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## AFRICAN TACHINIDAE—I

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In this contribution will be found descriptions of a number of new species of African Tachinidae with notes on some previously described species. Much of the material has been furnished by the Imperial Bureau of Entomology, Mr. H. K. Munro, and Mr. Alexander Cuthbertson, to whom I wish to express my appreciation.

Unless otherwise stated, the types of new species are in The American Museum of Natural History.

### **STURMIA** Desvoidy

The four species described below should possibly be placed in a genus other than *Sturmia* although possessing most of the characters of this genus but, since there is great need of a revision of the African species of Tachinidae and insufficient is known concerning the species and genera, I prefer to describe the species in this genus. All the species are small, with flattened abdomen, black-haired occiput and the antennae situated slightly lower on the head than is usual in *Sturmia*, and in addition all have fine bristles on the lowest third of the parafacials and the basal two abdominal segments shining black. The number of bristles on the base of the third vein varies from one to two, sometimes differing in the wings of the same individual.

There are at least six species belonging to this group, but as two of them are represented by single specimens, descriptions are not given at the present time. Those described are separable as follows.

- 1.—Apical two abdominal segments almost wholly golden-yellow pollinose.

*auratocauda*, n. sp.

Apical segments with white or pale yellow pollen. . . . . 2.

- 2.—Apical segments chalky white pollinose with the apices black. . . . . *albocauda*, n. sp.

Apical segments with the apical third or more black. . . . . 3.

- 3.—Middle tibiae with an anteroventral or ventral bristle beyond the middle; pale pollinose abdominal fasciae but little narrowed toward the sides.

*versicauda*, n. sp.

Middle tibiae without such bristle; pale pollinose fasciae wider and strongly narrowed to the sides. . . . . *fascicauda*, n. sp.

***Sturmia auratocauda*, new species**

Shining black, the apical two abdominal segments golden-yellow pollinose; male with rectangular sexual patch on under side of third abdominal segment. Length, 5 to 7 mm.

**MALE.**—Head black in ground color, white pollinose, the parafrontals almost bare on the upper half, the occiput shining except immediately behind the eyes. Front half as wide as either eye at widest part, with almost parallel sides on the upper third; about eleven pairs of frontal bristles, the upper two pairs strong and reclinate; parafrontals a little narrower than the frontal vitta, with moderately long hair; ocellars fairly long. Occipital hair wholly black. Cheeks one-seventh as wide as the eye-height, with black hair. Parafacials strongly narrowing below, bare below the frontals. Vibrissae situated level with the oral margin, the facial ridges with short bristly hairs on almost the lower half. Palpi black, bearing short hairs. Antennae black or brown, extending to the lowest fifth of the face; third segment about three times as long as the second, narrow, the apex rounded; arista pubescent.

Thorax shining black, the pleura with some very thin brownish pollen. Acrosticals, 3-3; dorsocentrals, 3-4; sternopleurals, 1-1, or with a third weak one near the anterior, in which case they form an almost straight line. Scutellum with four or five pairs of marginals, the apical pair decussate, and one pair of discals. Prosternum with hairs and a pair of weak bristles.

Legs black; middle tibiae with a single anterior bristle, situated near the middle; posterior tibiae almost evenly but not closely ciliate; pulvilli luteous, longer than the fifth tarsal segment.

Wings cinereous hyaline, the base brown; apical cell very narrowly open considerably before the wing-tip; third vein normally with a single basal bristle, rarely with two weak ones, more often with one bristle and a very short hair. Squamae brownish. Halteres reddish brown.

Abdomen shining black, the third and fourth segments densely golden-yellow pollinose dorsally, each with the apical sixth or less shining black, the sides of the third and fourth segments more or less broadly dull reddish. On the under side the abdomen is more extensively reddish and almost wholly without pale pollen, the third segment with a rather large, transverse, rectangular sexual patch of appressed, short hair. First segment without median marginals, the second with a very weak pair, the third and fourth each with a row, the fourth also with a row of discals. The hair is appressed except on the middle of the second segment, where it is suberect, longer and more abundant.

