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THE GENUS *LEPIDOSTOLA* MIK

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The flies of this genus are relatively small and are confined to the Neotropical region. Eleven species have been described, to which three species are added at this time. The species are very scarce in collections and usually represented by isolated individuals. Nothing appears to be known of their life histories, but the imagines are somewhat like *Chrysogaster* in their general appearance. They are usually in part covered with flattened, white or golden scales upon thorax, scutellum, or abdomen, as well as the face, these scales in part replacing the pile. They are unique and attractive flies.

In presenting this study I wish to thank Dr. C. H. Curran of the American Museum of Natural History and Dr. C. L. Fluke of the University of Wisconsin for the loan of material, including several undescribed forms. I have also at some time examined the types of all described species except that of *ortalina* Van der Wulp and *brethesi* Shannon. These flies are especially well represented in the American Museum collections, which contain 10 species, of which nine, including the three described in the following pages, are types. Figures 1-5, 11, 12, 14-21, 23, 26-29, 31, 32, and 34 of this paper were made with the aid of the camera lucida.

LEPIDOSTOLA MIK

Lepidostola MIK, 1886, Wiener Ent. Zeitg., vol. 5, p. 278.

Lepromyia WILLISTON, 1886, Bull. U. S. Natl. Mus., no. 31, p. 31.

Lepidomyia LOEW, 1864, Berliner Ent. Zeitschr., vol. 8, p. 69. Not Bigot, 1857.

Small dark flies with bright scales replacing the pile in part. Head short in profile and high, the eyes large and holoptic, and the anterior upper facets enlarged in

the male. The antennae, with one exception, are long and slender, all segments being lengthened; arista bare. The face is tuberculate in both sexes. Vertex often raised and prominent.

Scales are usually present in distinctive patterns. The scales of the thorax are present in one or more of three regions, anteriorly, centrally across the suture, or posteriorly in front of the scutellum. The scutellum is frequently triangular and may be drawn out into a thorn-like protuberance reminiscent of the condition in pachygasterine soldier flies, but it may be, instead, short oval. It may or may not have scales.

The legs have the hind femora a little swollen, especially apically, and equipped with prominent spines in two rows ventrally upon the distal half.

The wings are often marked. The anterior cross vein is distinctly before the middle of the discal cell. The subapical and lower cross veins may have a spur vein turned inward near their midpoints; the former usually ends near the apex of the wing acutely. The venation is not unlike *Chrysogaster nigripes* Loew. The third vein is nearly straight, and the marginal cell is open.

The abdomen has five visible segments with the scales usually present and confined to the last two or three segments. They may be absent owing to denudation.

GENOTYPE: *Lepidostola calopus* Loew (Cuba).

These flies are allied to *Chrysogaster* and belong in the subfamily Cheilosinae. As in that genus (and also the pachygasterines), the eyes show either horizontal or zigzag stripes in life. They are also related to *Myiolepta*, in which, however, only the males have tuberculate face.

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KEY TO THE SPECIES OF *Lepidostola*

1. Subapical cross vein with an inwardly directed spur vein (into the first posterior cell). Antennae of the slender, elongate type.....2
 The subapical cross vein is angulated, curved, or nearly straight, but, if spurred, the spur is directed towards the wing margin or apex, or is confluent with the third vein. Antennae varying from short to long.....3
2. The spur is quite short; basal half of the stigmal cell very dark brown, merging into a lighter brown cloud beneath, the costal cell light yellow. Hind femora bright orange red. Basal half of abdomen light orange on either side. (Brazil).....
*crepusculatella*, new species
 The spur is long, as long as the preceding section of the cross vein; wings with an apical, transverse, blackish spot. Legs yellow, the hind femora (except their base) and the last two segments of all the tarsi black. Thick golden scales present at least upon the mesopleura and before the scutellum and usually forming three fascia upon the mesonotum. Abdomen with a pair of pale lateral spots on second (or on second and third) segments, which may be absent at times in the female; abdomen without scales, the scales replaced by fine pile. (Brazil).
*similis* Williston
3. Antennae short, entirely pale yellow, the third segment oval, not more than one and one-half times as long as wide; front of male wholly obscured by thick, creamy yellow pubescence. Entire mesonotum and much of pleura covered by loosely and evenly spaced, creamy yellow scales. Base of abdomen broadly bright orange. (Brazil).....
*scintillans*, new species
 Antennae longer, usually at least as long as face.....4
4. Wings strongly tinged with dark brown, especially upon the anterior half. Golden scales of the thorax quite sparse upon a dull black background. Abdomen elongate, shining dark brownish black, opaque and blackish in the middle of segments 1 to 3. Larger flies. (Brazil).....
*vulturella*, new species
 Wings usually chiefly hyaline but numerous gray or brown spots sometimes present. Golden scales usually thick set in places. Smaller.....5
5. Terminal part of abdomen with three vittae of thick golden squamulae; scutellum short, of simple shape. (Peru).....*trilineata* Hull
 Without such arrangement; scutellum short or often triangular or thorn-like.....6
6. Anterior femora largely or wholly black, the base often yellow.....7
 Anterior four femora yellow, or yellowish brown.....13
7. Wings hyaline, with several black spots; all the femora wholly black. (Cuba).....*calopus* Loew
 Wings hyaline or tinged with yellow; the femora not wholly black or, if so, the last abdominal segments are thickly golden scaled.....8
8. The anterior four femora are wholly black or, rarely, a little reddish about the base. The apex of the abdomen may have thick golden pile.....9
 The anterior four femora have a basal fifth or fourth definitely yellowish or reddish.....10
9. Third and fourth segments of abdomen wholly and densely clothed with golden squamulae. Thorax black, apparently without scales. (Brazil).
*abdominalis* Williston
 Abdomen black, in part shining, the fourth segment with scattered white scales. Anterior scales of mesonotum and pleura whitish. The border behind the wings thick, golden squamulose. Scutellum triangular, black pilose. (Colombia).*colombia* Curran
10. Mesonotum with an interhumeral band of thick golden squamulae..11
 Anterior mesonotal scales sparse, whitish or golden.....12
11. Abdomen shining black; first and second segments thinly yellow pilose. Mesonotum with only scattered scales between the interhumeral

