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## INTRODUCTION

DURING THE PAST SEVERAL YEARS, the American Museum collection of Diptera has been greatly enriched by the addition of more than 1500 specimens of Tachinidae from South America, which have been donated to the Museum through the generosity of Dr. William Procter and Mr. F. M. Brown. The majority of the specimens belong to the groups of large, showy genera that are typical of the mountain regions of the American tropics, and a very large percentage of them represent undescribed forms. A synopsis of the genus *Hystericia* appeared in 1942,<sup>1</sup> and I take this opportunity to present synopses of several additional genera.

At the present time, it is not possible to define the generic limits of many of the tachinid genera occurring in the American tropics, because the available material is limited, and present characterizations are based almost entirely on the genotype. For this reason and because I am not certain of just what the generic limits should be, I refer the reader to Townsend's "Manual of myiology," volumes 1 to 12. In this work Townsend has described in detail his restricted genera, basing the description, wherever possible, upon the type specimen of the genotype. The differences sometimes apparent between specific type and other representatives of the species, or of closely related

species, are therefore rarely included in his generic descriptions.

In the South American genera, the number of known species is small and very frequently limited to the genotype. With the discovery of more species it is found, very often, that the characters used for generic separation lose their value because intermediate forms occur. It is therefore necessary to reconsider the generic limits and the value of generic characters used in the light of new discoveries. This condition will exist until such time as very extensive collections of tachinids are available for study, and only when these are available will it be possible properly to revise the family and to obtain a comprehensive idea of the relationships of the various genera and species.

Since positive identification of the species is very often dependent upon differences in the male genitalia, illustrations of distinctive parts of this organ have been prepared, and it is hoped that these will help in reducing the confusion surrounding the identity of the species concerned. The "dorsal view" of the posterior forceps is based on the assumption that the genitalia have been pulled backwards and that the forceps, which lie normally under the basal genital segments, are in the same horizontal plane as the abdomen.

The types of the new species are in the collection of the American Museum of Natural History.

<sup>1</sup> Bull. Amer. Mus. Nat. Hist., vol. 80, p. 79.

## SYSTEMATIC DESCRIPTIONS

### EULASIOPALPUS TOWNSEND

*Eulasiopalpus* TOWNSEND, 1913, Psyche, vol. 20, p. 105.

In this genus and *Lasiopalpus* Macquart, the palpi are very elongate, but shorter than in *Adejeania* Townsend and the other genera closely related to *Dejeania* Desvoidy, and are closely ciliate with bristles above and below. *Eulasiopalpus* has the eyes bare and the parafacials haired, while *Lasiopalpus* has the eyes pilose and the parafacials bare. The type of *Eulasiopalpus* is *albipes* Townsend. I present a key to the species known to me.

#### TABLE OF SPECIES

1. Palpi brownish red to yellow . . . . . 4  
Palpi black, at most the base reddish . . . . . 2
2. Three pairs of strong postsutural dorsocentrals . . . . . 3  
Only one pair of strong postsutural dorsocentrals (Ecuador) . . . . . *vittatus*, new species
3. Abdomen wholly blackish (Peru) . . . . .  
. . . . . *albipes* Townsend  
Abdomen with two very broad reddish vittae (Colombia) . . . . . *typica*, new species
4. Abdomen wholly reddish (Peru) . . . . .  
. . . . . *corpulentus* Townsend  
Abdomen blackish or with blackish markings . . . . . 5
5. Femora at least broadly black basally . . . . . 7  
Femora all reddish yellow . . . . . 6
6. Abdomen dark castaneous, the disc blackish (Venezuela) . . . . . *tatei*, new species  
Abdomen reddish with black fasciae and triangles (Peru) . . . . . *obscurus* Townsend
7. Abdomen with a broad, whitish pollinose vitta on each side, united behind (Peru) . . . . .  
. . . . . *niveus* Townsend  
Abdomen not so (Panama) . . . . .  
. . . . . *gertschi*, new species

#### *Eulasiopalpus typica*, new species

Abdomen reddish with median black vitta and lateral spots; palpi black; three postsutural dorsocentrals. Length, 11 mm.

MALE: Head blackish, the face brown in ground color; pollen ashy white, brown on the soft part of the cheeks; mostly slaty on the parafrontals; hair black. Front one-third as wide as eye, the sides parallel on the upper third; about nine pairs of frontals, the upper three or four weak. Occipital pile cinereous.

Cheeks about two-fifths as wide as the eye height. Parafacials slightly narrowed below. Lower part of middle of face shining brown. Antennae black, the third segment short. Palpi wholly black; proboscis longer than the head height, curved.

Thorax black; pollen yellowish brown, the vittae weak: sides of mesonotum and part of the pleura with cinereous pollen. Hair black. Only one pair of acrosticals posteriorly; dorsocentrals 3-3; one sternopleural, two intra-alars. Scutellum dark, with spines and two pairs of lateral bristles.

Legs reddish, the tarsi yellow, the tibiae paler than the femora; hair black, yellowish on tibiae and tarsi.

Wings light smoky brown; the squamae of about the same color.

Abdomen reddish and dull black. There is a median black vitta composed of triangles on the second and third segments and an incomplete stripe on the fourth, and lateral posterior blackish spots on the sides of the segments; on the fourth segment there is a large lateral black spot apically. Pollen brown on the median black vitta, golden yellow on the adjacent reddish vittae, and whitish laterally and ventrally. First segment with lateral marginals, the second with laterally interrupted row, the third with entire or the row weakly interrupted towards the sides; fourth segment with the spines on apical half interrupted in the middle. Genitalia reddish. Sternites black. Hair black.

HOLOTYPE: Male, Cali district, Western Cordillera, Colombia, February 20, 1935 (Severo Quintero).

This species is very similar in general coloration to *vittatus* but is readily distinguished by chaetotaxy.

#### *Eulasiopalpus vittatus*, new species

Figures 1-4

Abdomen wine red and opaque black, with thin whitish pollen; one fine postsutural dorsocentral; palpi black. Length, 11 to 13 mm.

MALE: Head black, the face and cheeks brown in ground color; pollen brown, white on the middle of the face above the vibrissae



and along the facial and posterior orbits, blackish on the front. Hair black, cinereous yellow on the lower half of the occiput. Cheeks half as wide as the eye height. Parafacials of medium width, the hair long. Antennae black; third segment one-fourth longer than the second. Palpi black, the base sometimes brown; proboscis one-fourth longer than the head height.

Thorax black, the sides of the mesonotum, upper part of mesopleura, and the scutellum reddish; pollen brown, dull on the mesonotum, becoming whitish in front but not conspicuous, whitish on the lower half of the pleura. The bristles of the mesonotum are quite fine and reduced in number; no acrosticals and two-one dorsocentrals; two sternopleurals and usually one fine intra-alar. Only one strong lateral scutellar. Hair black.

Legs orange, the tarsi not paler; hair black, reddish yellow on the tibiae and tarsi.

Wings and squamae smoky.

Abdomen dull wine red with a median entire opaque black vitta that is narrowed before the marginals on the intermediate segment and forms a triangular base on the fourth segment, the black continued along the sutures onto the under surface. The reddish ground bears grayish white pollen above but it is usually quite inconspicuous. Sternites black. First segment with lateral marginals, the second with row broadly interrupted towards each side, the third with entire or weakly interrupted row; fourth with spines on apical half. Genitalia reddish.

**FEMALE:** Front about as wide as one eye; eight pairs of frontals and two orbitals; white pollen more extensive, that on the front brownish in some views although the front is generally dull blackish. Front tarsi conspicuously broadened.

**TYPES:** Holotype, male, and allotype, female, Hacienda Talahua, Bolivar, Ecuador, April 29 and May 3, 1939; paratypes, male and female, same locality, April 29, May 4, 1939 (F. M. Brown).

The bristles on the thorax are often so weak that they are scarcely distinguishable from the long hairs.

***Eulasiopalpus tatei*, new species**

Black, the third and fourth abdominal segments with brownish and cinereous pollen;

legs reddish; palpi dark reddish. Length, 11 mm.

**FEMALE:** Head black, the face and cheeks brownish in ground color, pollen of face and posterior orbits whitish, somewhat silvery; lower part of face, cheeks, and most of the front brown, the pollen whitish on the anterior fourth of the front. Front two-thirds as wide as one eye, slightly shining; seven or eight pairs of frontals, the upper two or three weak. Hair black, the pile of the occiput cinereous yellow. Cheeks less than half as wide as the eye height. Parafacials rather narrow. Antennae black. Palpi brownish red, in some views light brownish; proboscis longer than the head height.

Thorax black, pollen brownish, cinereous in front, not conspicuous; hair black; acrosticals 0, dorsocentrals 3-3; three sternopleurals; one intra-alar. Scutellum with spines and two lateral bristles.

Legs reddish yellow; hair black, reddish yellow on the tibiae and tarsi; front tarsi moderately broadened.

Wings and squamae smoky.

Abdomen black, moderately shining. Basal half of third segment pollinose on more than the median half, the pollen brown in the middle, whitish laterally; fourth segment with the basal half white pollinose but the pollen on the middle broadly brown and produced to the apex along the depression. The chaetotaxy is as in the preceding species.

**HOLOTYPE:** Female, Mount Roraima, Brazil, November 27, 1927 (G.H.H. Tate).

***Eulasiopalpus gertschi*, new species**

Black; palpi reddish; femora brown basally. Length, 11 to 13 mm.

**FEMALE:** Head black, pollen ashy brown on the soft part of the cheeks; hair black, cinereous white on the occiput. Front three-fifths as wide as one eye, dull black, but from posterior view broadly whitish pollinose along the inner border of the parafrontals and along the lower orbits; eight pairs of frontals and two pairs of orbitals. Cheeks a little more than one-third as wide as the eye height. Parafacials narrowed below. Antennae black, the third segment almost twice as long as the second. Palpi reddish; proboscis longer than the head height.

Thorax black, quite dark, the brown pol-

len only visible in certain views; hair black. Acrosticals 0; dorsocentrals 3-3; two sternopleurals, three intra-alars. Scutellum black, brown pollinose, with the usual spines and two pairs of marginal bristles.

Legs reddish yellow, with reddish yellow hair; coxae and femora blackish, the femora reddish on apical half, the hair black. Front tarsi somewhat broadened.

Wings smoky brown. Squamae dark brown or blackish.

Abdomen black, with conspicuous brown pollen except surrounding the spines on the fourth segment. Hair black. Chaetotaxy as in the other species.

TYPES: Holotype, female, El Volcan, Chiriqui, Panama, February 20, 1936; paratypes, two females, same locality, February 23, 1936 (W. J. Gertsch).

This is the most northern record of the genus. Without magnification the thorax is opaque blackish and the abdomen is little shining.

**PROTODEJEANIA TOWNSEND**

*Protodejeania* TOWNSEND, 1915, Proc. Biol. Soc. Washington, vol. 28, p. 21.

The genus was erected by Townsend with *Dejeania hystricosa* Williston as type. Later, Townsend placed *hystricosa* as a synonym of *echinata* Thomson, having selected a Washington State specimen of *hystricosa* as the type. Williston apparently had two species confused under one name. I have before me what appear to be two distinct species occurring in the western United States, and at least four other species occur in Mexico and Guatemala. The species may be distinguished by the characters given in the following key:

**TABLE OF SPECIES**

- 1. Upper lobe of the squamae brownish . . . 2  
Squamae reddish or brownish yellow . . . 3
- 2. Fourth abdominal segment wholly black; third abdominal segment with a single row of discals. . . . . *downsi*, new species  
Fourth abdominal segment broadly reddish or yellowish basally; third abdominal segment with a row and many scattered discals medianly . . . . . *major*, new species
- 3. Head silvery white pollinose, the front shining black . . . . . *pachecoi*, new species  
Head with yellowish tinged pollen; front conspicuously pollinose. . . . . 4

- 4. Second and third abdominal segments with a single row of discals medianly . . . . .  
. . . . . *montana* Wulp  
Second and third abdominal segments with scattered discals medianly . . . . . 5
- 5. Palpi about as long as the face . . . . .  
. . . . . *echinata* Thomson  
Palpi conspicuously longer than the face . . .  
. . . . . *willistoni*, new species

**Protodejeania montana Wulp**

*Dejeania montana* WULP, 1891, Tijdschr. v. Ent., vol. 35, p. 190; 1903, Biologia Centrali-Americana, Diptera, vol. 2, p. 459.

This species was originally described from the State of Guerrero, Mexico. I have not seen any specimens that agree with the description given by Van der Wulp. He states that the squamae are brownish yellow and the base of the fourth abdominal segment is broadly yellowish. In the description of the abdomen, he states that there are two rows of bristles on the second and third segments, the marginal row on the third being entire, the other rows limited to the disc. This condition exists in the species I am describing as *downsi*, but in this the squamae are brown, and the apex of the third abdominal segment is broadly black except sublaterally.

**Protodejeania pachecoi, new species**

**Figure 9**

Black, the scutellum and abdomen dull pale orange; head silvery white, the oral margin moderately produced. Length, 13 mm.

FEMALE: Head black, the face and cheeks yellowish or luteous in ground color; pollen thick, silvery white, the front thinly pollinose and mostly shining black from dorsal view; hair black. Front wider than one eye; 10 to 12 pairs of frontals, the upper two reclinate; two pairs of orbitals; ocellars strong. Occiput with whitish pile. Cheeks half as wide as the eye height, with coarse hair. Parafacials wide, the hair coarse. Anterior oral margin much less produced than in *montana* Wulp. Antennae wholly black, the third segment no longer than the second. Palpi reddish brown, half as long as the head height; proboscis three-fourths as long as the head height. Eyes bare.

Thorax black, with cinereous pollen, the vittae inconspicuous; border of the mesonotum behind the suture and the scutellum dull

orange. Scutellum with marginal spines, two marginal bristles and short discal spines, the hair black. Acrosticals 2-3; dorsocentrals 4-4; three sternopleurals and intra-alars.

Legs wholly black; front tarsi scarcely widened; hair black.

Wings smoky. Squamae pale orange.

Abdomen pale dull orange, the apical half of the fourth segment pale brownish except in the middle, the under side wholly black. First segment without median marginals, the second with six pairs and with discals on the median fourth; third segment with row of marginals, and discals on about the median third; the fourth with spines on the apical two-thirds. The discals on the intermediate segments are somewhat bunched on each side of the median line so that there appear to be dark spots posteriorly on the segments. On the under surface the sternites are black, the third segment is black except in front, and there is a lateral black spot on the second segment. The apex of the abdomen is not emarginate.

**HOLOTYPE:** Female, Guatemala City, Guatemala (M. Pacheco).

This species is easily distinguished from *major* which has yellow pilose occiput and at least a strong brassy yellow tinge to the pollen of the head, the front more pollinose, the abdomen less extensively black below and darker above, and the oral margin more strongly produced.

***Protodejeania major*, new species**

Figure 8

Black, the scutellum and abdomen dull orange yellow, semitranslucent, the apex of the abdomen black, pollen of the head pale yellowish. Length, 14 to 16 mm.

**MALE:** Head black, the face and cheeks yellowish, the frontal vitta brownish red; thickly pale yellowish pollinose, with slight brassy tinge, the front with grayish pollen; hair black. Front about one-fourth the width of the head; 14 or 15 pairs of frontals, the upper five reclinate; a secondary row of five below; hair long and fine. Occipital pile pale yellowish, extending onto the lower part of the cheeks; black occipital cilia reaching almost to the posterior border of the oral margin. Cheeks three-fourths as wide as the eye height, with sparse, long hair. Oral mar-

gin produced, as prominent as the antennal base. Parafacials wide, slightly narrowing below, with sparse, long, fine hair. Antennae black, the incisures somewhat reddish, and the lower edge of the third antennal segment may be reddish on the basal half; third antennal segment obtusely pointed below, broad basally, rather strongly convex above; arista pubescent, tapering from the basal third, the penultimate segment three times as long as wide. Palpi reddish yellow, distinctly longer than the face.

Thorax black, the hair wholly black; pleura with gray, the mesonotum with brownish pollen; sides of the mesonotum behind the humeri reddish. Acrosticals 3-3, the posterior pair of presuturals far before the suture; dorsocentrals 3-4; sternopleurals 2-1. Scutellum reddish or reddish yellow, with black hair and stout spines on the disc; two pairs of long lateral bristles.

Legs black, the posterior four tibiae obscurely reddish except basally and on a narrow dorsal line; hair and bristles black; pulvilli elongate, reddish yellow.

Wings smoky, darker basally; squamae brown, the lower lobe with the border broadly brownish yellow. Halteres brown with yellow knob.

Abdomen rather dull reddish yellow, semi-transparent, the fourth segment black with the base broadly pale; broad apex of the third segment black ventrally; hair all black, erect. First segment with a patch of long, fine bristles laterally; second with four or five lateral marginal spines and about six pairs on the median fourth, two or three pairs long; on the disc with an interrupted row of three or four pairs, and about 20 smaller spines. Third segment with a complete row of marginals, a row of five or six pairs of discals and eight or 10 irregularly placed small discals medianly. Fourth segment with spinose bristles except on the basal fifth, the apical ones much finer and denser. Sternites yellowish, bearing coarse spines. Genitalia brown; beak of posterior forceps obtuse apically, gently curved upward at apex.

**FEMALE:** Front almost as wide as one eye, the pollen less thick, the parafacials somewhat shining; 12 pairs of frontals and two pairs of proclinate orbitals, third antennal segment narrower, with the sides almost

parallel on the basal three-fourths, apex of fourth abdominal segment more or less broadly reddish.

**TYPES:** Holotype, male, allotype, female, and paratypes, male and female, Guatemala City (M. Pacheco).

This species is of about the same size as *pachecoi* but is readily distinguished by the color of the palpi and squamae.

**Protodejeania downsi**, new species

Black, the scutellum and abdomen dull rusty reddish, the apex of the latter broadly black; third abdominal segment with a single row of discals on the median third. Length, 9.5 to 10.5 mm.

**FEMALE:** Head black, the face and cheeks yellow, pollen ochraceous, paler on the facial depression, more brownish on the parafrontals; frontal vitta reddish. Front about as wide as one eye, with 12 pairs of frontals, the upper four or five reclinate; two pairs of orbitals; hair black, fine, and sparse. Occiput with brassy yellow pile, the occipital cilia fine. Cheeks four-fifths as wide as the eye height, with fine black hair above and yellow hair below. Oral margin strongly produced, as prominent as the antennal base. Parafacials as wide as the third antennal segment, of almost equal width, with moderately fine, long, black hair. Antennae black, the third segment somewhat reddish beneath at the base, convex above towards the apex, widest at the apical third; arista dark brown, shining on basal half, the penultimate segment a little more than twice as long as wide. Palpi almost one-half longer than the length of the face, orange, with black bristles and hair.

Thorax black, with grayish pollen, that on the disc of the mesonotum brownish; vittae very weak. Humeri, the lateral margins of the mesonotum, a prescutellar fascia, and a large spot on the mesopleura dull reddish in ground color. Hair and bristles black, the latter moderately fine; acrosticals 2-3, dorso-centrals 3-4; sternopleurals 2-1. Scutellum rusty reddish, the hair sparse, the spines moderately stout; two pairs of lateral bristles.

Legs black, with black hair and bristles, the tibiae mostly reddish. Pulvilli short, yellowish.

Wings lightly infuscated, darker at the base. Squamae brownish with pale borders.

Stem of halteres brownish, the knob reddish.

Basal three abdominal segments rusty reddish, the apex of the third broadly black except sublaterally, the fourth black with the base narrowly reddish. Second segment with spines on the median third, the discals scattered; third with a discal row on the median half and a complete row of marginals; fourth with numerous discal spines and with bristles apically. Hair black. Sternites reddish yellow, the fourth and fifth broadly brown apically.

**TYPES:** Holotype, female, and three female paratypes. Paso de Cortes (10,500 feet), Mexico District, Mexico, August 31, 1946 (W. G. Downs).

The palpi in this species break off very easily, and only the type possesses a complete palpus. The frontal bristles are also mostly missing.

**Protodejeania echinata** Thomson

Figures 10, 11

*Jurinia echinata* THOMSON, 1868, Kongliga Svenska Fregatten Eugenies Resa . . . Zoologie . . . Diptera, p. 516.

*Dejeania hystricosa* WILLISTON, 1886, Trans. Amer. Ent. Soc., vol. 13, p. 297.

Townsend states "(Manual of myiology," 1939, vol. 8, p. 98) that there are several forms distinguished by chaetotaxy and length of palpi. It is probable that two or three species have been confused under this name. I can see little constant difference in the chaetotaxy, but there is a very definite difference in the length of the palpi of specimens from certain areas.

There are four specimens before me from California and Vancouver Island. All of these have short palpi and the apex of the posterior forceps acute or sharply rounded. These represent *echinata* that occurs on the Pacific coast area.

Three males and two females from Colorado have the palpi very elongate and the apex of the posterior forceps very narrowly excised, and are described below as *P. willis-toni*.

One male from Colorado and a male from Arizona have the palpi intermediate between the above two forms and the posterior forceps as in the Colorado specimens. Until more material is available for study, it is deemed inadvisable to give these a name.

Williston probably had all three forms before him when he described *hystricosa*. One of his Washington specimens was selected by Townsend as the type, and this is undoubtedly the same as *echinata*. His specimens from New Mexico undoubtedly belong to the forms having long palpi, but it is impossible to place his Arizona specimens without examination. It is unfortunate that Townsend selected the coastal form as type, since this necessitates a new name for the species occurring to the east.

*Protodejeania willistoni*, new species

Black, the abdomen pale rusty reddish or orange, subtranslucent, the fourth segment partly black or brown; discals irregularly placed on second and third segments. Length, 11 to 12.5 mm.

MALE: Head black, the face and cheeks reddish, the pollen dense and mostly concealing the ground color. Pollen brassy yellow, more ochraceous on the front, paler on the facial depression. Front four-fifths as wide as one eye, the vitta reddish; 12 or 13 pairs of frontals and a secondary row of two to six, the upper five pairs reclinate. Hair fine, black. Occiput with bright brassy pile; the fine, black occipital cilia extend well onto the cheeks, which have yellow hair below. Cheeks two-thirds as wide as the eye height, with long, fine, black hair. Oral margin strongly produced; parafacials wide, of almost equal width, with long, fine, black hair. Antennae black, the incisures and base of third segment and under side reddish, penultimate arisal segment three times as long as wide. Palpi much longer than the face, the apical section of the proboscis one-sixth longer than the head height.

Thorax blackish, cinereous yellow pollinose, the hair black; lateral margins and posterior border of the mesonotum and large spots on the mesopleura and hypopleura dull reddish yellow. Acrosticals 3-3, the anterior pair small; dorsocentrals 4 or 5-4; three sternopleurals. Scutellum dull reddish yellow, the spines stout; three pairs of lateral marginal bristles; hair black.

Legs black, the tibiae almost all pale reddish; pulvilli orange, of medium length. Hair and bristles black.

Wings lightly infumated, darker at the

base. Squamae reddish yellow. Halteres with yellow knob, the stem partly brown.

Abdomen pale rusty reddish, semitranslucent, the fourth segment with a pair of triangular black or brown spots variable in size, but usually occupying more than half the segment. Discal spines on the median portion of the second and third segments irregularly placed, or, if in rows, additional scattered spines are present; the third segment with complete marginal row; fourth segment with numerous discal spines and many bristles apically. Hair black. Sternites reddish yellow, with stout spines, the fifth one mostly brown. Genitalia brown.

FEMALE: Front almost as wide as one eye; two pairs of orbitals.

TYPES: Holotype, male, Chiricahua Mountains, Arizona, July 12, 1936 (M. A. Cazier); allotype, female, July 6, 1934 (K. Maehler), from Cazier collection. Paratypes: male, from Creek, near Boulder, Colorado, August 2, 1922; and one female, Mesa Verde, Colorado, August 24, 1930 (F. E. Lutz).

The long palpi and proboscis and stout spines on the sternites separate this species from *echinata*, which is also smaller, being usually not more than 10 mm. in length.

ADEJEANIA TOWNSEND

*Adejeania* TOWNSEND, 1913, Psyche, vol. 20, p. 105.

*Trichodejeania* TOWNSEND, 1913, Psyche, vol. 20, p. 105.

*Echinotachina* TOWNSEND, 1913, Psyche, vol. 20, p. 105.

Townsend included the generic characters in a key and they appear on page 104, but the genotypes are named on page 105 and I follow the order of appearance there. If the first name appearing on page 104 is used we should have to accept *Echinotachina* as the generic name. As in the case of some other genera, there is a great deal of confusion concerning the genotypes.

The type of *Adejeania* was originally stated to be *Tachina armata* Wiedemann, but in his "Manual of myiology" (1939, vol. 8, p. 68) Townsend states that the type is *armata* Townsend, *nec* Wiedemann, which equals *Dejeania brasiliensis* Desvoidy. The generic description, however, precludes the possibility of the type's being *brasiliensis*

because Townsend states that the abdomen is "light yellow, black tipped." Desvoidy states that the abdomen is reddish, the two last segments black. This will apply to three species provided Desvoidy referred to the fourth and fifth abdominal segments of the female, but if it applies to the third and fourth segments none of the species placed in the genus agree.

The type of *Trichodejeania* is *vexatrix* Osten Sacken as originally stated, but in the "Manual" it is said to be *rufipalpis* Macquart. Townsend thought the two species might be distinct, and I do not think there can be doubt of this. Macquart's species is evidently a synonym of *corpulenta* Wiedemann.

The type of *Echinotachina* is *corpulenta* Wiedemann, but Townsend's *corpulenta* is not the same as Wiedemann's. For some reason Townsend considered a specimen in Copenhagen to be the type of *corpulenta*. It is difficult to follow his reasoning. Wiedemann stated that there were some specimens in the Berlin Museum and in his collection, which is now in Vienna. No mention was made of a specimen in Westermann's collection, which would have gone to Copenhagen. It must be accepted, therefore, that the so-called paratypes in Vienna include the type. Townsend stated that the Vienna "paratypes" were the same as *rufipalpis* Macquart. This is probably correct.

I can find no differences by which the proposed genera can be differentiated. On the whole the species placed in *Adejeania* have many more spines on the fourth abdominal segment, particularly laterally, but the character does not hold. The broadening of the front tarsi of the females is slight at best, and the presence or absence of spines on the intermediate sternites is variable. I can find nothing except the color of the palpi by which to separate *Trichodejeania* and *Echinotachina*. A number of the species possessing only three postsutural dorsocentrals will not trace to any of the three genera in Townsend's key.

TABLE OF SPECIES

- 1. Abdomen without black pile . . . . . 2
  - At least the fourth abdominal segment mostly black pilose . . . . . 9
- 2. Four postsutural dorsocentrals . . . . . 5
  - Three postsutural dorsocentrals . . . . . 3

- 3. Under surface of fourth abdominal segment mostly black . . . . . 4
  - Under surface of fourth abdominal segment reddish (Venezuela) . . . . .
    - . . . . . *brevihirta*, new species
- 4. Abdominal pile rather pale orange, process of posterior forceps furcate (Peru, Venezuela) . . . . . *verrugana* Townsend
  - Abdominal pile orange red; process of posterior forceps clubbed and concave on apex (Panama) . . . . . *palpalis*, new species
- 5. Palpi deep blackish; parafacial pile black . 6
  - Palpi reddish or brownish red; parafacial pile yellow . . . . . 7
- 6. Femora mostly black; abdominal pile rich wine red (Ecuador) . . . . .
  - . . . . . *browni*, new species
  - Femora reddish; abdominal pile reddish orange (Venezuela) . . . . .
    - . . . . . *anduzei*, new species
- 7. Squamae with yellowish pubescence (United States) . . . . . *vexatrix* Osten Sacken
  - Squamae with reddish brown pubescence . 8
- 8. Mesonotum practically all reddish yellow pilose (Central America) . . . . .
  - . . . . . *brevirostris*, new species
  - Mesonotum black pilose except posteriorly (Central America) . . . . .
    - . . . . . *corpulenta* Wiedemann
- 9. Abdomen pale yellow with black apex, the femora almost always partly black . . 12
  - Abdomen dull orange with black apex, the legs wholly yellowish . . . . . 10
- 10. Fourth abdominal segment with the base very narrowly and evenly orange; process of posterior forceps Y-shaped; three postsuturals (Brazil) . . . . . *ypsilon*, new species
  - Fourth abdominal segment with the orange base conspicuously widened on the lateral third or more; four postsuturals . . . 11
- 11. First abdominal segment with one or two pairs of median marginal spines; process of posterior forceps compressed, the middle deeply and broadly excavated in lateral view (Brazil) . . . . .
  - . . . . . *brasiliensis* Desvoidy
  - First segment without marginals; posterior forceps not strongly compressed, gently convex above, almost straight in profile (Ecuador, Peru) . . . . . *honesta* Rondani
- 12. Second abdominal segment in part black pilose . . . . . 13
  - Second abdominal segment with only yellow pile . . . . . 16
- 13. First abdominal segment with three or four median marginals . . . . . 14
  - First abdominal segment with only two pairs of median marginals and with very little

- black hair; posterior forceps only a little concave and with a preapical pencil or tuft of hairs . . . . . 19
14. Posterior forceps of male without a thin preapical pencil of hairs . . . . . 15  
 Posterior forceps of male with a thin preapical pencil of hairs and with the thick marginal pile semi-interrupted near the middle (Brazil) . . . . . *townsendi*, new species
15. The sides and apex of the posterior forceps evenly and thickly haired (Brazil) . . . . . *marginalis*, new species  
 A preapical median patch of short, thick hair and some on the lateral margins (Brazil) . . . . . *conclusa*, new species
16. Posterior forceps cupped and with large lateral and apical appendages (Peru, Brazil) . . . . . *andina* Townsend  
 Posterior forceps gently concave, the apex not deeply emarginate . . . . . 17
17. Posterior forceps with two widely separated hair tufts apically (Brazil) . . . . . *bicaudata*, new species  
 Posterior forceps with single apical tuft . . . . . 18
18. Posterior forceps with the apical tuft well separated from equally long tufts behind it (Brazil) . . . . . *tridens*, new species  
 The tufts preceding the apical tuft only half as long . . . . . *biornata*, new species
19. A median row of short, thick hair apically on the posterior forceps (Brazil) . . . . . *uniformis*, new species  
 A preapical pencil of hairs, the adjacent tufts much shorter (Brazil) . . . . . *biornata*, new species

*Adejeania verrugana* Townsend

Figure 7

*Trichodejeania verrugana* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 172.

I have before me a paratype of each sex. Each has four pairs of postsutural dorocentrals, but in the male one of them is weak. A third specimen from Peru has only three pairs of postsuturals but does not differ in other respects. Townsend describes the pollen of the thorax as "old gold" colored, but it may have a slight cinereous cast in some views, and the vittae are more black than brown. A small female from Venezuela may belong here. It has three postsuturals, but the pollen has a conspicuous brownish tinge and the vittae are brown and narrower than in the typical specimens. The posterior forceps are produced into a Y-shaped process,

the arms rather short. The abdominal pile is pale orange, of about the same color as in *vexatrix* Osten Sacken.

*Adejeania palpalis*, new species

Figure 15

Palpi dark reddish to dark brown; usually three postsutural dorsocentrals; abdominal pile orange red. Length, 9.5 to 14 mm.

MALE: Face and cheeks reddish yellow, the front reddish, the occiput mostly black in ground color; pollen yellowish, yellowish brown on the parafrontals; pile golden yellow, black on the front. Front four-fifths as wide as eye; 10 pairs of frontals, the upper four reclinate, and one or two additional bristles below. Cheeks almost one-third as wide as the eye height. Parafacials moderately narrow. Antennae reddish, the third segment mostly black, about as long as the second, convex above. Palpi a little longer than the head height, varying in color from reddish to dark brown; proboscis black.

Thorax reddish, the mesonotum mostly black; pile golden, mostly black on the mesonotum; pollen reddish yellow, partly cinereous on the pleura, more brownish yellow on the mesonotum. Scutellum reddish, with spines and two pairs of marginals. The acrosticals are very variable, 0-1, 1-1, 1-2, 2-2, 2-3, and, rarely, 3-3; dorsocentrals 2 or 3-3 or 3-4; two sternopleurals and two or three intra-alars, the anterior weakest.

Legs reddish, the hair chiefly black, golden on the coxae; tarsi simple.

Wings brownish. Squamae brown pubescent.

Abdomen reddish orange and with orange red hair; second to fourth segments each with a median, basal, black, triangular spot, the first black in the middle. First segment with lateral marginals; second with laterally interrupted row, the third with an entire row; fourth with irregularly double row of discals behind the middle and long coarse bristly hair apically. Posterior forceps produced, strongly broadened apically, the knob concave from posterior view, without tuft of hair in front. Sternites all with spines. Fourth tergite black beneath.

FEMALE: Front as wide as eye, eight pairs of frontals, the upper three reclinate; two pairs of orbitals; antennae mostly blackish;

black spot on fourth abdominal segment usually pentagonal.

**TYPES:** Holotype, male, allotype, female, El Volcan, Chiriqui, Panama, February 22, 1936; paratypes, nine females, El Volcan, February 22 to 25, 1939 (W. J. Gertsch).

This species clearly demonstrates the great variation in the chaetotaxy of the thorax and the color of the palpi. Both are very inconstant and are clearly not indicative of specific differences and are certainly of no generic value. The palpi, when dark, are always considerably paler on the narrowed base, thus distinguishing the species from those with wholly black palpi. The abdominal pile is brighter and deeper in color than in most other species.

***Adejeania browni*, new species**

Dull dark brick red, the abdominal pile deep wine red; palpi wholly black. Length, 14 to 15 mm.

**FEMALE:** Occiput blackish in ground color; pollen dense, brownish yellowish along the lower orbits. Front rich reddish brown, the vittae wine red; eight pairs of frontals, the upper three reclinate; two pairs of orbitals; front wider than one eye. Hair black, yellow on occiput and lower edge of cheeks. Cheeks less than one-third as wide as the eye height. Parafacials moderately wide. Antennae blackish; third segment shorter than the second, broad, convex above on apical half. Palpi deep black, about one-fourth longer than the head height.

Thorax blackish, the pollen golden on the pleura, rich deep reddish brown on the mesonotum, reddish laterally; pile mostly yellow on the pleura, black above, red on the scutellum. Acrosticals 1-1; dorsocentrals 3 or 4-4; two sternopleurals and intra-alars. Scutellum light wine red, with spines and two pairs of marginals.

Legs reddish, the femora mostly black; hair black, yellow on the coxae and bases of the femora; front tarsi scarcely widened.

Wings smoky. Squamae dark brown, brown pubescent.

Abdomen wine red, with wine red pile which appears darker and somewhat violaceous in some views, dark orange red in others, always much darker than in the other species. Second to fourth segments with

subtriangular basal black spots in the middle; first with four lateral marginals, second with median and lateral groups, third with entire row, the fourth with a row of discals on the apical third.

**TYPES:** Holotype, female, Runtun, Ecuador, January 9, 1939; paratype, female, Banos, Ecuador, February, 1939 (F. M. Brown).

This is an extremely striking species and is difficult to describe, because of the changes in color that occur in different lights. The whole insect is darker in color than the other members of the genus, and the wings are darker. The chaetotaxy of the mesonotum is undoubtedly variable because the bristles are rather fine.

***Adejeania anduzei*, new species**

Abdomen dark rusty reddish; palpi black; femora reddish. Length, 14 mm.

**FEMALE:** Occiput dark in ground color; pollen dense, cinereous on the middle of the face, facial and posterior orbits, and part of the cheeks, brownish red adjacent to the facial ridges and part of the cheeks, brown on the produced oral margin. Front brownish red, almost as wide as one eye; eight pairs of frontals, the upper three reclinate; two pairs of orbitals. Cheeks almost half as wide as the eye height, the hair mostly black. Parafacials narrow, with black hair, some of the lower hairs golden. Antennae blackish, the second and third segments partly reddish; third segment broad, not so long as the second. Palpi deep black to the base, one-fifth longer than the head height. The frontal pile is wholly black, and the black occipital cilia do not extend to the lower edges of the eyes.

Thorax dark reddish, the mesonotum dark except laterally, the pleura with some dark areas and with reddish pile; mesonotum with cinereous yellow pollen and black hair. Acrosticals 2-2; dorsocentrals 4-4, two sternopleurals and three intra-alars. Scutellum reddish, with spines and two pairs of marginal bristles, the hair reddish.

Legs reddish; hair mostly black; front tarsi scarcely widened.

Wings smoky. Lower lobe of squamae brown pubescent.

Abdomen dark rusty reddish, only obscurely shining, with at most small blackish



triangles on the segments, the hair orange red. First segment with only lateral marginals, second with row of median and lateral marginals, third with complete row; fourth with row of discal spines and row of discal bristles posteriorly. The under side of the abdomen, including the sternites, is wholly reddish.