**FEMALE.**—Front half as wide as either eye, gently widening from the vertex to the antennae; eight or nine pairs of frontals and two pairs of proclinate orbitals, the hair shorter and rather sparse. Outer verticals absent. Palpi rather strongly swollen. Second abdominal segment with a row of appressed or subappressed marginals, the third and fourth wholly golden-yellow pollinose except the sides of the posterior border.

**TYPES.**—Holotype, male, Ibadan, Nigeria, June 30, 1922 (Dr. W. J. Pomeroy). Allotype, female, Nigeria, 1924 (O. B. Lean). Paratypes: male and three females, Ibadan, September 29, October 5, 22, and 25, 1920; two females, Ibadan, August 17, 1913, and November 29, 1913 (Dr. W. A. Lamborn); three females, Ibadan, 1934 (O. B. Lean); male and two females, Kpeve, Gold Coast, November, 1927, 1931, and

December 21, 1931 (G. S. Cotterell); and female, Aburi, Gold Coast, May 1, 1927 (G. S. Cotterell), ex cotton leaf-roller, *Anoma* species. Almost all the specimens are labelled "from cotton" and it is probable that they were reared from the same host, although one was reared from *Sylepta derogata*. Types in British Museum of Natural History.

***Sturmia albicauda*, new species**

Shining black, the third and fourth abdominal segments thickly white pollinose. Length, 6 mm.

MALE.—Head black in ground color, with white pollen, the parafrontals cinereous-white pollinose below, becoming bare above; occiput shining black, the posterior orbits silvery white on the lower half. Front a little less than half as wide as either eye; ten or eleven pairs of frontals, the upper two pairs strong and reclinate; hair short and fairly abundant; ocellars long. Outer verticals absent; hair of the occiput and cheeks wholly black. Cheeks shining, slightly more than one-sixth as wide as the eye-height. Parafacials strongly narrowing below; vibrissae situated level with the oral margin; facial ridges with weak bristles on the lowest third. Palpi black. Antennae brown, the third segment about two and one-half times as long as the second, the apex rounded; arista thickened and microscopically pubescent on the basal fourth.

Thorax shining black, the pleura with thin brownish pollen. Acrosticals, 3-3; dorsocentrals, 3-4; sternopleurals, 2-1, the lower weak. Scutellum with four pairs of marginals, the apical pair weak and decussate, and one pair of discals. Prosternum with lateral hairs.

Legs black; middle tibiae without an anterior bristle; posterior tibiae almost evenly and rather sparsely ciliate; pulvilli long.

Wings cinereous hyaline, the base darkened; apical cell narrowly open moderately before the wing-tip; third vein with a single basal bristle. Squamae light brown. Halteres reddish brown.

Abdomen with the basal two segments shining black, the apical two densely white pollinose with the apical fifth of each shining. Second segment with a pair of weak marginals, the third and fourth each with a row, the fourth with two rows of fine discals; hair appressed; more abundant, longer and erect on the middle of the second segment. Under surface wholly shining black, the third segment with a large, subrectangular sexual patch of appressed hair on either side.

TYPE.—Male, on board ship off Loango, French Congo, November 30, 1926 (J. Bequaert).

***Sturmia fascicauda*, new species**

Shining black, the third and fourth abdominal segments white pollinose on more than the basal half. Length, 6 to 6.5 mm.

MALE.—Head black in ground color, the face and lower half of the posterior orbits white pollinose, the parafrontals thinly cinereous-white pollinose on about the lower half. Front half as wide as either eye; twelve pairs of frontals, the upper two pairs strong and reclinate; hair moderately long and fairly abundant; ocellars long. Outer verticals absent; occiput and cheeks black-haired. Cheeks one-seventh as wide as eye-height. Parafacials strongly narrowing below; vibrissae situated level with the oral margin, the facial ridges with weak bristles on the lowest third. Palpi

black. Antennae long and rather narrow, the third segment two and one-half times as long as the second and with rounded apex; arista tapering from near the base, short pubescent on the basal third.

Thorax shining black, the pleura with brownish pollen. Acrosticals, 3-3; dorso-centrals, 3-4; sternopleurals, 1-1-1, the second weak and situated close to the first. Four pairs of marginal scutellars, the apical pair weak and decussate. Prosternum with bristly hairs on the sides.