- and the prescutellar bands of thick scales. (Mexico) *perpolita* Johnson
- Abdomen with numerous scattered whitish scales upon the apex. Mesonotum with a third, middle, medially interrupted band of scales between the other two bands. (Panama).....*jenningsi* Shannon
12. Scutellum considerably longer than wide, thrust diagonally upward, the apex subcylindrical and obtusely pointed, the base chiefly black, appressed pilose. Sparse whitish scales are usually present on the fourth segment of the abdomen and very narrowly upon the apex of the third segment (Brazil)....*ortalina* Van der Wulp, *lactivia*, new variety
- Scutellum shorter, barely longer than wide, not so erect, its base golden appressed pilose, without scales. Fourth abdominal segment with scarcely any scales (possibly denuded); third segment sparsely golden scalose throughout the entire middle.....*ortalina* Van der Wulp
13. Wings with a preapical brown fascia; abdomen with yellow spots basally; mesonotum with thick, golden squamose bands; scutellum triangular.14
- Wings without such fascia; abdomen black, with sparse golden scales on the sides of the third and fourth segments; mesonotum densely golden squamulose posteriorly, sparsely anteriorly; front of female with a radiate patch of scales. (Brazil).....*stellata* Hull
14. Abdomen with yellow trapezoidal spots on each side of the second and third segments; fourth segment metallic black; front femora and tibiae reddish yellow; hind femora, except base and hind tibiae, brown. (Brazil).....*pulchra* Williston
- Base of abdomen of similar general pattern; fourth segment with scattered white scales, dark in ground color; scutellar apex rather pointed; legs yellowish brown. (Argentina).*brethesi* Shannon

***Lepidostola scintillans*, new species**

Figures 12, 20, 31

Antennae pale yellow, short, the third segment short oval. Mesonotum with uniformly distributed, sparse yellow scales. First two abdominal segments and corners of third, pale orange. Length, 4.5 mm. Unrelated to known species.

MALE

HEAD: The vertex is shining black; the long vertical triangle is pale, creamy yellow pubescent. The entire front is covered with similar creamy yellow pubescence, which extends down on the upper part of the face and runs widely beneath the antennae to the base of the small, low, bare, polished, black tubercle; the pubescence also narrowly runs down along the eye margins towards the cheeks. The face, except as noted, is shining, brassy black, flattened, and obliquely striate on either side of the tubercle and on the lower half with a patch of slender, radiating, golden scales. The antennae are pale creamy brown or yellow throughout; the antennae aberrant in that they are quite short; the third segment is large, although short, flattened and oval and but little longer than wide; the second segment about, or a little more than, half as long as third; the first segment is virtually concealed. The very slender arista is yellow basally, black apically.

THORAX: Mesonotum and scutellum shining black, the mesonotum wholly and uniformly covered with short, creamy yellow scales which are spaced about as far apart as twice the width of each scale. The humeri are black and gray pollinose; in front the yellow scales continue down over the polished black mesopleura, pteropleura, and upper part of the sternopleura. The posterior areas of the pleura are also polished black, but the thorax in front of the mesopleura is pale gray pollinose. In addition to the scales on the mesonotum, there is sparse, microscopically short, appressed black pile. The thorax is high and broad and short; the scutellum is black pilose with yellowish scales along the sides, a few above at the base and a ventral marginal fringe of white scales. In shape the

scutellum is triangular, the apex bluntly rounded.

LEGS: The first four femora are shining dark brown, their tibiae similarly colored except upon the basal third, which is pale yellow. The hind femora are rather slender, a little thickened distally, polished, shining brownish yellow, becoming dark brown diffusely and narrowly at the apex. On either side ventrally there is a single row of close-set, heavy, short, black spines; the outer row is confined to the apical half, the inner row to the apical third. The pile is golden. There is a similar double row of black spines ventrally and upon the apical half of the middle femora and on the apical third of the anterior femora. The posterior tibiae are dark brown, with a narrow, diffuse, yellowish annulus in the middle and black setae basoventrally. The first three segments of the hind tarsi are pale yellow, the last two segments black.

WINGS: Pale yellowish or brownish hyaline, the stigmal cell yellow, the subapical cross vein long, joining the third vein at an acute angle near the apex. There are no bends or angles or spurs on this cross vein.

ABDOMEN: The first, and the whole of the second, segment, except for a posterior, linear, brown margin, bright brownish yellow or orange; the anterior corners of the third segment are widely and diffusely bright reddish brown to orange, the remainder of this segment black; its posterior margin is widely metallic and shining and the anterior central portion opaque. The fourth segment, basally reflexed, is shining black with quite sparse, flat, yellowish pile, and near the center of each half of the segment there is a patch of slender, brownish yellow scales, about 25 to each side, reaching sparsely to the margins.

HOLOTYPE: Male, Nova Teutonia, Brazil (Fritz Plaumann).

***Lepidostola crepuscstellata*, new species**

Figures 3, 16, 19, 28

Legs, except the last two segments of first four tarsi, light red. Wings with a diffuse central brownish spot and the costa yellow. Sides of first, second, and third segments of abdomen orange, widely orange upon the second segment. Mesonotum

thick, golden scalose posteriorly, sparsely in front. Related to *ortalina* Van der Wulp. Length, 5.5 mm., excluding a 1-mm. antenna.

MALE

HEAD: The vertex is shining bright bluish-black behind; between the ocelli shining black and bare. There are a few black hairs behind near the occiput. The front is polished shining black and bare with a single row of beautiful, elongate, golden scales margining the eye along the front and a very tiny patch of white pubescence where the eyes meet. The golden scales continue downward as far as the triangle of silvery pubescence below and opposite each antenna. The sides of the face below are yellowish white pubescent; the shining, slightly brassy black face has a low tubercle and is covered with numerous short, bright golden scales. Cheeks metallic black, the face without transverse grooves. The antennae are elongate, light orange brown, the third segment considerably longer than the first two and grayish along the dorsal border. The very slender, long arista is yellowish. There are no black bristly hairs on the upper part of the occiput and only a little yellowish pile.

