Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, pp. 373, 379; pt. 6, 1893, p. 133.

Raimondia Townsend, Proc. Biol. Soc. Wash., vol. 30, 1917, p. 47.

The type species of *Lepidodexia* is *tetraptera* Brauer and Bergenstamm; that of *Raimondia* is *uruhuasi* Townsend, a closely related species. Both were described in the above references.

132. LEPIDODEXIA TETRAPTERA Brauer and Bergenstamm

Lepidodexia tetraptera Brauer and Bergenstamm, Zweifl. Kais. Mus., pt. 5, 1891, p. 379; pt. 6, 1893, p. 133.

One male, the type and so marked, from "Lindig, 1864, Venezuela."

Male (fig. 2).—Head somewhat globose with the front prominent, antennal axis scarcely longer than vibrissal; cheek about two-thirds the eye height in side view, its posterior part rather bulging so that the eye has an oblique position. Front 0.15 of head width by micrometer at the narrowest place just before the ocelli; frontal bristles about 15 of uniform size, the upper scarcely reclinate, the lower hardly reaching the middle of the second antennal joint. Frontal stripe velvety brown, before the ocelli more than twice as wide as either parafrontal, the latter with the parafacials have a satiny brownish-yellow color. Where the parafrontals widen anteriorly they bear numerous small hairs which extend down on the parafacial to the transverse impression, which is large and dark red. Antennae black, third joint missing on both sides, said by Brauer and Bergenstamm to be three times as long as the second with the arista long-plumose on the basal half. Facial carina very distinct, but hardly more prominent than the ridges, which bear good-sized hairs up to the middle. Epistoma much above the lower edge of head, the profile sloping upward very decidedly. Below the vibrissae are about six bristles in a single row and a few more on the cheek, bordering the lower part of the transverse impression. All the hairs of the head are black, palpi black, hairy, of ordinary size; proboscis rather small with good-sized labella. Thorax brownish pollinose with darker longitudinal stripes, the humeri and lower part of pleurae more cinereous. Chaetotaxy: Acrostical 0, 1; dorsocentral 2, 3; humeral 3; post-humeral 1; presutural 1; supraalar 2; intraalar 2; postalar 2;

[11] Proc. U. S. Nat. Mus., vol. 68, art. 23, 1926, pp. 1–27.

scutellum with only two pairs of laterals, no apical, one pair of discals, besides which there are only ordinary hairs; sternopleural 1, 1; pteropleural 0; infrasquamal setules a very distinct group of about a dozen, which should be a good character; propleura densely hairy. Postscutellum absent, the metanotum moderately convex in the middle as in *Sarcophaga.* Hind calypters remarkably large, yellowish brown in color, the middle lighter. In the specimen the wings are divergent and the calypters are flattened so as to be very conspicuous from above, which evidently suggested the name *tetraptera.*

Abdomen black, the hind margins of the first three segments with dark brown pollen which extends forward in the middle to form a rather distinct median stripe, but toward the sides changes anteriorly to a lighter color so as to leave a pair of pale yellowish pollinose triangles on the anterior part of the second and third segments; fourth segment with pale yellow pollen except in the middle on the front part; first and second segments with only lateral macrochaetae, no marginals; third segment with a marginal pair and a rather dense group of about eight on each side. Fourth segment with a double interrupted marginal row running into a group at each side. These lateral groups are what Brauer and Bergenstamm called fasciculi. Genitalia as figured.

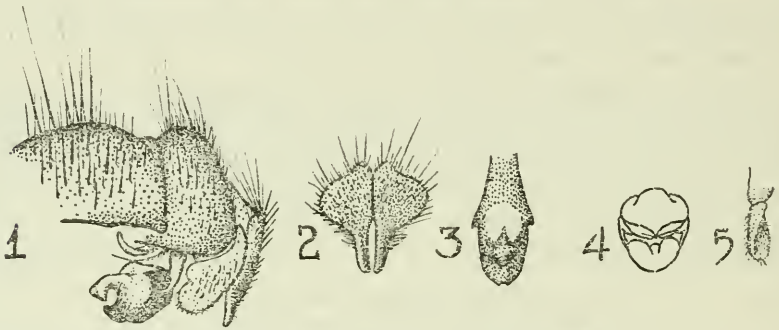

FIG. 2.—LEPIDODEXIA TETRAPTERA BRAUE AND BERGENSTAMM. 1. LEFT LATERAL VIEW OF GENITAL SEGMENTS OF MALE. 2. REAR VIEW OF FORCEPS. 3. REAR VIEW OF PENIS. 4. TIP OF PENIS. 5. REAR VIEW OF ACCESSORY PLATE. DRAWN BY DAVID G. HALL