Legs black; middle tibiae with a strong anterior bristle situated beyond the middle; posterior tibiae evenly but not densely ciliate, with a longer bristle in the row; pulvilli yellowish and elongate.

Wings cinereous hyaline, the base brown, the costal border with brownish tinge on the basal half; apical cell narrowly open moderately before the wing-tip; third vein with one or two weak basal bristles. Squamae brown. Halteres yellow, with brown knob.

Abdomen shining black, the apical segments with white pollen. Second segment with a pair of rather short median marginals, the third and fourth each with a row, the fourth with a row of discals. Hair appressed, longer and a little more erect on the middle of the second segment. Pale pollen extending to the apical third of the segments, gradually narrowing to the sides. Under surface wholly shining, the third segment with a large, rectangular sexual patch on either side.

TYPES.—Holotype, male, and paratype, male, East London, South Africa, January 11, 1925, and February 27, 1925 (H. K. Munro), the type returned to Mr. Munro.

#### ***Sturmia versicauda*, new species**

Shining black, the apical two abdominal segments with white pollen on the basal half or less. Length, 5 to 7 mm.

MALE.—Head black in ground color, the face and lower half of the occiput white pollinose; parafrontals less thickly white pollinose on the anterior two-thirds. Front half as wide as either eye; ten or eleven pairs of frontals, the upper two pairs strong and reclinate; hair rather long but not abundant; ocellars long. Outer verticals absent; hair of occiput and cheeks black. Cheeks thinly white pollinose, almost one-fifth as wide as the eye-height. Parafacials strongly narrowing below. Vibrissae situated level with the oral margin, the facial ridges with weak bristles on the lowest third. Palpi black. Antennae brown, moderately long, the third segment twice as long as the second and wider than in related forms; arista thickened on the basal fifth, pubescent on the basal third.

Thorax shining black, the pleura with thin brown pollen. Acrosticals, 3-3; dorsocentrals, 3-4; three sternopleurals, the second weak and usually situated below a line drawn between the other two. Scutellum with four pairs of marginals, the apical pair weak and decussate, and a pair of discals. Prosternum with a bristle and several lateral hairs.

Legs black; middle tibiae with a strong anterior bristle situated beyond the middle and an anteroventral bristle somewhat beyond it; posterior tibiae evenly and fairly closely ciliate; pulvilli yellow and moderately long.

Wings cinereous hyaline, the base blackish brown. Apical cell narrowly open moderately before the apex of the wing; third vein with one or two basal bristles. Squamae pale yellowish brown or brownish yellow. Halteres yellow, with brown knob.

Abdomen shining black, the basal half or less of the third and fourth segments white pollinose, the bands not or but little narrowing laterally. Second segment with a pair of short median marginals, the third and fourth each with a row, the fourth also with a row or two of weaker discals. Hair appressed, but more erect and longer on the middle of the second and third segments. Ventral surface wholly shining black, the sides of the third segment with a large, subrectangular sex-patch of appressed brownish hair.

**FEMALE.**—Front about seven-eighths as wide as either eye; hair short; two pairs of strong, proclinate orbital bristles; outer verticals absent; palpi somewhat swollen. Squamae white, with yellow rim. Abdomen without erect hair on median segments, the pollinose fascia on the third segment a little narrower, that on the fourth somewhat wider.

**TYPES.**—Holotype, male, allotype, female, Wernen, Natal, November, 1923. Paratypes: two males and two females, Wernen, November, 1922, August–September 1923, and November, 1923 (H. P. Thomasset); male and female, Nazi Moja, Zanzibar, October–December, 1924 (H. J. Snell). The holotype and allotype are in the British Museum of Natural History.

This species rather closely resembles *fascicauda* but, in addition to having narrower and more uniformly wide pale pollinose abdominal fasciae, it has a ventral or anteroventral bristle on the median tibia, wider cheeks, etc.

#### **LINNAEMYA** Desvoidy

*Linnaemya* DESVOIDY, 1830, Mem. Acad. Roy. Sci. Inst., France, II, p. 52.