THORAX: Mesonotum shining black and thickly appressed black setae, with the ground color completely obscured upon the posterior third of the mesonotum by thick, short, bright golden scales. This area includes the space from the anterior base of the wing, completely to base of scutellum, and includes the post calli. There is a patch of slightly less abundant golden scales on either side submedially between the humeri and the remainder of the mesonotum; these scales are sparse and scattered. The pleura are polished, shining black, and bare except for scattered golden scales on mesopleura, pteropleura, and upper sternopleura. The scutellum is slightly subtriangular, moderately shining black with only quite appressed black, short, microscopic pile.

LEGS: Entirely bright orange red except the middle basitarsi, which are pale yellow, the last two anterior tarsal segments, which are black, and the last two hind tarsal seg-

ments, which are brown. Hind femora comparatively slender and but a little thickened distally; throughout almost their whole length they have a row of rather strong black spines on each side of the ventral surface. There is a similar double row ventrally on the middle femora but confined to the apical half only, and there is a single row in the middle upon the apical half of the anterior femora. The two most proximal spines upon the anterior femora point straight outward.

WINGS: Strongly tinged with brown in the middle, especially on the anterior half; the basal portion of the stigmal cell is sepia; its remainder, and the costal and the portion of the subcostal cell behind it, are light yellow; the apex of the wing is faintly darker brown, and the subapical cross vein is long, joining the third vein quite acutely, some way back from the apex. This cross vein has its basal origin quite evenly and broadly rounded, and it is bent outward upon its basal third; at this point a short spur is emitted inwardly.

ABDOMEN: The first segment is dark brown, reddish laterally. The whole of the flattened second segment, except for a wide, posterior, medial, obtuse, opaque black triangle is reddish orange. Upon the third segment only, a large triangle lying in the anterior corners is reddish orange; the remainder of this segment is opaque black. Fourth segment wholly black, chiefly metallic and shining, except that on either side in the greater part of the middle there is a large, opaque black area which is dotted and broken by more or less tiny, circular, metallic black patches; from the center of each of these tiny patches emerges a minute, yellow, short, thickened, non-scalose hair.

HOLOTYPE: Male, Nova Teutonia, Brazil (Fritz Plaumann).

***Lepidostola pulchra* Williston**

Lepidostola pulchra WILLISTON, 1888, Trans. Amer. Ent. Soc., vol. 15, p. 261.

I have examined a specimen of this species in the Museum of Comparative Zoölogy. Upon the abdomen, the bright yellow trapezoidal spots, against a black background, make it quite distinctive. It should be noted that in this species the

second, third, and fourth abdominal segments are considerably wider than long, whereas in *brethesi* Shannon they are described as being longer than wide. Hence that species is more slender than any described species with the possible exception of *trilineata*. The species *pulchra* is separated from *similis*, which it closely resembles in pattern, by the absence of the long spur from the subapical cross vein and in addition by the different wing pattern. From Brazil.

***Lepidostola perpolita* Johnson**

Lepidostola perpolita JOHNSON, 1921, Psyche, vol. 28, p. 56.

The type was examined at the Museum of Comparative Zoölogy. The venation is almost identical with that of *stellata* Hull (fig. 13). Described from Mexico.

***Lepidostola jenningsi* Shannon**

Figures 6, 10, 21, 35

Lepidostola jenningsi SHANNON, 1925, Proc. Ent. Soc. Washington, vol. 27, p. 108.

This species was studied at the United States National Museum. The figures (6, 10, 21, and 35) here shown were taken from the type. The type is from Panama.

***Lepidostola similis* Williston**

Figures 1, 15, 26, 29

Lepidostola similis WILLISTON, 1888, Trans. Amer. Ent. Soc., vol. 15, p. 262.

I have studied two females lent by Dr. C. L. Fluke, which were taken at São Paulo, Brazil, and a male from the Williston material in the American Museum of Natural History. The latter is evidently not a type, as Williston described only the female. I therefore include a short description of this sex.

This male from Chapada, Brazil, could not be *pulchra* Williston as the venation is typical of females of *similis*. It is somewhat smaller than the two females from São Paulo from which I have taken my illustrations of *similis* and which have a dark abdomen unmarked by pale areas. Indeed, these females from São Paulo might possibly prove to be distinct, although they appear to correspond closely to the description

of *similis* in other respects. Length, 6.5 mm. exclusive of antennae.

MALE

HEAD: Short, the brassy black vertex partly denuded but with a few black hairs just behind the ocelli. Vertex in front with golden brown pubescence; upper eye facets enlarged. The front is brassy black and chiefly bare, but there is a small, medial, upper patch of light brownish golden pubescence reaching to the point where the eyes meet and a narrow trace of similar pubescence along the eye margin, which is continuous with a broad patch of such pubescence immediately opposite the antennae and continued on down the sides of the face. This lateral facial pubescence is marked off into areas which appear distinct because the pubescence is directed in different directions. There is a large triangular block of such brownish golden pubescence lying with its curved base along the eye margin at that point where the latter curves downward and at which the sides of the face become nearly parallel. This area may be called the inner angle of the eye margin, and in this area the pubescence is directed away from the eye margin. In the area above it the pubescence is directed downward along the medial side of the area and towards the eye margin upon its upper margin; it thus spreads out in fan-shaped fashion. Still farther down the face, the pubescence is directed towards the epistoma. Middle of face brassy black with a flattened, transversely striate area on either side of the low, inconspicuous tubercle. Antennae elongate and pale yellowish brown, the dorsal margin of the third segment and its apex gray. Arista pale. The third antennal segment is about two and one-half times as long as the second.

THORAX: Mesonotum dull black but more shining upon the humeri and immediately behind them and in front of the post calli. It has obviously been partly denuded, but there is a band of short, flat, golden scales thickly set in front of the scutellum and traces of a few similar scales on either side immediately behind the transverse suture, which probably at one time con-

stituted an additional band. There are also a very few scales remaining behind the humeri. These may have represented a portion of an anterior band. There is an oblique band of thick-set golden scales upon the posterior part of the mesopleura and a few smaller whitish scales upon the pteropleura. Scutellum short, more or less rounded, but perhaps very obtusely triangular with rounded apex; it is rather flattened with abundant, dense, flat-lying, short, golden pile.