TYPES: Holotype, female, and paratype, female, Venezuela, received from Dr. P. Anduze.

Were it not for the presence of two sternopleurals, I should be inclined to consider this species as belonging to *Eulasiopalpus*, the females of which are scarcely separable from those of this group.

#### *Adejeania corpulenta* Wiedemann

Figure 6

*Tachina corpulenta* WIEDEMANN, 1830, *Ausser-europäische zweiflügelige Insekten*, vol. 2, p. 280.

*Echinotachina corpulenta* TOWNSEND, 1939, *Manual of myiology*, vol. 8, p. 76.

Certain statements in Wiedemann's description are helpful in determining the type of this species. His statement that the palpi are like those of *bombylans* Fabricius indicates that they are yellowish or reddish in color. However, the color of the palpi may be variable in the same species, as evidenced in *palpalis*, new species. The dorsum of the thorax is stated to be shining yellowish gray which contrasts greatly with the shining ochraceous, brassy, or golden pollen of related species. The pile of the pleura is described as yellowish, but no mention is made of the color of the hair of the mesonotum. This indicates that it was probably black, or at least not conspicuously yellow or golden. The cotype? in Copenhagen selected by Townsend as the type of this species does not agree with the above. The palpi are black, but Townsend does not give any other details. Among the cotypes in Vienna there must be at least one which agrees with the above interpretation of the description.

Among the species before me is a single male from Guadalajara, Mexico, that agrees in all respects with the above, and in every respect with the original description. The mesonotum appears to be almost all black haired from most views, but when viewed from in front it appears grayish yellow; the pollen is yellowish gray, much duller than in

allied species. The abdominal pile rather pale orange, but this possibly varies, as it does in *vexatrix* Osten Sacken. The posterior forceps are shaped very much as in *vexatrix*, but the stem of the process is a little less robust and the apex is more flattened. The abdomen is slightly more robust and distinctly duller. The proboscis is very long, being almost one-half longer than the head height, thus agreeing with *vexatrix* Osten Sacken.

Although the identity of the type can be determined only by a careful study of all the cotypes in Vienna, it is only reasonable to suppose that this specimen, agreeing perfectly with the description, is the true *corpulenta* and agrees with the specimen from which the original description was drawn.

#### *Adejeania rufipalpis* Macquart

*Dejeania rufipalpis* MACQUART, 1843, *Diptères exotiques nouveaux ou peu connus*, vol. 2, pt. 3, p. 35.

*Trichodejeania rufipalpis* TOWNSEND, 1939, *Manual of myiology*, vol. 8, p. 102.

I am by no means certain that Townsend's reference is to this species because he confused *vexatrix* Osten Sacken and *rufipalpis*. The two species are certainly distinct, but the identity of *rufipalpis*, the type of which has not been located but should be in the Bigot collection, is not definitely known. Macquart's description would seem to apply to the species I have determined as *corpulenta*. He states that the proboscis is as long as the head and thorax. In all the species the proboscis is not much, if any, shorter than the head and thorax. When the proboscis is directed backwards in these species it reaches to the middle of the abdomen, while in other species it reaches only a little beyond the base. Townsend's statement that Wiedemann's cotypes of *corpulenta* in Vienna are *rufipalpis* adds weight to my identification of *corpulenta*, although Townsend also gives the length of the proboscis in *Echinotachina* as from one-half to three-fourths longer than the head height.

#### *Adejeania vexatrix* Osten Sacken

Figure 18

*Adejeania vexatrix* OSTEN SACKEN, 1877, *Western Diptera*, p. 343.

This is the brightest colored species in the genus, the abdomen varying from medium to dark orange and being very shiny. The abdominal pile ranges from medium to dark orange. The palpi are about one-fourth longer than the head height, and narrow, the proboscis longer. Antennae reddish, the third segment usually mostly black. Front tarsi of female broadened. There are usually four postsutural dorsocentrals, very rarely only three. The first abdominal segment usually bears one pair of median marginals in addition to several laterals, but there may be none or rarely three pairs of medians, perhaps sometimes four. These are very irregular and very often the number differs on the two sides of the median depression. The marginals on the second segment also show great variation. The row may be entire or it may be narrowly to broadly interrupted towards the sides. The black abdominal spots are reduced and usually partly or wholly absent except on the first segment. The posterior forceps are produced into a long, clavate process, the apex obtuse, gently convex, and bearing a tuft of hairs in front. The squamae are clothed with brownish yellow pubescence, very rarely with pale reddish brown.

Townsend named this the genotype of *Trichodejeania* but later considered it to be the same as *rufipalpis* Macquart. It is close to *corpulenta* Wiedemann but may be distinguished in almost all cases by the yellowish pubescent squamae and the rich color of the pollen of the thorax.

This species is known from the mountains of the southwestern United States from Colorado and New Mexico to California. It is possible that it also ranges into northern Mexico at high altitudes.

***Adejeania brevirostris*, new species**

Abdomen dark reddish with small black triangles; thorax rich golden pollinose; palpi reddish; proboscis one-fourth longer than head height. Length, 15 mm.

**FEMALE:** Head reddish yellow in ground color, the occiput dark; pollen golden yellow, paler on the face; hair reddish yellow, black on the front, and there are a few black hairs immediately below the frontals. Front as wide as one eye, pale brownish orange; eight pairs of frontals, the upper three reclinate. Cheeks

one-third as wide as the eye height. Parafacials moderately narrow. Antennae reddish, the third segment mostly darkened on the outer side. Palpi reddish yellow, a little longer than the head height; proboscis black, one-fourth longer than head height.

Thorax reddish, the mesonotum darkened except on the lateral and posterior borders; pollen reddish yellow; pile reddish yellow. Acrosticals 2-2; dorsocentrals 4-4; two sternopleurals and three intra-alars. Scutellum reddish, with spines and a single pair of marginal bristles, the hair reddish.

Legs reddish, the hair on the tibiae and tarsi all black; apical segments of front tarsi missing.

Wings smoky. Lower lobe of squamae grayish with brown pubescence.

Abdomen dark orange red, with orange red pile. First segment with four pairs of widely separated median marginals and no laterals, the second with an almost complete row, the third with complete row; fourth segment with two rows of spines behind the middle, the second irregular, and some fine black bristles apically. Second to fourth segments with basal median black triangles broadly expanded basally; fourth tergite not black beneath.

**HOLOTYPE:** Female, Tlalampautla, Mexico, September, 1903 (W. L. Tower).

This species is interesting because of the four pairs of strong marginals on the first abdominal segment. It does not seem at all likely that it can be *corpulenta* Wiedemann. *A. vexatrix* Osten Sacken usually has one or two pairs of median marginals on the first segment, and the marginal row on the second is sometimes entire. Townsend describes *Trichodejeania* as having four median marginals on the first abdominal segment, meaning, presumably, four pairs. This, however, would not agree with *vexatrix* which rarely has more than two pairs. The proboscis in *vexatrix* is much longer than in *brevirostris* and the abdomen more shining.

***Adejeania brevihirta*, new species**

Figure 5

Dark rusty reddish, the thorax with cinereous yellow pollen; three postsutural dorsocentrals; proboscis one-fourth longer than the head height. Length, 15 mm.

**FEMALE:** Agrees with *brevirostris*, new species, but the pile of the abdomen is conspicuously shorter, the cheeks are a little narrower, there are only three postsutural dorsocentrals, and there are no median marginals on the first abdominal segment. The abdominal pile is rich orange.

**HOLOTYPE:** Female, Venezuela, received from Dr. P. Anduze.

Since the differences in chaetotaxy may not always hold, it may be necessary to rely chiefly on the length of the pile to separate this and the preceding species. It is possible that the male genitalia will prove to be characteristic.

#### *Adejeania ypsilon*, new species

Thorax rather olivaceous; abdomen orange with black apex; appendage of posterior forceps Y-shaped. Length, 12 to 14 mm.

**MALE:** Head with cinereous yellow pollen, the front rather olivaceous; pile yellow, black on the front and sometimes on the upper half of the parafacials. Front two-thirds as wide as eye; eight or nine pairs of frontals, the upper four reclinate, sometimes three pairs below in a secondary row. Cheeks not over one-third as wide as the eye height. Parafacials narrow. Antennae black, the apex of the second segment reddish; third segment almost as long as the second, convex above; basal arisal segments short. Palpi reddish, with yellowish brown pollen.

Thorax black, with thick cinereous yellow pollen, the pleura grayish. Mesonotum black haired, some yellow hair intermixed with the black in front of the suture and in front of the scutellum; pleura wholly yellow pilose. Dorsocentrals usually 2-3, the number in front variable; acrosticals normally 1-2 but variable, rarely 2-3, often different in the two rows; two sternopleurals; three intra-alars. Scutellum reddish, yellow pollinose, the spines black.

Legs reddish yellow, the hair mostly black; pulvilli yellowish, elongate.

Wings smoky. Squamae brownish, the upper lobe yellowish.

Abdomen orange, the fourth segment shining black with only the very narrow base pale; the depression of the first segment and sometimes small basal spots on the second and third segments blackish. Pile yellowish,

black on the broad apex of the third segment and the apical three-fourths of the fourth. First segment without median marginals, the second segment with row broadly interrupted at the lateral third, the third with row; fourth segment with spines and bristles on more than the apical half. Intermediate sternites with spines. Posterior forceps produced anteriorly in the form of a strong Y, the arms with some short bristles apically.

**FEMALE:** Front almost as wide as eye; seven pairs of frontals, the upper three reclinate; fourth abdominal segment with spines on the apical half; front tarsi distinctly widened.

**TYPES:** Holotype, male, allotype, female, and paratype, male, Nova Teutonia, June 5, 1939, and paratype female, May 24, 1939 (F. Plaumann).

This species can usually be identified by the almost wholly black fourth abdominal segment, but this character is not quite constant since this occurs very rarely in other species. The presence of only three postsutural dorsocentrals appears to be characteristic, but it is possible that other similarly colored species will be found to possess this character. The shape of the posterior forceps is characteristic, but it differs only slightly from that of some species with reddish haired abdomen.

#### *Adejeania brasiliensis* Desvoidy

Figures 12-14

*Dejeania brasiliensis* DESVOIDY, 1830, Essai sur les myodaires, p. 33.

Townsend has identified a species with pale yellow abdomen as this, probably because he has found it to be the most common form in Brazil. The original description calls for a species with reddish abdomen, the apical two segments black. There can be little doubt that the latter statement refers to the fourth and fifth segments, indicating that the type was a female. Desvoidy gave the type locality as Guaratuba, Brazil, a coastal city in the southern part of the country. Material before me is from Nova Teutonia, Brazil, and Chapada, Brazil. The former locality is in the south, the latter inland, west of Natal. The species is therefore very widely distributed, and there seems to be no reason why the specimens before me should not be *brasiliensis*. The specimen from Chapada was de-

terminated by Townsend many years ago as *brasiliensis*.

In color *brasiliensis* is very similar to *ypsilon*, but the black on the fourth abdominal segment is usually widely separated from the base except medianly. In many of the specimens there is a narrow, median, reddish vitta on the fourth segment, but this is frequently absent. In one female the fourth segment is virtually all black. The front is slightly narrower than in *ypsilon*, it is less widened anteriorly, and the cheeks are conspicuously narrower. The acrosticals are typically 2-3, the dorsocentrals 3-4, but the number varies, only the presence of four postsuturals being constant. The first abdominal segment bears one or two pairs of spines towards the middle, there is usually black hair on the third segment only near the marginals, the fourth segment is black haired except on the lateral corners, and the spines occupy distinctly more than the apical half. The posterior forceps are distinctive, being laterally compressed and broadly and rather deeply concave between the plate and the posterior portion. The posterior forceps are illustrated in figure *a* of Engel's paper. This is possibly the species he considered to be *armata* Wiedemann.

#### ***Adejeania honesta* Rondani**

Figures 23, 24

*Dejeania honesta* RONDANI, 1850, Nuovi Ann. Sci. Nat. Bologna, ser. 3, vol. 2, p. 360.

Rondani described this species from the Rio Napo, Ecuador. I do not have material from this river, but Mr. F. M. Brown secured two males and five females from Puyo Runtun, and Sucua, Rio Upano, and there is no reason to doubt that they are the species described by Rondani. There is also a pair in the United States National Museum from Rio Charape, Peru (Townsend), determined as *honesta* by Aldrich. Dr. Stone considers these to be the same as a specimen forwarded for comparison.

This species agrees well with *ypsilon*, new species, but is readily distinguished from it by the characters given in the key. The legs are wholly reddish, and the fourth abdominal segment is broadly reddish basally except in the middle.

#### ***Adejeania andina* Townsend**

Figures 19, 20

*Dejeania andina* TOWNSEND, 1912, Proc. U. S. Natl. Mus., vol. 43, p. 333.

This species was originally described from Peru, but Townsend states that it is the commonest species in south Brazil. On page 69, volume 8, of his "Manual," Townsend states that Engel figured the male genitalia of *brasiliensis* under the name *armata*, figures *e* and *f*. Dr. Alan Stone has compared specimens for me and states that a specimen I examined from Brazil (United States National Museum collection) has the same form of genitalia as the type of *andina*. It is therefore evident that if Townsend accepts this form as *brasiliensis*, his *andina* becomes a synonym.

*Adejeania andina* belongs to the group with yellowish abdomen but differs from others of the group in having the legs wholly pale. The male is readily recognized by the shape of the genitalia, and there should be no difficulty in recognizing the female by its yellow legs and pale abdomen.

The collection contains a single male from Minas Gerais, Brazil, which has been compared with the type.

#### ***Adejeania armata* Wiedemann**

*Tachina armata* WIEDEMANN, 1830, Aussereuropäische zweiflügelige Insekten, vol. 2, p. 287.

The type came from Cuba and has been examined by Townsend, who states that it belongs to *Adejeania*. There is nothing in the description that would separate it from the other species.

#### ***Adejeania uniformis*, new species**

Figures 28, 29

Black, the abdomen light yellowish; one or two median marginals on first abdominal segment; posterior forceps with a median row of short, thick hair apically. Length, 11 to 12.5 mm.

MALE: Face and cheeks yellowish in ground color; pollen yellowish to brownish yellow, more whitish in the occiput, more olivaceous brown on the front; pile yellow, black on the front. Front two-thirds as wide as one eye; 10 or 11 pairs of frontals, the upper four or five reclinate, cheeks one-fourth as

wide as the eye height. Parafacials much narrower than the second antennal segment. Antennae blackish, the third segment about as long as the second, convex above, broadly reddish below, the second reddish apically. Palpi reddish; proboscis wholly black.

Thorax black, with cinereous pollen, the mesonotum grayish and rather olivaceous, the pile yellow, the mesonotum with black hair and yellow hairs intermixed behind the suture. Acrosticals normally 2-3; dorsocentrals 3-4; two sternopleurals and three intra-alars. Pleura yellow pilose. Scutellum yellowish, with yellow pollen and pile.

Legs reddish yellow, the femora black on the basal three-fourths, the hair mostly black; pulvilli elongate, yellow.

Wings smoky. Lower lobe of squamae brown.

Abdomen yellow, the fourth segment virtually all black, the third with a transverse triangular, or pentagonal, blackish spot; hair yellow on the first segment and basal third or more of the others. First segment with one or two pairs of median marginal spines; second with laterally interrupted row, the third with entire row; fourth with spines and bristles on the apical two-thirds. Posterior forceps obtuse apically, with an apical, median crest of short, thick hair; from lateral view with thick, short hair on the whole apical portion. Intermediate sternites without spines.

**FEMALE:** Front three-fourths as wide as eye; eight pairs of frontals, the upper three reclinate; front tarsi scarcely widened; intermediate sternites with spines.

**TYPES:** Holotype, male, and allotype, female, Nova Teutonia, Brazil, June 1 and May 22, 1919 (F. Plaumann).

This species agrees with Townsend's diagnosis of the genus except in the presence of only two median marginals on the first abdominal segment. In his generic description Townsend states that the squamae are thickly and finely pilose, which is very misleading. The squamae are actually thickly pubescent, but could scarcely be described as pilose.

***Adejeania biornata*, new species**

Figures 16, 17

Black, the abdomen pale yellow; posterior

forceps with preapical tuft of hair preceded by much shorter, dense hair. Length, 9 to 10 mm.

**MALE:** Front about two-thirds as wide as one eye, not strongly widening anteriorly, with nine pairs of frontals, the upper three to five reclinate, the hair black. Face and cheeks yellowish; pollen whitish, more cinereous on the front and occiput, the frontal pollen somewhat olivaceous in some views. Cheeks about one-fourth as wide as the eye height. Parafacials much narrower than the third antennal segment. Antennae blackish, third segment about as long as second, the base reddish, convex above. Palpi reddish yellow; proboscis black.

Thorax black; pile yellow, the mesonotum with wholly black hair except posteriorly; pollen cinereous. Acrosticals normally 2-2; dorsocentrals 3-4 or 3-3, in the latter case the anterior two a little more widely separated than the others; two sternopleurals; three intra-alars. Scutellum yellowish, with yellow pollen and pile.

Legs reddish yellow, the femora and coxae mostly black; hair mostly black; pulvilli elongate, yellowish.

Wings smoky. Lower lobe of the squamae brown.

Abdomen yellow, the fourth segment black, the third with a small blackish median spot behind or with a blackish preapical band that is angularly produced in the middle. Pile yellow, black on the apex of the third segment and the posterior two-thirds of the fourth, or broad posterior bands of black pile on the second and third segments and the fourth with yellow pile on only the narrow base. The first segment bears one or two pairs of median marginals, the second with laterally interrupted row, the third with entire row; fourth segment with spines and bristles on about the apical two-thirds. The posterior forceps are gently concave above, with a weak longitudinal groove, the sides subparallel apically, near the apex, with a transverse tuft of moderately long, dense hair and before this with thick, much shorter hair. The intermediate sternites are bare.

**TYPES:** Holotype, male, and paratype, male, Nova Teutonia, Brazil, May 26 and May 22, 1939 (F. Plaumann).

I have selected the smaller of the two speci-

mens as the type. It has no black pile on the second abdominal segment, a blackish preapical band on the third, and only three distinct postsuturals. Despite the differences in the color of the pile and chaetotaxy, I believe that these are the same species. There is no difference in the genitalia, the ornamentation of which is quite distinctive.

***Adejeania townsendi*, new species**

Figures 25, 26

Abdomen yellow with black apex; thorax cinereous pollinose; posterior forceps with preapical pencil of hairs and interrupted lateral hair. Length, 12 to 14 mm.

MALE: Face and cheeks yellowish in ground color, the front and occiput blackish; pollen whitish, the middle of the face yellowish below, the front more grayish; hair yellow, black on the front. Front three-fourths as wide as one eye; nine or 10 pairs of frontals and one or two below outside the row, the upper four reclinate. Cheeks one-fourth as wide as eye height. Parafacials narrow. Antennae black, the second segment usually mostly brownish red, the third slightly longer than the second, convex above. Palpi reddish, with wholly black hair; proboscis wholly black.

Thorax black, cinereous pollinose, the mesonotal pollen with at most a slight brownish yellow tinge; hair yellow, mostly black on the mesonotum. Acrosticals 2-3; dorsocentrals 4-4; two sternopleurals and three intra-alars. Scutellum dull yellowish, with many spines and two lateral scutellars.

Legs yellow, the femora mostly black; hair on tibiae and tarsi black.

Wings smoky. Lower lobe of squamae dark brown.

Abdomen yellow, the fourth segment black, the third with triangular or pentagonal black spot in the middle posteriorly, the first black beneath the scutellum. Hair black, broadly yellow on the bases of the segments and usually pale on almost the basal half of the fourth segment; first segment with three or four pairs of marginals, the second and third each with a row, the fourth with spines on a little more than the apical half. Posterior forceps gently concave below, the apex truncate or slightly emarginate; in the middle before the apex with a fine pencil of black

hair, the sides thickly haired, the hair very thin near the middle. Intermediate sternites without spines.

FEMALE: Front with seven or eight pairs of frontals, the upper three reclinate; two pairs of orbitals. Sternites with spines.

TYPES: Holotype, male, allotype, female, Nova Teutonia, Brazil, May 26, 1939; paratypes, six males and eight females, Nova Teutonia, May 24 to June 6, 1939 (F. Plaumann).

***Adejeania marginalis*, new species**

Figures 27, 32

Thorax cinereous pollinose; abdomen yellow, the fourth segment black; apex of posterior forceps margined with hair. Length, 13 to 14 mm.

MALE: Face and cheeks yellow in ground color; pollen white, cinereous on the front; pile yellow, black on the front. Front little more than half as wide as one eye, moderately widening anteriorly; eight or nine pairs of frontals, the upper three or four reclinate. Cheeks little more than one-fourth as wide as eye height. Parafacials narrow below. Antennae blackish, the apex of the second segment and base of the third more or less broadly reddish, the third little longer than the second. Palpi reddish; proboscis black.

Thorax blackish, cinereous pollinose; hair black, yellowish on the posterior border of the mesonotum and on the scutellum and pleura. Acrosticals 2-3; dorsocentrals 3-4; two sternopleurals and normally two intra-alars. Scutellum yellowish, with two pairs of marginal bristles and many spines.

Legs yellowish, the femora black on more than the basal half; hair black on tibiae and tarsi. Pulvilli elongate.

Wings smoky. Squamae brownish.

Abdomen yellow, a spot below the scutellum, a subtriangular spot on the apex of the third segment in the middle, and the fourth segment black. Hair black, yellow on most of the first and second segments, the broad base of the third, and basal third of the fourth. First segment with three pairs of marginals, the second and third with complete row, the fourth with spines on apical half. All sternites with spines. Anterior portion of posterior forceps concave, more brownish in front.

**TYPES:** Holotype, male, and paratypes, two males, Nova Teutonia, Brazil, June 1, 2, and May 29, 1939 (F. Plaumann).

The male is easily distinguished by the ornamentation of the posterior forceps, but it will be extremely difficult to recognize the female. The color does not differ from that of a number of related species.

***Adejeania conclusa*, new species**

Pollen of thorax grayish ochraceous; abdomen yellow with black apex, the second segment partly black haired. Length, 14 mm.

**MALE:** Agrees almost entirely with the preceding species, but the pollen on the thorax is decidedly more yellowish; there are five pairs of reclinate frontals and three pairs of intra-alars. The fourth abdominal segment has less yellow pile basally, and the intermediate sternites lack spines. The posterior forceps are moderately concave on the apical section and bear in the middle apically a dense tuft of V-shaped hair, the lateral margins with less dense hair over a rather broad area.

**HOLOTYPE:** Male, Nova Teutonia, Brazil, May 26, 1939 (F. Plaumann).

This species can be distinguished from its allies by the ornamentation of the posterior forceps.

***Adejeania bicaudata*, new species**

Figures 21, 22

Abdomen yellow with black apex; mesonotal pollen with conspicuous brown tinge; posterior forceps with two clusters of hair apically. Length, 10 to 12 mm.

**MALE:** Face and cheeks yellow in ground color; pollen white, yellowish on the inner parafacials and lower part of the face, and rather golden brownish on the front except along the orbits. Hair yellow, black on the front. Front three-fourths as wide as eye; 10 pairs of frontals, the upper two divaricate-reclinate. Cheeks distinctly more than one-fourth as wide as eye height. Antennae black, the second segment mostly brownish red, the third reddish below, about as long as the second, not greatly longer than wide, the second arisal segment twice as long as wide. Palpi reddish; proboscis wholly black.

Thorax black, cinereous yellow pollinose, the mesonotum with decided brown tinge.

Hair yellow, almost all black on the mesonotum. Acrosticals 2-3; dorsocentrals 4-4; two sternopleurals and three intra-alars. Scutellum luteous, with spines and two pairs of marginal bristles.

Legs yellowish, the femora mostly black. Hair on tibiae and tarsi all black.

Wings smoky. Lower lobe of squamae dark brown.

Abdomen yellow, yellow pilose, the fourth segment with black hair and spines on more than the apical half. First segment with three pairs of spines, the second and third each with marginal row. Posterior forceps gently concave, the apex obtuse; on each side with thick hair and a strong tuft of more dense hair on each side before the apex. Intermediate sternites without spines.

**FEMALE:** Eight pairs of frontals, the upper three reclinate; two pairs of orbitals. Front tarsi slightly broadened. Sternites with spines. In most of the females there is a broad band of black pile posteriorly on the second and third abdominal segments.

**TYPES:** Holotype, male, and allotype, female, Nova Teutonia, Brazil, May 31 and June 2, 1939; paratypes, six females, Nova Teutonia, May 31 to June 7, 1939 (F. Plaumann).

Despite the differences in color of the abdominal pile, the females evidently represent the same species. The allotype alone agrees with the male in color of the pile. The brownish color of the mesonotal pile appears to be distinctive. It is possible that the paratypes represent a species not represented by males in the collection. In the male, there is just a trace of a black spot on the third abdominal segment; the allotype has a small one, and the paratypes all have a large, transverse spot.

***Adejeania tridens*, new species**

Figures 30, 31

Abdomen yellow with black apex; thorax cinereous or cinereous yellow pollinose; posterior forceps with three tufts of hair on apical portion. Length, 12 to 15 mm.

**MALE:** Face and cheeks yellow in ground color, whitish pollinose, the lower part of the face yellowish, the front more brownish, white laterally, cinereous above. Front about two-thirds as wide as eye, moderately widen-

ing anteriorly; eight to 10 pairs of frontals, the upper four or five reclinate; often a bristle below outside the frontal row. Cheeks not quite one-fourth as wide as the eye height. Parafacials narrow. Antennae black, the second segment reddish apically; third segment about as long as the second, broad, convex above; second arisal segment usually twice as long as wide. Palpi reddish; proboscis black.

Thorax black, cinereous pollinose, the mesonotum sometimes with ochraceous tinge. Hair yellow, mostly black on the mesonotum. Acrosticals 2-3; dorsocentrals 4-4; two sternopleurals and three intra-alars. Scutellum reddish yellow, with black spines and two pairs of marginal bristles.

Legs yellowish, the femora mostly black; tibiae and tarsi with black hair.

Wings smoky. Lower lobe of squamae brown.

Abdomen yellow, yellow haired, the posterior border of the third segment and all but the anterior corners of the fourth black haired. First segment with two or three pairs of spines, the second and third each with a row; fourth segment with spines on about the apical half. Posterior forceps gently concave, apically, in the middle with a triangular patch of black hair, behind which the hair is dense on the sides. Intermediate sternites without spines.

FEMALE: Front three-fourths as wide as eye; eight pairs of frontals, the upper three reclinate. Intermediate sternites with spines; front tarsi somewhat broadened.

TYPES: Holotype, male, and allotype, female, Nova Teutonia, Brazil, May 22, 23, 1939; paratypes, three males and three females, Nova Teutonia, May 22 to June 6, 1939 (F. Plaumann).

While the number of sternopleurals is normally two, there may be only a single one or there may be three. In this species there is no dark spot on the third abdominal segment, and the fourth segment is almost all black.

#### JURINELLA BRAUER AND BERGENSTAMM

*Jurinella* BRAUER AND BERGENSTAMM, 1889, Denkschr. Akad. Wiss. Wien, vol. 56, p. 132.

*Pseudohystricia* BRAUER AND BERGENSTAMM, 1889, Denkschr. Akad. Wiss. Wien, vol. 56, p. 132.

In his treatment of this genus Townsend has used the name *Pseudohystricia*. The two names appear in the same couplet. *Jurinella* was used first, and it should be employed for the genus, even in the strictest sense. The characters given for both genera are the same, but the figures show some differences, particularly in the shape of the antennae and the length of the proboscis. However, the differences are not of generic importance, and Townsend has proposed the synonymy. The identity of the genotype of *Pseudohystricia* has been complicated by Townsend who stated that *ambigua* Macquart is the same as *Tachina obesa* Wiedemann. This is almost certainly incorrect. There is no question about the genotype of *Jurinella*, provided Brauer and Bergenstamm correctly identified the species. Regardless of the exact identity of the genotypes named, there is no doubt that they constitute a group of closely related species and all are strictly congeneric.

In addition to the two names discussed above, the following genera included in Townsend's key to the Dejeaniini do not seem to be separable from *Jurinella*: *Gigantachinosoma* Townsend, *Neojurinia* Townsend, *Eujurinia* Townsend, *Tachinosoma* Townsend, *Saundersioplumma* Townsend, and *Hystriella* Townsend.

In his key to genera ("Manual of myiology," 1936, vol. 3, p. 177) Townsend uses a number of characters that appear to be of no more than specific value. These are listed together with remarks concerning their importance as demonstrated in the material before me.

Color of the parafacial pile. This is employed in couplet four, dividing the series on whether the pile is black or yellow. This is variable in some species. Sometimes the hair is all black; or it may be both black and yellow, either color predominating on one side of the face; or the pile may be black on the upper half and yellow below; or there may be some black hairs below.

Number of postsutural dorsocentrals. Where only two are present the character evidently represents an excellent means of separation, but it is not of great importance when used to separate genera on the basis of three or four pairs of bristles. In some species certain specimens may show four strong



pairs, while others may show three strong and one quite weak one and this latter may even be absent. When only one specimen of a species is present, confusion might easily result. While the character is often of generic value, it does not seem to have value in this group.

Number of sternopleurals. The number is usually three, but two and four occur. The character alone is not generic, but it seems to be of more value than any of the others employed.

Length of haustellum. Of only specific value and very difficult to measure accurately. The terminal section of the proboscis is measured in relation to head height. The length will depend to a great extent upon the condition of the labellae. If they are opened or drawn back, the proboscis will appear considerably shorter than when they are closed and directed forward.

Length of palpi. This is given in comparison with the antennal length. It is of only specific value.

Presence of decussate yellow bristles or hairs along the inner edge of the parafrontals. These are usually easily seen, but in some species they vary and may be absent or present. Not always of specific value.

Discal bristles. The number of discal bristles on the second and third abdominal segments is one of the main characters employed to separate genera in certain tribes. While this is often an excellent character, it is obvious that too much stress has been placed upon it. The absence of a few pairs of bristles may make a very great difference in the appearance of the bristle patches. Small specimens of a species usually have reduced bristling, and some such would not trace to the same genus as the typically bristled forms. It is sometimes very difficult to make a distinction between spines and bristles. As a rule in species with a large number of discals they are spinose, and this may be true even if but a few discals are present, but there is a tendency when but few bristles are present, for them to be of the usual acute form generally referred to as bristles in contrast to the obtuse ones termed spines.

Orbital bristles in male. I have not been able, with the material on hand, to form any definite conclusions regarding this character

insofar as it refers to this group. Its value will depend upon the presence of other characters common to both sexes.

I have found that the shape of the posterior forceps of the male is of considerable value in indicating relationships. Probably it is of more importance than the other characters used, but there are connecting links between all the extremes. The study of more species, and there must be many more, will no doubt provide still more evidence of the relationship of the species I have included under *Jurinella*.

Although I have not included *Arthrochaeta* Brauer and Bergenstamm in *Jurinella*, it is possible that it and its allies really belong here. However, the presence of only one or two pairs of discals separates *Arthrochaeta* from *Jurinella*, and the two may be retained as distinct. All the species included in the following key have the eyes and parafacials pilose, propleura pilose, at least two pairs of discal spines on the intermediate abdominal segments, and no ocellar bristles. The genera in which Townsend has placed some of the species are indicated by brackets.

TABLE OF SPECIES<sup>1</sup>

- 1. Three or four sternopleurals . . . . . 5  
Two sternopleurals . . . . . 2
- 2. Two posterior dorsocentrals . . . . . 3  
Four posterior dorsocentrals; abdomen dark reddish, the fourth segment pollinose (Brazil) . . . . . *thoracica* Curran
- 3. No anterior acrosticals . . . . . 4  
Two anterior acrosticals (Ecuador) . . . . .  
. . . . . *Lindigia varicolor*, new species
- 4. Marginal row of spines on first segment (Venezuela) . . . . . *Lindigia plagiata* Schiner  
No spines on first segment (Peru) [*Eujurinella*] . . . . . *abdominalis* Townsend
- 5. Three sternopleurals . . . . . 6  
Four sternopleurals [*Parajurinia*] . . . . .  
. . . . . *obesa* Townsend
- 6. Mesonotum clothed with yellow pile . . . 7  
Mesonotum clothed with black pile . . . 9
- 7. Front of male at least as wide as eye width . 8  
Front of male narrower than eye width; posterior forceps without beak (Central America) . . . . . *ambigua* Macquart
- 8. Posterior forceps produced into an upcurved beak (Mexico) . . . . . *mexicana*, new species

<sup>1</sup> Because some species of *Lindigia*, *Amicrotrichomma*, and *Gigantachinosoma* might be confused with species of *Jurinella*, they are included in the key.

- Posterior forceps without beak, the end truncate in profile (United States) . . . . .  
 . . . . . *lutzi*, new species
9. Palpi black, the apical half somewhat reddish exteriorly but clothed with silvery pollen . . . . .10  
 Palpi reddish or yellowish, rarely the basal half blackish . . . . .11
10. Abdomen reddish; with ochraceous pollen (Panama) . . . . *milleri*, new species  
 Abdomen shining dark castaneous (Brazil) . . . . .  
 . . . . . *procteri*, new species
11. Legs, including front coxae, reddish . . .12  
 Legs black or brown, the front coxae dark in ground color . . . . .15
12. Four posterior dorsocentrals . . . . .13  
 One posterior dorsocentral (Ecuador) . . . . .  
 . . . . . *Lindigia browni*, new species
13. Abdomen reddish, without pollen . . . .14  
 Abdomen dull blackish, the fourth segment with "trident" yellow pollinose spot basally in middle (Ecuador) . . . . .  
 . . . . . *lata*, new species
14. Pleura yellow pilose (Brazil) . . . . .  
 . . . . . *vargas*, new species  
 Pleura black pilose (Brazil) . . . . .  
 . . . . . *circularis*, new species
15. Mesopleura almost all yellow pilose, only the fine bristles and a few hairs black . . .16  
 Mesopleura mostly black pilose, at least with numerous black hairs, the posterior fringe often pale . . . . .29
16. Fourth abdominal segment, from some views, conspicuously white or yellowish pollen . . . . .17  
 Fourth abdominal segment not conspicuously pollinose above . . . . .19
17. Sides of scutellum wholly yellow haired . .18  
 Sides of scutellum with black hairs below the bristles (Panama) . . . . .  
 . . . . . *panamena*, new species
18. Scutellum yellow haired; discal and marginal bristles on third abdominal segment connected (Brazil) [*Tachinosoma*] . . . . .  
 . . . . . *corpulentum* Townsend  
 Scutellum black haired above; discals well separated from marginals (Brazil) [*Saundersioplumina*] . . . *spinosa* Townsend
19. Pollen on scutellum brown, strongly contrasting with the pale pollinose mesonotum (Brazil) . . . . .  
 . . . . . *Amicrotrichomma ada*, new species  
 Pollen not strongly contrasting, of almost the same color . . . . .20
20. Squamae brown or strongly smoky . . . .22  
 Squamae yellowish or whitish, the lower lobe sometimes with brownish reflections, the border brownish, the fringe white . . .21
21. Abdomen blue black; beak of posterior forceps short and very broad (Brazil) . . . . .  
 . . . . . *salla*, new species  
 Abdomen castaneous, "beak" curved and truncate at apex (Brazil) . *major* Curran
22. Spines on disc of third segment occupying less than one-third the width of the segment, in a gently arched row in front of the middle and usually with several small spines between these and the marginals (Brazil) . . . . . *bella*, new species  
 Discal spines on third segment occupying half the width, or more, and much more numerous . . . . .23
23. Small, 9 mm. or less (Brazil) . . . . .  
 . . . . . *minuta*, new species  
 Larger, usually well over 11 mm. . . . .24
24. Sides of the scutellum yellow pilose only on lower edge . . . . .25  
 Sides of the scutellum yellow pilose between the stout marginal bristles and the base (Brazil) . . . . . *salla*, new species
25. Beak of posterior forceps almost as long as the basal part (Brazil) . . . . .  
 . . . . . *producta*, new species  
 "Beak" much shorter . . . . .26
26. Last section of fourth vein (apical cross vein) recurrent posteriorly (Mexico). . . . .  
 . . . . . *pollinosa* Wulp  
 Last section of fourth vein arising at right angle, not recurrent . . . . .27
27. Posterior lobe of squamae with brown fringe . . . . .28  
 Posterior lobe of squamae with yellow fringe (Brazil) . . . . . *feminea*, new species
28. Beak of posterior forceps long and curved at the tip (Brazil) . . . *fusicornis* Curran  
 "Beak" shorter and obtuse at the tip (Brazil) . . . . .  
 . . . . . *anax*, new species
29. Four posterior dorsocentrals . . . . .32  
 Three posterior dorsocentrals . . . . .30
30. Scutellar pollen cinereous or brownish yellow . . . . .31  
 Scutellar pollen dark brown, extending onto the mesonotum (Brazil) . . . . .  
 . . . . . *vaga*, new species
31. Scutellum cinereous pollinose (Panama) . . . . .  
 . . . . . *gertschi*, new species  
 Scutellar pollen with conspicuous brown tinge; costa darkened on basal half (Brazil) . . . . .  
 . . . . . *varians*, new species
32. Hair on sides of scutellum all black. . . .33  
 Hair on sides of scutellum yellow on lower edge (Brazil) . . . *connota*, new species
33. Pile of face virtually all black . . . . .34  
 Pile of face virtually all yellow . . . . .35
34. Discal and marginal rows of middle of third segment widely separated (Brazil) . . . .