*Bonnetia* DESVOIDY, 1830, idem, p. 55.

*Bonellia* DESVOIDY, 1830, idem, p. 56.

*Marshamia* DESVOIDY, 1830, idem, p. 57.

*Micropalpus* MACQUART, 1834, 'Hist. Nat. Dipt.,' p. 316.

*Amphisia* DESVOIDY, 1863, 'Posth.,' I, p. 129 (not Curtis, 1828).

*Homoeonychia* BRAUER AND BERGENSTAMM, 1889, Denksch. Akad. Wien, LVI, p. 133.

*Tachinomima* BRAUER AND BERGENSTAMM, 1891, Denkschr. Akad. Wien, LVIII, p. 383.

*Hecatoepalpus* TOWNSEND, 1932, Jour. N. Y. Ent. Soc., XL, p. 467.

In the strict sense the species of *Linnaemya* possess two pairs of orbital bristles, whereas *Bonnetia* (*Micropalpus*) lacks them. This is a sexual character and there is no means of distinguishing the females. Both the character of the hair on the cheeks and the presence of infra-squamal setules are of no value as the nature of the former varies, the fine hair merging to coarse and the infra-squamal setules may be absent, one or two present, or they may be numerous. The proboscis varies in length in the different species, having its greatest length in *expetans* Brauer and Bergenstamm, being twice as long as the head-height, whereas in most species it is shorter than the head-height, but always elongate and with rather small labellae. The palpi vary in length from

very short to six times as long as wide but the character is not reliable. Eight of the African species have the pteropleural bristle extending only to about the apical fourth of the squamae whereas the remainder have it extending to the apex, but the character does not appear to be reliable in this case as there is variation in the length, some of the species coming rather close to the alternate group. The length of the claws and pulvilli is also variable.

As here interpreted *Linnaemya* includes a large number of species showing diversity in many ways but all agreeing in having pilose eyes, distinct ocellar bristles, moderately wide cheeks, projecting oral margin and long antennae, the third segment varying in width. There are usually three pairs of postsutural dorsocentrals, but a few of the species have four. The legs are usually reddish, black in a few cases, the tarsi varying from red to black. Wings variable in color, hyaline, brown, gray or variegated; third vein with several basal bristles. Abdomen oval or elongate oval, with or without discal bristles on the intermediate segments, rarely with some short, aculeate spines. The posterior forceps of the male genitalia are fused and, along with the outer forceps, vary in width and shape.

As a result of the present studies, most of the species are described as new, as it has not been possible to identify, from the descriptions, several of those previously described. The best means of separating the species is by a study of the male genitalia. It will be found that forms resembling each other rather closely have different genitalia and that other and more accessible characters parallel the genitalic differences, so that it is possible to associate the sexes.

#### TABLE OF SPECIES

1.—Femora black.....	2.
Femora reddish, often darkened at the apex, rarely blackish on the upper surface.....	3.
2.—Pleura with yellow pile; large species.....	<i>laxiceps</i> Villeneuve.
Pleura wholly black-haired; abdomen with median black vitta or mostly black.....	<i>agilis</i> , n. sp.
3.—Posterior femora broadly black or brown on whole length above; pleura black-haired; cheeks with sparse black hairs.....	<i>strigipes</i> , n. sp.
Femora never blackish on whole upper surface.....	4.
4.—Second abdominal segment with at least one pair of discal bristles.....	11.
Second abdominal segment without discals, the third sometimes with a pair.....	5.
5.—Wings brownish on the apical half, yellowish basally except behind.....	10.
Wings almost unicolorous or brownish on the whole length.....	6.
6.—Epaulet yellowish.....	9.
Epaulet brown or brownish red.....	7.