LEGS: First four legs light yellowish orange or brownish orange. There are seven black spines laterally on the apical part of the anterior femora and also on both sides of the middle femora. Hind femora considerably thickened, especially beyond the middle, and dark sepia brown, the basal sixth light yellow. There is a row of black spines on either side for the entire length of the brown color. Hind tibiae dark brown, their first three tarsal segments yellow. Last two segments of all of the tarsi black.

WINGS: Venation similar to that of the female, with a long inward spur at the bend of the small cross vein, and a faint brown cloud below the ends of the second longitudinal vein. Small cross vein and lower cross vein margined with brown.

ABDOMEN: Elongate oval, dark sepia brown marked with yellow. The first segment is brown, the second and third widely brown through the middle and opaque except for a medial, vittate extension of the narrow, shining, posterior margin on the third segment and a medial shining spot upon the second segment. On either side of these segments there are large, subtrapezoidal, translucent yellowish spots, the pair on the third segment extending to the base in almost their full width; the lateral margins of these segments, however, are shining brown. Fourth segment shining brown on the anterior two-thirds with an opaque, dark brown vitta. Pile very sparse and microscopic; there are no scales visible on the abdomen; if any were present they have been denuded.

One male, Chapada, Brazil, January; 19152, in the American Museum of Natural History, from the Williston collection.

***Lepidostola vulturella*, new species**

Figures 4, 17, 23, 34

A dark brown species with smoky wings. Length, 7.5 mm.

MALE

HEAD: Very wide and short, the vertex protuberant and metallic greenish black with black forward-lying pile behind; the vertex is bare between the ocelli and in front. There are short black bristles above on the occiput but no spines; these bristles are reminiscent, however, of the genus *Ceriogaster*. The front is polished golden black, depressed in the middle, the upper triangular portion of the front with pale, creamy brown pubescence and flat pile. This creamy brown pubescence is continued down the sides of the wide face and expands from the front into a large triangle opposite the antennae. In some lights, but not in others, it appears to be interrupted before continuing on down the sides of the face. The broad middle of the face, more narrowly above the epistoma, is left polished, greenish black with sparse white pile; the cheeks are metallic black; the face has two deep transverse grooves above the rounded, dome-like tubercle. The antennae are quite elongate, the first two segments and narrow base of the very long third segment yellowish. The greater part of the third segment is dark blackish brown, the third segment is one and one-half times as long as the first two segments, perhaps a little longer; arista very long and quite slender and yellow.

THORAX: Mesonotum and scutellum dull black, feebly shining, a little more so upon the scutellum, with microscopically short, thick, quite appressed, shining, jet black pile. The scutellum is a little more shiny with longer bristles on the rim. The mesonotum has diffusely and irregularly scattered over it short, wide, pale yellow scales that are a little more abundant anteriorly, and are continued on down over the middle of the polished and otherwise bare pleura. The propleura, however, are long, yellowish pilose, and there are a few short yellow hairs on the black humeri. There are faint suggestions of black vittae on the dorsum of the thorax.

LEGS: Very dark reddish chestnut brown, polished and shining, the first two segments of the anterior tarsi and the first three segments of the middle tarsi light yellow except that there is a black spot basally on the anterior basitarsi. The hind tarsi are entirely pale orange, the last two segments perhaps a little darker. The hind femora are considerably thickened, especially apically; their apical two-fifths orange brown, their ventral surface with two widely separated rows of close-spaced, powerful black spines; the outer row becomes double on the outer two-fifths. These rows are continuous throughout the length of the femora. There are a few black small setae laterally on the distal part of the femora; the apical pile is reddish golden, the basal pile pale yellow. All the femora are polished and shining as if waxed.

WINGS: Strongly tinged with brown, growing a little paler along the posterior border as far as the tip. The stigmal cell is darker, especially near its base. The sub-apical cross vein is long, joining the third vein at a very acute angle and almost in the apex of the wing.

ABDOMEN: Dark shining reddish or brownish black; quite flattened on the first three segments; the second segment is widely opaque black upon the base and again subapically, and these wide areas are broadly connected in the middle. There is a similar large, but shorter, hourglass-shaped, opaque black spot on the shorter third segment. Pile of these segments very short, flat-lying, and black. There is some yellow pile on the extreme lateral margins of the second segment, growing longer as it approaches the anterior corners. The fourth segment is more reddish chestnut brown, quite dark basally, but almost orange brown apically. It has erect, sparse, golden pile and a few black hairs basally; there is a narrow, attenuated, medial, basal, opaque black band on this segment which is medially indented. Also in the middle of the segment on either side, there is a small patch of reddish yellow, wide, flat scales; there are about 15 to 17 scales on each side.

HOLOTYPE: Male, Nova Teutonia, Brazil (Fritz Plaumann).

Lepidostola ortalina Van der Wulp

Figures 7, 14, 25, 30

Lepidostola ortalina VAN DER WULF, 1888, Tijdschr. Ent., vol. 31, p. 374.

The specimen I determine as *ortalina* may be a different species, as may also the individuals mentioned by Shannon after his description of *brethesi*. The tiny figure of the wing by Van der Wulp, the author of the species, shows the costa closed in the margin, and there is no mention of the faint central cloud upon the wing, or of the white scales upon the anterior margin of the mesonotum, as described by Shannon for the specimens from Argentina. These scales might, of course, have been denuded in the type of *ortalina*, or, being scattered, have been overlooked. The type of *ortalina* was a female; the three specimens mentioned by Shannon were females, as well as the one I have seen from Tucuman. Length, 5.2 mm.; wing, 4.4 mm.; antennae, 1.2 mm.

FEMALE

HEAD: Quite flat, wider than the thorax, the vertex strongly protuberant into a rather high and rounded mound. The vertex, face, front, and cheeks are everywhere polished black. On either side of the eye margins, narrowly connected beneath the antennae with its fellow is a small semicircle of silver pubescence. There is a similar semicircle on either side just opposite the tubercle. There is some very sparse pubescence that reaches a short way down the side of the face. The tubercle of the face is fairly well developed and the epistoma rather pointed where face and cheeks join. The antennae are elongate, but shorter than is usual. Second segment a little longer than the first segment, and third segment two and one-half times as long as the second; all three of the segments are pale brown and the third is only a little thickened.