- . *Gigantachinosoma giganteum* Townsend  
 Discal and marginal rows connected in the middle, the discals extending to the sides (Brazil) . . . . . *procteri*, new species
35. Pollen on scutellum of virtually the same color as that on the mesonotum . . . . .36  
 Pollen on scutellum brown or absent . . .40
36. Fourth abdominal segment mostly whitish pollinose above (Peru) . . . . .  
 . . . . . *apicata*, new species  
 Fourth segment not conspicuously pollinose . . . . .37
37. Abdomen steel blue (Colombia) . . . . .  
 . . . . . *schwarzi*, new species  
 Abdomen castaneous or black . . . . .38
38. Third abdominal segment all spinose (Mexico) . . . . . *egle*, new species  
 Third segment with discals only in the middle, the lateral fourth or more bare . . . . .39
39. Only four or five pairs of discals on second abdominal segment (Brazil) . . . . .  
 . . . . . *reducta*, new species  
 Many discals on second and third segments (Guatemala) . . . . . *profusa*, new species
40. Fourth abdominal segment destitute of pollen above . . . . .42  
 Fourth segment with conspicuous pollen above . . . . .41
41. Second abdominal segment with about four pairs of discals (Panama) . . . . .  
 . . . . . *zeteki*, new species  
 Second segment with numerous discals (Brazil) . . . . . *ariel*, new species
42. Scutellum reddish, without apparent pollen (Jamaica) . . . . . *pilosa* Drury  
 Scutellum blackish, with brown pollen. . .43
43. Third abdominal segment spinose on more than the median half . . . . .44  
 Third segment spinose on median fourth or less (Brazil) . . . . . *ajax*, new species
44. Sides of scutellum with cinereous pollen (Mexico) . . . . . *palpalis*, new species  
 Scutellum wholly brown pollinose (Colombia) . . . . . *huntingtoni*, new species

#### *Jurinella thoracica* Curran

*Jurinella thoracica* CURRAN, 1925, Amer. Mus. Novitates, no. 200, p. 9.

Thorax and scutellum densely yellowish gray pollinose; abdomen shining ferruginous, the fourth segment clothed with shining pale yellowish pollen (posterior view); second and third segments with spinose discals in an arched row, the second also with some smaller ones. Length, 15 mm.

FEMALE: Face and cheeks white pollinose,

the latter two-thirds of the eye height. Head with fine yellow pile, the front sometimes with mostly stout bristly hairs outside the frontal bristles, but the orbits and ocellar triangle bear yellow pile; frontal vitta rusty red, strongly narrowed above, not nearly so wide as the parafrontal opposite. Orbital bristles long; vertical bristles decussate, the outer verticals three-fourths as long and divergent. Antennae reddish, the third segment largely brownish, not quite so long as the second.

Thorax black in ground color, the posterior calli and scutellum rusty yellowish, the pollen almost concealing the ground color, the slender dark vittae distinct. Pleura yellow pilose, the mesopleura with numerous black bristles on the upper half in front. Two sternopleural bristles; three pairs of lateral marginal scutellar bristles and two or three pairs of blunt marginal bristles, the scutellum also with two irregular rows of short spines across the disc.

Femora and tarsi black or brownish, the tibiae reddish, the anterior four femora grayish pollinose and yellow pilose behind, the legs elsewhere black haired. Claws reddish, the apical third black; pulvilli yellowish, large for female.

Wings lightly infuscated; epaulet yellow. Squamae white; halteres reddish.

Abdomen shining ferruginous, the immediate base of the third segment and its middle line thinly whitish pruinose from posterior view. On the second and third segments there are four strong discal spines on each side of the middle arranged slightly obliquely so as to form an arch, while on the second segment there are several small spines in addition; second segment with four pairs of marginals which increase in length outwardly, the third segment with a continuous row, the two or three inner pairs shorter; fourth segment with a row of discals across the basal third and a row of preapicals, the sides with many bristles connecting these two rows and becoming numerous below. Sternites with rows of spines apically. Hair of the abdomen black, appressed; finer and erect on the fourth segment. Venter with some fine yellowish hairs on the basal half.

Described from two females from Chapada, Brazil (Williston collection).

**Jurinella abdominalis** Townsend

*Eujurinella abdominalis* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 86.

A small, rather robust species, black with the thorax thinly silvery pollinose, reddish abdomen and luteous scutellum. Only the type specimen, from Peru, has been recorded.

**Jurinella coeruleonigra** Macquart

Figure 33

*Jurinia coeruleonigra* MACQUART, 1846, Diptères exotiques nouveaux ou peu connus, suppl. 1, p. 146.

The type of this species, a female, is in the collection of Mr. J. E. Collin, Newmarket, England, and is said by Townsend to be congeneric with *ambigua*. It is from Colombia, and I suspect that it is the same as *ambigua*, in which case the name will have precedence. Unfortunately, the type of *ambigua* is also a female, and it may be difficult to determine whether there are two species or not. There is nothing in the descriptions given by Macquart to indicate that the two are distinct. *J. coeruleonigra* is described as having whitish hair on the thorax, which indicates its relationship. Townsend's notes on the type do not aid in establishing the identity of the species.

**Jurinella obesa** Wiedemann

*Tachina obesa* WIEDEMANN, 1830, Aussereuropäische zweiflügelige Insekten, vol. 2, p. 282.

Townsend considers this to be the type of the genus *Pseudohystricia* Brauer and Bergengstamm, but this can scarcely be true. Although he apparently saw the type, which was from Brazil, it is very unlikely that the North American forms belong to this species. Wiedemann's description, moreover, does not fit our forms, since he describes the abdomen as brownish black. Townsend states that the type is in Copenhagen, but since Wiedemann had more than one specimen, and at least one in his own collection, the type will may be in Vienna. Before any synonymy can be accepted, Brazilian specimens will have to be carefully compared with those from other regions.

**Jurinella mexicana**, new species

Figure 34

Head and thorax with thick ochraceous

pollen; abdomen castaneous to black, with very strong, steel blue reflections. Length, 15 to 16 mm.

MALE AND FEMALE: This species is so similar to *J. lutzi* that a detailed description is not necessary. The only conspicuous difference between the two species is found in the posterior forceps of the male. In *lutzi* the apex of the forceps is truncate, while in *mexicana* it is produced forward and upward to form a short beak. I can find no way of separating the females, and if the ranges of the two overlap it will be difficult to associate females with the proper males.

TYPES: Holotype, male, and allotype, female, Tlalenpautla, Mexico, September, 1903 (W. L. Tower). Paratype, male, Mexico City, Mexico (R. Muller) (Curran collection).

**Jurinella ambigua** Macquart

*Hystricia ambigua* MACQUART, 1850, Diptères exotiques nouveaux ou peu connus, suppl. 4, p. 172.

Originally described from Mexico. Townsend states that the type is lost, but it should be in the Bigot collection at Newmarket. The American Museum collection contains a male and 11 females from El Volcan, Chiriqui, Panama (W. J. Gertsch), and there are seven specimens in the United States National Museum: three from Guatemala, one from Costa Rica, and three from Mexico. Two of the latter are from the series studied by Van der Wulp. In all of these specimens the front is narrower than the greatest width of one eye. Actually, the front may be almost as wide as in *lutzi*, new species, but the eye is wider. The length varies from 11 to 14 mm. but averages considerably less than in *lutzi*.

**Jurinella lutzi**, new species

Figures 35-37

With ochraceous pollen, the abdomen blue black. Length, 13 to 16 mm.

MALE: Head dark in ground color, the face and cheeks yellowish; pollen dense, pale yellowish, or almost white, on the front and occiput grayish or brownish yellow with olivaceous tinge on the para frontals; hair pale yellow, black on the front, yellow inside the frontals. Front a little over three-fourths as wide as one eye; nine or 10 pairs of frontals and two or three in a secondary row below,

the upper three or four pairs reclinate. Occipital pile tawny above, the black bristles not extending to the lower edge of the eyes. Cheeks three-fifths the eye height. Parafacials wide, of equal width. Antennae black, the third segment reddish basally and ventrally; the sides subparallel, the apex oblique, convex; basal arista segments long. Palpi reddish, longer than the antennae; proboscis as long as the head height. Eyes with long, pale pile.

Thorax blackish, densely pollinose, the dorsum ochraceous to grayish yellow, the vittae obsolete; pleura mostly grayish; hair all yellowish. Acrosticals normally 2-3; dorsocentrals 3-4; three sternopleurals; three intra-alars. Scutellum reddish, the pollen thin apically; two lateral scutellars and about 30 spines.

Legs black; pulvilli elongate, yellowish.

Wings lightly smoky; bend of fourth vein with or without a short appendage; veins reddish basally. Squamae white, with yellow border.

Abdomen shining blue black, with numerous spines. Second segment with spines on about the median half, the third with a medianly interrupted row of marginals and spines on almost the median two-thirds; fourth spinose except in front. Hair black except on the first sternite. Genitalia black, the posterior forceps very obtuse in front from dorsal view, in profile the tip obtuse and with small ridge extending upward and downward.

**FEMALE:** Front slightly wider than one eye; two pairs of strong orbitals.

**TYPES:** Holotype, male, Magdalena, New Mexico (Williston collection); allotype, female, Hell Canyon, New Mexico, September 10, 1916 (C. H. Townsend). Paratypes, male and female, Jemez Springs, New Mexico, May, and September 27; female, Colorado (Wheeler collection); male, Bear Wallow, Santa Catalina Mountains, Arizona, July 12-17, 1916; male, McKay's Peak, White Mountains, Arizona, July 10-15, 1940 (Gertsch and Hook); two females, Grand Canyon, Arizona, July 18, 1938 (E. L. Bell, F. E. Lutz); two females, Grand Canyon, Arizona (R. Ottolengui); male and two females, "Colorado"; female, Cloudcroft, New Mexico, August, 1903 (W. Knauss); male, Rio Ruidoso, White Mountains, New

Mexico (C. H. Townsend); nine females, Hell Canyon, New Mexico, September, 1916 (Townsend).

This species has been identified as *ambigua*, which Townsend has placed as a synonym of *obesa*. It differs from *ambigua* by the longer proboscis and different genitalia as well as by other less obvious characters. Actually this species is the type of the genus *Pseudohystricia* Brauer and Bergenstamm, since the specimen which they mistook for *ambigua* was from Colorado. *J. lutzii* is close to *ambigua* Macquart, but that species has a shorter proboscis, and the pollen on the thorax is a richer brownish yellow and it averages considerably smaller.

#### **Jurinella species**

There is a single female from Uruhuasi, Peru (C. H. Townsend), No. 3939 in the United States National Museum collection that bears a strong superficial resemblance to the species recorded above. It has black hair on the mesonotum and lacks the pale wing base. The wings are also somewhat darker.

This specimen traces to *salla*, new species, in the key but is readily distinguished from it by the yellowish pollen on the mesonotum and by the white squamae of the female. Townsend has dissected the uterus but apparently has not recorded the specimen. It probably represents an undescribed species.

#### **Jurinella milleri, new species**

Black and dull reddish, with ochraceous pollen; palpi black. Length, 13 mm.

**FEMALE:** Head black, ashy white pollinose, slightly silvery, the parafrontals thinly pollinose; hair black, the occiput yellow pilose. Front almost as wide as one eye; vitta narrow, reddish brown; six pairs of frontals, the upper pair well separated from the others, the three upper pairs reclinate; a pair of weak, cruciate bristles before the upper frontals. The occipital cilia extend to the sparsely black-haired cheeks. Cheeks about two-fifths as wide as eye height. Parafacials of almost equal width; oral margin strongly produced. Antennae black, the third segment reddish below, little longer than the second; basal arista segments elongate. Palpi black, silvery on apical half or more; proboscis

three-fourths as long as head height. Eyes with rather short cinereous pile.

Thorax black, the sides of the mesonotum narrowly reddish; pile wholly black; pollen deep ochraceous, the vittae distinct. Acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum reddish, thickly pollinose, with numerous spines.

Legs black; front tarsi widened.

Wings brownish, the immediate base reddish. Squamae brown with yellow border.

Abdomen dull reddish, the dorsum rather thickly ochraceous pollinose; hair all black. Second segment with a row of spines on the median half in front and a few weaker spines connected with the marginals; third segment with a row of discals and marginals and connecting spines laterally; fourth segment with spines except on the broad base, the apex not emarginate.

HOLOTYPE: Female, El Volcan, Chiriqui, Panama (J. L. Miller).

This species apparently belongs in *Gigantachinosoma* Townsend, but it is much smaller than the genotype, *giganteum* Townsend, from Brazil.

#### *Jurinella lata*, new species

Blackish, the thorax ochraceous pollinose, the fourth segment with golden pollinose marking; legs reddish. Length, 12 mm.

FEMALE: Head yellow, the front and occiput brownish in ground color; pollen yellow, paler on the face; hair yellow, wholly black on the front. Front wider than one eye; six pairs of frontals, the upper three reclinate; two pairs of strong orbitals. Cheeks more than half the eye height. Parafacials slightly narrowed below. Antennae brown, the first segment, apex of second, and lower border of third brown; third segment almost twice as long as the second, the apex oblique; basal arisal segments elongate. Palpi reddish, not so long as antennae; proboscis about half as long as the head height. Eyes thinly long, pale pilose.

Thorax blackish, the sides of the mesonotum and pleural sutures reddish; hair wholly black, pollen ochraceous, more grayish on the pleura; vittae conspicuous, moderately wide; acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brownish red, thickly pollinose, with numerous spines.

Legs reddish; front tarsi not at all broadened.

Wings brownish, broadly reddish yellow basally. Squamae brown, the upper lobe orange.

Abdomen subopaque black, with brownish pollen below, the fourth segment with a large golden yellow spot basally which is produced backward in the middle and obliquely towards the sides, the ground color partly red beneath the pollen, the apex of the segment gently emarginate. Second segment with spines on the median fourth, the third with spines on more than the median half, which may extend as a discal row quite to the sides or may be interrupted laterally, the marginal row entire; fourth segment with spines except basally. Abdomen almost twice as wide as thorax.

HOLOTYPE: Female, Sucra, Rio Upano, Ecuador, February 3, 1939 (F. M. Brown).

This species, because of the short proboscis, might well belong in *Neojurinia* Townsend, but there are scarcely enough spines on the third abdominal segment. The number of spines on this segment varies, and there are several fewer on one side than on the other in the type. Otherwise it traces to *Eujurinia* Townsend and agrees well with the genotype, *pollinosa* Wulp, of which *jicaltipecica* Townsend is a synonym.

#### *Jurinella vargas*, new species

Figure 38

Black, the abdomen reddish; thorax cinereous pollinose; legs reddish. Length, 14 mm.

FEMALE: Head yellowish, the front and occiput blackish in ground color; pollen very pale yellowish, almost white, on the front ochraceous; pile very pale yellowish, the front with black hair outside the frontals. Front slightly wider than one eye; seven or eight pairs of frontals, the upper four reclinate; two pairs of orbitals. Posterior orbits yellow pollinose. Cheeks a little more than half as wide as the eye height. Parafacials a little narrowed below. Antennae brownish red, the third segment more than half black, a little longer than the second; basal arisal segments elongate. Palpi reddish, little longer than the antennae; proboscis about half as long as the head height. Eyes with pale yellow pile.

Thorax black, thickly cinereous pollinose,

the vittae narrow, distinct; hair black, yellow on the pleura; acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum reddish, densely pollinose, with numerous spines; hair on lower edge basally all black.

Legs reddish; front tarsi well broadened.

Wings smoky, only the immediate base orange. Squamae brown, with orange border.

Abdomen wine red, shining, at most a trace of pollen just at the sides of the fourth segment; hair black, yellow on the basal half of the venter in the middle. Second segment with marginals and discals on the median fifth; third with row of marginals and arched row of discals on the median fourth, the rows connected by a few short spines, the outer spines long and strong; fourth segment with spines on apical half and an arched median row in front of these on the median half, the apex of the segment transverse.

TYPES: Holotype, female, and paratype, female, Nova Teutonia, Brazil, the former May 11, 1939, the latter June 1, 1939 (Fritz Plaumann).

This species traces to *Tachinosoma* Townsend and agrees well with the type species of the genus, differing in lacking abdominal pollen and in the color of the legs. The bristling of the abdomen is quite as described by Townsend. The species is named in honor of a former president of Brazil.

#### *Jurinella circularis*, new species

Figure 41

Thorax ochraceous pollinose; abdomen shining reddish; legs reddish; thorax wholly black pilose. Length, 12 mm.

FEMALE: Head yellowish, yellow pollinose, and pilose; front and occiput dark in ground color, the frontal pollen ochraceous. Front as wide as one eye, black haired; seven or eight pairs of frontals, the upper four reclinate. Cheeks a little more than half of the eye height, with a few black hairs above. Parafacials of almost equal width, with a few fine black hairs along the orbits. Antennae blackish, the inner surface of the second segment reddish; third segment a little longer than the second; basal arisal segments long. Palpi reddish, little longer than the antennae; proboscis three-fourths as long as the head height. Eyes yellow pilose.

Thorax black, thickly ochraceous pollinose, rather brassy, the vittae distinct; pile all black. Acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum reddish, thickly pollinose, with many long spines.

Legs reddish, tarsi black, the front ones scarcely widened.

Wings brown virtually to the base. Squamae brown with orange border.

Abdomen shining reddish, the hair wholly black. Second segment with a pair of marginals and about a dozen spines on the anterior half in the middle; third segment with a row of marginals and an isolated group of spines in the middle anteriorly; fourth segment with spines on the apical three-fifths and a group of small spines in the middle near the base. The abdomen is short oval and rather circular in outline.

HOLOTYPE: Female, Nova Teutonia, Brazil, May 15, 1939 (F. Plaumann).

This species does not seem to fit into any of Townsend's genera but is close to *Tachinosoma*.

#### *Jurinella corpulentum* Townsend

Figures 39, 43

*Tachinosoma corpulentum* TOWNSEND, 1926, Rev. Mus. Paulista, São Paulo, vol. 15, p. 359.

This species was described from the State of São Paulo, Brazil, and is represented in the collection by a male collected by Fritz Plaumann, at Nova Teutonia, on November 14, 1936. The specimen agrees perfectly with Townsend's description. The discal spines on the second abdominal segment are grouped on the anterior half with a few short spines connecting them with the marginals; on the third segment the discal spines form an arched row with three or four small spines between these and the complete marginal row. The posterior forceps are rather broadly produced apically with the apex turned up and broadly emarginate. The scutellum is yellow haired.

#### *Jurinella spinosa* Townsend

Figure 40

*Saundersioplumina spinosa* TOWNSEND, 1926, Rev. Mus. Paulista, São Paulo, vol. 15, p. 356.

A female from Fritz Plaumann, Nova Teutonia, June 16, 1937, agrees with the original description. Superficially it is similar

to *corpulentum*, but it has only black hair on the dorsum of the scutellum, and the abdominal bristles are differently arranged. On the middle of the second segment there is a row of spines in front of the middle and three spines in a second row between these and the front margin; on the third segment there is a short, slightly arched row of spines in front of the middle. In neither case are the discal spines connected with the marginals, the break being conspicuous. Both species have conspicuous yellowish brown pollen on the fourth abdominal segment.

It seems likely that two species are represented but scarcely two genera. One or two pairs of adventitious spines would greatly change the spinose appearance. The yellow pilose scutellum in *corpulentum* indicates a different species, but this might be only sexual. Unless the genitalia of the type males differ, specific differentiation is very doubtful.

*Jurinella thoracica* Curran closely resembles *spinosa* in all respects but has only two sternopleurals.

***Jurinella panamena*, new species**

Black, abdomen becoming reddish apically; thorax thickly cinereous pollinose. Length, 14 mm.

**FEMALE:** Head yellowish; pile yellow, the pollen very pale yellowish or whitish; front and occiput dark in ground color, the frontal pollen ochraceous. Front conspicuously wider than one eye; seven or eight pairs of frontals, the upper four reclinate; hair black, only a few hairs along the inner margins rust colored. Cheeks about half the eye height, a few of the upper hairs blackish. Parafacials wide, of almost equal width. Antennae black, the third segment reddish below, a little longer than the red-tipped second; basal arisal segments elongate. Palpi reddish, scarcely longer than the antennae; proboscis little over half as long as the head height; eyes with short, pale yellowish pile.

Thorax black, cinereous yellow pollinose, the vittae moderately wide and fairly distinct. Hair black, yellow on the pleura and the lower edges of the scutellum. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum brown, thickly pollinose, with numerous spines and no fine hairs above.

Legs black; front tarsi slightly broadened.

Wings brownish, the immediate base reddish. Squamae reddish brown, with reddish border.

Abdomen black, shining, becoming reddish on the fourth segment, the fourth segment with whitish and yellowish brown pollen. Second segment with spines on the median fourth, the discals weakly separated from the marginals, two outer ones on each side strong, the others short; third segment with row of marginals and discals as on the second segment; fourth segment with spines except on the narrow base.

**HOLOTYPE:** Female, Barro Colorado Island, Canal Zone, December 3, 1930 (E. I. Huntington).

This species is close to *Tachinosoma* Townsend or intermediate between it and *Saundersioplumma*. It is not possible to place it in either of these without modification of the characters as given by Townsend. The replacement of hairs on the scutellum by fine, short spines is worthy of note.

***Jurinella major* Curran**

Figure 72

*Jurinella major* CURRAN, 1925, Amer. Mus. Novitates, no. 200, p. 8.

Thorax densely gray or grayish ochreous pollinose; abdomen shining castaneous, densely bristled. Length, 15 to 17 mm.

**MALE:** Hair of head fine, pale yellowish, the parafrontals outside the frontal rows with coarser, short black hairs; occiput with a single row of black bristles on the upper three-fourths behind the eyes. Head whitish pruinose with slight yellowish tinge, especially on the parafrontals and upper portion of the occiput. Seven to nine strong frontal bristles in each row, the upper four or five more or less reclinate; outer verticals three-fourths as strong as the decussate verticals. Palpi reddish. Antennae black or brown with the third segment often largely reddish, its sides almost parallel, the apex oblique with the corners rounded; both basal arisal segments three or four times as long as wide, the arista tapering and short pubescent.

Pleura, scutellum, and mesonotum laterally, reddish brown beneath the dense grayish or grayish ochreous pollen which leaves the usual vittae quite narrow from posterior view, but from anterior view these are paler than the more olivaceous general color. Three



sternopleural bristles; corners of scutellum and the pleura with fine yellow pile. Scutellum with many short, stout spines on the disc; no decussate bristles; mesonotum and scutellum with coarse black hairs.

Legs black or brown, the anterior femora behind and the others beneath on the basal half grayish yellow pollinose and yellowish pilose, the coxae also yellow pilose, the hair and bristles elsewhere black. Claws and pulvilli bright yellow, elongate, the claws with black apices.

Wings lightly fuscous. Squamae pale fuscous; halteres rusty yellowish.

**FEMALE:** Sometimes paler, more ferruginous. Pulvilli small, but larger than usual. Squamae white.

Described from one male and two females, Chapada, Brazil, and one male, Rio de Janeiro (Williston collection).

***Jurinella salla*, new species**

Figure 42

Bluish black, the thorax with cinereous or cinereous yellow pollen; squamae yellowish in male. Length, 11 to 13.5 mm.

**MALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen pale yellowish, cinereous yellow on the front; pile yellow; parafrontals with black hair outside the frontals and usually on the ocellar triangle. Front three-fourths as wide as eye; eight to 10 pairs of frontals and one or two outside the row opposite the antennae, the upper five pairs reclinate, the upper pair strong and almost divaricate. Cheeks slightly less than half as wide as the eye height, sometimes with a few black hairs above. Parafacials almost equally wide. Antennae black, the third segment about as long as the second, the base narrowly dark reddish; basal arisal segments elongate. Palpi longer than the antennae; proboscis more than half as long as the head height. Eyes with long yellowish pile.

Thorax black; yellowish cinereous pollinose, the vittae weak. Hair black, yellow on the pleura. Acrosticals 2-3; dorsocentrals 3-4, rarely 3-3; three sternopleurals and intralalars. Scutellum black, pale pollinose, with numerous bristles; hair black, often yellow on the narrow base and always yellow on the sides.

Legs black; pulvilli yellow, elongate.

Wings smoky. Squamae yellowish, often with brown tinge, the fringe whitish.

Abdomen shining bluish black. Second segment with discals on slightly more than the median half; third segment with discals extending to the lateral fifth, the fourth with spines except basally. Posterior forceps slightly produced as a broad carinate beak.

**FEMALE:** Front as wide as eye; four reclinate frontals, the upper pair usually less divergent. Squamae pale smoky brown, with whitish fringe; front tarsi slightly broadened.

**TYPES:** Holotype, male, allotype, female, and paratypes, five males and four females, Nova Teutonia, Brazil (Fritz Plaumann). Holotype and allotype, June 1 and May 31, 1939, respectively.

This species is apparently a *Jurinella* in the strict sense. One of the males has only three pairs of postsutural dorsocentrals; in two others the third one is weak. The number of dorsocentrals varies in this species, being fewer in the smaller specimens, indicating the instability of this character in the genus.

***Jurinella bella*, new species**

Figure 46

Castaneous to black, the thorax cinereous pollinose; discal bristles on median third or less of intermediate segments. Length, 8 to 11.5 mm.

**MALE:** Face and cheeks yellow, the front and occiput blackish in ground color; pollen white or pale yellowish, cinereous on the parafrontals, but more ochraceous inside the frontals; pile yellow. Front about as wide as one eye, black haired, often some of the cruciate hairs and some on the ocellar triangle yellow; nine to 11 pairs of frontals, the upper five reclinate and usually one to three outside the frontal row opposite the antennae. Cheeks a little more than half as wide as the eye height. Parafacials of almost equal width. Antennae black, third segment about as long as the second, oblique above, the base narrowly reddish; basal arisal segments long. Palpi longer than the antennae, yellowish; proboscis about three-fifths as long as the head height; eyes whitish pilose.

Thorax black, thickly cinereous pollinose, often tinged with yellow, the vittae weak. Hair black above, yellow on the pleura. Acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and intralalars. Scutellum

black or brown, less thickly pollinose than the mesonotum, with numerous spines and black hair, only the hair on the lower basal swelling yellow.

Legs black; pulvilli elongate, yellow.

Wings smoky. Squamae brown.

Abdomen black or castaneous, if castaneous usually black basally and in the middle. Hair black. Second segment with spines on less than the median third, the discals forming an anterior patch connected with the marginals by a few weak spines; third segment with a complete row of marginals and a short arched row of discals before the middle, which are usually connected with the marginals by weak median spines, and there may be some short spines in front of them. In a very small specimen the spines on both intermediate segments are reduced in number, the arched row on the third segment being interrupted in the middle and the small spines absent; fourth segment with spines except at base, the sides with obscure brown pollen. Posterior forceps slightly produced, the apex broadened and emarginate.

**FEMALE:** Front slightly wider than eye; seven or eight pairs of frontals; third antennal segment shorter than the second; front tarsi slightly widened.

**TYPES:** Holotype, male, May 21, 1939, allotype, female, May 27, 1939, and paratypes, 48 specimens of both sexes, Nova Teutonia, Brazil, May and June, 1939, and September 17, 1938, all collected by Fritz Plaumann.

It is impossible to place this species in Townsend's key. The specimens without yellow hairs on the inner edges of the parafrontals would apparently trace to *Eujurinia*, some trace to *Pseudohystricia*, while others, if the palpi are considered to be short, trace to both *Tachinosoma* and *Saundersiopluma*. The shape of the posterior forceps shows closest relationship to the type of *Tachinosoma*, but the tip of the forceps is more broadened.

***Jurinella minuta*, new species**

Figures 45, 49

Shining black, the thorax cinereous pollinose; abdomen of male elongate oval. Length, 8.5 to 9 mm.

**MALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen

whitish cinereous on the front but becoming brownish yellow towards the vitta; pile yellow, black on the front, the cruciate hairs yellow. Front scarcely two-thirds as wide as one eye; eight pairs of frontals, the upper four reclinate, and one or two bristles below outside the frontals. Cheeks half as wide as the eye height. Parafacials of equal width. Antennae black; the third segment about as long as the second, with the extreme base reddish; basal arisal segments elongate. Palpi longer than the antennae, yellowish; proboscis half as long as head height.

Thorax black, cinereous pollinose, the vittae weak; hair black; yellow on the pleura. Acrosticals 2-3, dorsocentrals 3-4, the second posterior one weak; three sternopleurals and intra-alars. Scutellum black, the apex shining, the sides with yellow hair.

Legs black; pulvilli moderately long, yellow.

Wings smoky; squamae brown with whitish fringe.

Abdomen shining black, with black hair. Second segment with spines on almost the median half; third segment with discals on more than the median half and a complete row of marginals; fourth segment with spines except basally. Posterior forceps with a short, upcurved beak.

**FEMALE:** Front three-fourths as wide as eye; eight pairs of frontals, the upper four reclinate; two pairs of orbitals, three post-sutural dorsocentrals. Front tarsi scarcely broadened.

**TYPES:** Holotype, male, and allotype, female, Nova Teutonia, Brazil, June 5, 6, 1939 (F. Plaumann).

The male abdomen is more slender than in any of the related species but this is not so in the female. It is distinguished by its small size, presence of yellow pile on the sides of the scutellum, typically three posterior dorsocentrals, and the shape of the posterior forceps of the male. It is not possible that these are small examples of any of the species before me.

***Jurinella producta*, new species**

Figures 47, 48

Castaneous black, the thorax cinereous yellow pollinose; pleura yellow pilose; pos-

terior forceps produced into a long beak. Length, 14 mm.

MALE: Face and cheeks yellow, the front and occiput black in ground color; pollen pale yellow, more ochraceous on the front; pile yellow, black between the frontals and eyes. Front two-thirds as wide as one eye; nine pairs of frontals, the upper four or five reclinate, and an additional bristle outside the lower frontals. Cheeks a little more than one-third as wide as the eye height. Parafacials equally wide. Antennae black, the third segment about as long as the second; basal arisal segment elongate. Palpi reddish; proboscis more than half as long as the head height. Eyes yellow pilose.

Thorax black, cinereous yellow pilose, the vittae narrow but distinct; hair black, yellow on the pleura and lower edges of the scutellum. Acrosticals 2-3, dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum black, pale pilose, with numerous spines.

Legs black; pulvilli elongate, yellow.

Wings smoky. Squamae brownish, with brownish yellow fringe.

Abdomen shining black, the sides broadly obscurely castaneous, the hair black. Second segment with spines on a little more than the median third; third segment with spines on the median two-thirds or more; fourth segment with spines except basally. Posterior forceps with tapering beak which is almost as long as the basal part.

HOLOTYPE: Male, Nova Teutonia, Brazil, June 3, 1939 (F. Plaumann).

#### *Jurinella pollinosa* Wulp

Figure 44

*Hystriicia pollinosa* WULF, 1888, Biologia Centrali-Americana, Diptera, vol. 2, pp. 14, 461 (f.).

*Eujurinia jicaltepecica* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 354.

One female, Moca Guatalon, Guatemala, March-April, 1931, collected by Dr. Joseph Bequaert. This specimen agrees fully with the descriptions in the above references. The species is the type of Townsend's *Eujurinia*.

Townsend's action in placing *pollinosa* in the genus *Eujuriniopsis*, in which the eyes are bare, is entirely unwarranted. In the original description Van der Wulp includes *pollinosa* in *Hystriicia*, which he characterized as having relatively short palpi, spinose scutellum and

abdomen, and hairy eyes. Townsend states (1939, "Manual of myiology," vol. 8, p. 82) that Van der Wulp associated species with hairy eyes with the type of *pollinosa*, which had, according to Townsend, bare eyes. Since Van der Wulp definitely placed *pollinosa* in *Hystriicia*, the type must have hairy eyes and *E. jicaltepecica* must be placed as a synonym. This leaves Townsend's *Eujuriniopsis* with an unnamed species as the type of the genus, and the so-called paratype of *pollinosa* in Washington does not represent the species and may not have belonged to the type series, which consisted of four specimens.

*Jurinella pollinosa* is rather similar to *producta*, but the spines on the third abdominal segment are a little more extensive. The front tarsi of the female are somewhat broadened.

#### *Jurinella feminea*, new species

Abdomen brownish black, with reddish incisures; thorax yellowish cinereous pollinose. Length, 14 mm.

FEMALE: Face and cheeks yellow, the front and occiput black in ground color; pollen pale yellowish, more ochraceous on the front; pile bright yellow, black on the parafrontals outside the bristles. Front about as wide as one eye; seven or eight pairs of frontals, the upper four reclinate. Cheeks two-fifths as wide as the eye height. Parafacials wider than antennae, of equal width. Antennae black, third segment about as long as the second, the base reddish; basal arisal segments elongate. Palpi as long as the antennae, reddish yellow; proboscis about half as long as the head height. Eyes with yellow pile.

Thorax black, cinereous pollinose, with yellow tinge above, the vittae narrow; hair black, yellow on the pleura and the lower edges of the scutellum. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brown, yellowish pollinose, with numerous spines.

Legs black; pulvilli yellow; front tarsi not broadened.

Wings brownish; squamae brown, with yellow fringe.

Abdomen brownish black, the incisures dark reddish; hair black. Second segment with spines on the median third; third segment with spines on more than the median

half, the marginal row entire; fourth segment with spines except basally.

**HOLOTYPE:** Female, Santa Cruz, Rio Grande do Sul, Brazil, July 10, 1895 (Fr. Stiegimeyr).

This species has a strong resemblance to *pollinosa* but may be distinguished by the wing venation, non-widened tarsi, and shorter third antennal segment.

***Jurinella fuscicornis* Curran**

Figure 70

*Jurinella fuscicornis* CURRAN, 1925, Amer. Mus. Novitates, no. 200, p. 8.

Thorax densely grayish pollinose, less thickly so posteriorly, the scutellum only thinly so; abdomen castaneous, clothed with abundant spines. Length, 14 mm.

**MALE:** Face, cheeks, and lower part of occiput whitish pruinose, the front and occiput with grayish pruinescence which has yellowish tinge in some lights. Hair of head pallidly yellowish, the parafrontals with black hairs outside the frontal rows. Frontal vitta reddish brown, not so wide as parafrontal; front two-thirds as wide as one eye. Vertical bristles strong, decussate, the outer verticals two-thirds as long, divergent. Palpi reddish yellow. Antennae brownish, the third segment reddish basally and below, longer than the second, convex above; arista with the basal two segments elongate, the first shorter than the second.

Thorax black in ground color, the mesonotum blue black; dark vittae moderately distinct. Three sternopleural bristles; pleura yellow pilose; some black bristles on the sternopleura above and on the mesopleura above. Scutellum brownish red, with two large and one small marginal bristle on either side, the terminal marginals spinose and shorter, the disc of the scutellum with numerous rather short spines.

Legs castaneous, the anterior and middle femora grayish pollinose and yellow pilose behind, the legs elsewhere with black hair. Claws and pulvilli elongate, reddish yellow, the former with brown apices.

Wings lightly infuscated; epaulet brown. Squamae fuscous, with brownish border. Halteres infuscated, with paler base.

Abdomen castaneous. Median half of the second segment with numerous spines; third

segment with the many discal spines reaching almost to the sides posteriorly and with a row of much stronger marginals; fourth segment with numerous spines covering almost the whole surface. Sternites with long spines.

A single male, Chapada, Brazil (Williston collection).

***Jurinella anax*, new species**

Figure 50

Black, the thorax cinereous yellow pollinose; pleura yellow pilose; wings lightly infuscated. Length, 11 to 13.5 mm.

**MALE:** Face and cheeks yellow, the front and occiput blackish in ground color; pollen yellowish, whitish on the face; brownish yellow on the front; pile yellow, black outside the frontals. Front almost three-fourths as wide as one eye; eight pairs of frontals, the upper four reclinate, an extra one outside the row opposite the antennae. Cheeks half as wide as the eye height. Parafacials as wide as the antennae, sometimes with some black hairs above, of equal width. Antennae black; third segment about as long as the second, the base narrowly reddish; basal arisal segments elongate. Palpi reddish, a little longer than the antennae; proboscis more than half as long as the head height. Eyes yellow pilose.