- 7.—Mesonotum almost wholly black-haired. . . . . 8.  
 Mesonotum wholly pale-haired. . . . . *neavei*, n. sp.
- 8.—Ventral part of the second tergite practically all black-haired.  
*parcesetosa* Villeneuve.  
 Ventral part of second tergite almost all yellow pilose. . . . . *luckmani*, n. sp.
- 9.—Palpi not more than three times as long as broad; third antennal segment of male strongly produced near the base. . . . . *angulicornis* Speiser.  
 Palpi as long as thickness of proboscis; third antennal segment of male very broad, not produced. . . . . *alboscuteolata* Speiser.
- 10.—Mesonotal hair practically all fine and yellow. . . . . *nyasa*, n. sp.  
 Mesonotal hair black, only a few pale hairs laterally. . . . . *lamborni*, n. sp.
- 11.—Mesopleura mostly clothed with yellow pile, usually some coarse black hairs above. . . . . 20.  
 Mesopleura with black hair on the whole surface. . . . . 12.
- 12.—Second abdominal segment with two rows of spines in the middle.  
*aculeatus* Villeneuve.  
 Second segment with one pair of discal bristles. . . . . 13.
- 13.—Epaulet mostly brown; wings cinereous; four pairs of postsutural dorsocentrals.  
*pilitarsis* Villeneuve.  
 Epaulet reddish or yellowish, if rather dark the wings are brownish; three or four pairs of postsutural dorsocentrals. . . . . 14.
- 14.—Palpi less than three times as long as wide. . . . . 16.  
 Palpi at least five times as long as wide. . . . . 15.
- 15.—Fourth abdominal segment wholly without pollen. . . . . *ethelia*, n. sp.  
 Fourth abdominal segment strongly pollinose laterally. . . . . *pictipennis* Curran.
- 16.—Front coxae broadly black along the inner edge. . . . . *conformis* Curran.  
 Front coxae wholly reddish or yellowish. . . . . 17.
- 17.—Under surface of the abdomen entirely black-haired. . . . . 19.  
 Under surface of the abdomen with yellow pile on the under side of the first segment and on the basal sternites. . . . . 18.
- 18.—Cheeks yellow-haired, one or two black hairs present; second antennal segment reddish yellow. . . . . *gowdeyi*, n. sp.  
 Cheeks with black hair; basal antennal segments blackish. . . . . *victoria*, n. sp.
- 19.—Pteropleural bristle extending to the apex of the squamae; posterior genital forceps of male transversely concave near the middle. . . . . *shillitoi*, n. sp.  
 Pteropleural much shorter; posterior forceps flat. . . . . *torensis*, n. sp.
- 20.—Abdomen clothed with reddish-yellow hair; second abdominal segment with at least two pairs of discals. . . . . *bequaerti*, n. sp.  
 Abdomen with black hair dorsally. . . . . 21.
- 21.—Trochanters black. . . . . 22.  
 Trochanters yellow. . . . . 24.
- 22.—Epaulet brown. . . . . 23.  
 Epaulet yellow. . . . . *aptus*, n. sp.
- 23.—Cheeks with two or more black bristles anteriorly. . . . . *affinis* Corti.  
 Cheeks bearing only fine, yellow pile. . . . . *vulpinus* Fallén.
- 24.—Palpi not three times as long as wide. . . . . 25.  
 Palpi five or six times as long as wide; wings strongly bicolored.  
*turbida* Brauer and Bergenstamm.

- 25.—Epaulet red. .... 26.  
     Epaulet brown. .... species.  
 26.—Second abdominal segment with short spines between the discals and marginals. ....  
     ..... *cuthbertsoni*, n. sp. .... 27.  
     Second segment with one pair of discals. .... 27.  
 27.—Proboscis much longer than the head-height. .... *longirostris* Macquart.  
     Proboscis not quite as long as the head-height. .... 28.  
 28.—Mesonotum clothed with yellow hair. .... *ingrami*, n. sp.  
     Mesonotum almost all black-haired. .... *andersoni*, n. sp.

***Linnaemya laxiceps* Villeneuve**

*Tachinomima laxiceps* VILLNEUEVE, 1916, Ann. S. Afr. Mus., XV, p. 473.

Female, Pretoria, South Africa, February 28, 1915 (H. K. Munro), and female, Nkandhla Forest, S. Africa, January 22, 1916 (Janse).