THORAX: The anterior half above the suture and half of the remaining part behind the suture shining black and covered with quite sparse, uniformly placed, silver scales that continue down upon the pleura. The remainder of the posterior part before the scutellum is beset with very dense

golden scales, which begin only a very short distance before the posterior calli. The scutellum is bare of scales but basally it has many stiff golden hairs, and the entire scutellum is much thickened and is produced somewhat upward in the form of a very large, thick, evenly rounded protuberance. The scutellum is more or less triangular, but is more acute than an equilateral triangle.

LEGS: Shining black, except the basal third of all the femora and the first two front tarsal segments and the first three mid and hind tarsal segments; hind basitarsi enlarged. The bases of all the femora are pale yellow. Halteres and squamae pale orange; the fringe of the latter is extremely long.

WINGS: Chiefly hyaline, with a faint brown cloud in the region of the small cross vein.

ABDOMEN: Broad and flattened and very little convex; it is shining black everywhere, only the posterior margin of the second segment being grayish and opaque. The middle of the third segment and all of the fourth segment are covered with sparse, uniformly placed silver scales.

The following is a translation of Van der Wulp's brief description in Dutch:

"Shining black, the thorax from above is finely speckled and as a result is duller in color; upon the posterior part in front of the scutellum there are thick, ochre yellow scales which cover the ground color (perhaps similar pile has been present upon the entire mesonotum, but has been brushed off). Ocellar tubercle large and high. Antennae as long as the head, reddish yellow; the third segment is somewhat brownish. The scutellum swollen, cone-shaped, and diagonally and obliquely erected upward. Legs black; on the base of the femora, the foremost tibia, and the tarsi with the exception of the last two segments, reddish yellow. The femora are rather thick, the posterior femora upon the underside with short bristles. The posterior tibia is a little bent or arcuate, near the end broadened. Wings with yellowish brown tint, upon the apex ['spits'] darker; mediastinal cell reddish yellow, a brownish shadow lies on the anterior border at the

place where the 'holpader' ends, and expands over the point where the cubital vein arises out of the radial vein."

***Lepidostola ortalina* Van der Wulp,**
variety ***lactivia***, new variety

A single specimen of this species, from Chapada, Brazil (Williston collection, the American Museum of Natural History), presents certain differences as set forth in the key. Unfortunately the specimen is without head.

***Lepidostola abdominalis* Williston**

Lepidostola abdominalis WILLISTON, 1888,
Trans. Amer. Ent. Soc., vol. 15, p. 262.

A black species with dense, bright yellow scales upon the third and fourth segments of the abdomen. In the type, the only known specimen (believed lost), there were traces of yellow scales near each postalar callus. As Williston pointed out, probably there was a complete band of thick yellow scales on the posterior third, more or less, of the mesonotum, just before the scutellum. There may or may not have been scales loosely or densely upon the more anterior areas of the mesonotum. The species has all femora wholly black and the eyes apparently without bright marking in life. The first three segments of the last four tarsi are yellow; legs otherwise black. Wings nearly hyaline, without pattern; subapical cross vein without spurs. Williston, in his description, speaks of the scales as tomentum. Length, 6 mm.

TYPE: Female, Chapada, Brazil.

***Lepidostola calopus* Loew**

Figures 2, 11, 18, 27, 32

Lepidomyia calopus LOEW, 1864, Berliner Ent. Zeitschr., vol. 8, p. 69.

I have studied a male, in perfect condition, kindly lent by Dr. C. L. Fluke, which quite satisfactorily answers Loew's description of this species in all particulars. It is from Cuba, the type locality. There is, I believe, an additional specimen at the Museum of Comparative Zoölogy. The type was a female, and thought to have been lost some years ago. I describe the species from the specimen before me. Length, 6.5 mm.

MALE

HEAD: Vertex black, silver pubescent behind, with black coarse pile in the middle and a few cream-colored scales anteriorly on either side. Front obscurely covered above by a cream brown pubescence and a transverse row of thick, extra long, yellow scales; the lower portion of the front narrowly in front of the antennae shining brassy black. The antennae are pale brownish yellow; all but the extreme base of the dorsal margin of the third segment and all of the bulbous tip is blackish; arista long and pale brown. There is a large spot of pale, cream-colored, very dense pubescence on each eye margin opposite the antennae upon the wider upper portion of the face, and there is a similar but smaller spot on the eye margin opposite the sharp, abrupt, shining black tubercle and a still smaller similar spot on the lower portion of the cheek on the eye margin. The remainder of the face, except for a wide, diagonal band of similar but more sparse pubescence that runs from the eye margin nearly to the oral margin, is entirely shining black and bare. The three pairs of pubescent spots on the eye margin change from cream colored to dull dark brown according to the light. There is a second tiny tubercle above the major one.

THORAX: Mesonotum dull blackish, with abundant, very short, microscopic, appressed black pile. Also over the whole mesonotum there are quite sparse, scattered, cream-colored scales that are gathered into thicker patches on the inside of each humerus and again submedially on either side upon the anterior margin and again in the midline. The scales are similarly sparse upon the black pleura and upon the more shining black scutellum.

LEGS: Shining black, the bases of all of the tibiae, the first two tarsal segments, and the pulvilli pale, creamy yellow.

WINGS: Hyaline and marked with black, as shown in figure 18.

ABDOMEN: Broad, subopaque black, shining bluish on the posterior margins with gold scales scattered on the sides of the third segment and upon the whole of the fourth segment; there is some silvery pile also.

The pile upon the first and second segments is black, except for white hairs in the basal corners of the second. The central pile of the third segment and its extreme lateral pile is black.

One male, Santiago de las Vegas, Havana, May 22, 1931 (A. Otero); No. 10363. In the collection of Dr. C. L. Fluke.

***Lepidostola brethesi* Shannon**

Lepidostola brethesi Shannon, 1928, An. Mus. Nac. Hist. Nat., Buenos Aires, vol. 34, pp. 573-576.

MALE

"HEAD: Occipital pile normal, ocellar triangle with yellow pubescence, frontal triangle dark with upper (along eyes) margin covered with small yellow scales, face dark, covered with yellow pubescence (except at jowls) not of uniform density; antennal joints slender, their relative lengths being 1.0; 1.10; 3.0; arista 3.0; basal joints yellowish, third joint and arista dark brown.