Thorax black, with cinereous to cinereous yellow pollen, the vittae narrow; hair black, yellow on the pleura and lower edge of the scutellum. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum black, pale pollinose, with numerous spines.

Legs black; pulvilli elongate, yellow.

Wings strongly tinged with brown, rarely smoky. Squamae brown and with brownish fringe.

Abdomen brownish black shining, the hair black. Second segment with spines on a little more than the median third; third segment with spines on more than the median half, the marginal row complete; fourth segment with spines except basally. Posterior forceps produced into a short, apically obtuse, non-expanded beak.

**FEMALE:** Front a little narrower to slightly wider than one eye; two pairs of orbitals; front tarsi scarcely widened.

**TYPES:** Holotype, male, May 31, allotype,

female, May 27, and paratypes, four males and five females, May and June, all collected at Nova Teutonia, Brazil, in 1939 by F. Plaumann.

*Jurinella vaga*, new species

Figures 51, 54

Abdomen shining black; thorax cinereous yellow pollinose, the scutellum dark brown; three posterior dorsocentrals. Length, 7 to 10 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen pale yellowish to white, cinereous yellow to ashy on the front; pile yellow, the hair on the front wholly black. Front more than three-fourths as wide as one eye; seven pairs of frontals and a bristle outside the row below, the upper four reclinate; a pair of weaker, decussate inner frontals just above the lunula. Cheeks somewhat more than half as wide as the eye height. Parafacials much narrower than the antennae, slightly narrowing below. Antennae black; third segment one-half or more longer than the second; basal arisal segments elongate. Palpi reddish, at least a little longer than the antennae; proboscis more than half as long as the head height. Eyes yellow pilose.

Thorax black, the pollen cinereous yellow, more or less brassy on the dorsum, the vittae distinct; hair all black. Acrosticals and dorsocentrals 3-3; three sternopleurals and intra-alars. Scutellum black, covered with dark brown pollen which extends narrowly onto the mesonotum, at least on the sides; with numerous spines and black hair.

Legs black, wholly without pale hair; pulvilli yellow, elongate.

Wings smoky; squamae brown.

Abdomen shining black, black haired. Second segment with a pair of strong marginals and several weaker ones, the disc with five to 10 pairs of spines and bristles, the third segment with row of marginals, the disc with about the same number of stouter spines and bristles, fourth segment with discals except basally. Posterior forceps obtuse apically, moderately convex on basal portion.

FEMALE: Front usually almost as wide as one eye but sometimes only three-fourths as wide; two pairs of orbitals; inner cruciate

frontals usually weak; front tarsi rather strongly widened.

TYPES: Holotype, male, allotype, female, May 11, 1939, and paratypes, seven males and six females, Nova Teutonia, Brazil, May and June, 1939, all collected by F. Plaumann.

In this species the abdominal bristles are less spine-like than usual, and in the smaller specimens many of them are sharply pointed. The presence of the inner cruciate frontals should be noted, but in some females they are quite weak. The genitalia are of the typical *Jurinella* type. The species cannot be far removed from some of those belonging to *Arthrochaeta* Brauer and Bergenstamm.

*Jurinella gertschi*, new species

Figures 52, 53, 55

Shining brownish black; thorax cinereous pollinose, pleura black haired; three posterior dorsocentrals. Length, 11 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen pale yellowish, more ochraceous and grayish on the front; hair yellow, black outside the frontal rows. Front two-thirds as wide as one eye; eight pairs of frontals and an extra bristle below, the upper four reclinate. Cheeks about half as wide as the eye height. Parafacials of medium width, not narrowed below. Antennae black; third segment convex above, a little longer than the second; basal arisal segments elongate. Palpi reddish yellow, conspicuously longer than the antennae; proboscis two-thirds as long as the head height. Eyes with long, brassy yellow pile.

Thorax black; cinereous pollinose, the vittae wide but rather obscure; hair wholly black. Acrosticals and dorsocentrals 3-3; three sternopleurals and intra-alars. Scutellum rather thinly cinereous yellow pollinose, with many spines.

Legs black, the tips of the tarsi reddish; pulvilli elongate, yellowish.

Wings smoky. Squamae brown.

Abdomen shining brownish black, with black hair. Second segment with spines on the median half; third segment with row of marginals and discals on median three-fourths; fourth segment with spines except basally. Posterior forceps prominent, truncate at apex.

TYPES: Holotype, male, El Volcan, Chiri-

qui, Panama, February 12, 1936 (W. J. Gertsch); paratype, male, Pedregoso, Costa Rica (D. L. Rounds), in A. L. Melander collection.

The pile on the head is longer than in most species, and the posterior forceps are apparently not at all produced in the middle. The species traces to *Eujurinia* in Townsend's key.

***Jurinella varians*, new species**

Figures 58, 61

Shining black, the thorax cinereous yellow pollinose; costa brown on basal half; three pairs of posterior dorsocentrals. Length, 8.5 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen pale yellow, more cinereous and ochraceous on the front; pile yellow, wholly black on the front. Front almost as wide as one eye; seven pairs of frontals and an extra bristle below, the upper four reclinate; a pair of convergent interfrontals above the antennae. Cheeks three-fifths as wide as the eye height. Parafacials gently narrowed below. Antennae black, the third segment one-half longer than the second; basal arisal segments elongate. Palpi about as long as the antennae; proboscis little over half as long as the head height. Eyes with long yellow pile.

Thorax black, pollen cinereous yellow, rather brassy above; hair wholly black. Acrosticals and dorsocentrals 3-3; three sternopleurals and intra-alars. Scutellum black, with brassy yellow pollen that appears brown in some lights, and with many spines.

Legs black; pulvilli elongate, yellow; hair wholly black.

Wings light brownish, the costal border darkened on the basal half. Squamae brown.

Abdomen shining black, with black hair. Second segment with pair of median marginals and two or three pairs of discals; third segment with row of marginals and two or three pairs of discals; fourth segment with row of discals and marginals. Apex of posterior forceps not produced but gently emarginate in the middle.

HOLOTYPE: Male, Nova Teutonia, Brazil, May 30, 1939 (F. Plaumann).

The bristles on the abdomen are but little spine-like; in addition to the strong discals

on the intermediate segments there are a number of short, stout, bristly hairs, and the surrounding fine hair is erect so that the bristles do not stand out. The posterior forceps are of the type found in *lutzi* and clearly indicate the generic relationship. The general coloration is rather like some species of *Arthrochaeta*. It will trace to *Eujurinia* in Townsend's key.

***Jurinella connota*, new species**

Figure 57

Abdomen castaneous, the fourth segment with pale pollen laterally; thorax cinereous; pleura black and yellow pilose. Length, 13 to 14.5 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen pale yellowish, more cinereous or ochraceous on the front; pile yellow, black on the front, but some of the fine cruciate hairs are yellow. Front about as wide as one eye; 11 or 12 pairs of frontals, the upper five reclinate, and a secondary row below of two to four bristles. Cheeks three-fifths as wide as the eye height. Parafacials wide, scarcely narrowed below, the hair long. Antennae black, the third segment a little longer than the second, convex above, reddish at base and on lower border; second segment luteous above; basal arisal segments elongate. Palpi about as long as the antennae, reddish; proboscis half as long as the head height. Eyes yellow pilose.

Thorax black, densely cinereous or cinereous yellow and somewhat brassy pollinose, the vittae very weak; hair black, more than half yellow on the pleura, but the black hair predominates on the mesopleura except in front. Acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brownish, pale pollinose, with many spines and three pairs of marginal bristles, the hair black, but yellow basally on the lower edge.

Legs black, the tibiae reddish yellow; hair black, partly yellow on the posterior surfaces of the anterior four femora; pulvilli moderately long, yellowish.

Wings smoky. Squamae whitish.

Abdomen castaneous, the fourth segment with brownish pollen and conspicuous whitish pollen subbasally on each side, the venter with similar pollen towards the middle;

hair black. First segment with at least one lateral bristle; second segment with spines on almost the median third and with lateral marginals; third segment with strongly arched row of spines before the middle on the anterior half and some smaller spines connecting these with the complete marginal row; fourth segment with spines except basally. Posterior forceps rather flat, produced into a short, upcurved beak.

**FEMALE:** Front slightly wider than one eye; eight pairs of frontals, the upper four or five reclinate; outside the frontal row and opposite the inwardly placed bristle is a moderately strong bristle on each side. Discals and marginals on the first segment separated; fewer spines on the fourth segment. Front tarsi strongly widened.

**TYPES:** Holotype, male, allotype, female, and paratype, male, Nova Teutonia, Brazil, May 19, 25, and 26, 1939, respectively (F. Plaumann).

This species closely resembles *corpulenta* and *spinosa* Townsend, the types of *Tachinosoma* and *Saundersiopmima*, but there is much more black hair on the pleura. All have a strong fold at the angular bend of the fourth vein, and the wings are similar in color. The genitalia are different. The two sexes will trace to both of Townsend's genera, thus increasing my belief that it is impossible to use the bristling of the second and third abdominal segments even for specific differentiation.

***Jurinella procteri*, new species**

Figure 65

Abdomen dark castaneous; thorax black, ashy pollinose; face mostly black haired. Length, 12 mm.

**FEMALE:** Head blackish, with silvery white pollen, the front only moderately pollinose. Front as wide as one eye; seven or eight pairs of frontals, the upper four reclinate; two pairs of orbitals; hair wholly black. Occiput and cheeks pale yellow pilose; occipital cilia extending to the cheeks; cheeks three-fifths as wide as the eye height. Parafacials slightly narrowing below, the hair black, but there is some yellow pile across the middle. Antennae black, the third segment with rather parallel sides, a little longer than the second; basal arista segments elongate.

Palpi blackish, the apical half rather silvery but paler in ground color; proboscis two-thirds as long as the head height. Eyes with pale brassy yellow pile.

Thorax black, with ashy pollen, the vittae rather distinct; hair all black. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum rather shining black, with brownish pollen on the disc and whitish on the sides, covered with spines, the hair all black.

Legs black; pulvilli yellow; front tarsi strongly broadened.

Wings smoky. Squamae brown.

Abdomen dark castaneous, with black hair. First segment with three or four rather weak marginals on each side; second segment with complete row of marginals, with discals on the median third, and with lateral discals that may be connected posteriorly with the median group; third segment with spines on more than the posterior half, the base only narrowly bare in the middle; fourth segment with spines except basally. On the venter the tergites are bordered with white pollen except laterally and are brown pollinose on their inner border.

**HOLOTYPE:** Female, Nova Teutonia, Brazil, May 13, 1939 (F. Plaumann).

This species will trace to Townsend's genus *Gigantachinosoma* if the marginals on the first segment are ignored, but the arrangement of the spines on the third abdominal segment is very different. It cannot be placed in *Lindigia* Townsend because of the complete chaetotaxy of the thorax. Its true relationship will have to await discovery of the male.

***Jurinella apicata*, new species**

Figures 56, 60

Brownish black; thorax rather thickly cinereous pollinose; fourth abdominal segment mostly argenteous pollinose above. Length, 15 mm.

**MALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen white, thin on the front. Front about three-fourths as wide as one eye, wholly black haired; eight or nine pairs of frontals, the upper four reclinate. Occiput yellow pilose, the occipital cilia extending to the black-haired cheeks; cheeks about half as wide as

the eye height. Parafacials of equal width, about as wide as the antennae, yellow haired. Antennae black; third segment not wider than the second, scarcely as long, convex above; basal arisal segments elongate. Palpi dull reddish, about as long as the antennae; proboscis less than half as long as the head height. Eyes with rather short yellowish pile.

Thorax bluish black, moderately cinereous pollinose, the vittae narrow but distinct; hair black. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals; two intra-alars. Scutellum brown apically, pale pollinose; with three pairs of marginals and many spines.

Legs black, with wholly black hair; pulvilli elongate, yellow; claws brownish red.

Wings brownish; squamae brown.

Abdomen brownish black, with black hair. Second segment with spines on the median fourth and with some short lateral discals; third segment with row of marginals and with discals on the median half or more and numerous lateral discals; fourth segment with spines except basally. Second segment with a small posterior spot of pale pollen in the middle, the third with a median vitta from which a gently arched arm extends outward on the subbasal fourth of the segment; fourth segment pale pollinose except on the narrow base and broad apex. The pollen appears cinereous yellow in some views, but that on the middle of the segment is argenteous when viewed from above. Posterior forceps short, strongly convex, the apex obtuse, without rim or beak.

**HOLOTYPE:** Male, upper Rio Tapiche, Peru, August, 1927 (H. Bassler).

*Jurinella apicata* will be readily recognized by the pollinose markings on the abdomen. It does not trace out well to any of the genera in Townsend's key.

***Jurinella schwarzi*, new species**

Figure 59

Abdomen metallic steel blue; thorax ochraceous pollinose; pleural pile black. Length, 12 mm.

**MALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen yellow, ochraceous on the front; pile yellow, black outside the frontal rows, reddish yellow on the occiput. Front two-thirds as wide as one eye; eight or nine pairs of frontals, the

upper four or five reclinate, and an extra one or two bristles outside the frontals below. Cheeks a little more than half as wide as the eye height. Parafacials wide, of equal width. Antennae blackish, the third segment about as long as the second, broadly pale reddish on base and lower border; basal arisal segments elongate. Palpi decidedly longer than the antennae, reddish yellow; proboscis about two-thirds as long as the head height. Eyes yellow pilose.

Thorax black, thickly ochraceous pollinose, somewhat brassy or golden above, the vittae distinct; hair all black. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum black, with thinner, darker pollen and numerous spines; two pairs of marginals.

Legs black, the hair wholly black; pulvilli reddish yellow.

Wings smoky; squamae brown.

Abdomen steel blue, the hair black; venter with pale and brownish pollen towards the inner ends of the tergites and along the sutures. Second segment with spines on about the median half; third segment with discals on median three-fourths and a complete row of marginals; fourth segment with spines except basally. Posterior forceps produced into a very short beak, the apex angular.

**TYPES:** Holotype, male, Cali district, Western Cordillera, Columbia, November 19, 1935 (H. F. Schwarz); paratype, male, Popayan, Columbia, November 14, 1935 (Schwarz).

This species is closely related to *lutzi* and allies but differs by having wholly black hair on the thorax.

***Jurinella egle*, new species**

Abdomen castaneous; thorax cinereous pollinose, black haired. Length, 12 mm.

**FEMALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen bright yellowish, thin on the front; hair bright yellow, wholly black on the front. Front three-fourths as wide as one eye; six pairs of frontals, the upper four reclinate; two pairs of orbitals. Cheeks almost three-fifths as wide as the eye height, with a partial row of black bristly hairs behind, which are separated from the orbital cilia by several strong yellow hairs. Parafacials wide, of equal



width. Antennae brown; third segment slightly longer than the second, the base and lower edge reddish; basal aristal segments elongate. Palpi reddish, longer than the antennae; proboscis about half as long as the head height. Eyes brassy yellow pilose.

Thorax black, cinereous pollinose, the vittae distinct; hair wholly black. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brown, thinly pale pollinose, with numerous spines and two pairs of lateral scutellars.

Legs blackish, the tibiae and tarsi reddish the front tarsi mostly yellowish, weakly broadened.

Wings weakly tinged with smoky gray. Squamae brown.

Abdomen castaneous, moderately shining, the fourth segment brownish yellow pollinose in some lights. Second segment with complete row of marginals, discals on the median half, and a number of lateral discals; third segment with spines covering all but the base, fourth segment all spinose. Venter with some brownish pollen towards the middle.

HOLOTYPE: Female, "Mexico."

This species is almost similar to *pollinosa* Wulp, but the latter has yellow pilose pleura. The spines on the third segment are more extensive; in *pollinosa* the broad anterior triangles are bare, and there are no lateral discals on the second and third segments. It also resembles *pilosa* Drury but has more extensive spines on the intermediate segment. Actually this species agrees better with characters ascribed to *J. pilosa* by Townsend than the specimens of that species from Jamaica.

***Jurinella reducta***, new species

Figures 63, 68

Abdomen castaneous, black in the middle and basally; fourth segment with conspicuous pale pollen laterally. Length, 13.5 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen whitish, cinereous yellow on the front; pile yellow, black outside the frontal rows. Front two-thirds as wide as one eye; 10 pairs of frontals, the upper four or five reclinate; secondary row of three bristles below. Cheeks almost three-fourths as wide as eye height. Parafacials wider than antennae, of equal

width. Antennae reddish, the third segment about as long as the second, narrow, almost all black; basal aristal segments elongate. Palpi reddish, about as long as the antennae; proboscis half as long as the head height. Eyes yellow pilose.

Thorax black, thickly cinereous yellow pollinose, the vittae slender; hair black, but there is considerable yellow hair on the pleura. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum brown, thickly pollinose; three pairs of marginals and many spines, the hair black.

Legs black, black haired, the coxae with yellow pile. Pulvilli elongate, yellow.

Wings tinged with brown, the base yellowish, an oblique broad brown stripe on the basal half extending forward from the anal cell. Squamae white.

Abdomen castaneous, the base and a median vitta on the intermediate segments blackish; hair black, partly yellow on the first sternite. Second segment with a pair of marginals and six or seven discals medianly on the anterior half, third segment with a row of marginals and three or four discals in the middle in front; fourth segment with rather sparse, pointed spines on the apical three-fourths, the sides of the segment with whitish pollen in some lights. Posterior forceps tapering to form a rather narrow, moderately long beak.

HOLOTYPE: Male, Rio de Janeiro, Brazil (Williston collection).

Resembles *spinosa* Townsend in general color, but the latter has almost uniformly colored wings. The mesopleura is almost all black haired, and there are black-haired areas on the sternopleura and pteropleura. The species is intermediate between the groups with yellow and black pilose pleura, while the genitalia are of the *producta* type.

***Jurinella profusa***, new species

Shining black; thorax thickly cinereous yellow pollinose; wings light brownish. Length, 15 mm.

FEMALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen pale yellowish, ochraceous on the front; pile yellow, black outside the frontals. Front three-fourths as wide as one eye; seven pairs of frontals, the upper three reclinate;

two pairs of orbitals; ocellar pile yellow. Cheeks three-fifths as wide as the eye height. Parafacials wide, of equal width. Antennae black; third segment about as long as the second, the base and lower surface reddish; basal arisal segments elongate. Palpi reddish, about as long as the antennae; proboscis half as long as the head height. Eyes with long yellowish pile.

Thorax black, the pollen rather ochraceous, the vittae weak; hair wholly black. Acrosticals 2-3; dorsocentrals 4-4; three sternopleurals and intra-alars; an additional bristle between the anterior intra-alar and the supra-alars. Scutellum black, thickly pollinose above; two pairs of marginals and numerous spines.

Legs black; hair all black; front tarsi not broadened; pulvilli yellow.

Wings light brownish, the base darkened. Squamae grayish brown.

Abdomen shining black, with black hair. Second segment with spines on the median fourth; third with spines on the median half, with a complete row of marginals but no lateral discals; fourth segment with spines except on the base. Venter whitish pollinose medianly.

HOLOTYPE: Female, Guatemala City, Guatemala.

#### *Jurinella zeteki*, new species

Abdomen castaneous, the base black; thorax yellowish gray pollinose, the scutellum brown, without fine hair; costa darkened. Length, 12.5 mm.

FEMALE: Face and cheeks yellow, the front and occiput blackish in ground color; pile yellow, black on the upper half of the parafrontals; pollen white, cinereous yellow on the front and cinereous on the occiput. Front slightly wider than one eye; seven pairs of frontals, the upper three reclinate, and in addition a pair of weak reclinate bristles above, well inside the frontal rows. Cheeks almost half as wide as the eye height. Parafacials wide, of equal width. Antennae reddish, the third segment about as long as the second, mostly blackish, the basal segments darkened on the outer side; basal arisal segments elongate. Palpi reddish, longer than the antennae; proboscis more than half as long as the head height. Eyes yellow pilose.

Thorax black, thickly yellowish gray polli; nose, the hair all black. Acrosticals 3-3-dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum black, thickly reddish brown pollinose, with three pairs of evenly spaced marginals and many short spines, all the hairs coarse and more or less spine-like.

Legs black; hair all black; front tarsi broadened; pulvilli yellow.

Wings brownish, darkened along the costa on the basal half. Squamae reddish brown.

Abdomen castaneous, the base broadly black; the fourth segment with golden brown pollen that is conspicuous laterally. Second segment with a pair of marginals and a group of about six median discals on the anterior half; second segment with a row of marginals and one or two pairs of discals in front; fourth segment with discals on a little more than the apical half. Venter with brown pollen towards the middle. Hair all black.

HOLOTYPE: Female, Corozal, Canal Zone, January 16, 1929 (Curran).

*Jurinella zeteki* is apparently close to *infusata* Wulp, but the mesonotum is uniformly pollinose, and the scutellum has brown instead of cinereous pollen. There is no mention of pollen on the fourth abdominal segment of *infusata*. This species must come close to *Arthrochaeta* because of the reduction of abdominal bristles, but the cluster of bristles on the second segment indicates its position here. It is closely related to *reducta*, new species. There is a female from Villarrica, Paraguay, July, 1938 (F. Schade), in the collection of Dr. A. L. Melander that may be this species, but in the absence of males I hesitate to place it with the Panamanian specimen.

#### *Jurinella ariel*, new species

Figure 64

Castaneous, the thorax cinereous pollinose; wings brown with dark, subbasal spot; fourth abdominal segment with thin white pollinose band basally. Length, 15 mm.

FEMALE: Head dark in ground color, thickly silvery white pollinose, the front grayish; pile yellow, all black on the front. Front not quite so wide as one eye; seven pairs of frontals, the upper pair divergent, the two preceding pairs reclinate; two pairs of rather approximated orbitals. The black

occipital cilia extend along the posterior edge of the cheeks, and some of the upper hairs on the latter are blackish. Cheeks less than half as wide as the eye height. Parafacials distinctly narrowing below, with a few short black hairs above. Antennae black; second and third segments of equal length; arista indistinctly jointed, the basal segments each less than twice as long as wide. Palpi broad, about as long as the antennae, brownish red, darkened above; proboscis scarcely half as long as the head height. Eyes yellowish pilose.

Thorax black, cinereous pollinose, the hair black. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars, the anterior one weak. Scutellum brown and brown pollinose; three pairs of marginals, numerous spines, and some fine black hair.

Legs black, the hair all black; front tarsi somewhat broadened; pulvilli yellow.

Abdomen castaneous, with black hair. First segment with a number of spines on the sides; second segment with spines on the median fourth, and a large group of lateral spines; third segment with a row of marginals and a median row of discs, the rows connected by several spines laterally; fourth segment with spines on the apical two-thirds. Basal fourth of the fourth segment, broad base of the third, and a median vitta extending from the posterior fourth of the second segment to the middle of the fourth, with whitish pollen visible in some lights, that on the fourth segment and middle of the third most conspicuous.

HOLOTYPE: Female, Nova Teutonia, Brazil, October 4, 1938 (F. Plaumann).

This species undoubtedly belongs to *Gigantachinosoma* Townsend, but it differs in several respects from *giganteum* Townsend, the only known species. The genotype has black-haired parafacials, and no mention is made of pale pollen on the abdomen. The genus may be valid, but it will be difficult to separate from many of the forms examined during the study of this group.

#### *Jurinella pilosa* Drury

Figures 62, 66

*Musca pilosa* DRURY, 1770, Illustrations of . . . exotic insects, vol. 1, p. 109, and index, pl. 45, fig. 7.

*Hystriciella aurifrons* TOWNSEND, 1915, Insec. Inscit. Mens., vol. 3, p. 95; 1939, Manual of myiology, vol. 8, p. 85.

Castaneous, the thorax with cinereous yellow or brassy pollen that becomes thin posteriorly, the scutellum reddish and with obscure pollen. The pollen of the head is yellow to golden yellow. Abdomen with a dark median vitta on more than the basal half; second segment with spines on about the median half, the third segment with spines except on the broad anterior corners. The posterior forceps are rather long and very deeply emarginate at the apex. The length is from 10 to 11 mm.

This species will not trace to *Hystriciella* in Townsend's key because the abdominal bristling is not so extensive as stated by Townsend. There is some variation in the extent of the bristling, as shown in the three specimens before me, and sometimes the bare area on the sides of the third segment is fairly large. I think that these specimens are definitely *pilosa*, but there is a possibility that Townsend's species is different.

#### *Jurinella ajax*, new species

Figures 67, 69

Shining black, the thorax cinereous yellow pollinose, the scutellum brown; wings very strongly smoky and darker in front. Length, 9 to 10.5 mm.

MALE: Face and cheeks yellow, the front and occiput blackish in ground color; pollen white, more or less tinged with yellow, dull ochraceous on the front; hair yellowish, wholly black on the front. Front three-fourths as wide as one eye; eight or nine pairs of frontals, the upper five reclinate, and one or two bristles below outside the frontal row. Cheeks a little less than half as wide as the eye height. Parafacials of equal width, moderately wide. Antennae blackish; third segment about as long as the second, convex above, the base and lower edge reddish; basal arista segments elongate. Palpi not longer than the antennae, reddish; proboscis about half as long as the head height. Eyes with yellowish pile.

Thorax black, thickly cinereous yellow pollinose, somewhat brassy, the vittae distinct; hair wholly black. Acrosticals 3-3; dorsocentrals 3-4; three sternopleurals and

intra-alars. Scutellum black, with rich brown pollen, three pairs of marginals and many spines, the hair almost all coarse.

Legs black, black haired; pulvilli yellow, moderately long.

Wings dark smoky, the costal border blackish on the basal half. Squamae brown.

Abdomen shining black, the hair black. Second segment with two or three pairs of marginals and five or six pairs of discals chiefly confined to the anterior half of the median fifth; third segment with a row of marginals and an arched row of five or six pairs of discals and one or two connecting discals; fourth segment with two rows of discals and lateral connecting bristles. Posterior forceps gently convex in profile, deeply emarginate in the middle apically, the arms obtuse.

FEMALE: Front almost as wide as one eye; two pairs of orbitals; basal antennal segments more or less reddish inwardly, the third segment shorter than the second. Discals on intermediate abdominal segments less regularly placed.

TYPES: Holotype, male, allotype, female, and paratypes, two females, Nova Teutonia, Brazil, June 1, June 6, May 11 and 31, 1939, respectively (F. Plaumann).

Rather similar to *vaga*, but the wings are more evidently darkened in front, there are fewer discal bristles on the intermediate abdominal segments, and the genitalia are different. It does not trace out well in Townsend's key to genera.

#### *Jurinella palpalis*, new species

Castaneous, the thorax cinereous pollinose; third abdominal segment with discals on the full width. Length, 14 mm.

FEMALE: Face and cheeks dull yellow, the front and occiput blackish in ground color; pollen white, cinereous on the front and upper occiput; pile yellow, black on the front. Front three-fourths as wide as the eye height; seven pairs of frontals, the upper three reclinate; two pairs of orbitals; cruciate hairs on anterior half of the middle of the front yellow. Cheeks almost half as wide as the eye height, with a few blackish hairs above. Parafacials wide, of equal width, with black hair on the upper third. Antennae black; third segment a little longer than the second, the base reddish; basal arisal segments elongate.

Palpi orange, about as long as the antennae, very strongly broadened on the apical half; proboscis a little more than half as long as the head height. Eyes yellow pilose.

Thorax black, cinereous white pollinose, the vittae weak; hair black. Acrosticals 2-3; dorsocentrals 4-4; three sternopleurals and dorsocentrals. Scutellum brown pollinose, with many spines; two strong and one weak marginal bristles.

Legs black; front tarsi somewhat broadened; pulvilli yellow.

Wings smoky. Squamae brown.

Abdomen pale castaneous, with black hair. First segment without bristles; second segment with spines on the median fourth and with some lateral marginals; third segment with spines on the full width, the base broadly bare laterally; fourth segment with spines except at the base.

HOLOTYPE: Female, vicinity of Campostela, Nayarit, Mexico, March 14, 1934.

Traces to *pollinosa* in Van der Wulp's key but is more robust.

#### *Jurinella huntingtoni*, new species

Dark castaneous; thorax cinereous pollinose, black pilose; third segment with discals on more than the median half. Length, 10 mm.

FEMALE: Face and cheeks yellow, the front and occiput darkened in ground color; pollen white, more cinereous on the front; hair yellow, black on the parafrontals outside the frontal rows. Front three-fourths as wide as one eye; seven pairs of frontals, the upper three reclinate; two pairs of orbitals. Cheeks less than half as wide as one eye. Parafacials of equal width, moderately wide, the hair mostly black, partly yellow towards the ridges (on one side almost all black, on the other about half yellow). Antennae black; third segment somewhat longer than the second and broader; basal arisal segments elongate. Palpi longer than the antennae, black basally, yellowish on the apical half, not greatly widened; proboscis two-thirds as wide as the eye height. Eyes yellowish pilose.

Thorax black, cinereous pollinose, the vittae conspicuous but poorly outlined; hair black. Acrosticals 2-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scu-

tellum brown pollinose, with many spines and two pairs of marginal bristles.

Legs black; front tarsi slightly broadened; pulvilli yellow.

Wings smoky. Squamae brown.

Abdomen dark castaneous, the apical segments with brown pollen visible from posterior view, hair black. Second segment with spines on the median third and strong marginals laterally; third segment with complete row of marginals and discals on more than the median half, but no lateral discals; fourth segment with spines except basally.

**HOLOTYPE:** Female, between Queremal and Buenaventura, Colombia, November 17, 1935 (E. I. Huntington).

The next to the front postsutural dorso-central is weaker than the others, and it is possible that it may sometimes be absent, in which case the species would trace to *vaga*, new species. It is much more spinose than *vaga* and is actually closely related to *gertschi*, new species, from Panama, which has, however, pale pollinose scutellum, longer palpi, and no abdominal pollen above. The species might trace to *Arthrochaeta* Brauer and Bergenstamm, in Townsend's key, but that genus has only paired discals on the intermediate abdominal segments and three equally spaced postsutural dorsocentrals. The color of the facial pile makes it impossible to place the species in Townsend's key.

#### AMICROTRICHOMMA TOWNSEND

*Amicrotrichomma* TOWNSEND, 1926, Rev. Mus. Paulista, São Paulo, vol. 15, p. 245.

This genus is based upon a species from Brazil which is clearly related to *Arthrochaeta* Brauer and Bergenstamm. The genotype has only a single pair of discals on the intermediate abdominal segments, and the male possesses a single pair of orbital bristles set far forward. In other respects the characters are similar to *Arthrochaeta* except that the parafacial hair is yellow, a character of only specific value. The species before me, which I place tentatively in *Amicrotrichomma*, possesses the bristling of *Jurinella*, i.e., there are many spines on the intermediate abdominal segments. In other respects it agrees with *Amicrotrichomma* and is best placed in this genus pending the study of more abundant material.

#### *Amicrotrichomma ada*, new species

Figures 71, 73, 74

Blue black, the thorax with cinereous yellow pollen; scutellum brown pollinose; pleura yellow pilose. Length, 11 to 12 mm.

**MALE:** Face and cheeks yellow, the front and occiput black in ground color; pollen whitish, partly tinged with yellow, the frontal pollen ochraceous; pile yellow, black on the front except inside the frontals. Front slightly over three-fourths as wide as one eye; seven pairs of frontals, the upper four reclinate; one pair of strong orbitals anteriorly and a pair of weak cruciate frontals above the bases of the antennae; ocellar pile yellow. Cheeks about half the eye height. Parafacials one-fourth as wide as facial depression. Antennae black, the third segment scarcely one-half longer than the second; basal arisal segments elongate. Palpi longer than the antennae; proboscis more than half as long as the head height.

Thorax blackish, cinereous yellow pollinose, some metallic color showing through. Acrosticals 3-3; dorsocentrals 4-4; three sternopleurals and intra-alars. Scutellum blackish, thickly brown pollinose, the hair black except on the lower basal corners, the disc with spines and some fine hairs. Pleura yellow pilose, the dorsum black.

Legs black, the tibiae brown, silvery gray above; pulvilli yellow, elongate.

Wings smoky. Squamae brown, the upper lobe white with brown border.

Abdomen black, weakly metallic, with very thin brown pollen on the fourth segment. Second segment with spines on the median third, the discals forming two rows on the anterior half of the segment which are connected with the marginals by two or three spines laterally or with discals covering the median third. Third segment with a marginal row and an arched row of discals on the median half, connected with the marginals laterally and often with scattered spines between the rows; fourth segment with spines on the apical three-fourths or more. Posterior forceps with transverse base, concave in front, produced in the middle and with emarginate apex, somewhat like *Archytas aterimma* in general form.

**FEMALE:** Front wider than one eye; two pairs of strong orbitals. The discal bristles on

the abdomen are fairly well connected with the marginal row.

TYPES: Holotype, male, allotype, female, and paratype, male, Nova Teutonia, Brazil, June 6, May 27, and May 11, 1939, respectively (F. Plaumann).

This species can be separated from *Jurinella* by the presence of a pair of cruciate bristles just opposite the upper edge of the lunula in both sexes and the presence of a strong orbital in the male. The genitalia are of a different type, but I do not know whether they are the same as in the type of *Amicrotrichomma*. This species will not trace out in Townsend's key because of the presence of more than one pair of discals, but I do not think that such a character is of generic value in this group.

LINDIGIA TOWNSEND

*Lindigia* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 352.

Townsend separates this genus from the other members of the Dejeaniini with pilose eyes by the presence of a row of spines on the first abdominal segment. Only one species, *Hystricia plagiata* Schiner, has been assigned to the genus, but three undescribed species undoubtedly belong. The genotype has a complete row of marginals on the first abdominal segment, but one of the species has only two median pairs and another three. There may be one to three pairs of postsutural dorsocentrals and two or three sternopleurals. The genus is distinct from *Jurinella* and is easily separated from it by the presence of at most two strong posterior dorsocentrals. A few of the species of *Jurinella* have one or two pairs of spines on the first segment towards the middle and a number of them have one or more lateral marginals. All have at least three pairs of strong posterior dorsocentrals. Three of the species are included in the key to *Jurinella*. The following key contains all the species known to me:

TABLE OF SPECIES

- 1. Three sternopleurals . . . . . 3
  - Two sternopleurals; two postsutural dorsocentrals . . . . . 2
- 2. No anterior acrosticals (Venezuela) . . . . .
  - . . . . . *plagiata* Schiner
  - Two anterior acrosticals (Ecuador) . . . . .
    - . . . . . *varicolor*, new species

- 3. No postsutural acrosticals (Ecuador) . . . . .
  - . . . . . *browni*, new species
  - A pair of stout postsutural acrosticals (Colombia) . . . . . *vierecki*, new species

*Lindigia browni*, new species

Figures 75, 78, 83

Black, gray pollinose, the abdomen and legs reddish; wings smoky. Length, 10 mm.

MALE: Head black, cinereous white pollinose, the facial ridges and oral margin pale. Front three-fourths as wide as eye, the vittae dark brown; pile black; eight or nine pairs of frontals and two or three extra ones below, the upper pair very strong, the upper three reclinate; ocellars absent; eyes pale pilose. Occiput cinereous yellow pilose; face and cheeks with long black hair. Antennae reddish; third segment black, distinctly longer than the second, gently widening to the obtuse apex; basal arisal segments long. Palpi reddish, much longer than the antennae.

Thorax black, grayish white pollinose and appearing slate colored; four well-marked mesonotal vittae; hair black. Acrosticals absent; dorsocentrals 2-1; two intra-alars; three sternopleurals; one lateral scutellar and two pairs of spines, the apical pair cruciate; about six pairs of discal spines and sparse black hair; scutellum dull reddish.

Legs wholly reddish; pulvilli rather short. Wings smoky, the veins reddish basally. Squamae orange brown, with pale borders.

Abdomen rich, dull reddish, with black hair and spines. First segment with a row of spines interrupted in the middle; second segment with spines on posterior half and basally in the middle; third segment with discal and apical row of spines and lateral spines between; fourth segment with spines on apical two-thirds, the apex gently emarginate. Genitalia reddish.

HOLOTYPE: Male, Hacienda Talahua, Bolivar, Ecuador, 3100 meters, April 20, 1939 (F. M. Brown).

*Lindigia varicolor*, new species

Figures 77, 79, 82

Blackish, the intermediate abdominal segments yellow. Length, 11.5 mm.

**MALE:** Head brownish yellow in ground color, the face paler, the front more brownish. Front almost as wide as one eye; olive brown pollinose, black pilose, the frontal vitta reddish; nine or 10 frontals, the upper three or four reclinate and strong, a secondary row of three below; occiput brownish above, the parafacials, cheeks, and face brownish gray or yellowish; occipital pile pale cinereous; hair of cheeks and face black; cheeks two-thirds as wide as eye height. Oral margin strongly protruding; middle of face pale in ground color and with pale brownish tinged pollen. Antennae reddish; third segment black except below, rather strongly widening to the obtuse apex, one-half longer than the second segment; basal arisal segments long. Palpi considerably longer than the antennae, without pale hairs.