Legs black, front tibia with a long outer bristle, middle tibia with one on outer front and two on outer hind sides, no flexor; hind tibia with two on outer hind side, two on inner hind and one on outer front sides, the latter at two-thirds the length. None of the tibiae bear villosity. Pulvilli dark brown, moderately elongate and considerably widened; the front tarsus exceeds the tibia by about the last joint.

Wing subhyaline, the small crossvein infuscated, the fourth vein bent at a slightly acute angle and ending not very far before the

apex, about as far from it as twice the distance between the tips of the third and fourth veins. First vein bare, third bristly almost to the cross vein.

Length, 11 mm.

Not represented in the United States National Museum.

Townsend's *Raimondia uruhuasi* was described from a single female, but the Museum possesses three males and an additional female from Huascaray Ridge, Jaen Province, Peru, September 21 and 22 (Townsend). The species is very close to *tetraptera*, showing only three differences that I can see. The wings are considerably infuscated, especially the crossveins; the male has a pair of long parallel upright apical scutellars, the tips of which curve forward; the abdomen of the male has a somewhat more contrasting pattern, with better defined subsilvery triangles on anterior lateral part of the second, third, and fourth segments. The female of *tetraptera* is unknown, but that of *uruhuasi* has no apical scutellars and the abdominal pattern while similar to that of the male, is more tessellated. The male genitalia have been carefully compared and seem identical. It may yet prove that *uruhuasi* is merely a subspecies of *tetraptera*.

The genus *Lepidodexia* belongs to the family Sarcophagidae, as indicated by Brauer and Bergenstamm.

SUMMARY OF CHANGES OF NOMENCLATURE PROPOSED

NEW SPECIES

Copecrypta orbitalis Aldrich, from Ecuador and Brazil.

NEW SYNONYMY

Euzelia Townsend equals *Zelia* Robineau-Desvoidy.

Therevops Brauer and Bergenstamm equals *Telothyria* Van der Wulp.

Minthodexia Brauer and Bergenstamm equals *Xanthodexia* Van der Wulp.

Minthodexia gravipes Brauer and Bergenstamm equals *Xanthodexia sericea* Van der Wulp.

Oestrogaster Townsend, *Oestrogastropsis* Townsend, and *Oestrogastrodes* Townsend are synonyms of *Calodexia* Van der Wulp.

Peleteria robusta marmorata Townsend, *Peleteria texensis* Curran, and *Peleteria inca* Curran are synonyms of *Peleteria robusta* Wiedemann.

Raimondia Townsend equals *Lepidodexia* Brauer and Bergenstamm.

NEW COMBINATIONS

Zelia potens Wiedemann for *Dexia potens* Wiedemann.

Zelia phaeoptera Wiedemann for *Dexia phaeoptera* Wiedemann.

Zelia atrifrons Wiedemann for *Musca atrifrons* Wiedemann.

Zelia limbata Wiedemann for *Dexia limbata* Wiedemann.

Zelia plumosa Wiedemann for *Dexia plumosa* Wiedemann.

Telothyria brevipennis Schiner for *Miltogramma brevipennis* Schiner.

Leskiopalpus famelicus Wiedemann for *Stomoxys famelica* Wiedemann.

Xanthodexia flavicornis Brauer and Bergenstamm for *Minthodexia flavicornis* Brauer and Bergenstamm.

Callesthes dilecta Wiedemann for *Musca dilecta* Wiedemann.

Copecrypta nitens Schiner for *Cuphocera nitens* Schiner.

Archytas pilifrons Schiner for *Echinomyia pilifrons* Schiner.

Diaphanomyia diaphana Brauer and Bergenstamm for *Paragymnomma diaphana* Brauer and Bergenstamm.