"THORAX: Mesonotum with three transverse rows of yellow scales, the first and second rows continued over into the pleura and meeting on the sternopleura; apex of scutellum rather sharply pointed.

"LEGS: Yellowish brown; femora moderately thickened, fore femur with a single row of spines on apical two-thirds; middle femur with a double row on apical two-thirds and hind femur with a double row on its entire length; all femoral spines ventral and unusually large.

"WINGS: Clear, villi dark brown, anterior margin narrowly, and a narrow preapical cross band (which does not extend to post margin) dark brown; spurious vein absent, fourth vein meets the third at a sharp angle, the petiole beyond a little longer than length of discal cross vein.

"ABDOMEN: Slender, second, third, and fourth tergites each a little longer than broad. First tergite dark; second yellow with a medial, longitudinal, dark strip which is expanded behind and extends clear across the posterior margin; third similar but with the black more extensive; fourth entirely dark and with scattered white scales and very sparse white pile. Length not given.

"One male, Bolivia."

(Translation from original description.)

***Lepidostola colombia* Curran**

Lepidostola colombia CURRAN, 1929, Ann. Ent. Soc. Amer., vol. 22, p. 495.

This species was described from a female. Length, about 6.5 mm. The author of the species characterized this fly as follows:

"HEAD: Shining black; the sides of the face broadly, and orbital spot opposite the base of the antennae and another above the lower third of the front, sericeous; occiput, except the very broad upper border, yellowish grey pollinose; pile of occiput white, of vertex yellow, with a few black hairs above. Front strongly narrowed above, the vertex strongly produced upwards. Facial tubercle strong.

"THORAX: Shining black, with a broad, median, thinly pollinose greyish vitta; the pleura, notopleura, anterior border of mesonotum and the posterior fourth, with scattered whitish squamulae, the border behind the wings densely golden yellow squamose. Scutellum triangular, rounded apically, above with short, appressed black hair, the margin (below the tip) with some yellow hair. Mesonotum with inconspicuous, appressed black hair.

"LEGS: With steel-blue reflections; black haired, the femora with spines on basal half of lower edges; base of posterior femora and the pale tarsal segments, yellow haired.

"WINGS: Almost hyaline, yellowish in front, darker apically, the stigma yellowish. Squamae white, with brownish border and fringe; halteres yellow.

"ABDOMEN: First abdominal segment and narrow apex of the second, grey pollinose; second and third segments opaque black, with a very broad median vitta and the lateral margins, polished, and the third with the apex moderately broadly shining and with a few squamulae in the middle. Fourth segment shining black, with scattered whitish squamulae. The pile of the basal two segments is yellow, on the apex of the second and on the following segments, black."

Type in the American Museum of Na-

tural History, described from Rio Frio, Magdalena, Colombia.

***Lepidostola stellata* Hull**

Figures 8, 13, 24, 33

Lepidostola stellata HULL, 1941, Amer. Mus. Novitates, no. 1151, p. 1.

This species was described from São Paulo, Brazil, in the female. It is related to *abdominalis* Williston, but the scales are sparse and the front has a radiate patch of golden scales just below the ocelli. The legs are chiefly brownish yellow.

***Lepidostola trilineata* Hull**

Figures 5, 9, 22, 36

Lepidostola trilineata HULL, 1941, Amer. Mus. Novitates, no. 1151, p. 2.

This species was described from Matto Grosso, Brazil, in the male. It is at once distinguished by the three vittae of thick golden scales upon the terminal segments of the abdomen. The antennae are quite elongate. The mesonotum is trifasciate with squamulae of a golden color.