Thorax blackish, the humeri and notopleura reddish; pile black; mesonotum and scutellum rich brown pollinose, the vittae narrow but conspicuous. Acrosticals 2-1; dorsocentrals, 3-2, the middle one absent; two intra-alars. Pleura olive gray; two sternopleurals. Scutellum dull reddish in ground color, with two pairs of marginal bristles and three or four pairs of spines, the hair all black.

Legs reddish yellow; pulvilli white, rather short.

Wings smoky, the veins at base reddish. Squamae with yellow edge.

Abdomen dull yellowish, the fourth segment, a triangle beneath the scutellum, and interrupted median vitta dull black; apex of fourth segment brownish in the middle, the under surface broadly black on each side; hair black. First segment with two pairs of marginal spines; second segment with marginal and two discal rows; third with marginal and discal row, the fourth with spines on almost the whole surface. Genitalia mostly reddish, with black bristly hairs.

**HOLOTYPE:** Male, Hacienda Talahua, Bolivar, Ecuador, 3100 meters, April 29, 1939 (F. M. Brown).

***Lindigia vierecki*, new species**

Abdomen wine red; legs reddish; thorax with brownish pollen. Length, 12 mm.

**FEMALE:** Head black, the face and cheeks mostly reddish in ground color; pollen ashy;

olivaceous on the front. Front almost as wide as one eye; nine or 10 pairs of frontals, the upper three or four reclinate, the lower three somewhat curved downward; two pairs of strong orbitals. Occipital pile pale cinereous yellow; occipital cilia extending to the cheeks. Cheeks half as wide as the eye height, with scattered black hairs above and yellow ones below. Parafacials of almost equal width, the hair black, the pollen yellowish brown inwardly. Antennae brownish red, the third segment mostly black, one-fourth longer than the second; second arisal segment three times as long as wide. Palpi reddish, the hair wholly black.

Thorax reddish, the mesonotum black in ground color except laterally; pollen yellowish brown, the vittae black. Hair black. Acrosticals 2-1, the posterior spine-like; dorsocentrals 3-3, the median posterior weak; three sternopleurals and intra-alars. Scutellum reddish, with spines and two or three pairs of marginal bristles.

Legs reddish; hair black; front tarsi scarcely widened.

Wings smoky; squamae whitish with yellowish brown border.

Abdomen wine red; hair black. First segment with three pairs of median marginals and several lateral marginals; the following segments with spines except basally.

**HOLOTYPE:** Female, Vista Nieve, Colombia (H. L. Viereck).

**GIGANTACHINOSOMA TOWNSEND**

*Gigantachinosoma* TOWNSEND, 1932, Rev. Ent., São Paulo, vol. 2, p. 106.

This genus was separated from *Jurinella* and allies on the presence of four sternopleurals and four postsuturals, together with the presence of numerous discal spines on the second abdominal segment. There is only one species in the genus.

***Gigantachinosoma giganteum* Townsend**

*Gigantachinosoma giganteum* TOWNSEND, 1932, Rev. Ent., São Paulo, vol. 2, p. 106.

A large species, 19 mm. in length, with black thorax and wine red abdomen, with numerous discal bristles on the disc of the second and third segments. Described from Minas Gerais, Brazil.

**PARADEJEANIA BRAUER AND BORGSTAMM**

*Paradejeania* BRAUER AND BERGENSTAMM, 1893, Denkschr. Akad. Wiss. Wien., vol. 67, pp. 147, 184.

In establishing this genus Brauer and Bergenstamm named *Dejeania rutiloides* Jaenicke as type, and in the discussion (p. 184) mentioned "myrrhea Say." No such species has ever been described, so the name need not be considered. Townsend states that there are evidently two species. The genus ranges from Colorado to Costa Rica.

***Paradejeania rutiloides* Jaenicke**

Figures 76, 80, 81

*Dejeania rutiloides* JEANNICKE, 1867, Neue Exotische Dipteren aus den Museen zu Frankfurt A. M. und Darmstadt, p. 86.

This is a common species in the southwestern United States and is the largest North American tachinid, measuring 16 to 18 mm. in length and with a large, subrectangular abdomen. The heavy spines are in a single arched row on the intermediate segments but cover more than the apical half of the fourth segment, which is rather deeply emarginate apically.

**DEJEANIOPS TOWNSEND**

*Dejeaniops* TOWNSEND, 1913, Psyche, vol. 20, p. 104.

The palpi are very long and bear short, stout hairs on the sides; eyes and parafacials haired. Typically one presutural and post-sutural acrostical, the dorsocentrals 3-2 but the acrosticals may be 0-1 or 0-0; one or two sternopleurals; scutellum and abdomen with stout spines. Front tarsi of female gently widened.

The genotype is *D. ollachea* Townsend, described from Peru.

***Dejeaniops beckeri* Engel**

Figures 126, 127, 129, 134

*Dejeaniops beckeri* ENGEL, 1920, Zool. Jahrb., Abt. Syst., Geogr., Biol., vol. 43, p. 293.

The species was originally described from Venezuela. A male from Cuieocha, Imbabura, Ecuador, 3300 meters (F. M. Brown), agrees with the description.

Acrosticals absent and only the prescutellar dorsocentrals present; one sternopleural. Hair of the pleura pale orange; of the

abdomen, dark orange. Legs yellowish, the femora mostly black.

**RHACHOEPALPUS TOWNSEND**

*Rhachoepalpus* TOWNSEND, 1908, Smithsonian Misc. Coll., vol. 51, p. 114.

*Rhachoepalpodes* TOWNSEND, 1935, Rev. Ent., São Paulo, vol. 5, p. 220.

This genus was established for *Saundersia testacea* Wulp from Mexico but was not well characterized at the time of its description. *Rhachoepalpodes* shows no apparent difference except that there are two pairs of lateral scutellar bristles, but the first of these may sometimes be absent. The palpi are very minute or absent, the oral margin is strongly produced forward, the ocellar bristles are extremely weak to fairly strong; eyes bare; propleura pilose; dorsocentrals normally 3-3; one to three sternopleurals and normally three intra-alars. The first abdominal segment lacks median marginals, the second and third have a row, that on the second rarely interrupted towards the sides; the second segment bears discal spines on the median fourth to one-third, and the anal segment bears spines and bristles on the apical half or less. In Townsend's "Manual" (key) the abdomen is said to be "thinly set with erect black pile," but this is no thinner than in some other genera. The male genitalia all display the same general form but are variously modified.

**TABLE OF SPECIES**

1. Bright metallic green, thinly pollinose (Ecuador) . . . . . *metallica*, new species  
Not metallic green . . . . . 2
2. Abdomen dark reddish with broad black median vitta, the third and fourth segments with pair of conspicuous white pollinose spots, those on the fourth more or less connected with lateral white spots . . . . . 12  
Differently colored . . . . . 3
3. Fourth abdominal segment shining black with pair of widely separated white pollinose spots (Panama) . *biornatus*, new species  
Fourth segment mostly pollinose or not strikingly so . . . . . 4
4. Pollen of the head wholly bright yellow; occipital pile pale golden yellow (Ecuador and Peru) . . . . . *andinus* Townsend  
Pollen of the middle of the face white; occipital pile whitish . . . . . 5



5. Pollen of parafacials and front yellowish; two sternopleurals (Colombia) . . . . .  
 . . . . . *pulverulenta* Schiner  
 Pollen of head almost all whitish . . . . . 6
6. One sternopleural . . . . . 7  
 Two or three sternopleurals . . . . . 9
7. Abdomen dull reddish and black, the pollen not conspicuous . . . *beatus*, new species  
 Abdomen dark, the pollen white or ochraceous . . . . . 8
8. Abdominal pollen dull ochraceous (Mexico, Guatemala) . . . . . *testaceus* Wulp  
 Abdominal pollen silvery white, rather thin (Colombia) . . . . . *nova*, new species
9. Three sternopleurals . . . . . 10  
 Two sternopleurals . . . *blandus*, new species
10. Abdomen dull reddish, the pollen not conspicuous; two lateral scutellars (Brazil) . . . . .  
 . . . . . *ethelia*, new species  
 Abdomen dark reddish to black, with conspicuous pale pollen . . . . . 11
11. Mesonotal pollen dull brownish yellow (Peru) . . . . . *cinereus* Townsend  
 Mesonotal pollen whitish (Peru) . . . . .  
 . . . . . *argenteus* Townsend
12. Second abdominal segment with complete row of marginals (Ecuador) . . . . .  
 . . . . . *notatus*, new species  
 Second segment with the marginal row widely interrupted (Venezuela) . . . . .  
 . . . . . *quatuornotatus* Townsend

***Rhachoealpus metallica*, new species**

Figures 84, 88, 89

Metallic green, thinly pollinose; legs black. Length, 12 mm.

MALE: Head green, face black; thickly cinereous pollinose, the frontal pollen rippled from anterior view, thin from dorsal view. Hair black, white on the occiput. Front two-thirds as wide as eye; nine or 10 pairs of fine frontals, the upper pair divaricate, the hair long. Cheeks three-fifths as wide as the eye height. Parafacials wide, of equal width, the hair long. Antennae black; third segment longer than second, somewhat broadened apically, the apex obtusely rounded. Palpi represented by small black papillae; proboscis three-fifths as long as the head height.

Thorax metallic green, the pollen cinereous laterally and on the scutellum, yellowish brown on the mesonotum; hair black. Acrosticals 1 or 2-1; dorsocentrals 3-3; two sternopleurals and three intra-alars, the dorsal bristles fine.

Legs black, the femora greenish, thickly

pollinose; pulvilli yellow; hair all black. Wings smoky; squamae brown, the upper lobe mostly grayish.

Abdomen metallic green, thinly brownish pollinose, the base and venter more cinereous; hair black. Second and third segments with a row of marginals, the third bristled on the apical half, the second with discals on the median fourth. Genitalia black; posterior forceps rather broad, the longitudinal depression thickly hairy, the sides not very strongly elevated and no striking tuft of hair posteriorly in the middle. Fourth sternite with two pairs of spines; second abdominal segment with small reddish area about the lateral discals.

HOLOTYPE: Male, Hacienda Talahua, Bolivar, Ecuador, May 4, 1939 (F. M. Brown).

This species agrees with others in the genus in almost all respects. Most of the species lack spines on the fourth sternite, and have very similar structure of the posterior forceps, most of them having a transverse tuft of dense, short hair basally and the sides very strongly raised and ending more or less abruptly well before the median portion of the forceps. However, there are intergradations, and this species appears to represent an extreme. Color is not a generic character.

***Rhachoealpus quatuornotatus* Townsend**

*Rhachoealpododes quatuornotatus* TOWNSEND, 1935, Rev. Ent., São Paulo, vol. 5, p. 220.

Townsend separated *Rhachoealpododes* from *Rhachoealpus* by the presence of two lateral scutellar bristles and only two pairs of median marginals on the second abdominal segment. In color the species is very similar to the following, which has an entire row of marginals and two lateral scutellars on one side and one on the other. I have not seen this species which was described from Venezuela.

***Rhachoealpus notatus*, new species**

Figures 85, 87

Black; abdomen dark reddish with median black vitta and four white pollinose spots. Length, 10 mm.

FEMALE: Head black, the soft parts of the face yellowish in ground color; pollen cinereous yellow, thin on the parafrontals; hair black, whitish on the occiput. Front as wide as one eye; eight or nine pairs of frontals, the upper three reclinate; two pairs of orbitals.

Cheeks three-fifths as wide as eye height. Parafacials wider than the third antennal segment, the hair long. Antennae black; third segment longer than the second. Palpi nipple-like; proboscis little more than half as long as the head height.

Thorax black, cinereous yellow pollinose, darker on the mesonotum, the ground color showing through; hair black. Bristles fine; acrosticals 1-1 or 1-2; dorsocentrals 3-3; two sternopleurals; three intra-alars; two marginal scutellars on one side, one on the other. Scutellum brown, with pale pollen.

Legs black; hair black; tibiae reddish except above; front tarsi not widened.

Wings smoky; squamae white, the upper lobe with black pubescence and fringe.

Abdomen dark reddish, with broad median black vitta, the black band broadened on the bases of the segments; third segment with a pair of large, widely separated, roundish white pollinose spots on basal half, the fourth with a broadly interrupted coarctate band of white pollen well separated from the base. Second segment with complete row of marginals and median discals; third with row of marginals, the fourth with spines on apical half. Sternites black. Hair black.

HOLOTYPE: Female, Hacienda Talahua, Bolivar, Ecuador, April 26, 1939 (F. M. Brown).

This may prove to be the same as *quatuornotatus* Townsend, but it may be recognized as distinct unless connectant forms are found.

***Rhachopalpus biornatus*, new species**

Figure 91

Black with cinereous and white pollen; fourth abdominal segment mostly shining black, with two white spots. Length, 11 mm.

FEMALE: Head black, with argenteous pollen, the front thinly pollinose; hair black, cinereous yellow on the occiput and partly so on the cheeks and face. Front two-thirds as wide as one eye; five pairs of frontals, the upper pair divaricate; ocellars moderately strong. Cheeks one-third the eye height. Parafacials slightly narrowing below, the hair mostly pale. Antennae black, the third segment conspicuously longer than the second; second aristal segment not twice so long as wide. Palpi extremely small; proboscis

little more than half as long as head height.

Thorax black, the pollen slate gray, quite slaty on the dorsum; hair black. Acrosticals 1-1; dorsocentrals 3-3: three sternopleurals and intra-alars. Scutellar pollen thin; one lateral scutellar bristle.

Legs black, the apical two tarsal segments orange; hair black.

Wings smoky; squamae brown, the upper lobe mostly white.

Abdomen black; second and third segments with silvery white pollen, the fourth shining black with a pair of large white spots separated by a larger, brown, pollinose basal spot. Hair black. Second and third segments with a complete row of marginals, the second with discals on the median fourth, the fourth with spines on more than the apical half.

HOLOTYPE: Male, El Volcan, Chiriqui, Panama, February 22, 1936 (W. J. Gertsch).

Readily recognized by the markings of the fourth abdominal segment.

***Rhachopalpus andinus* Townsend**

Figures 86, 99

*Rhachopalpus andinus* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 142.

In his "Manual" Townsend placed this as a synonym of *immaculata* Macquart, but there can be no doubt that it is distinct. It is the only species I have seen with golden yellow hair and pollen on the head. It varies greatly in size, the smallest and largest of a series of males from Banos, Ecuador, being 13 and 20 mm., respectively. The species was originally described from Peru.

***Rhachopalpus pulverulenta* Schiner**

*Saundersia pulverulenta* SCHINER, 1868, Reise der . . . Fregatte Novara . . . 1857-59, Diptera, p. 335.

*Cryptopalpus palliceps* BIGOT, 1888, Ann. Soc. Ent. France, ser. 6, vol. 8, p. 94.

?*Hystricia immaculata* MACQUART, 1846, Diptères exotiques nouveaux ou peu connus, suppl., vol. 1, p. 148.

Townsend states that the above names refer to the same species. The type of *immaculata* should be in the Bigot collection, but it seems certain that the specimen now there under this name is not the type. Macquart not only placed *immaculata* in *Hystricia* but described the palpi as "fauves."

He could scarcely have done this if the palpi had been absent. *H. immaculata* is undoubtedly a similarly colored species with palpi and reddish legs. *R. pulverulenta* has black legs, so the correct name of this form must be *pulverulenta*, and *immaculata* cannot be the type of the genus.

I have a single female from Vista Nieve, Colombia, December 17, 1922 (H. L. Viereck), that is undoubtedly *pulverulenta*. The specimen has been somewhat wet, but the head, with the exception of the middle of the face, is yellowish pollinose, the pile of the occiput is cinereous, the middle of the face white pollinose, and the hair of the parafacials all black. The pollen of the mesonotum is yellowish brown; scutellum reddish with yellow pollen; legs black, the tibiae mostly dark reddish. Squamae yellowish, the upper lobe with a black border. There are only two sternopleurals, the chaetotaxy of the thorax and abdomen otherwise as in *biornatus*. The color of the abdominal pollen cannot be determined but was undoubtedly ochraceous. In its present state the abdomen is dark reddish with a very broad median black vitta.

***Rhachopalpus testaceus* Wulp**

Figures 90, 98

*Saundersia testacea* WULP, 1888, Biologia Centrali-Americana, Diptera, vol. 2, p. 24.

Described from Costa Rica and placed by Townsend as a synonym of *pulverulenta* Schiner (*immaculata* Townsend). It is distinct from *pulverulenta* if a single male from Guatemala City is properly identified. The head is wholly whitish pollinose; there is only one sternopleural, and there are four post-sutural dorsocentrals. The pollen of the thorax is yellowish brown, that of the abdomen brownish ochraceous. The ground color of the abdomen is dark reddish, the sides and apex are darker, and there is a broad black median vitta, weakly discernible beneath the thick pollen. The sides and apex of the abdomen are bare, the venter with whitish pollen.

***Rhachopalpus nova*, new species**

Figure 95

Bluish black, the abdomen with rather thin cinereous white pollen. Length, 14 mm.

MALE: Head black, thickly silvery white pollinose, the front thinly so; hair black, long. Front three-fifths as wide as one eye; nine pairs of frontals; ocellars not differentiated from the long hairs. Pile of the occiput cinereous. Cheeks less than half as wide as the eye height, with yellowish hair below. Parafacials of medium width. Antennae blackish, the third segment conspicuously longer than the second. The tiny palpi are brownish.

Thorax bluish black, with cinereous pollen, that on the mesonotum thin; hair black. Acrosticals 1-2; dorsocentrals, 3-3; one sternopleural and three intra-alars, the middle one weak; bristles fine. Scutellum obscurely reddish laterally, with one pair of lateral bristles.

Legs black, the tibiae brownish below; apical segment of the tarsi reddish; pulvilli yellow.

Wings smoky brown. Squamae whitish, with brown border.

Abdomen bluish black, the sides castaneous, the apex broadly shining; pollen moderately thick, silvery white, the third and fourth segments with brown spot in the middle basally. Hair black. Second and third segments with row of marginals, the fourth bristled on less than the apical half, conspicuously emarginate; second segment with two irregular rows of discals on the median fourth. Posterior forceps with high, broad ridges that almost touch in front, the median, lower section scarcely longer than the ridges, the posterior end well produced.

HOLOTYPE: Male, Vista Nieve, Colombia, December 17, 1922 (H. L. Viereck).

This species, because of the thin pollen, resembles *nitidus* Townsend, but the abdomen and head bear thicker pollen. In *nitidus* the color is greenish black. The specimen was compared with the type of *nitidus* many years ago and was determined to be undescribed.

***Rhachopalpus beatus*, new species**

Figure 92

Abdomen dull reddish, with black median vitta and dark segmental apices, the pollen inconspicuous. Length, 14 mm.

MALE: Head black, silvery cinereous pollinose, the front cinereous in some views;

hair black. Front one-fourth as wide as one eye; 10 to 12 pairs of fine frontals, the upper weak pair divaricate; ocellars rather strong, the hair short. Occiput with white pile, the hair on the lower part of the cheeks yellowish. Cheeks not half so wide as the eye height. Parafacials rather narrow. Antennae narrow, black, the third segment more brownish and about as long as the second. The tiny palpi are brown.

Thorax black, the sides of the mesonotum and the scutellum reddish; hair black. Pleura with brownish pollen, the dorsum densely clothed with rich golden brown pollen and without vittae. Bristles fine; acrosticals 1-2, the latter placed side by side; dorsocentrals 3-3; one fine sternopleural and three intra-alars. Two pairs of lateral scutellars.

Legs black, the tibiae mostly reddish below; hair black.

Wings smoky. Squamae dark brown.

Abdomen dull orange reddish, a posteriorly narrowing median vitta dull black, the apices of the segments, strongly broadened laterally and the apex of the abdomen dark, brownish or blackish; hair black. The pollen is almost the color of the abdomen, but there is some brownish pollen medianly. The row of marginals on the second segment is interrupted towards the sides, the chaetotaxy otherwise normal. Genitalia black; posterior forceps with weak lateral ridges which become obsolete in front; strongly produced posteriorly. The blackish apex of the abdomen is divided into lateral spots which are well separated from the narrow median black vitta.

HOLOTYPE: Male, Rio Mapoto, Ecuador, March 24, 1939 (F. M. Brown).

This species will be readily recognized by its coloration. The genitalia are of the same general type as in *andinus* but lack the strongly produced ridges on the posterior forceps.

**Rhachopalpus ethelia**, new species

Abdomen reddish, with dark segmental apices; three sternopleurals. Length, 13 to 16 mm.

MALE: Head blackish, white pollinose, the front less thickly so; hair black, rather short. Front one-fourth as wide as eye; nine or 10 pairs of frontals, the upper divaricate pair

absent; ocellars conspicuous. Pile of occiput and cheeks whitish. Cheeks almost half as wide as the eye height. Parafacials of medium width. Antennae black, narrow, the third segment about as long as the second. Palpi apparently entirely absent.

Thorax black, the sides of the mesonotum and the scutellum reddish; hair black. Pleura cinereous yellow, the dorsum densely brownish golden pollinose, without vittae. Acrosticals 2-3; dorsocentrals 3-3; three sternopleurals and intra-alars. Scutellum with two pairs of lateral bristles.

Legs black, the tibiae reddish beneath; hair black.

Wings smoky brown. Squamae brownish, the lower lobe with pale border.

Abdomen dull brick reddish, with pale, yellowish pollen on the middle of the segments basally, the third and fourth segments with small, basal, brown triangles, the apices of the segments and the sides darker reddish, more castaneous. Hair black. Marginal rows entire, the middle third of the second segment with spines, the third with a few spines in the middle very close to the marginals; fourth segment with spines on the apical half, conspicuously emarginate. Genitalia black; sides of the posterior forceps raised on the posterior half, the middle with thick short hair.

FEMALE: Front cinereous pollinose, three-fourths as wide as eye; eight pairs of frontals, the upper pair divaricate; third antennal segment longer than the second.

TYPES: Holotype, male, and allotype, female, Nova Teutonia, Brazil, May 26 and 21, 1939 (F. Plaumann).

This species somewhat resembles *beatus* but lacks the black abdominal vitta, has more acrosticals and slightly duller pollen on the thorax. The genitalia are of the same type.

**Rhachopalpus blandus**, new species  
Figure 93

Black with yellowish cinereous pollen; two sternopleurals. Length, 12.5 to 14 mm.

MALE: Head black, thickly white pollinose, the frontal pollen thinner and with yellowish tinge; hair black. Front half as wide as one eye; nine pairs of rather strong frontals, the upper pair divaricate; ocellars conspicuous; hair moderately long. Pile of occiput and

cheeks whitish. Cheeks half as wide as the eye height. Parafacials moderately wide. Antennae black; third segment distinctly longer than the second. The tiny palpi are brown.

Thorax black, thickly yellowish cinereous pollinose, without vittae; hair black. Acrosticals 1-1; dorsocentrals 3-3; two sternopleurals and three intra-alars. Scutellum rather brownish in ground color, with one pair of lateral bristles.

Legs blackish, the tibiae reddish beneath; tip of tarsi reddish; hair black.

Wings smoky. Squamae translucent, the disc or base brownish, the upper lobe mostly brown.

Abdomen black, thickly cinereous yellow pollinose, the apex shining black; the sides dark reddish beneath the spine bunches. Hair black. Marginal rows entire; second segment with spines on almost the median third; fourth segment with spines on apical half or more, conspicuously emarginate. Sides of the posterior forceps strongly raised, convergent in front and concave before the apex, the lower section protruding.

**TYPES:** Holotype, male, and paratype, male, Vista Nieve, Colombia, December 17, 1922 (H. L. Viereck).

The genitalia are of the typical form. The abdominal pollen is a little more dense than in *cinereus* Townsend.

***Rhachopalpus cinereus* Townsend**

*Rhachopalpus cinereus* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 144.

Known only from Peru. I have two females from Matucana, the type locality. The apex of the abdomen is rather conspicuously emarginate, and the marginal rows on the second and third abdominal segments are more or less doubled, the discals on the second segment numerous and covering the median third. The pollen is yellowish cinereous, but in one female it is brownish yellow on the mesonotum. The acrosticals are variable, 2-1, 2-2, or 1-1, or 2, and the dorsocentrals 3-3, and there are three sternopleurals and intra-alars.

***Rhachopalpus argenteus* Townsend**

Figure 94

*Rhachopalpus argenteus* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 153.

Described from Peru. Agrees with the preceding species but the pollen of the thorax and abdomen is whitish or argenteous. The sides of the posterior forceps are raised and considerably broadened and end well before the median portion and the ridges are not or scarcely concave towards the outer side. While the abdomen is mostly black, the sides and apex are dark reddish.

***Rhachopalpus olivaceus* Townsend**

*Rhachopalpus olivaceus* TOWNSEND, 1908, Smithsonian Misc. Coll., vol. 51, p. 114.

I am unable to place this species. It was described from Mexico.

**VERTEPALPUS, NEW GENUS**

Related to *Rhachopalpus* Townsend, but with two or three pairs of marginal spines on the first abdominal segment, the fourth sternite always spined, and the posterior forceps of the male genitalia not strongly produced backward. The ground color is greenish but is partly obscured by pollen.

Front three-fourths as wide as eye; frontals rather weak and decussate, the upper pair stronger and divergent; ocellars absent; verticals decussate, the outer pair divergent. Occipital cilia long and fine. Cheeks almost half as wide as the eye height, wider behind; hair moderately fine, a row of bristles below. Parafacials wider than the length of the third antennal segment, with numerous hairs. Oral margin very strongly produced from a little below the lower third of the face; two or three bristles above the vibrissae; middle of face prominent. Second antennal segment two-thirds as long as the third; third segment broadest towards the obtusely truncate apex; second arisal segment twice as long as wide. Proboscis about two-thirds as long as the head height; palpi entirely absent. Eyes bare.

Acrosticals 0-1 or 1-1, the posterior pair spinose; dorsocentrals fine, 3-3 or 4-3; posterior sublateral absent; two intra-alars, the anterior fine; two sternopleurals, the anterior usually fine. Propleura pilose. Infrastomal setulae absent. Scutellum with sparse hair and discal and marginal spines; one pair of lateral bristles.

Third wing vein bristled basally. Squamae pubescent above.

Legs normal; pulvilli of male moderately long, short in female; intermediate segments of front tarsi of female moderately broadened.

Abdomen broad basally, tapering to the truncate or gently marginate apex; first segment with marginal spines laterally and two or three well-separated median pairs; second and third segments with narrowly interrupted row of marginals, the second with shorter discals, a gently arched row close to the marginals on the median third and some scattered spines in front of this row; fourth segment with well-separated spine bunches on the apical half. Hair rather sparse, erect. Sternites all with spines. Male genitalia of medium size, the posterior forceps almost flat, broader than long, acute in front.

GENOTYPE: *Vertepalpus verdans*, new species.

If the species is traced through couplet 58 of Townsend's key ("Manual of myiology," 1936, vol. 3, p. 187) it will run to *Euquadratosoma* Townsend, a genus with the propleura bare. Specimens were submitted to Dr. D. G. Hall of the United States National Museum, and were returned without generic references.

***Vertepalpus verdans*, new species**

Figures 96, 97, 100

Head and thorax blackish in ground color; the abdomen green; wings brownish; squamae whitish or yellowish. Length, 11 to 13 mm.

MALE: Head blackish, densely pollinose, the pollen grayish or grayish brown, usually brown on the front. Frontal vitta blackish, narrow; nine pairs of frontals, hair long, inclined forward. Occiput cinereous pilose. Antennae black. Hair black, long.

Thorax black, densely brownish pollinose, the pleura with more grayish tinge. Hair black, long. Pteropleural bristle longer than the sternopleurals. Scutellum rather reddish in ground color. Mesonotum with four strong but narrow black vittae.

Legs black, the pulvilli pale orange.

Wings brown. Squamae translucent grayish or whitish, the lower lobe with orange, the upper with brown border.

Abdomen green, the sides reddish, the areas about the bristles black or reddish. The dark areas extend inward along the posterior borders of the segments and enclose the rows or bunches of bristles except on the middle of the second segment; otherwise there is a more

or less thick coating of brownish to grayish pollen. The under side is grayish, sometimes rather silvery. Genitalia shining blackish.

FEMALE: One pair of fine orbitals near the middle of the parafrontals. Tibiae partly reddish.

TYPES: Holotype, male, allotype, female, paratypes, two males and one female, Hacienda Talahua, Bolivar, Ecuador, 3100 meters April 26, 1939, and one male, April 29, 1939 (F. M. Brown).

**TRICHOSAUNDERSIA TOWNSEND**

*Trichosaundersia* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 137.

This genus is scarcely separable from *Argentoepalpus* Townsend, the only difference being the presence of long, bright hair on the abdomen. The genus apparently contains a number of species, but the specific limits are uncertain. Townsend originally named *T. lineata* Townsend as the genotype, later placing it as a synonym of *dorsopunctatus* Macquart. Since he did not see Macquart's type there is doubt about the synonymy, and Macquart's species, if the type is lost, cannot be definitely determined until material is obtained from Bogota. It is possible that the two are not congeneric and that *dorsopunctatus* has the propleura bare.

The four species before me may be separated by the following key:

TABLE OF SPECIES

1. Two sternopleurals, scutellum black pilose . 2  
Three sternopleurals; scutellum tawny pilose  
(Guatemala, Panama, Colombia) . . . . .  
. . . . . *nora*, new species
2. Only one pair of median marginals on the second abdominal segment . . . . . 3  
Two or three pairs of median marginals on the second abdominal segment (Panama, Guatemala, Costa Rica). *rufopilosus* Wulp
3. Only two pairs of marginal scutellar spines, no discals (Venezuela) . *rubripilus* Rondani  
Three pairs of marginal scutellar spines and one pair of discals (Ecuador, Peru) . . . . .  
. . . . . *lineata* Townsend

***Trichosaundersia dorsopunctatus* Macquart**

*Mircopalpus dorsopunctatus* MACQUART, 1843, Diptères exotiques nouveaux ou peu connus, vol. 2, pt. 3, p. 47.

Described from Bogota, Colombia, but the description does not permit identification. It

is not certain that the scutellum bears spines. If it does not the species would not belong in this genus.

**Trichosaundersia rubripilus** Rondani

*Epalpus rubripilus* RONDANI, 1850, Nuovi Ann. Sci. Nat. Bologna, ser. 3, vol. 2, p. 169.

This species was described from Venezuela, and I am applying the name to a specimen from that country collected in December, 1937. It may be *dorsopunctatus* Macquart. The abdomen is less brightly colored than in the other forms.

**Trichosaundersia lineata** Townsend

Figures 103, 104

*Trichosaundersia lineata* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 137.

Described from eastern Peru. I have a female from Hacienda Talahua, Bolivar, Ecuador, April 26, 1939 (F. M. Brown). This may not be the true *lineata*, since it lacks the acrostical bristles, thus agreeing with the males mentioned by Townsend and the specimen of *rubripilus*. However, the character may be variable. The scutellum is quite dark reddish. There is a single strong marginal on the sides of the second abdominal segment.

**Trichosaundersia rufopilosus** Wulp

*Saundersia rufopilosus* WULF, 1888, Biologia Centrali-Americana, Diptera, vol. 2, p. 29 (f.).

This species was described from Guatemala and Costa Rica, but it is possible that the type series contained more than one species. Van der Wulp states that there are two spines on the sides of the second abdominal segment. In four specimens from El Volcan, Chiriqui, Panama, February 24 to 29, 1936 (W. J. Gertsch), there is one strong spine and from none to three weak ones. The scutellum is black pilose and bears marginal and discal spines in addition to the marginal bristles. Van der Wulp does not mention the color of the hair on the scutellum.

**Trichosaundersia nora**, new species

Figure 106

Reddish, with black thorax; scutellum reddish pilose. Length, 10 to 14 mm.

MALE: Head greenish black, the face and

cheeks reddish in ground color; thickly clothed with golden yellow pollen which is thinner on the front, where the ground color shows through; hair golden yellow to tawny, black on the front. Front three-fourths as wide as eye; eight or nine pairs of frontals, the upper two strong and reclinate; ocellars absent. Cheeks two-thirds as wide as the eye height. Parafacials almost as wide as the antennae, of equal width. Antennae brownish red, the third segment black, a little longer than the second. Palpi represented by a bristle; proboscis over half as long as the head height. Eyes bare.

Thorax greenish black in ground color, thickly golden brown pollinose, the sides of the mesonotum, scutellum, and parts of the pleura reddish, the pleural pollen paler. Hair reddish or golden, intermixed with black on the mesonotum. Acrosticals 2-3; dorsocentrals 3 or 4-3; three sternopleurals and intralalars. Scutellum with tawny hair and six pairs of spines.

Legs reddish, the tibiae and tarsi reddish yellow. Hair black, yellowish on the coxae and part of the femora.

Wings smoky. Squamae grayish, with brown pollen, or somewhat smoky, the upper lobe reddish.

Abdomen dark orange red, with bright reddish pile, the basal two segments with black hair. First segment without median marginals but with one or two lateral spines and a cluster of black, spinose hairs reaching well towards the base. Second segment with two or three pairs of median marginal spines, and short ones connecting with the lateral spines, the median fifth with discals. Third segment with row of marginals, and arched row of discals on the median third, connecting spines frequently present. Fourth segment with row of discals and with lateral and ventral spines and some black marginal bristles. Genitalia mostly reddish; sternites black, the second to fourth with spines.

FEMALE: Front as wide as one eye; two pairs of orbitals; basal abdominal segments with reddish pile, the lateral group of black spinose hairs on the first segment conspicuous, the bristles connecting the median and lateral marginals wholly lacking.

TYPES: Holotype, male, Guatemala City (M. Pacheco); allotype, female, El Volcan, Chiriqui, Panama, March 1, 1936 (W. J.

Gertsch); paratypes, female, Vista Nieve, Columbia, December 19, 1922 (H. L. Viebeck); female, Popayan, Colombia, February 14, 1935 (H. F. Schwarz); four females, El Volcan, February 15, 22, 24, and 25, 1936 (W. J. Gertsch).

SAUNDERSIOPS TOWNSEND

*Saundersiops* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 138.

*Signoepalpus* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 446.

Townsend separates this genus from *Argentoepalpus* Townsend by the presence of one or two continuous rows of discals on the second abdominal segment, while the first segment normally has a complete row of marginals. *Signoepalpus* is separated on the basis of only three pairs of postsutural dorsocentrals, a character that is of no more than specific value in this group. I am recognizing *Saundersiops* as distinct from *Argentoepalpus*, for the present, but do not think that the two can be properly separated.

TABLE OF SPECIES

1. Abdomen reddish, with thick ochraceous pollen except laterally and apically (Peru, Ecuador) . . . . . *confluens* Townsend  
Abdomen differently colored . . . . . 2
2. Lower lobe of squamae brownish, at least on the posterior half . . . . . 6  
Lower lobe of squamae whitish or pale yellowish . . . . . 3
3. Abdomen reddish with black median vitta; fourth segment with pair of oval chalky white spots (Ecuador) . . . . .  
. . . . . *oculata*, new species  
Abdomen differently colored . . . . . 4
4. Both lobes of the squamae concolorous (Guatemala) . . . . . *pachecoi*, new species  
Upper lobe of squamae with at least brownish border . . . . . 5
5. Lower lobe of squamae watery white, the upper lobe more or less brownish (Peru) . . . . .  
. . . . . *cruciata* Townsend  
Lower lobe white, the upper lobe smoky black (Peru) . . . . . *cayensis* Townsend
6. Fourth abdominal segment with a large, very conspicuous, yellowish pollinose spot basally in the middle (Peru, Ecuador) . . . . .  
. . . . . (*Signoepalpus*) *spinosus* Townsend  
Abdomen differently colored . . . . . 7
7. Scutellum with yellowish or cinereous pollen . . . . . 10

- Scutellum with brown pollen . . . . . 8
8. Legs wholly reddish; base of wing dark reddish . . . . . 9  
Legs not wholly reddish; base of wing bright orange (Ecuador) . *brownae*, new species
9. Fourth abdominal segment with bright golden pollen (Colombia) . . . . .  
. . . . . *schwarzi*, new species  
Fourth abdominal segment with brown pollen (Brazil) . . . . . *tatei*, new species
10. Mesonotal pollen rich ochraceous; upper lobe of squamae with the apex broadly brownish (Panama) . . . . . *metallica*, new species  
Pollen cinereous or ashy yellowish . . . . . 11
11. Front ochraceous to golden pollinose . . . 12  
Front cinereous pollinose (Colombia) . . . . .  
. . . . . *colombienseis*, new species
12. Front golden brown pollinose (Colombia) . . . . .  
. . . . . *siesta*, new species  
Front dull ochraceous pollinose (Panama) . . . . .  
. . . . . *metallica*, new species

*Saundersiops oculata*, new species

Figures 101, 102, 105, 107

Black, the abdomen mostly dark reddish, lower lobe of squamae chalky white. Length, 9.5 to 10.5 mm.