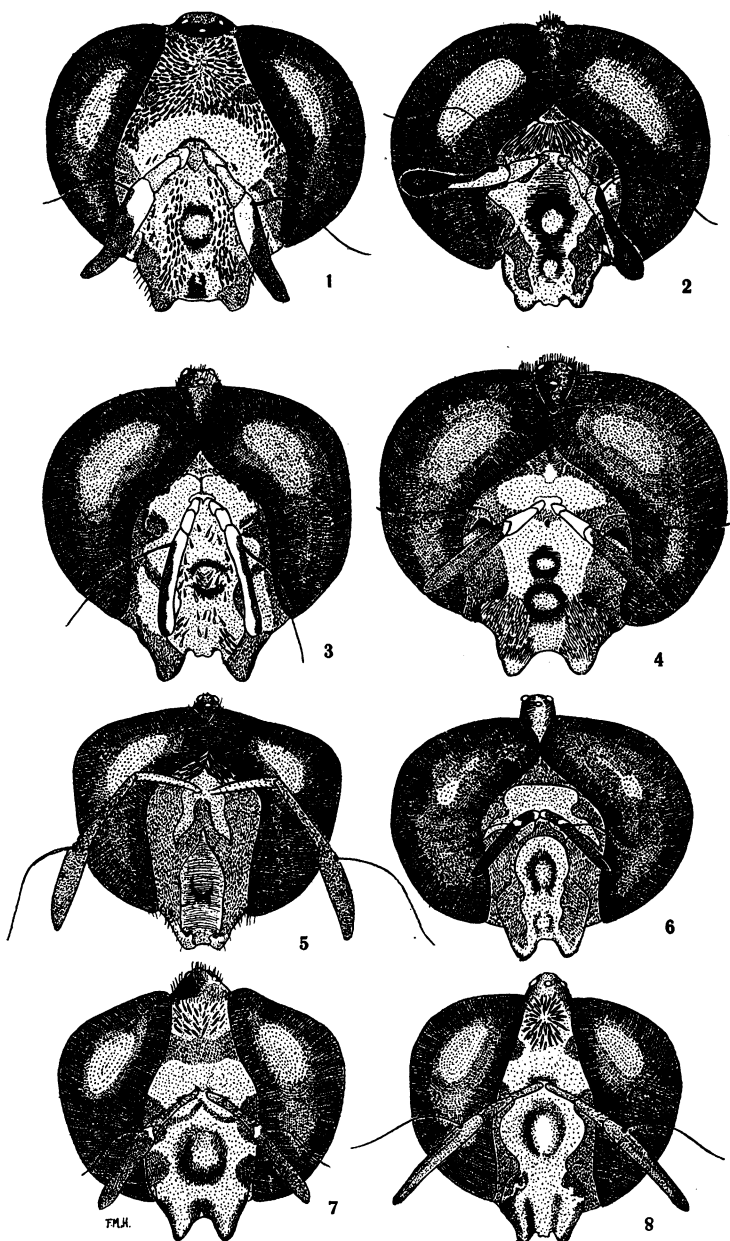
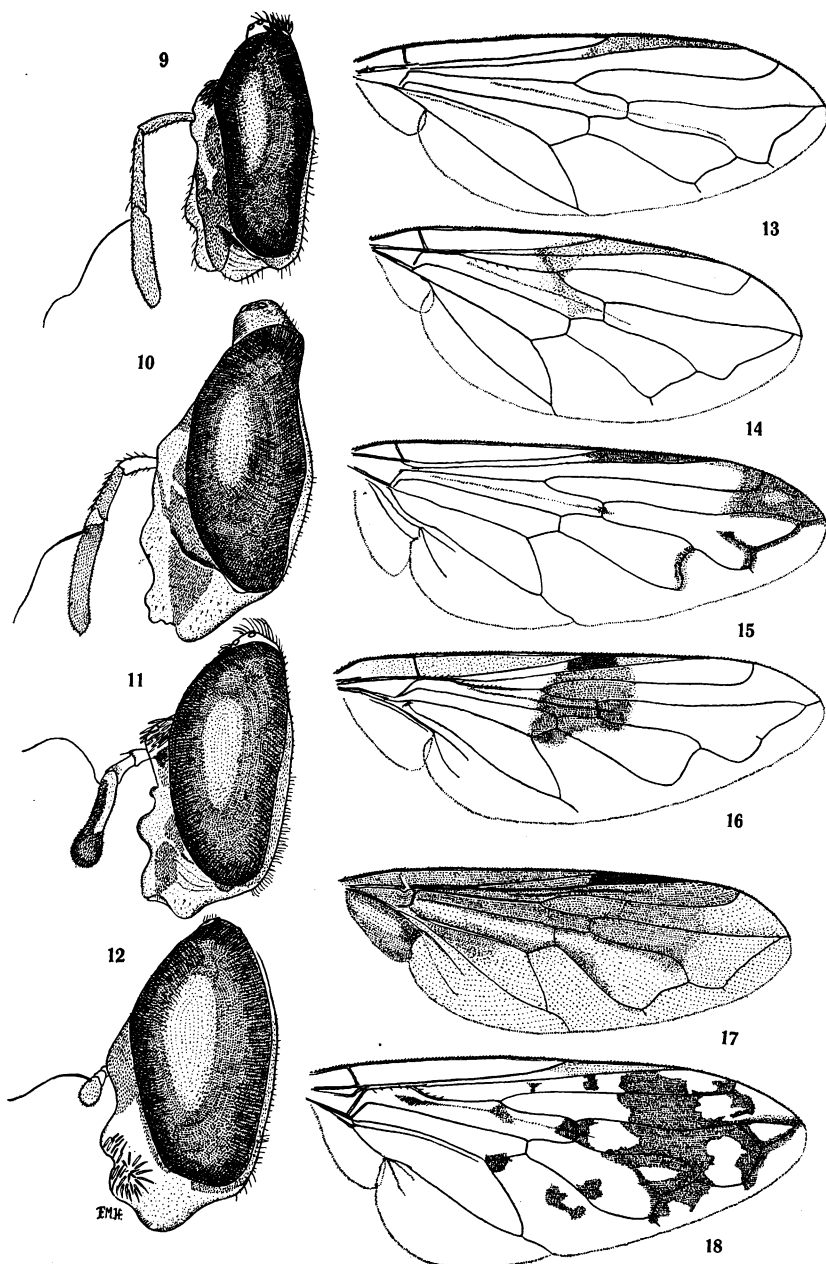
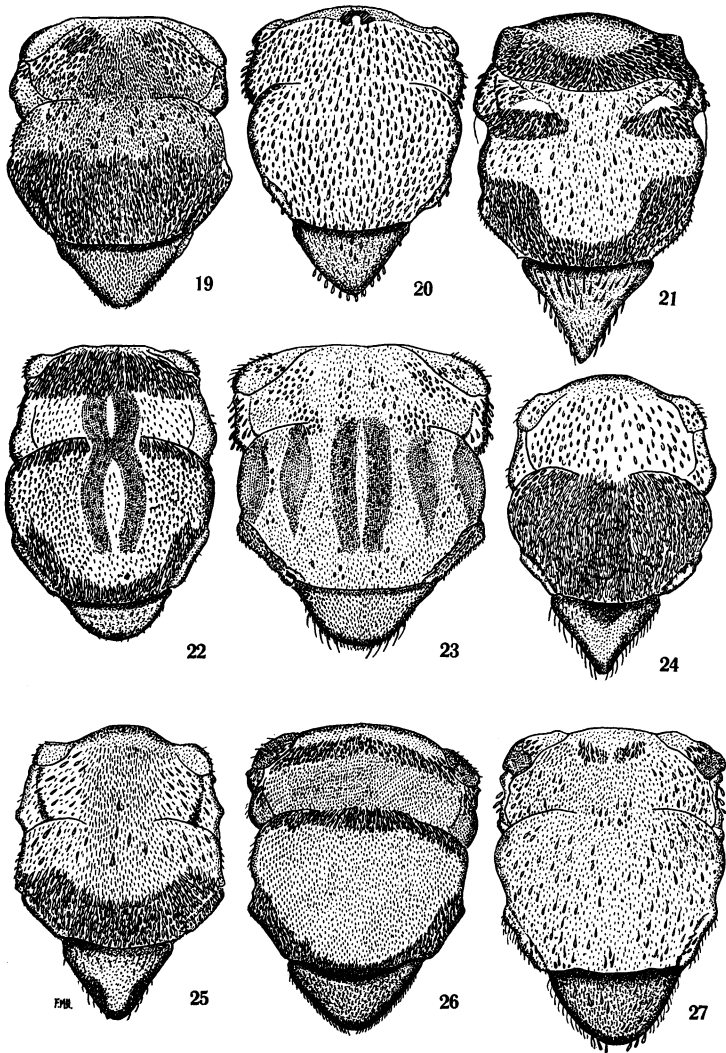


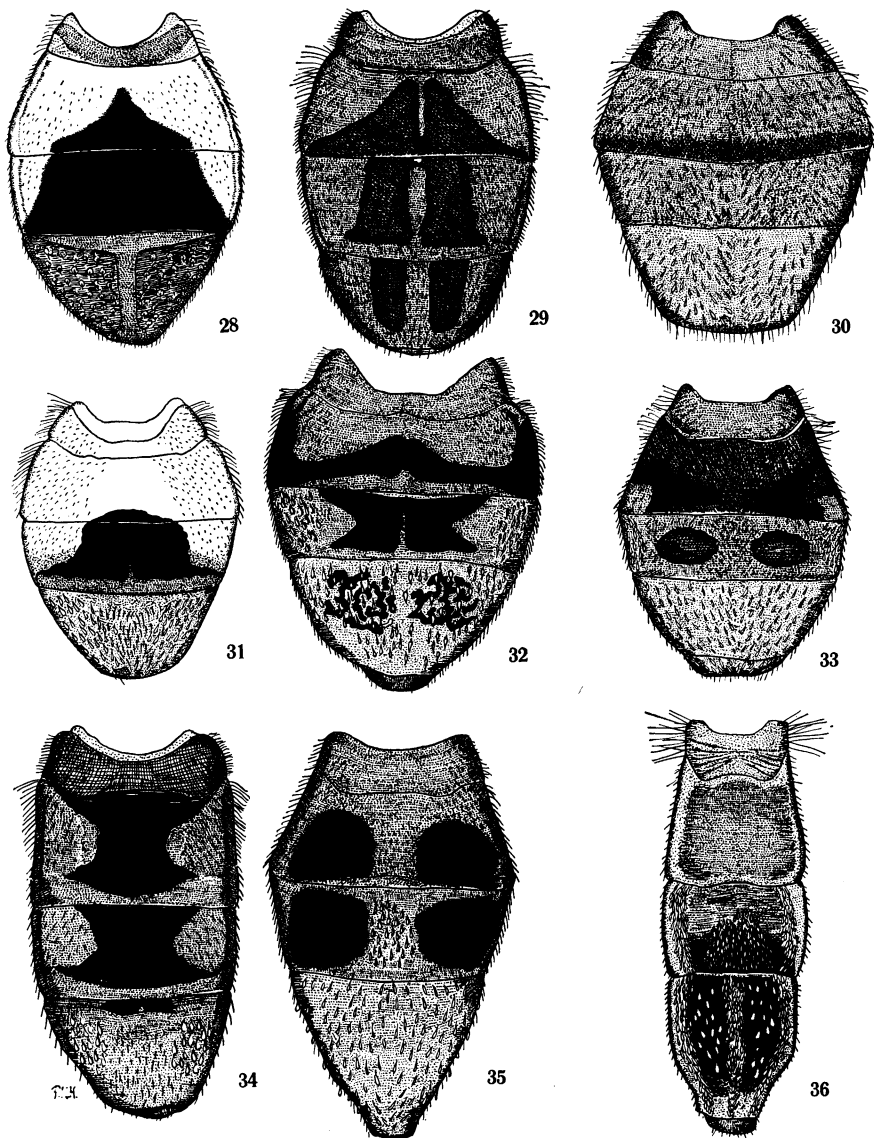
Fig. 1. *Lepidostola similis* Williston, front of face of female.
 Fig. 2. *Lepidostola calopus* Loew, front of face of male.
 Fig. 3. *Lepidostola crepuscutella*, new species, front of face of male.
 Fig. 4. *Lepidostola vulturella*, new species, front of face of male.
 Fig. 5. *Lepidostola trilineata* Hull, front of face of male type.
 Fig. 6. *Lepidostola jenningsi* Shannon, front of face of male type.
 Fig. 7. *Lepidostola ortalina* Van der Wulp, front of face of female.
 Fig. 8. *Lepidostola stellata* Hull, front of face of female type.



- Fig. 9. *Lepidostola trilineata* Hull, face profile of male type.
 Fig. 10. *Lepidostola jenningsi* Shannon, face profile of male type.
 Fig. 11. *Lepidostola calopus* Loew, face profile of male.
 Fig. 12. *Lepidostola scintillans*, new species, face profile of male.
 Fig. 13. *Lepidostola stellata* Hull, wing of type.
 Fig. 14. *Lepidostola ortalina* Van der Wulp, wing.
 Fig. 15. *Lepidostola similis* Williston, wing.
 Fig. 16. *Lepidostola crepusculastella*, new species, wing.
 Fig. 17. *Lepidostola vulturella*, new species, wing.
 Fig. 18. *Lepidostola calopus* Loew, wing.



- Fig. 19. *Lepidostola crepusculatella*, new species, mesonotum of male.
 Fig. 20. *Lepidostola scintillans*, new species, mesonotum of male.
 Fig. 21. *Lepidostola jenningsi* Shannon, mesonotum of male type.
 Fig. 22. *Lepidostola trilineata* Hull, mesonotum of male type.
 Fig. 23. *Lepidostola vulturella*, new species, mesonotum of male.
 Fig. 24. *Lepidostola stellata* Hull, mesonotum of female type.
 Fig. 25. *Lepidostola ortalina* Van der Wulp, mesonotum of female.
 Fig. 26. *Lepidostola similis* Williston, mesonotum of female.
 Fig. 27. *Lepidostola calopus* Loew, mesonotum of male.



- Fig. 28. *Lepidostola crepusculatella*, new species, abdomen of male.
 Fig. 29. *Lepidostola similis* Williston, abdomen of female.
 Fig. 30. *Lepidostola ortalina* Van der Wulp, abdomen of female.
 Fig. 31. *Lepidostola scintillans*, new species, abdomen of male.
 Fig. 32. *Lepidostola calopus* Loew, abdomen of male.
 Fig. 33. *Lepidostola stellata* Hull, abdomen of female type.
 Fig. 34. *Lepidostola vulturella*, new species, abdomen of male.
 Fig. 35. *Lepidostola jenningsi* Shannon, abdomen of male type.
 Fig. 36. *Lepidostola trilineata* Hull, abdomen of male type.