MALE: Head black, white pollinose, the front slaty; hair all black. Front almost as wide as one eye, the hair long; seven to nine pairs of frontals, the upper two or three reclinate, and several bristles in a secondary row below. Occipital pile cinereous white, the occipital cilia long and fine. Cheeks a little more than half as wide as the eye height. Parafacials narrower than the antennae. Antennae black, the third segment longer than the second, obtusely rounded apically; second arisal segment elongate. Proboscis almost two-thirds as long as the head height, the small palpi reddish.

Thorax black, the pollen thin so that the color is slaty, but somewhat brownish posteriorly and wholly brownish on the scutellum. Acrosticals 1-1; dorsocentrals 3-3; three sternopleurals and intra-alars. Hair long and all black. Scutellum with fine spines scattered over the disc and two pairs of marginal bristles.

Legs blackish, the tibiae reddish, the femora sometimes dark reddish or castaneous; apical tarsal segment reddish, the pulvilli short, yellowish.

Wings smoky. Lower lobe of squamae



chalky white, the upper lobe brown with black border.

Abdomen dark reddish with an incomplete black median vitta that tapers posteriorly and occupies almost the whole of the first segment; fourth segment with a pair of basal, oval, chalky white spots connected with less conspicuous spots that extend over the side margins. Hair all black. First segment without median marginals; second with marginal row, conspicuous discals on the median fourth, and with bristles posteriorly which decrease in strength and length until they become hairs in front; third segment with complete row of marginals and discals, the discals with some additional scattered bristles near the row; fourth segment with bristles on the apical two-thirds. The longer bristles are spine-like, the shorter ones sharply pointed. Venter with median black vitta increasing in width posteriorly. Genitalia black; posterior forceps broadly cordate, the apex with V-shaped emargination.

**TYPES:** Holotype, male, and two paratypes, males, Hacienda Talahua, Bolivar, Ecuador, 3100 meters, April 26, 1939, and one paratype, male, same locality, 2900 meters, May 4, 1939 (F. M. Brown).

This species traces to *Uruhuasia* Townsend or *Signoepalpus* Townsend. It lacks apical scutellars, but it is doubtful if the abdomen is much wider than in *Uruhuasia*. The bristles of the scutellum and abdomen are not so blunt as in *confluens* Townsend, but are rather intermediate between spines and bristles. I do not have the type of *Uruhuasia*, but the specics must approach it in most respects.

***Saundersiops pachecoi*, new species**

Black, the thorax with dull golden pollen; squamae white. Length, 14 mm.

**FEMALE:** Head black, the face and cheeks reddish in ground color; pollen grayish yellow, rather coarse in appearance, on the front dull golden or brownish yellow. Hair brassy yellow, black on the front and upper half of the parafacials. Front almost as wide as one eye; seven pairs of frontals, the upper pair reclinate; two pairs of orbitals. Cheeks two-thirds as wide as the eye height. Parafacials as wide as the antennae, of equal width. Antennae reddish, the third segment black

with convex apex. Proboscis half as long as the head height.

Thorax black, dull golden pollinose, the pleura becoming cinereous below. Hair black. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brownish in ground color, with discal spines and two pairs of marginal bristles.

Legs black, the tibiae and tarsi reddish; hair black.

Wings smoky. Squamae whitish.

Abdomen shining blackish, the fourth segment with the base broadly grayish in the middle and a weak grayish line visible in some lights, extending from the base of the third segment to the posterior fourth of the fourth. First segment with bristles laterally; second with spines on the median third and on the sides; third segment with spines on the posterior half and additional ones anteriorly on the median third; the fourth with spines on the apical two-thirds.

**HOLOTYPE:** Female, Guatemala City (M. Pacheco).

Traces to *Saundersiops* and is readily distinguished from the other species with black abdomen and more or less golden pollinose thorax by the pale squamae.

***Saundersiops brownae*, new species**

Figure 118

Black, the thorax dull golden pollinose, the scutellum brown; wings orange at base. Length, 12 mm.

**FEMALE:** Head blackish, the face and cheeks luteous in ground color; pollen dense golden yellow, more golden brown on the front. Hair black, reddish yellow on the occiput and on most of the cheeks. Front a little wider than one eye; seven pairs of ocellars, the upper pair divergent; hair sparse, long. Cheeks three-fifths as wide as eye height. Parafacials as wide as the antennae, of equal width. Antennae reddish, the third segment mostly black, somewhat longer than the second. Proboscis two-thirds as long as the head height.

Thorax black, densely brownish gold pollinose above, the pleura more cinereous yellow, the scutellum brown; hair black. Acrosticals 0-1; dorsocentrals 2 or 3-3 or 4; three sternopleurals and intra-alars. Scutellum with discal spines and two pairs of marginal bristles.

Legs yellowish red, the middle femora about one-third, the posterior pair about half black basally. Hair all black. Front tarsi slightly widened.

Wings lightly smoky, the basal third orange in front. Squamae smoky, with deep brown pollen, the fringe pale.

Abdomen shining black but in some views with violet brown pollen and on the sides of the fourth segment with a large patch of white pollen visible in most lights. Hair black. First segment with lateral bristles, the second with interrupted row of marginals and discal spines on the anterior half of the median third; third segment with entire row of marginals, a median row of discals, additional smaller discals in front medianly, and spines connecting the marginals and discals laterally; fourth segment with bristles on more than the posterior half.

**TYPES:** Holotype, female, and paratype, female, Hacienda Talahua, Bolivar, Ecuador, 3100 meters, April 26, 1939 (F. M. Brown).

Specimens with only three pairs of post-sutural dorsocentrals will trace to *Epalpellus* Townsend, those with four to *Saundersiops*. In each specimen the row of discals on the third segment is broken on one side.

***Saundersiops schwarzi*, new species**  
Figures 109, 112

Blackish, the abdomen castaneous, with dark median vitta and brown and golden pollen; tarsi yellow haired. Length, 12 mm.

**MALE:** Head black, the face and cheeks yellowish in ground color; pollen pale brassy yellow, more cinereous on the front, brownish near the vertex, the parafrontals appearing dark from most views. Front three-fourths as wide as one eye; eight pairs of frontals, the upper two or three reclinate; hair black, sparse. Occiput brassy yellow pilose. Cheeks half as wide as eye height, the hair coarse and mostly yellowish. Parafacials of medium width, the hair black, coarser towards the facial ridges and becoming more bristle-like below. Antennae reddish; third segment somewhat subtriangular; second arisal segment elongate. Proboscis as long as the head height.

Thorax black; pollen cinereous violet brown on the mesonotum and scutellum except on the sides and anterior border of the

former, the dark vittae distinct. Hair black. Acrosticals 2-3; dorsocentrals 3-3; three sternopleurals and intra-alars. Scutellum with spines and fine hair; three pairs of marginal bristles, the apical pair weak and cruciate.

Legs reddish, the tarsi yellowish and with yellowish hair; hair black, but yellowish on the upper surfaces of the tibiae. Pulvilli long.

Wings smoky brown, with darker base. Squamae and fringes dark brown.

Abdomen castaneous, with a very broad darker median vitta extending to the middle of the fourth segment; pollen brown but almost all golden on the dorsum of the fourth segment in some views. Second segment with row of marginals and spines on the median fourth; third with marginals and two irregular rows of discals, the discals more numerous in the middle; fourth segment with spines and bristles except basally. Hair black. Genitalia reddish, rather small.

**HOLOTYPE:** Male, between Queremal and Buenaventura, Colombia, February 12, 1935, 3500 to 4000 feet (H. F. Schwarz).

Because of the bristly hair on the parafacials, this species might trace out in that section of Townsend's key in which parafacial bristles are present, but it does not agree with any of the genera included in the section.

***Saundersiops tatei*, new species**  
Figure 108

Blackish; legs reddish, the tarsi yellow. Length, 13 mm.

**FEMALE:** Head blackish, the face and cheeks yellowish in ground color; pollen yellowish white on the parafacials and posterior orbits, brownish on the vertex; hair black, reddish yellow on the occiput and lower part of the cheeks. Front as wide as one eye; seven pairs of frontals, the upper pair divergent, the next two reclinate; two pairs of orbitals; hair short; pollen mostly whitish, but thin. Cheeks three-fifths as wide as the eye height. Parafacials of medium width, with scattered hairs, one of the lower ones long. Antennae brownish red, the third segment mostly blackish, broadened towards the oblique apex; second arisal segment elongate. Proboscis three-fourths as long as the head height.

Thorax blackish, cinereous pollinose, the

scutellum and posterior half of the mesonotum brown pollinose; hair black. Acrosticals 2-3; dorsocentrals 2 or 3-3; three sternopleurals and intra-alars. Scutellum brownish, with discal and marginal spines and three pairs of marginal bristles, the apical pair cruciate; hair fine.

Legs reddish, with black hair, the tarsi and upper surface of the tibiae with reddish yellow hair; tarsi yellow.

Wings smoky. Squamae dark brown.

Abdomen dark castaneous, almost black basally in the middle, pollen brownish, visible only in some views. Second segment with row of marginals and discals on the median fourth; third with spines except on the basal fourth, the fourth with spines and bristles except basally; hair black.

HOLOTYPE: Female, Arabipu, Mount Roraima, Brazil, 4200 feet, December 26, 1927 (G. H. H. Tate).

The spacing of the dorsocentrals indicates that there may sometimes be four pairs behind the suture.

*Saundersiops colombiensis*, new species

Figure 114

Blackish, the abdomen dark brown; thorax cinereous pollinose, tibiae and tarsi reddish. Length, 12 mm.

MALE: Head black, the face and cheeks yellowish in ground color; hair pale yellowish black on the front; pollen bright yellowish, cinereous on the front and occiput. Front three-fourths as wide as one eye, nine pairs of frontals, the upper two or three reclinate, and a secondary row below; hair rather abundant. Cheeks three-fifths as wide as the eye height, with a few weak black hairs above. Parafacials about as wide as the third antennal segment, of equal width. Antennae blackish; third segment a little longer than second, convex above, almost straight below; arista missing. Proboscis three-fourths as long as the head height.

Thorax black, cinereous pollinose, the vittae distinct; hair black. Acrosticals 2-4; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum with discal spines and three pairs of marginal bristles, the apical pair weak and parallel; hair erect and fine.

Legs brownish, the tibiae and tarsi reddish; hair black.

Wings smoky, the immediate base more or less orange. Squamae light brown.

Abdomen brownish, somewhat castaneous, the pollen brown, some on the sides of the fourth segment appearing whitish in some views. Second segment with row of marginals and discals on the median fourth, the marginals sometimes interrupted towards the sides; third segment with two irregular rows of discals, the fourth with bristles except basally; hair black. Genitalia brownish and reddish; posterior forceps convex in profile, the apex rather shallowly emarginate, the arms very short and moderately separated.

HOLOTYPE: Male, Vista Nieve, Colombia, December 27, 1922 (H. L. Viereck).

*Saundersiops siesta*, new species

Figure 113

Black, thorax yellowish cinereous pollinose, tibiae and tarsi reddish. Length, 13 mm.

MALE: Head black, the face and cheeks yellowish in ground color; pollen brassy yellowish, yellowish brown on the front; hair cinereous white, black on the front. Front two-thirds as wide as one eye; nine pairs of frontals, the upper three reclinate, and three or four weaker bristles in a secondary row; hair rather sparse. Cheeks three-fifths as wide as the eye height. Parafacials wide, the hair all fine. Antennae blackish; third segment a little longer than the second, gently convex above; second arisal segment elongate. Proboscis three-fourths as long as the head height.

Thorax black, yellowish cinereous pollinose, the vittae not distinct; hair black. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum dark brownish in ground color, with spines and two pairs of marginal bristles.

Legs black, the tibiae and tarsi reddish; hair black.

Wings lightly smoky. Squamae light brown.

Abdomen brownish black, the pollen brown. Second segment with row of marginals, those towards the sides shorter, the median third with discals; third segment with two irregular rows of discals; fourth segment with bristles on the apical three-fourths. Hair black. Genitalia brownish;

posterior forceps convex above, the apex widely but shallowly emarginate.

**HOLOTYPE:** Male, Popayan, Colombia, 7000 feet, February 14, 1935 (H. F. Schwarz).

**Saundersiops metallica**, new species

Figure 115

Black, the thorax with dull ochraceous to cinereous pollen; tibiae and tarsi dark reddish. Length, 12 to 14 mm.

**MALE:** Head black, the face and cheeks yellowish in ground color, densely yellowish pollinose, the front more brownish; hair bright brassy yellow, black on the front. Front three-fourths as wide as one eye; 10 pairs of frontals, the upper two reclinate; a secondary row of four to seven below; hair moderately long. Cheeks almost three-fourths as wide as the eye height. Parafacials wide, of equal width. Antennae reddish, the third segment mostly black, slightly longer than the second and convex above; second arisal segment elongate. Proboscis three-fourths as long as the head height.

Thorax black, the pollen ochraceous, almost golden, but often pale yellowish cinereous, the vittae distinct. Hair black. Acrosticals 2-3; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum brownish red, thinly pollinose, with spines and two pairs of marginal bristles; hair fine.

Legs black, the tibiae and tarsi dark reddish, hair all black.

Wings moderately smoky or brownish, the veins at the base reddish or orange. Squamae light brownish, the upper lobe sometimes almost whitish, the lower whitish basally, its border pale.

Abdomen dark castaneous to brownish black, the pollen brown. Marginals on second segment broadly interrupted, the discal spines occupying the median third; third segment with marginals and two rows of discals, the anterior row usually obsolete laterally, fourth segment bristled except on basal fourth. Hair black. Fourth segment sometimes with small, pale pollinose spot at base in middle. Genitalia ferruginous and black; posterior forceps convex, the apex broadly subtriangularly emarginate.

**FEMALE:** Front three-fourths to almost as wide as one eye, seven pairs of frontals, the upper two reclinate; two pairs of orbitals.

Third antennal segment but little convex above except apically, the basal segments usually more brownish.

**TYPES:** Holotype, male, and allotype, female, El Volcan, Chiriqui, Panama, February 19, 1936 (W. J. Gertsch). Paratypes, male and two females, same locality, February 22 and 23, 1936, and male, San Cristobal, Guatemala, January.

**Saundersiops confluens** Townsend

Figures 110, 116, 117

*Saundersiops confluens* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 140.

This species was described by Townsend from four males from Peru. I have before me six males and seven females from Ecuador and one male from Colombia. There is considerable variation in the chaetotaxy of the abdomen, the discal row of bristles being broadly interrupted on each side in some specimens.

**Saundersiops cruciata** Townsend

*Saundersiops cruciata* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 140.

Described from eight specimens of each sex from Peru. I have not been able to identify it among our material.

**Saundersiops cayensis** Townsend

*Saundersiops cruciata cayensis* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 141.

Originally described from 19 males and three females from Peru. Not represented in our collection.

**Saundersiops spinosus** Townsend

Figure 111

*Signoepalpus spinosus* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 446.

This species was described from a single male from Peru, and the type is in the United States National Museum. The collection contains one specimen from Rio Mapoto, Ecuador (F. M. Brown), and one from Peru. The pollinose spot on the abdomen is of a very dull golden color.

**EUHUASCARAYA** TOWNSEND

*Euhuascaraya* TOWNSEND, 1926, Rev. Mus. Paulista, vol. 15, p. 255.

Propleura pilose; abdomen without discals on intermediate segments; verticals not cruciate; male with orbitals; ocellars long.

In Townsend's key ("Manual," 1936, vol. 3, p. 187) this genus and *Euempheremyia* Townsend are separated by the size of the head, but the generic diagnoses do not bear this out. The only possible difference in the two genera is to be found in the presence or absence of hair on the propleura, a character not mentioned in the description of *Euempheremyia*. It must therefore be presumed that the propleura is bare in the latter genus. The genus differs from *Parepalpus* only in the absence of discals on the intermediate abdominal segments.

The genotype does not appear to be represented in the material before me, but there can be no doubt that the four species in the collection belong to the genus in the strictest sense. All are from Brazil.

#### TABLE OF SPECIES

1. Thorax and fourth abdominal segment with rusty gold pollen . . . . *atra* Townsend  
Pollen of fourth segment not rusty gold, or quite different from that of the mesonotum. . . . . 2
2. Mesonotum conspicuously shining from dorsal view; pollen of fourth abdominal segment brown in male, yellowish brown in female . . . . . *obscura*, new species  
Mesonotum thickly pollinose, the pollen of fourth segment differently colored . . . . 3
3. Fourth segment with whitish pollen or the squamae white . . . . . 4  
Fourth segment with brown pollen in the middle, whitish laterally; squamae brown . . . . . *media*, new species
4. The white pollen extends to in front of the discal bristles . . . . . *nemo*, new species  
The white pollen does not extend forward to the discals . . . . . *siesta*, new species

#### *Euhuascaraya atra* Townsend

*Euhuascaraya atra* TOWNSEND, 1926, Rev. Mus. Paulista, vol. 15, p. 307; 1939, Manual of myiology, vol. 8, p. 125.

From the very brief description of this species it is not possible to identify it. The fourth abdominal segment is described as opaque with gray gilt pollen visible in some lights. In the generic diagnosis given in the "Manual" the thorax and fourth abdominal segment are described as rusty gold. The

original description was based upon a female from south Brazil; the second apparently from additional material. It is quite possible that two species have been confused, but it will be difficult definitely to determine the species until the females have been studied carefully. One of the species herein described may prove to be the same.

#### *Euhuascaraya obscura*, new species

Figures 121, 123

Black, the abdomen shining, the fourth segment brown pollinose, yellowish brown in the female. Length, 9 mm.

MALE: Head black, the face and cheeks reddish in ground color; pollen white, more or less brownish yellow on the front; pile cinereous yellow, somewhat brassy, black on the front. Front two-thirds to three-fourths as wide as one eye; nine pairs of frontals, the upper three reclinate; two pairs of strong orbitals; ocellars strong; verticals parallel. Cheeks three-fifths as wide as the eye height. Parafacials wide, of equal width. Antennae black; third segment one-third longer than the second, the apex oblique; second arisal segment three times as long as wide. Proboscis more than half as long as the head height.

Thorax black, cinereous pollinose, the mesonotum somewhat brassy, rather shining black from dorsal view; hair black. Acrosticals 2-3 or 4; dorsocentrals 3-4; three sternopleurals and intra-alars. Scutellum with three pairs of marginals and cruciate apicals, one pair of appressed discals, the hair bristly.

Legs black, the pulvilli elongate. Hair black.

Wings brownish, darkened in front on the basal half. Squamae brown, the border darker.

Abdomen shining black, the fourth segment brown pollinose behind the discals, the discal pollen visible only in some views. Second segment with pair of median marginals, third with row of about five pairs, the fourth with bristles on almost the apical three-fourths. Posterior forceps with two short, narrow, narrowly separated apical arms. Hair all black.

FEMALE: Front as wide as eye, the pollen more brownish, seven to nine pairs of frontals. Pulvilli short. The pollen on the fourth

abdominal segment is of a paler brown.

**TYPES:** Holotype, male, allotype, female, and paratype, male, Nova Teutonia, Brazil, May 24, 1939, June 7, 1939, and June 3, 1939 (F. Plaumann).

***Euhuascaraya media***, new species

Figure 122

Black, the thorax thickly cinereous yellow pollinose; fourth abdominal segment brown pollinose in the middle, white on the sides. Length, 8.5 to 10 mm.

**MALE:** Head black, the face and cheeks reddish in ground color; pollen whitish with strong brassy tinge, the front with brownish yellow, somewhat golden pollen and black hair; hair brassy yellow, intermingled with black on the parafacials. Front three-fourths as wide as eye; nine pairs of frontals, the upper three reclinate or the upper two divaricate; two pairs of orbitals; ocellars long. Cheeks three-fifths as wide as the eye height. Parafacials wide, of equal width. Antennae black; third segment almost one-third longer than the second, the apex a little oblique; second arisal segment five times as long as wide. Proboscis a little more than half as long as the head height.

Thorax black, cinereous pollinose, the dorsum with golden tinge. Chaetotaxy as in *obscura*.

Legs black; pulvilli yellow.

Abdomen shining black, the fourth segment pollinose on more than the basal half, brown in the middle, white on about the lateral fourth, the pollen not extending in front of the bristles. Chaetotaxy as in *obscura*. The arms of the posterior forceps are moderately long, well separated, gently divergent.

**HOLOTYPE:** Male, Nova Teutonia, Brazil, May 30, 1939 (F. Plaumann).

***Euhuascaraya nemo***, new species

Figure 124

Black, with cinereous yellow, somewhat brassy mesonotum, the fourth abdominal segment usually white pollinose, rarely brownish in the middle; squamae white. Length, 8.5 to 10 mm.

**MALE:** Head black, the face and cheeks yellowish in ground color; pollen whitish, more ochraceous on the front; hair pale yellowish, black on the front. Front almost or quite as wide as one eye; eight pairs of

frontals, the upper two reclinate; two pairs of orbitals; ocellars strong. Cheeks three-fifths as wide as the eye height. Parafacials wide, of equal width. Antennae black; third segment little longer than the second, sometimes reddish basally on the inner surface; second arisal segment three times as long as wide. Proboscis half as long as the head height.

Thorax black, cinereous pollinose, the dorsum more yellowish and somewhat dull golden. Chaetotaxy as in *obscura*.

Legs black. Pulvilli yellow.

Wings conspicuously smoky, darker along the costa on the basal half. Squamae white.

Abdomen shining black, the fourth segment with whitish pollen except on the narrow base. Chaetotaxy as in *obscura*. Posterior forceps with the arms short and very widely separated. Hair all black.

**FEMALE:** Front distinctly wider than one eye; seven pairs of frontals, the upper three reclinate; frontal pollen not strongly contrasting with the facial. Fourth abdominal segment with the pollen not extending in front of the discals and brownish on the median third or more.

**TYPES:** Holotype, male, May 20, 1939, allotype, female, May 26, 1939, and paratypes, two males and two females, May 12 to 26, 1939, and one male, December 14, 1936, all collected by F. Plaumann at Nova Teutonia, Brazil.

On the color of the abdominal pollen the females might readily be placed with *media*, but the squamae are white. By use of this same character it would appear that they are more likely to be the females of the following species, since the pollen does not extend in front of the discals. However, the front is very wide, and the color of the frontal pollen agrees with that of the males. I have no doubt that they belong here. In one male the pollen is brownish in the middle, but it agrees in all other respects with the other three. The character used in the key will generally separate this and the following species, but the males are definitely separable by the shape of the posterior forceps and the females by the width of the front.

***Euhuascaraya siesta***, new species

Figures 119, 120

Black, the mesonotum conspicuously dull

golden; fourth abdominal segment with white pollen; squamae white. Length, 9 to 9.5 mm.

MALE: Differs from *nemo* as follows: third antennal segment one-fourth longer than the second; front three-fourths as wide as eye, the pollen moderately golden and much darker; pollen of thorax more yellowish, quite golden above; pollen of the fourth abdominal segment not extending in front of the discals; arms of posterior forceps longer, contiguous, depressed at the base.

FEMALE: Front not wider than one eye, the pollen as in the male. The pollen on the fourth segment extends to in front of the discals.

TYPES: Holotype, male, and allotype, female, Nova Teutonia, Brazil, June 7 and May 23, 1939 (F. Plaumann).

Readily distinguished in the male by genitalic characters. The female is more like the male of *nemo*, but the pollen of the thorax is more golden and the front is conspicuously narrower than in the female of that species.

**PAREPALPUS COQUILLET**

*Parepalpus* COQUILLET, 1902, Proc. U. S. Natl. Mus., vol. 25, p. 120.

*Parepalpus* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 133.

*Oxapampoepalpus* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 441.

Coquillett's diagnosis refers to *flavidus* Coquillett, the genotype; Townsend's to *similis* Townsend, from Peru. There are certain differences in these descriptions that might be considered by some to be of generic importance. *P. flavidus* possesses cruciate apical scutellars while *similis* lacks them. The proboscis of the former is from three-fourths of, to almost as long as, the head height. There does not seem to be any other noticeable difference in the male, but the abdomen of the female of *similis* is black, whereas the two sexes are similarly colored in *flavidus*. Despite these differences I think that both belong in the same genus and that *Oxapampoepalpus auroanalis* Townsend also belongs. It has the proboscis short, as in *similis*, but in other respects it appears to differ only in color, in this respect being very similar to the female of *similis*.

The three species are separable as follows:

- 1. Cruciate apical scutellars present . . . . 2

Cruciate apical scutellars absent (Peru, Brazil) . . . . . *similis* Townsend

- 2. Proboscis at least three-fourths as long as the head height; abdomen dark rusty reddish (United States) . . . . *flavidus* Coquillett  
Proboscis about half as long as the head height; abdomen black, the apical segment mostly golden or silvery pollinose (Peru) . . . . . *auroanalis* Townsend

**Parepalpus flavidus** Coquillett

*Parepalpus flavidus* COQUILLET, 1902, Proc. U. S. Natl. Mus., vol. 25, p. 120.

Originally described from Colorado. Our specimens are from Colorado and Arizona.

**Parepalpus similis** Townsend

Figures 125, 132

*Parepalpus similis* TOWNSEND, 1914, Insec. Inscit. Mens., vol. 2, p. 134.

The original description was based upon a male from Peru. The collection contains a male from Ecuador, Rio Mapoto, March 24, 1939 (F. M. Brown), and a series of 16 males and 13 females from Nova Teutonia, Brazil (F. Plaumann).

Because of the striking difference in the color of the sexes, I at first separated them as distinct, but when it was found that all those with reddish abdomen were males and all with black abdomen females it became obvious that they belonged to the same species. The females have the fourth segment golden pollinose, the apex black, very much as in the male of the following species.

**Parepalpus auroanalis** Townsend

Figures 128, 131

*Oxapampoepalpus auroanalis* TOWNSEND, 1931, Rev. Ent., São Paulo, vol. 1, p. 441.

This species has the fourth abdominal segment golden pollinose in the male and whitish in the female. Described from Peru. I have not seen it.

**EUEPALPODES TOWNSEND**

*Euepalpodes* TOWNSEND, 1915, Proc. U. S. Natl. Mus., vol. 49, p. 429; 1939, Manual of myiology, vol. 8, p. 123.

In the latter reference no mention is made of hair on the propleura, so this may be assumed to be bare. However, I have before me a female compared with the type of *E. arcuatus*, and the propleura bears black hair,

a character that was certainly checked. It is possible that the middle of the propleura may sometimes be bare since the hair does not cover the whole surface. In the descriptions Townsend states that both basal segments of the arista are short, and the species will not trace out properly in his key. Actually the second segment is nearly or quite twice as long as wide. The fourth abdominal segment is reddish brown or perhaps golden brown pollinose rather than coppery ashy.

*Opsoempheria* Townsend does not appear to differ unless the propleural hair is absent.

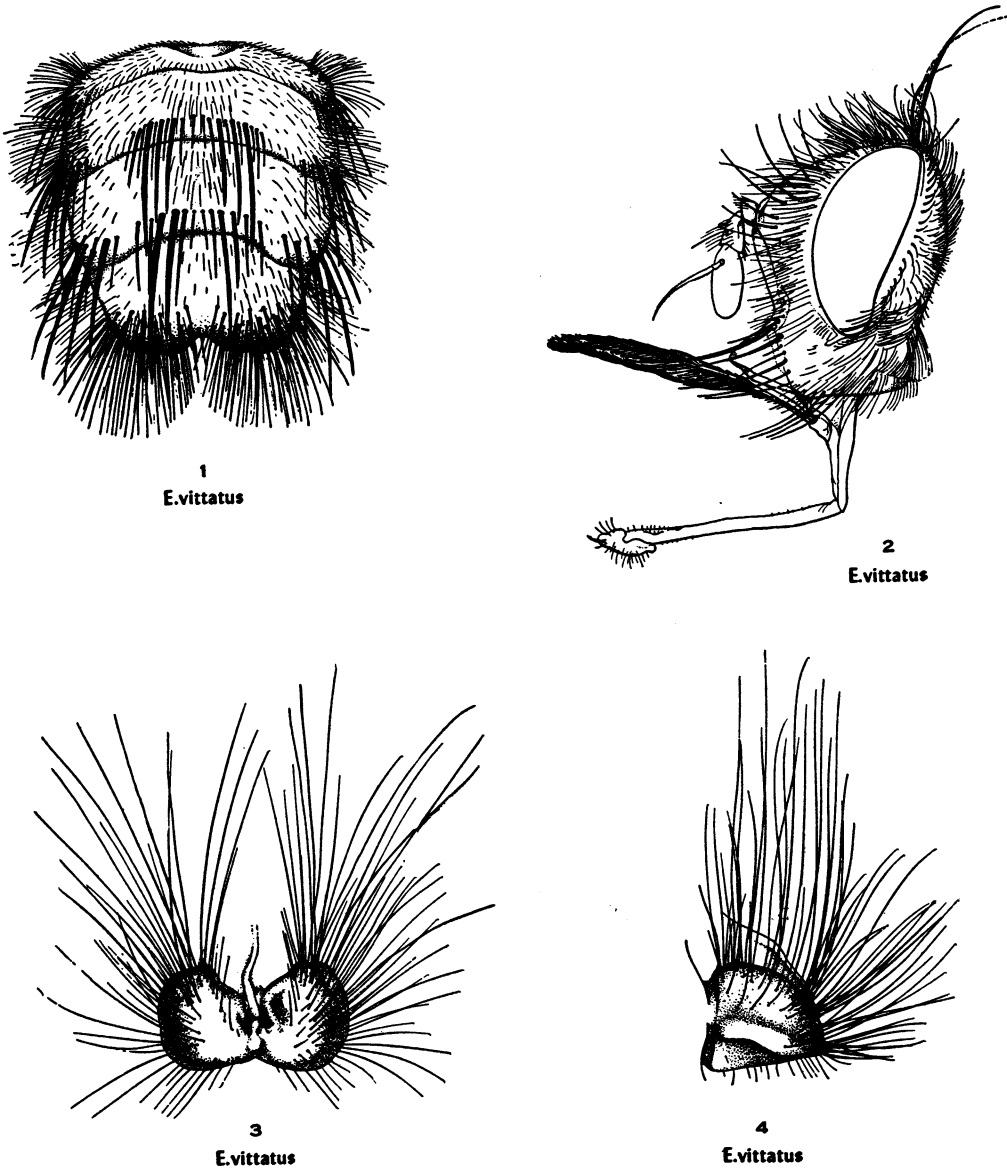
***Euepalpodes arcuatus* Townsend**

Figures 130, 133

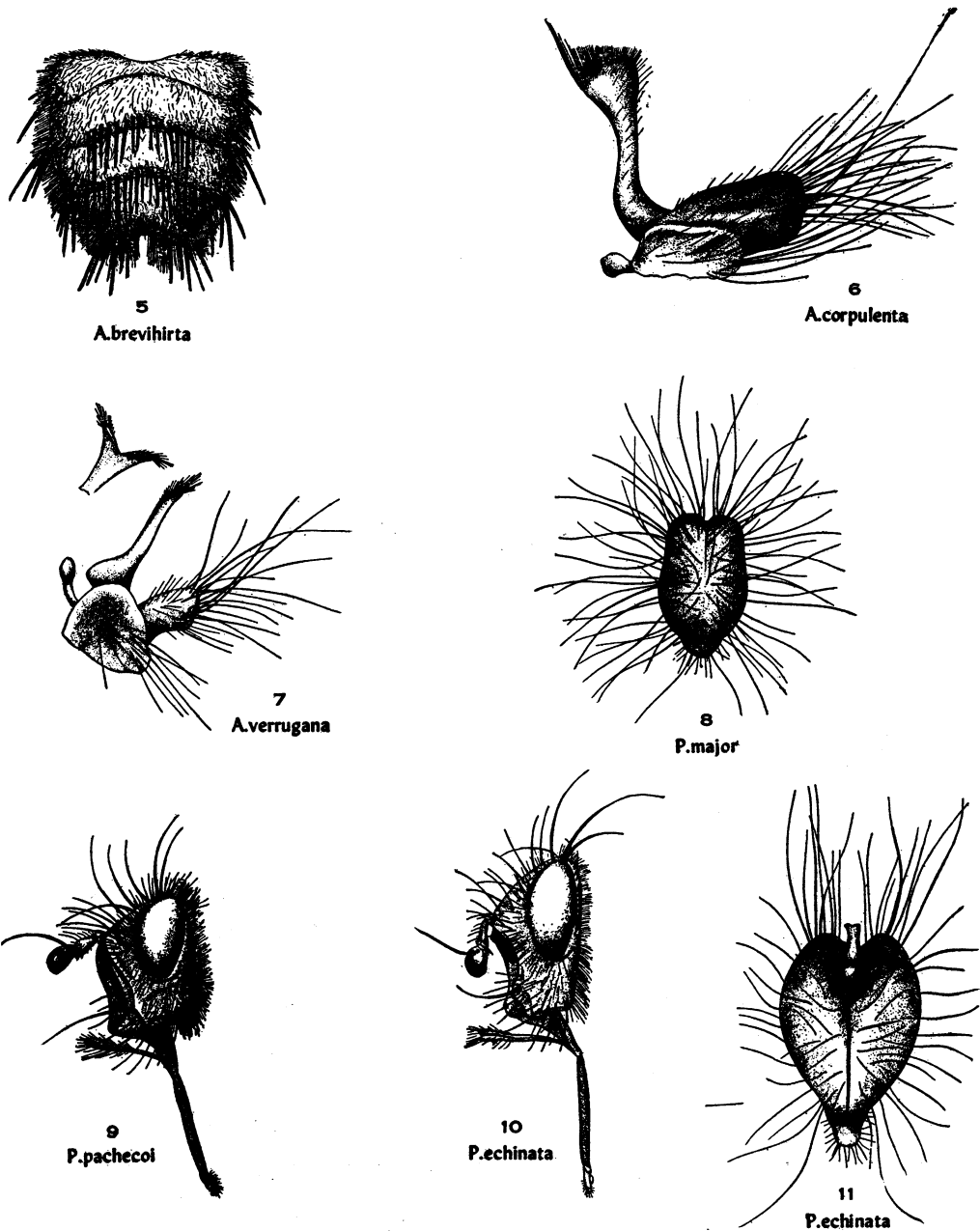
*Euepalpodes arcuatus* TOWNSEND, 1915, Proc. U. S. Natl. Mus., vol. 49, p. 429.

This species is represented in the collection by a single specimen from Petropolis, Rio de Janeiro, Brazil.

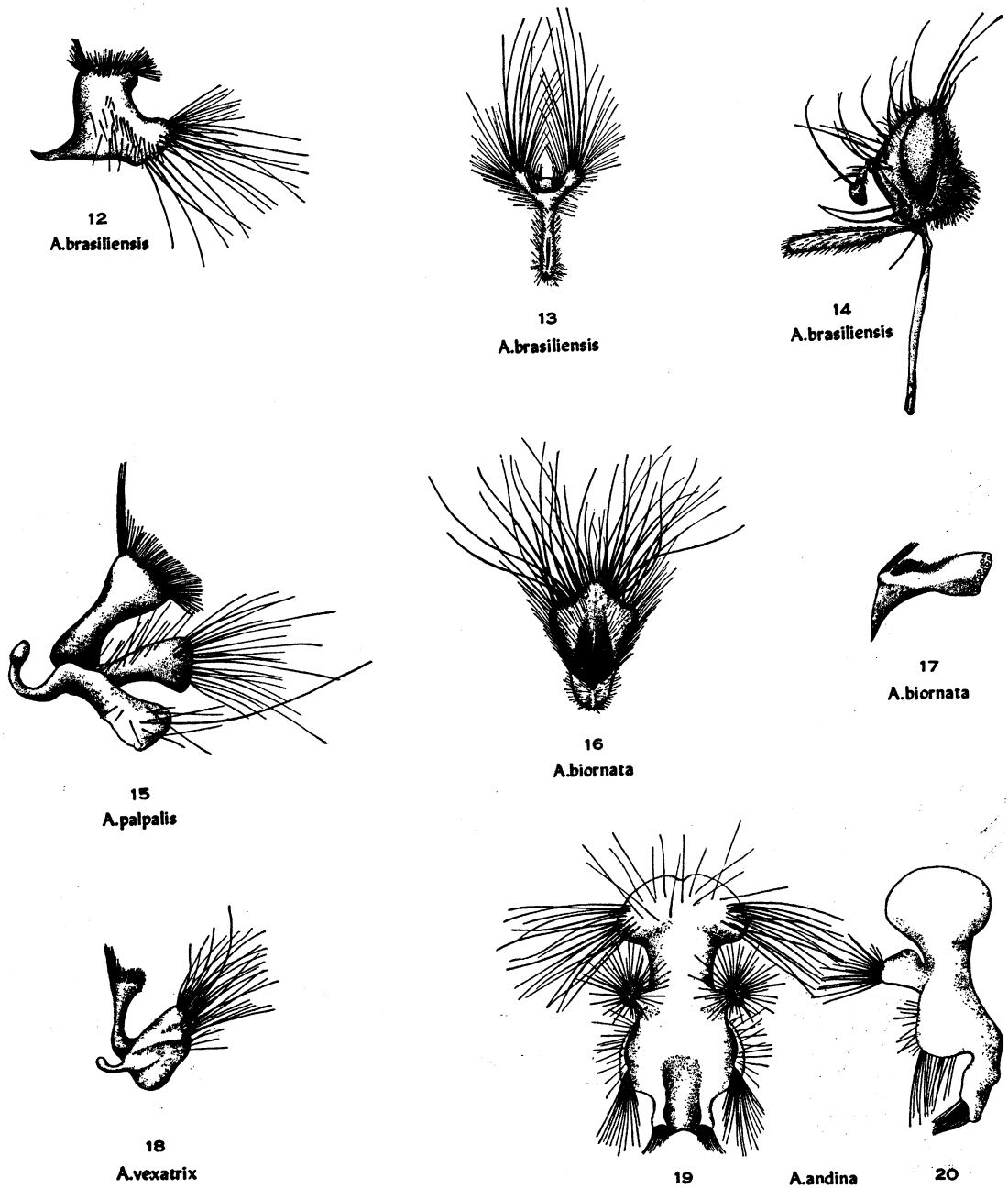




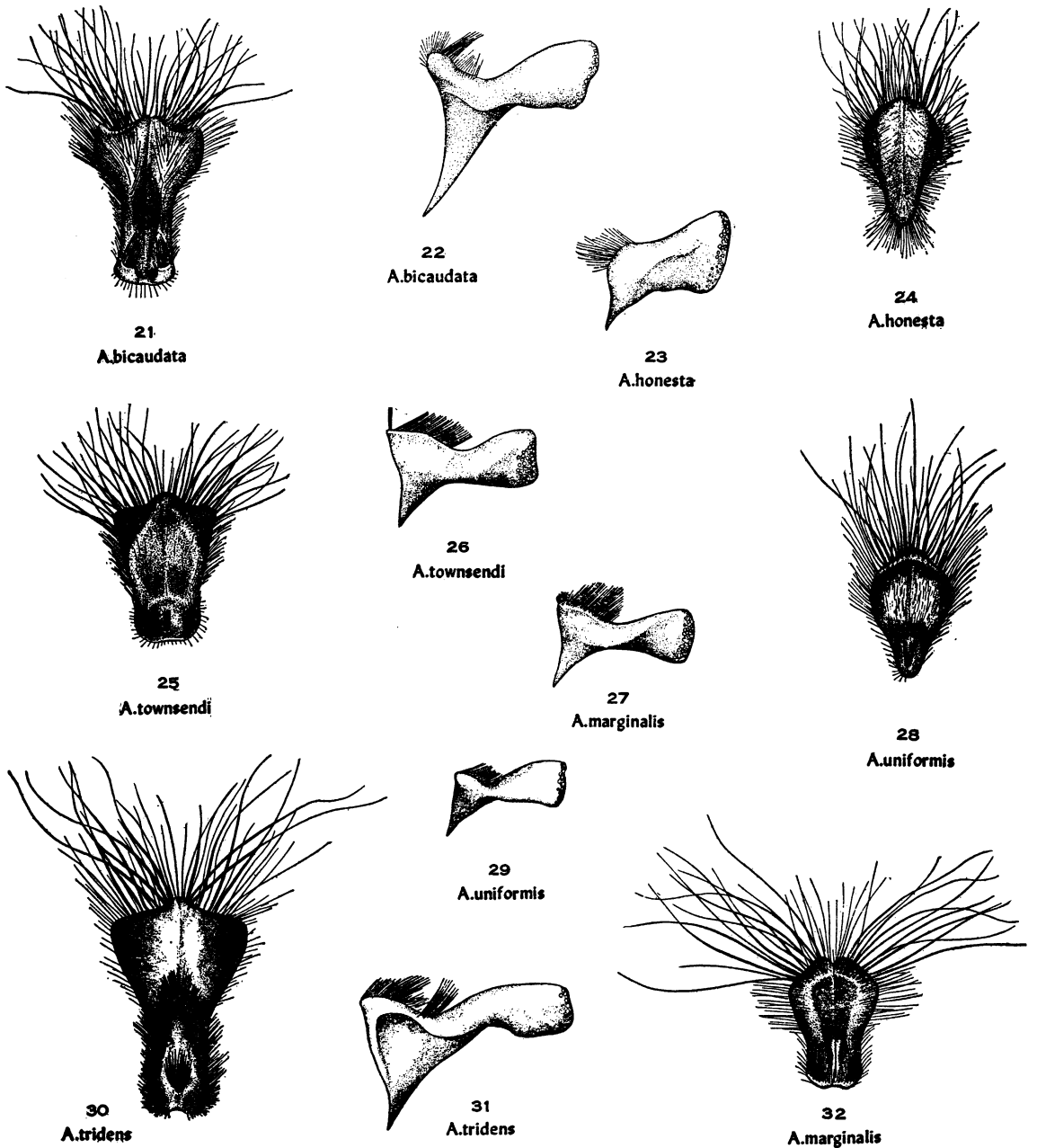
FIGS. 1-4. 1. *Eulasiopalpus vittatus*, new species, dorsal view of abdomen. 2. *Eulasiopalpus vittatus*, new species, lateral view of head. 3. *Eulasiopalpus vittatus*, new species, dorsal view of posterior forceps. 4. *Eulasiopalpus vittatus*, new species, lateral view of posterior forceps.



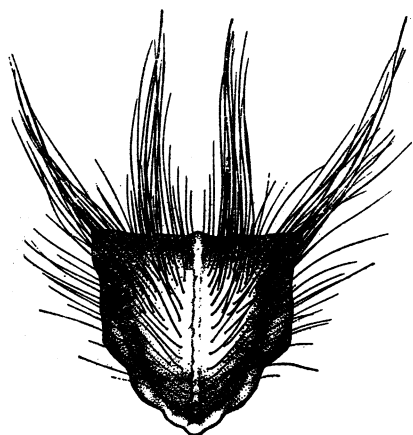
FIGS. 5-11. 5. *Adejeania brevihirta*, new species, dorsal view of abdomen. 6. *Adejeania corpulenta* Wiedemann, lateral view of posterior forceps. 7. *Adejeania verrugana* Townsend, lateral view of posterior forceps and anterior view of anterior arm. 8. *Protodejeania major*, new species, dorsal view of posterior forceps. 9. *Protodejeania pachecoi*, new species, lateral view of head. 10. *Protodejeania echinata* Thomson, lateral view of head. 11. *Protodejeania echinata* Thomson, dorsal view of posterior forceps.



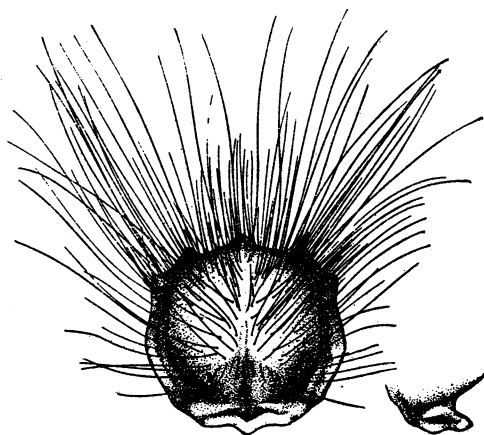
FIGS. 12-20. 12. *Adejeania brasiliensis* Desvoidy, lateral view of posterior forceps. 13. *Adejeania brasiliensis* Desvoidy, dorsal view of posterior forceps. 14. *Adejeania brasiliensis* Desvoidy, lateral view of head. 15. *Adejeania palpalis*, new species, lateral view of posterior forceps. 16. *Adejeania biornata*, new species, dorsal view of posterior forceps. 17. *Adejeania biornata*, new species, lateral view of posterior forceps. 18. *Adejeania vexatrix* Osten Sacken, lateral view of posterior forceps. 19. *Adejeania andina* Townsend, dorsal view of posterior forceps. 20. *Adejeania andina* Townsend, lateral view of posterior forceps.



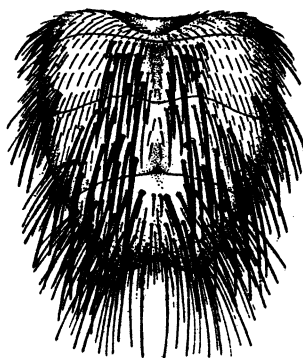
FIGS. 21-32. 21. *Adejeania bicaudata*, new species, dorsal view of posterior forcepts. 22. *Adejeania bicaudata*, new species, lateral view of posterior forcepts. 23. *Adejeania honesta* Rondani, lateral view of posterior forcepts. 24. *Adejeania honesta* Rondani, dorsal view of posterior forcepts. 25. *Adejeania townsendi*, new species, dorsal view of posterior forcepts. 26. *Adejeania townsendi*, new species, lateral view of posterior forcepts. 27. *Adejeania marginalis*, new species, lateral view of posterior forcepts. 28. *Adejeania uniformis*, new species, dorsal view of posterior forcepts. 29. *Adejeania uniformis*, new species, lateral view of posterior forcepts. 30. *Adejeania tridens*, new species, dorsal view of posterior forcepts. 31. *Adejeania tridens*, new species, lateral view of posterior forcepts. 32. *Adejeania marginalis*, new species, dorsal view of posterior forcepts.



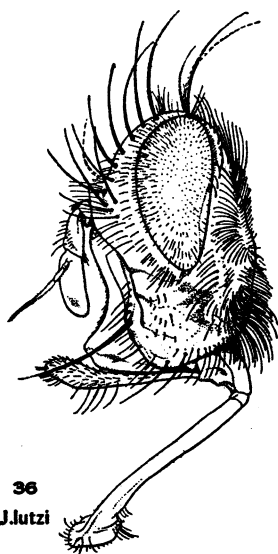
33  
*J.coeruleonigra*



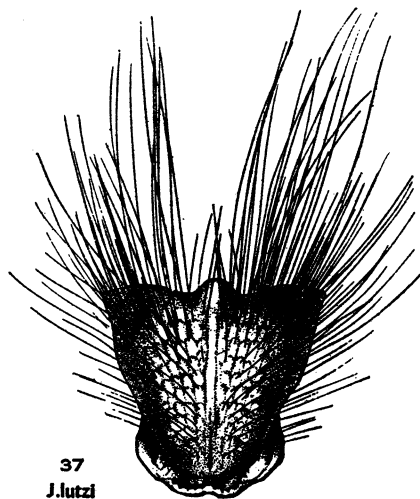
34  
*J.mexicana*



35  
*J.lutzi*

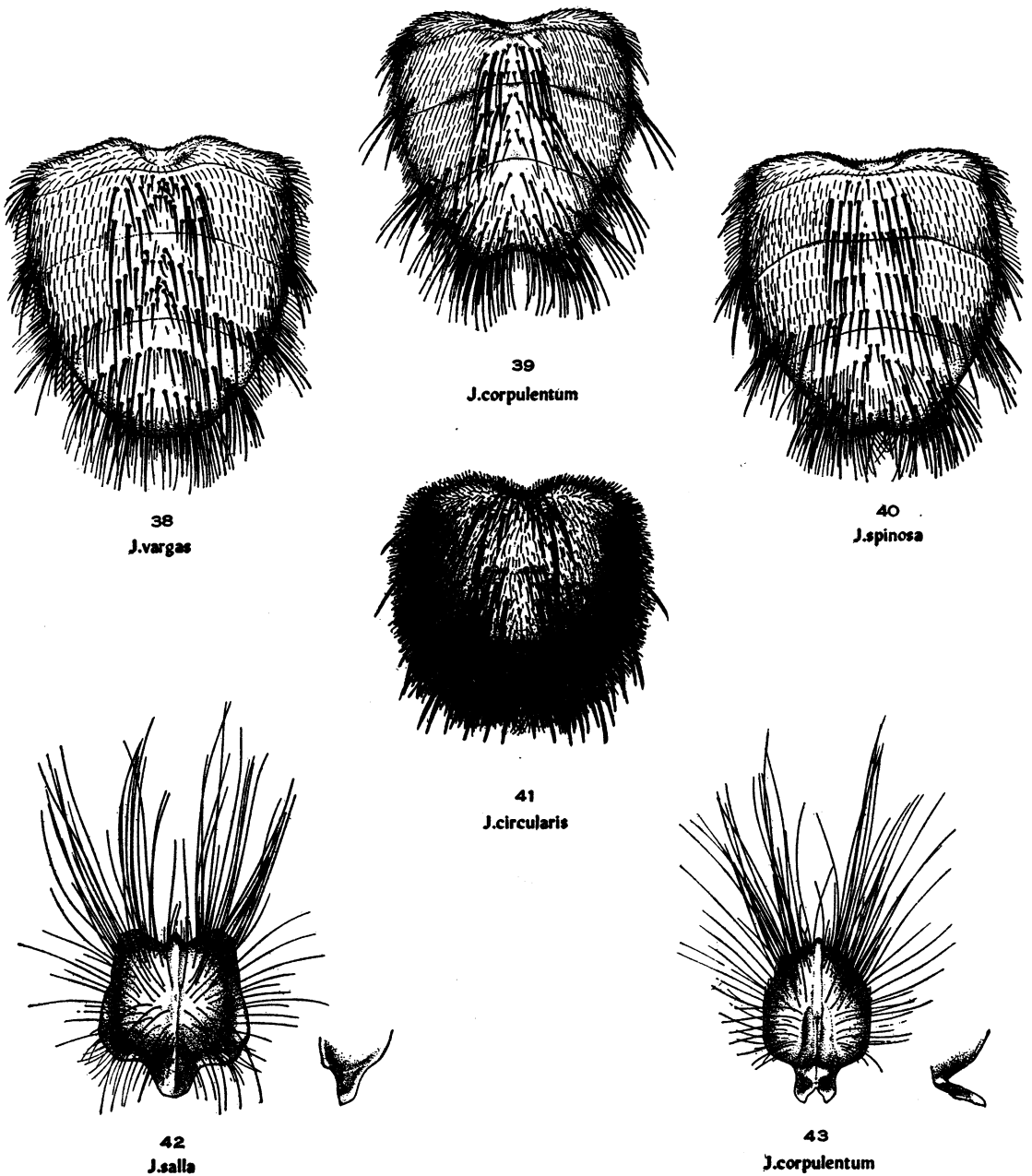


36  
*J.lutzi*

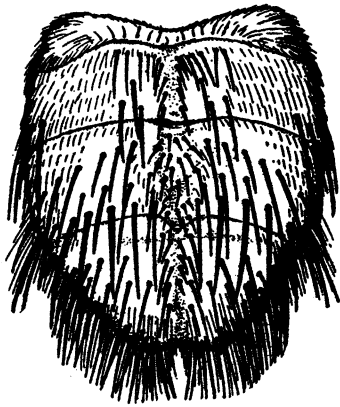


37  
*J.lutzi*

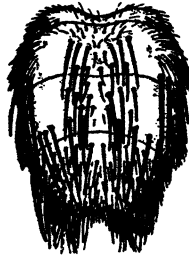
FIGS. 33-37. 33. *Jurinella coeruleonigra* Macquart, dorsal view of posterior forceps. 34. *Jurinella mexicana*, new species, dorsal view of posterior forceps. 35. *Jurinella lutzi*, new species, dorsal view of abdomen. 36. *Jurinella lutzi*, new species, lateral view of head. 37. *Jurinella lutzi*, new species, dorsal view of posterior forceps.



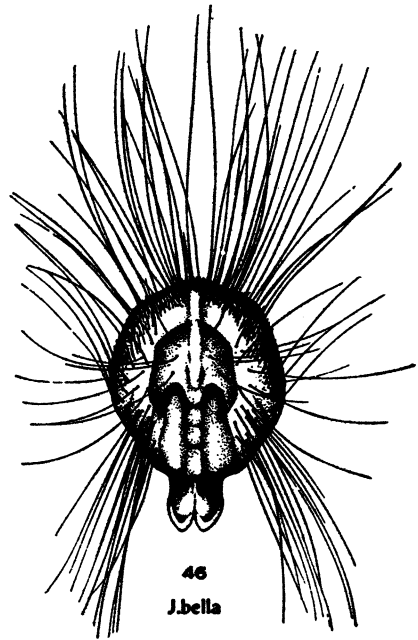
FIGS. 38-43. 38. *Jurinella vargas*, new species, dorsal view of abdomen. 39. *Jurinella corpulentum* Townsend, dorsal view of abdomen. 40. *Jurinella spinosa* Townsend, dorsal view of abdomen. 41. *Jurinella circularis*, new species, dorsal view of abdomen. 42. *Jurinella salla*, new species, dorsal view of posterior forceps and lateral view of the apex. 43. *Jurinella corpulentum* Townsend, dorsal view of posterior forceps and lateral view of the apex.



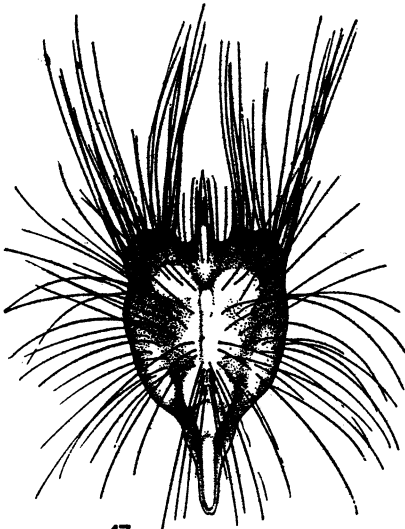
44  
*J. pollinosa*



45  
*J. minuta*



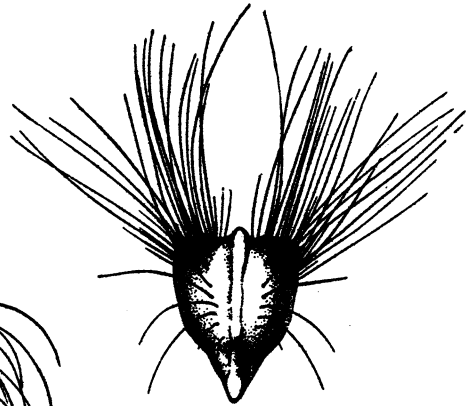
46  
*J. bella*



47  
*J. producta*

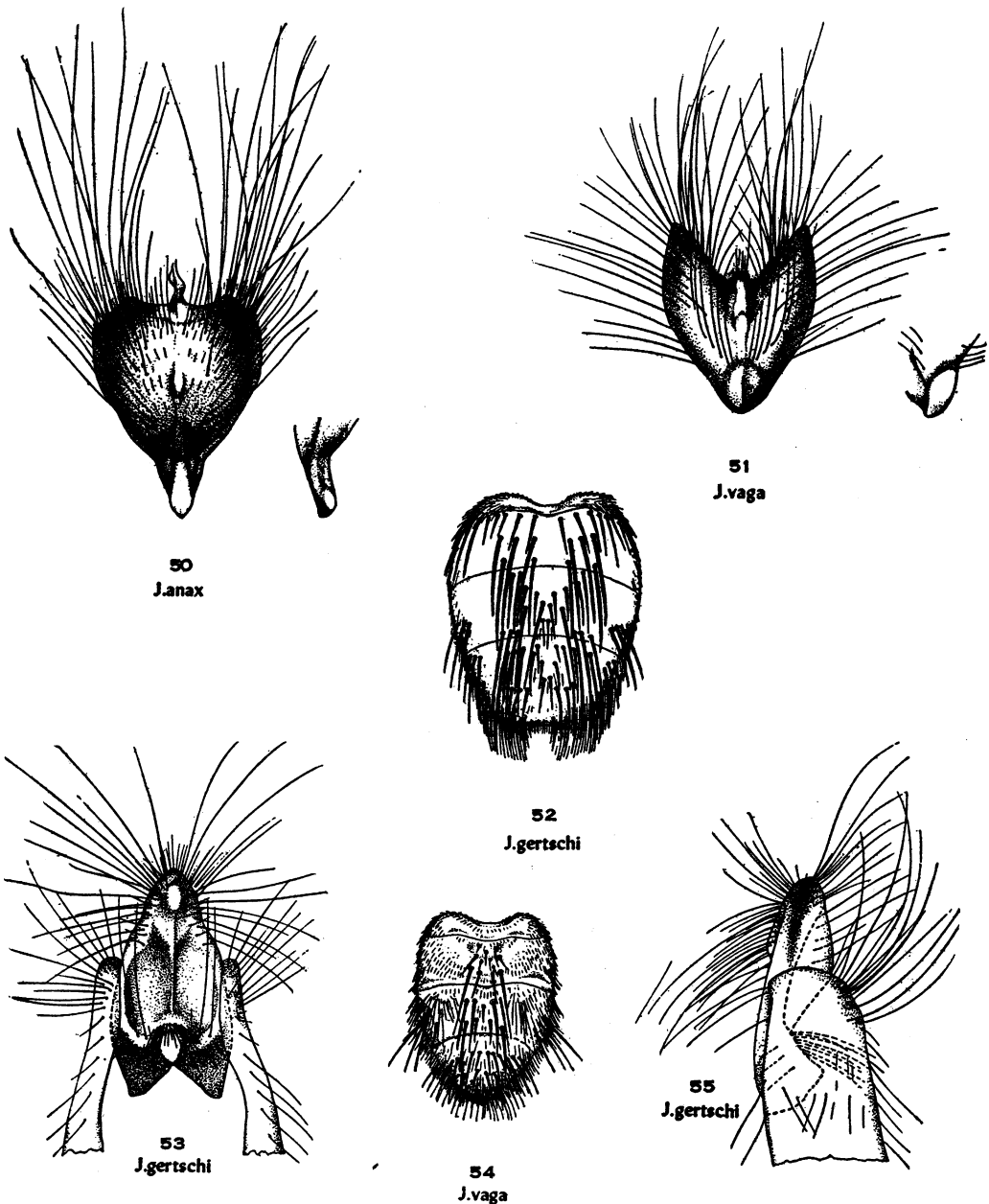


48  
*J. producta*



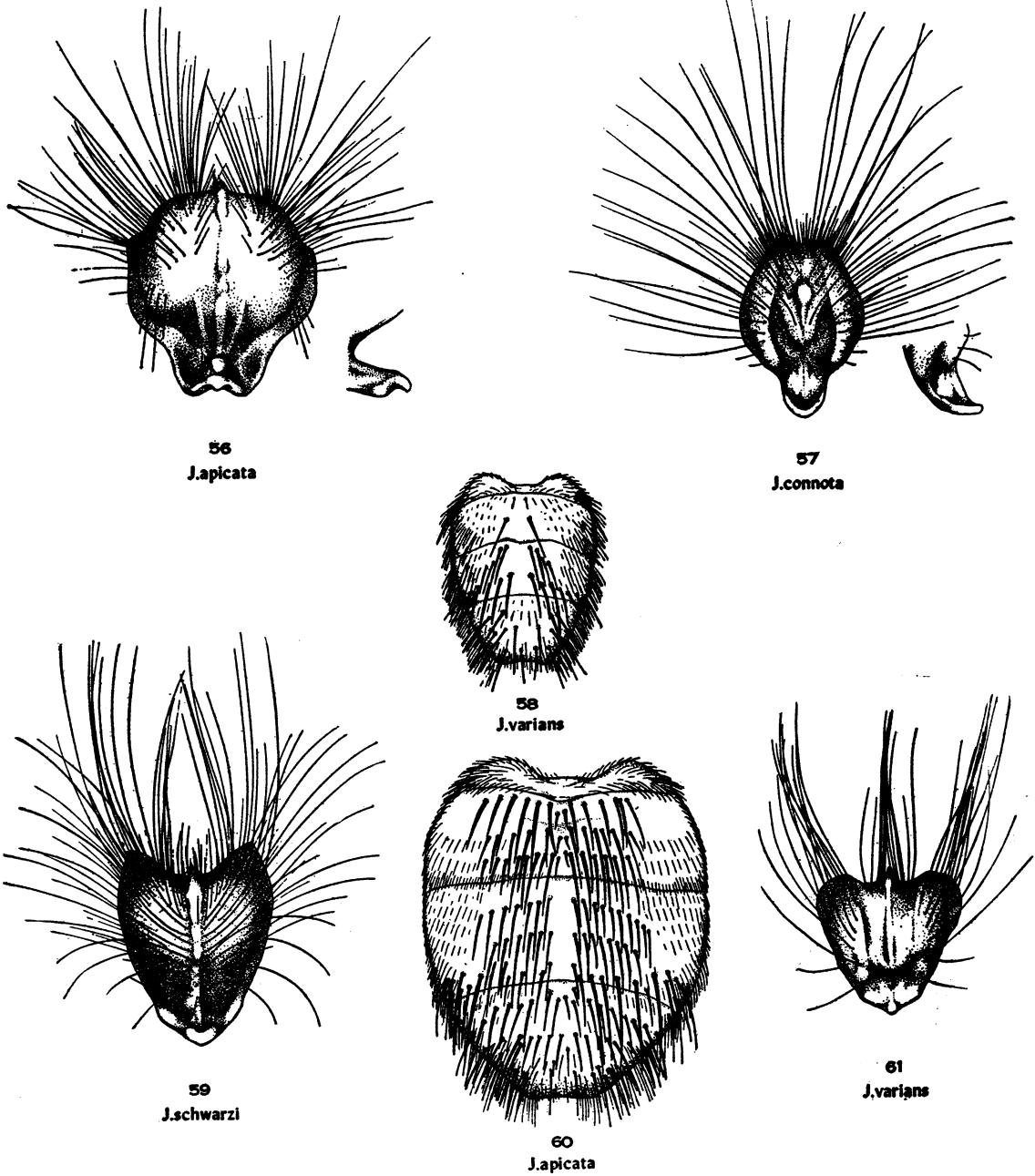
49  
*J. minuta*

FIGS. 44-49. 44. *Jurinella pollinosa* Wulp, dorsal view of abdomen. 45. *Jurinella minuta*, new species, dorsal view of abdomen. 46. *Jurinella bella*, new species, dorsal view of posterior forceps. 47. *Jurinella producta*, new species, dorsal view of posterior forceps. 48. *Jurinella producta*, new species, lateral view of posterior forceps. 49. *Jurinella minuta*, new species, dorsal view of posterior forceps.

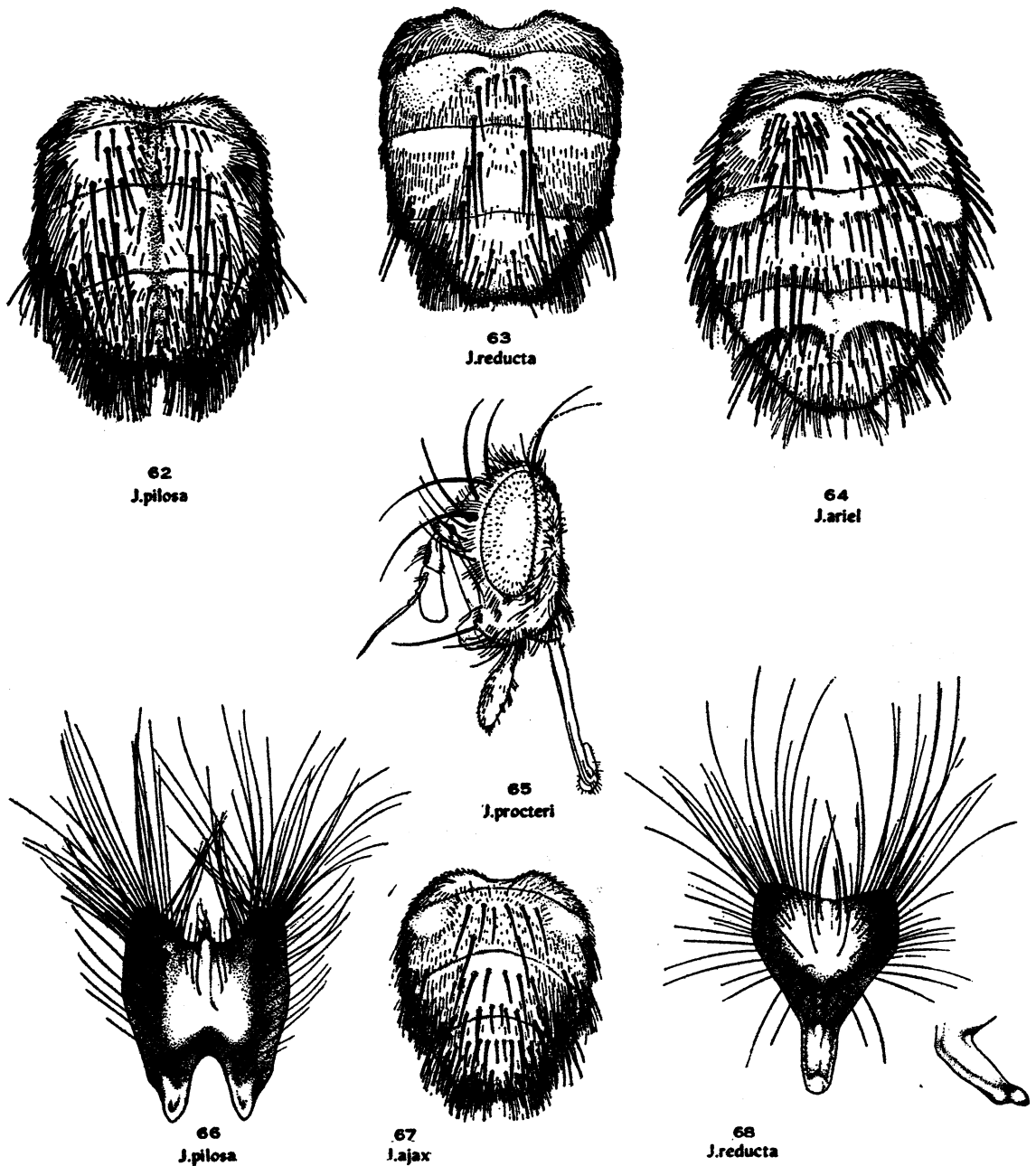


FIGS. 50-55. 50. *Jurinella anax*, new species, dorsal view of posterior forceps and lateral view of apical arm. 51. *Jurinella vaga*, new species, dorsal view of posterior forceps and lateral view of apical arm. 52. *Jurinella gertschi*, new species, dorsal view of abdomen. 53. *Jurinella gertschi*, new species, dorsal view of posterior forceps. 54. *Jurinella vaga*, new species, dorsal view of abdomen. 55. *Jurinella gertschi*, new species, lateral view of posterior forceps.

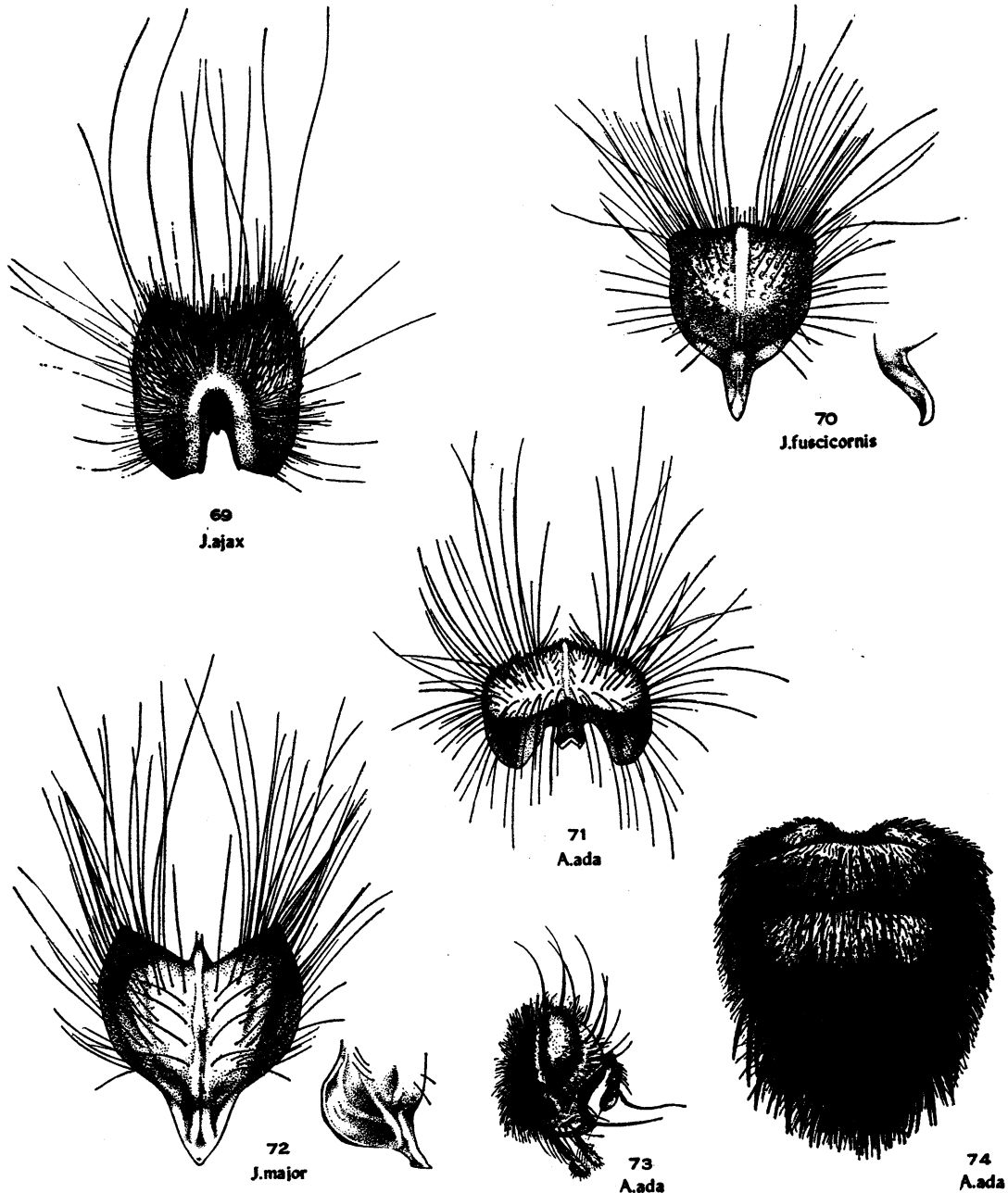




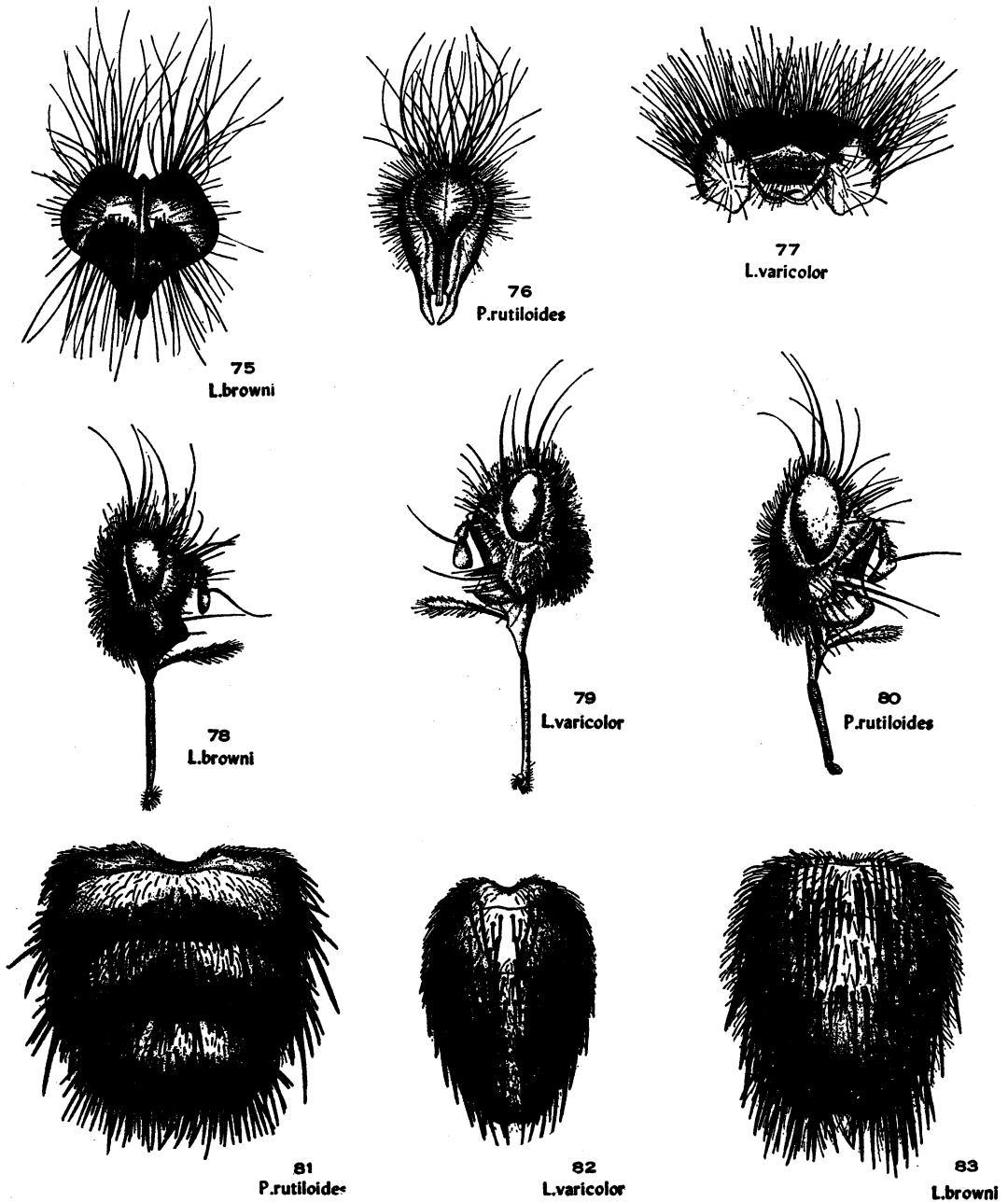
FIGS. 56-61. 56. *Jurinella apicata*, new species, dorsal view of posterior forceps and lateral view of median arm. 57. *Jurinella connota*, new species, dorsal view of posterior forceps and lateral view of median arm. 58. *Jurinella varians*, new species, dorsal view of abdomen. 59. *Jurinella schwarzi*, new species, dorsal view of posterior forceps. 60. *Jurinella apicata*, new species, dorsal view of abdomen. 61. *Jurinella varians*, new species, dorsal view of posterior forceps.



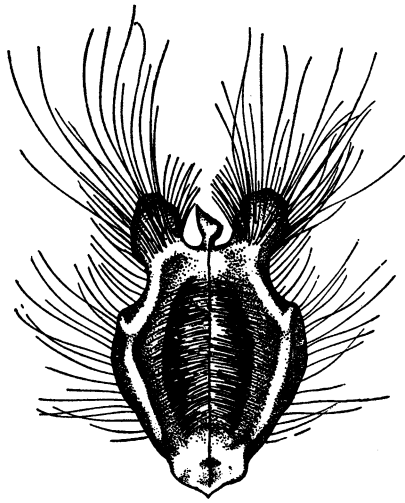
FIGS. 62-68. 62. *Jurinella pilosa* Drury, dorsal view of abdomen. 63. *Jurinella reducta*, new species, dorsal view of abdomen. 64. *Jurinella ariel*, new species, dorsal view of abdomen. 65. *Jurinella procteri*, new species, lateral view of head. 66. *Jurinella pilosa* Drury, dorsal view of posterior forceps. 67. *Jurinella ajax*, new species, dorsal view of abdomen. 68. *Jurinella reducta*, new species, dorsal view of posterior forceps and lateral view of median arm.



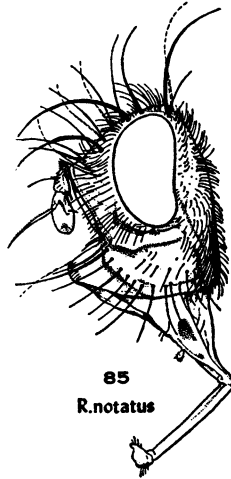
FIGS. 69-74. 69. *Jurinella ajax*, new species, dorsal view of posterior forceps. 70. *Jurinella fuscicornis* Curran, dorsal view of posterior forceps and lateral view of apical arm. 71. *Amicrotrichomma ada*, new species, dorsal view of posterior forceps. 72. *Jurinella major* Curran, dorsal view of posterior forceps and lateral view of the apex. 73. *Amicrotrichomma ada*, new species, lateral view of head. 74. *Amicrotrichomma ada*, new species, dorsal view of abdomen.



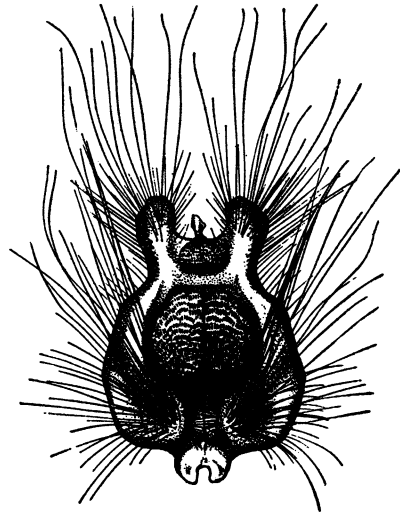
FIGS. 75-83. 75. *Lindigia browni*, new species, dorsal view of posterior forceps. 76. *Paradejeania rutiloides* Jaennicke, dorsal view of posterior forceps. 77. *Lindigia varicolor*, new species, dorsal view of posterior forceps. 78. *Lindigia browni*, new species, lateral view of head. 79. *Lindigia varicolor*, new species, lateral view of head. 80. *Paradejeania rutiloides* Jaennicke, lateral view of head. 81. *Paradejeania rutiloides* Jaennicke, dorsal view of abdomen. 82. *Lindigia varicolor*, new species, dorsal view of abdomen. 83. *Lindigia browni*, new species, dorsal view of abdomen.



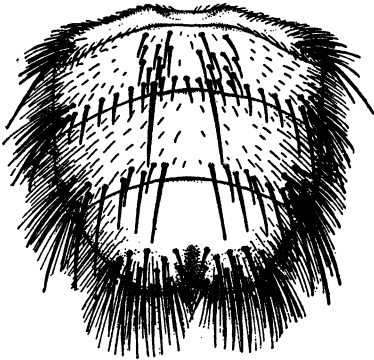
84  
*R. metallica*



85  
*R. notatus*



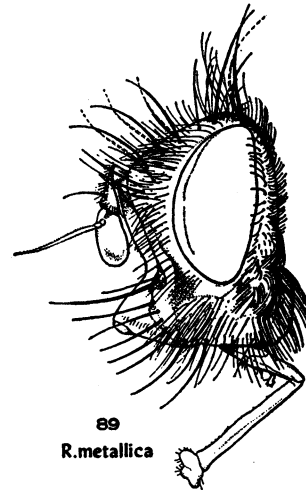
86  
*R. andinus*



87  
*R. notatus*

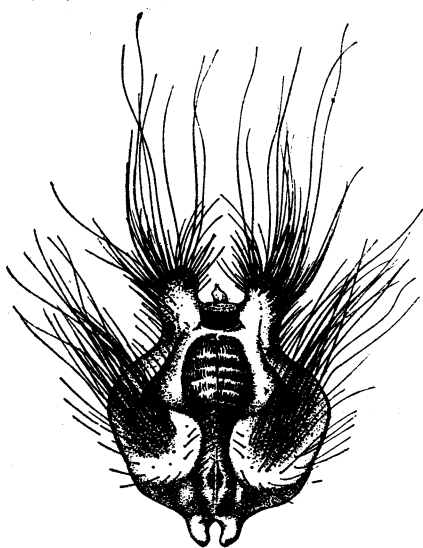


88  
*R. metallica*

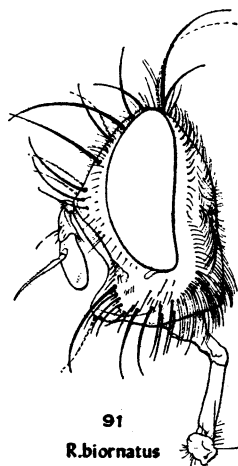


89  
*R. metallica*

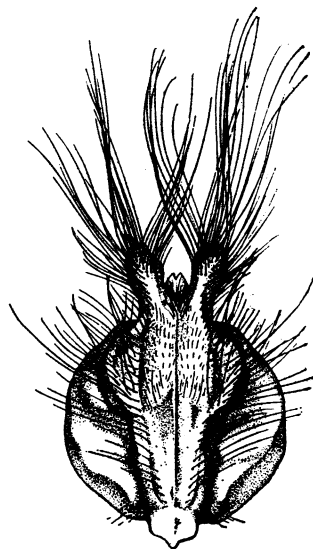
FIGS. 84-89. 84. *Rhachoepalpus metallica*, new species, dorsal view of posterior forceps. 85. *Rhachoepalpus notatus*, new species, lateral view of head. 86. *Rhachoepalpus andinus* Townsend, dorsal view of posterior forceps. 87. *Rhachoepalpus notatus*, new species, dorsal view of abdomen. 88. *Rhachoepalpus metallica*, new species, dorsal view of abdomen. 89. *Rhachoepalpus metallica*, new species, lateral view of head.



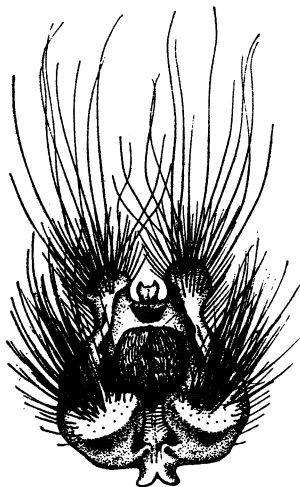
90  
*R.testaceus*



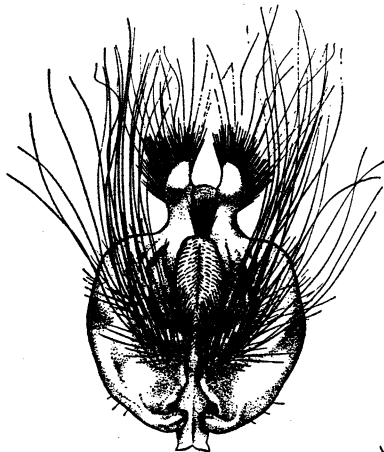
91  
*R.biornatus*



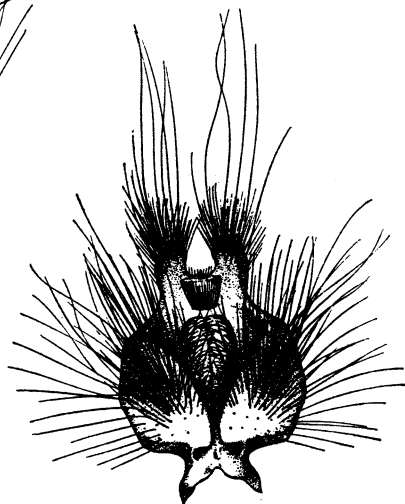
92  
*R.beatus*



93  
*R.blandus*

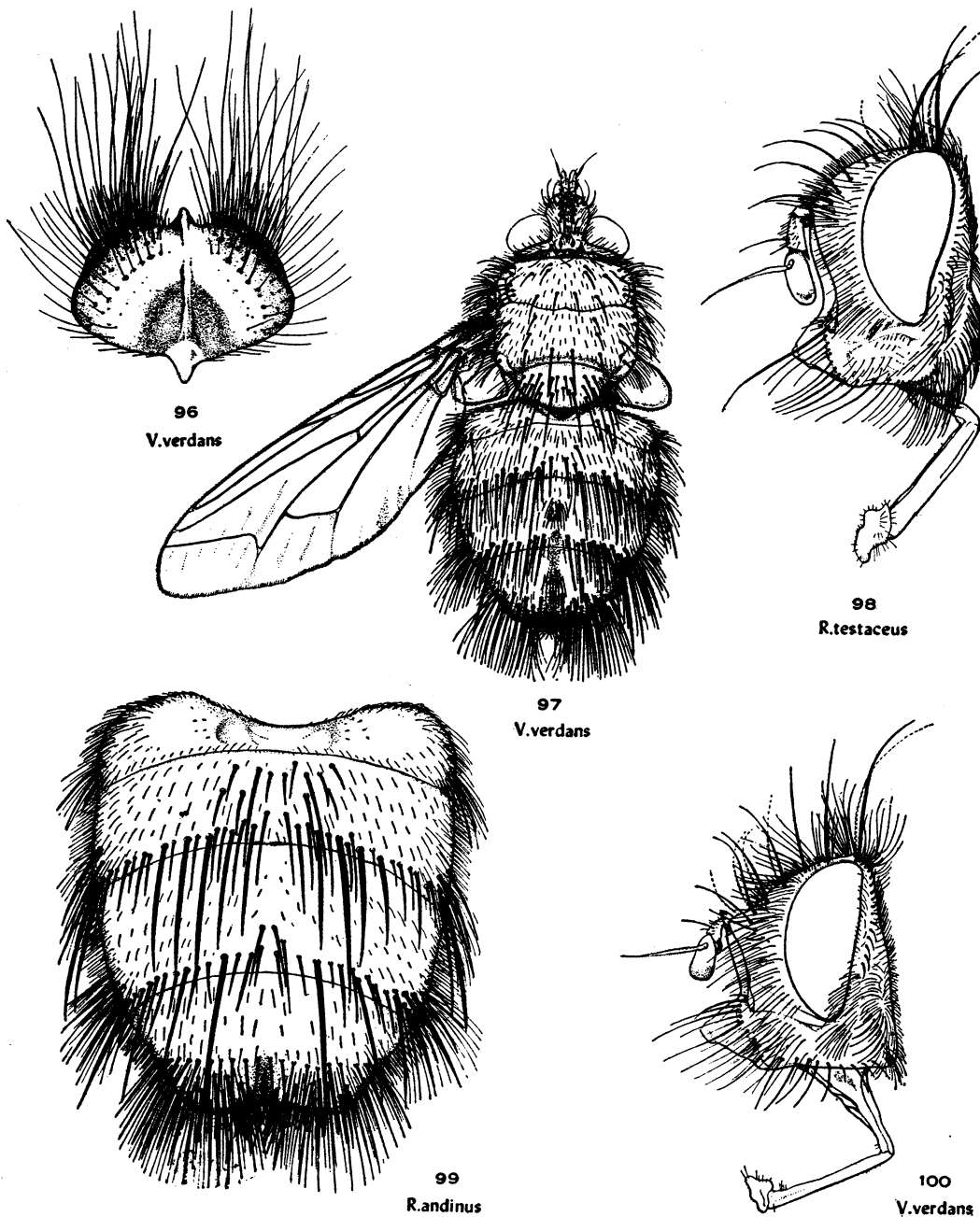


94  
*R.argenteus*

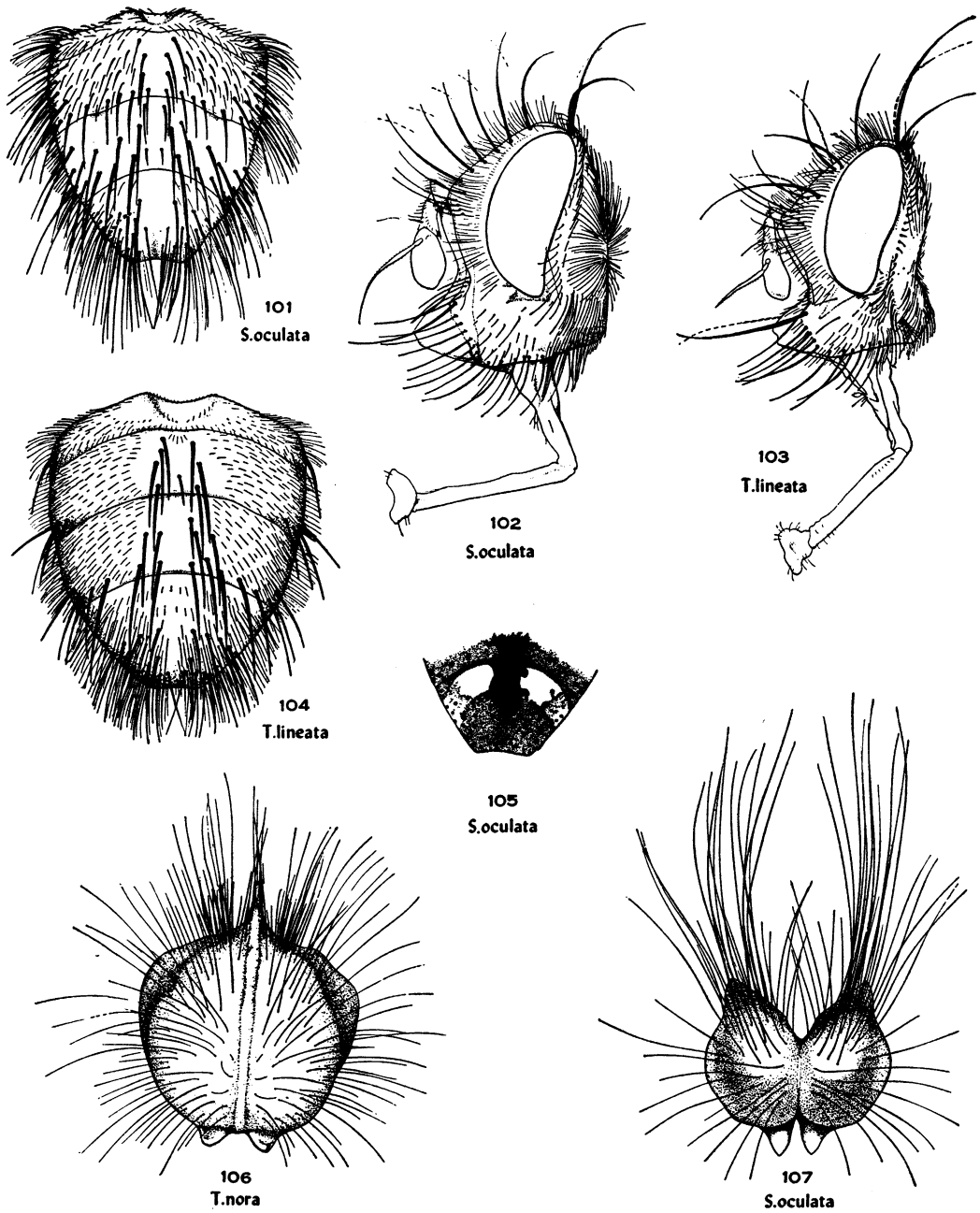


95  
*R.nova*

FIGS. 90–95. 90. *Rhachoepalpus testaceus* Wulp, dorsal view of posterior forceps. 91. *Rhachoepalpus biornatus*, new species, lateral view of head. 92. *Rhachoepalpus beatus*, new species, dorsal view of posterior forceps. 93. *Rhachoepalpus blandus*, new species, dorsal view of posterior forceps. 94. *Rhachoepalpus argenteus* Townsend, dorsal view of posterior forceps. 95. *Rhachoepalpus nova*, new species, dorsal view of posterior forceps.

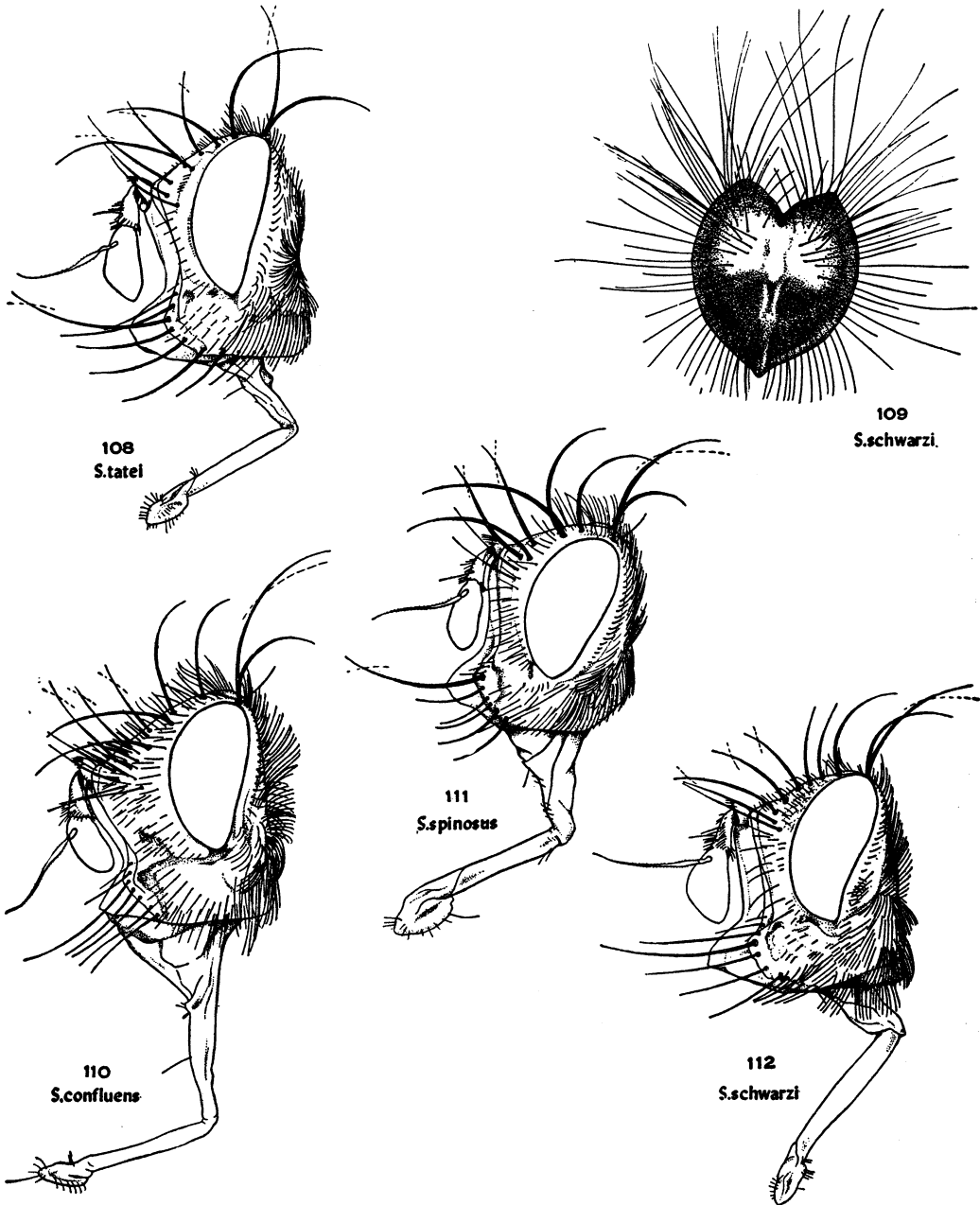


FIGS. 96-100. 96. *Vertepalpus verdans*, new species, dorsal view of posterior forceps. 97. *Vertepalpus verdans*, new species, dorsal view. 98. *Rhachoepalpus testaceus* Wulp, lateral view of head. 99. *Rhachoepalpus andinus* Townsend, dorsal view of abdomen. 100. *Vertepalpus verdans*, new species, lateral view of head.

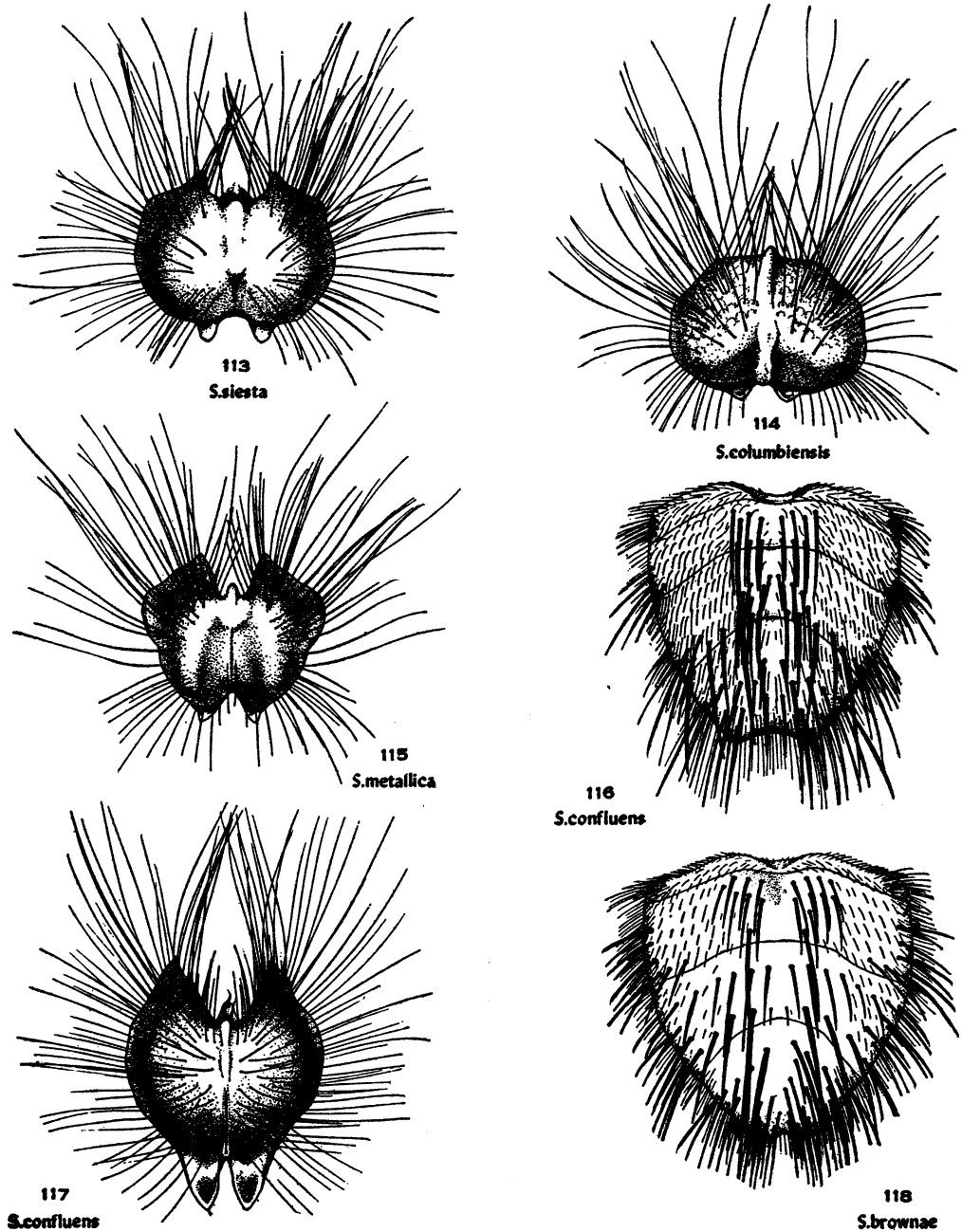


FIGS. 101-107. 101. *Saundersiops oculata*, new species, dorsal view of abdomen. 102. *Saundersiops oculata*, new species, lateral view of head. 103. *Trichosaundersia lineata* Townsend, lateral view of head. 104. *Trichosaundersia lineata* Townsend, dorsal view of abdomen. 105. *Saundersiops oculata*, new species, color pattern of apical segment. 106. *Trichosaundersia nora*, new species, dorsal view of posterior forceps. 107. *Saundersiops oculata*, new species, dorsal view of posterior forceps.

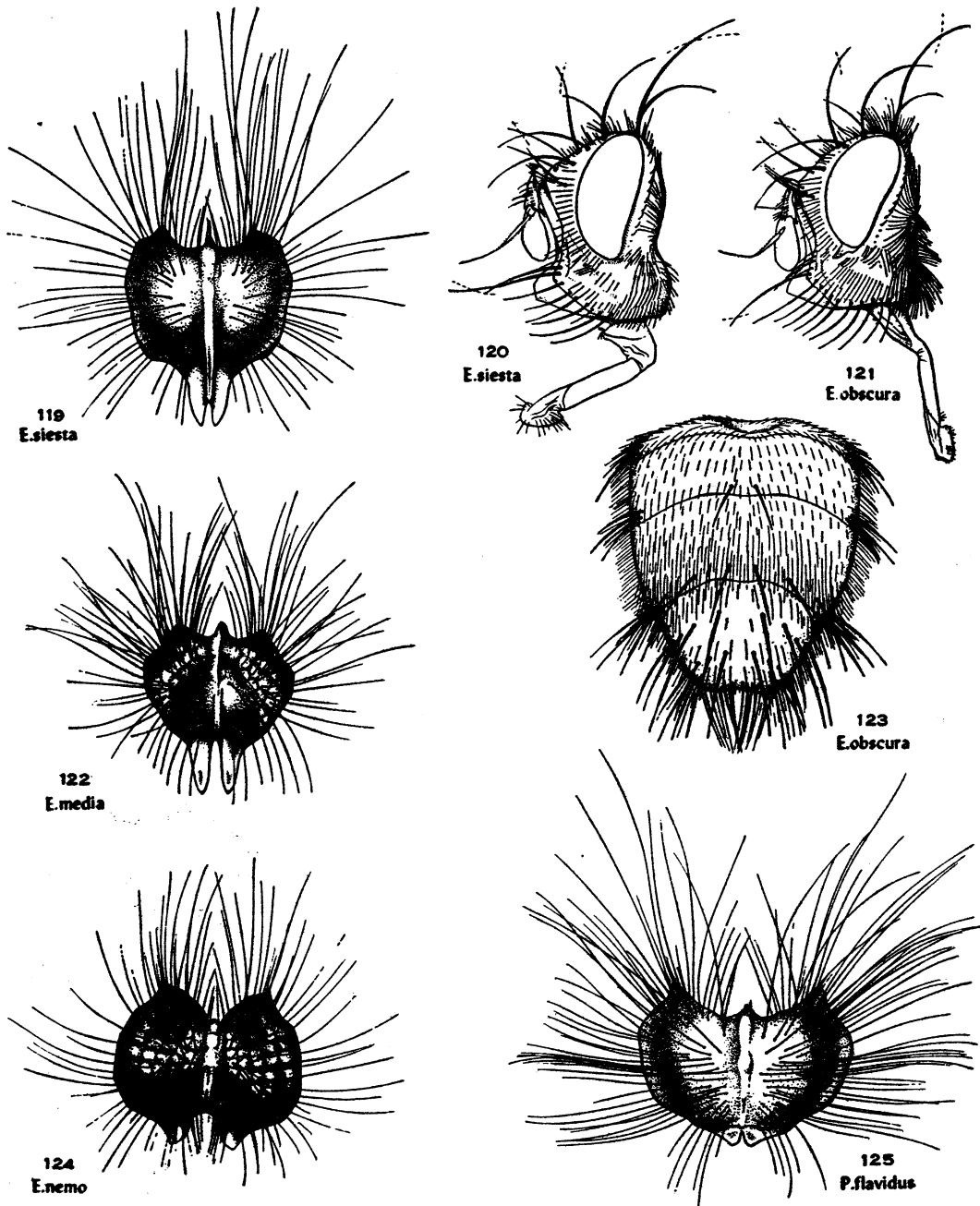




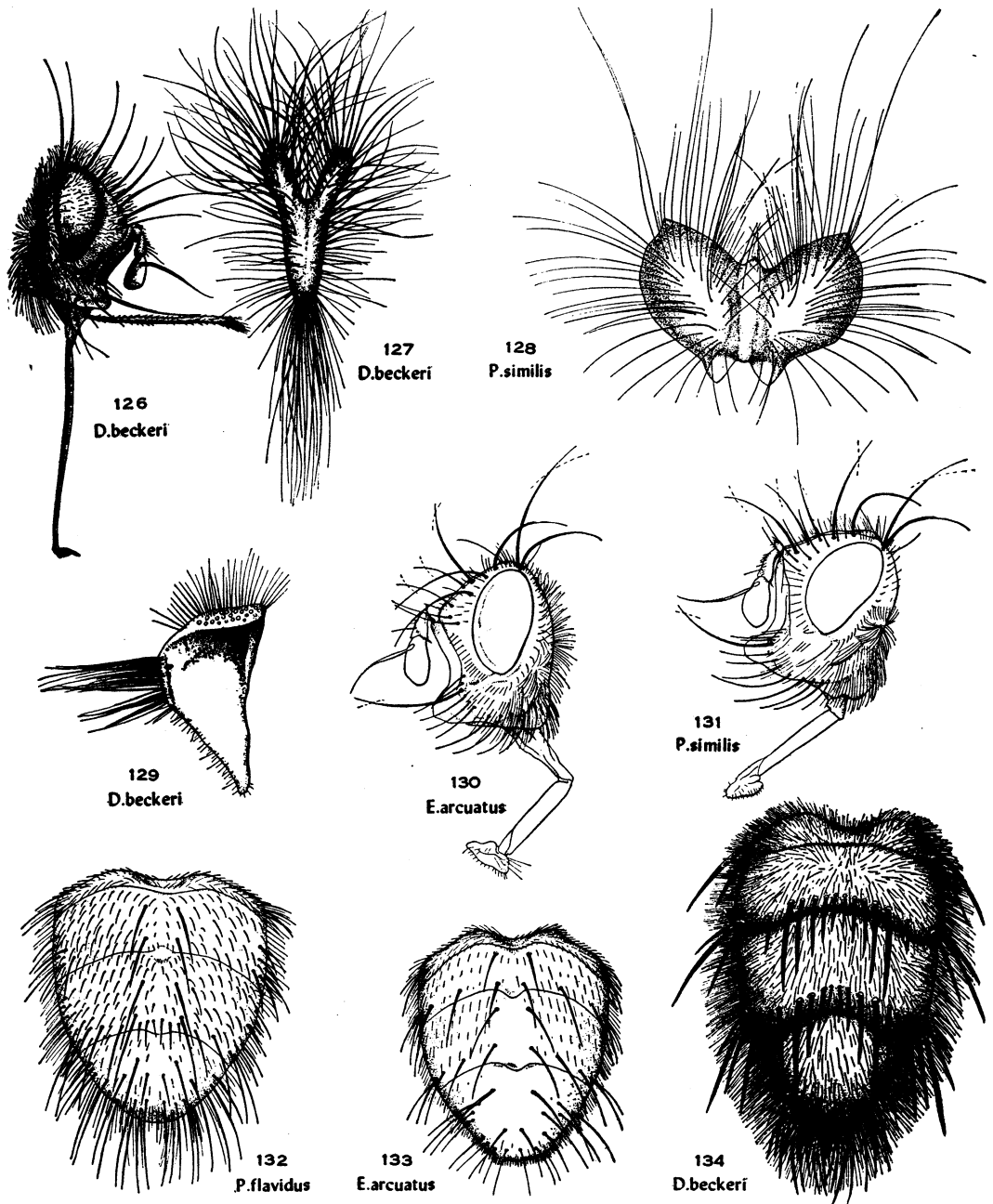
FIGS. 108-112. 108. *Saundersiops tatei*, new species, lateral view of head. 109. *Saundersiops schwarzi*, new species, dorsal view of posterior forceps. 110. *Saundersiops confluens* Townsend, lateral view of head. 111. *Saundersiops spinosus* Townsend, lateral view of head. 112. *Saundersiops schwarzi*, new species, lateral view of head.



FIGS. 113-118. 113. *Saundersiops siesta*, new species, dorsal view of posterior forceps. 114. *Saundersiops colombiensis*, new species, dorsal view of posterior forceps. 115. *Saundersiops metallica*, new species, dorsal view of posterior forceps. 116. *Saundersiops confluens* Townsend, dorsal view of abdomen. 117. *Saundersiops confluens* Townsend, dorsal view of posterior forceps. 118. *Saundersiops brownae*, new species, dorsal view of abdomen.



FIGS. 119-125. 119. *Euhuascaraya siesta*, new species, dorsal view of posterior forceps. 120. *Euhuascaraya siesta*, new species, lateral view of head. 121. *Euhuascaraya obscura*, new species, lateral view of head. 122. *Euhuascaraya media*, new species, dorsal view of posterior forceps. 123. *Euhuascaraya obscura*, new species, dorsal view of abdomen. 124. *Euhuascaraya nemo*, new species, dorsal view of posterior forceps. 125. *Parepalpus flavidus* Coquillett, dorsal view of posterior forceps.



FIGS. 126-134. 126. *Dejeaniops beckeri* Engel, lateral view of head. 127. *Dejeaniops beckeri*, Engel, dorsal view of posterior forceps. 128. *Parepalpus similis* Townsend, dorsal view of posterior forceps. 129. *Dejeaniops beckeri* Engel, lateral view of posterior forceps. 130. *Euepalpodes arcuatus* Townsend, lateral view of head. 131. *Parepalpus similis* Townsend, lateral view of head. 132. *Parepalpus flavidus* Coquillett, dorsal view of abdomen. 133. *Euepalpodes arcuatus* Townsend, dorsal view of abdomen. 134. *Dejeaniops beckeri* Engel, dorsal view of abdomen.