This species is easily recognized by the black femora and yellow pilose pleura. The palpi are only a little longer than wide and bear a short, yellow apical bristle. Length, 12 to 13 mm.

***Linnaemya agilis*, new species**

A small species having black legs, black-haired pleura and whitish yellow scutellum. Length, 7 to 9.5 mm.

**MALE.**—Face and cheeks yellow, the front and occiput black in ground color, rather thickly white pollinose. Front scarcely half as wide as either eye; nine pairs of frontals, the upper one or two pairs reclinate but not strengthened; ocellars moderately long and fine; parafrontals with short, fine black hair. Occiput white pilose, the black occipital cilia extending to the cheeks, the row doubled or trebled below. Cheeks slightly more than one-third as wide as the eye-height, with sparse, long black hair. Parafacials without hairs below the frontals. Proboscis only projecting slightly beyond the oral margin, the brown palpi five or six times as long as wide. Antennae brown, the third segment not widened, obtusely rounded at the apex; arista brown, the penultimate segment almost three times as long as wide.

Thorax black, cinereous pollinose, the black mesonotal vittae moderately distinct in some views; humeri, posterior calli, and scutellum yellowish; hair wholly black. Scutellum with only one pair of discals, the hair not bristle-like.

Legs blackish, wholly black-haired, the tibiae more or less brownish red or luteous.

Wings cinereous hyaline, the veins yellow at the base. Alula and squamae white. Halteres yellow.

Abdomen shining black with the sides very broadly reddish yellow to beyond the middle; the broad apex of the fourth segment shining reddish; under surface mostly yellowish. Hair wholly black, rather coarse and erect on the middle of the second segment, dense, subappressed and parted in the middle on the dorsum of the third and fourth segments; discal bristles entirely absent, the second and third segments each with a pair of marginals, the fourth with a row. Genitalia reddish, the posterior forceps brown. Lobes of the fifth sternite short, rather broadly produced on their inner apices.



**FEMALE.**—Front three-fifths as wide as either eye, the sides gradually widening, so that at the antennae it is one-fifth wider than eye; eight or nine pairs of frontals, the upper pair reclinate; two pairs of strong, proclinate orbitals; hair of cheeks coarse and sometimes one or two bristles present in front. Abdomen dark, blackish and reddish brown, tessellate with thin whitish pollen except the broad reddish apex of the fourth segment, the hair all appressed and not dense, the fourth segment with a row of discals.

**TYPES.**—Holotype, male, and allotype, female, Monogoro, Tanganyika, July, 1923 (A. H. Ritchie), ex *Chloridea obsoleta*, in British Museum of Natural History. Paratypes: female, Durban, Natal, July 31, 1916 (C. N. Barker); male, Durban, June 2, 1920; male, East London, Cape Province, May, 1924 (H. K. Munro); and male, Isopingo, South Africa, July 29, 1922.

***Linnaemya strigipes*, new species**

Trochanters black; at least posterior femora broadly black above; abdomen without discals on intermediate segments. Length, 11 to 12 mm.

**MALE.**—Front and most of the occiput black, the face, cheeks and lower part of the occiput yellow in ground color, thickly white pollinose. Front a little more than four-fifths as wide as either eye; about twelve pairs of frontals, the upper two pairs stronger and reclinate or partly so; ocellars long; frontal hair black, a row of coarse hairs near the frontals. Occiput white pilose; black occipital cilia extending to the cheeks, the row doubled below, several black setulae behind the upper occipital cilia. Cheeks almost half as wide as the eye-height, with sparse, mostly coarse black hairs. Proboscis a little shorter than the head-height; palpi not twice as long as wide, brown without apical bristle. Antennae brown, the incisures reddish; third segment moderately wide and only slightly widening to the obtuse apex; arista thick, short pubescent, the penultimate segment about three times as long as wide.

Thorax black, the humeri, sides of the mesonotum, scutellum and part of the pleura brownish yellow or luteous; pollen cinereous, on the posterior part of the mesonotum with brown tinge; hair wholly black. Scutellum with one pair of discals and some coarse, bristly hairs.

Legs reddish; coxae partly black; trochanters, a spot at the base of each femur, a broad stripe before their apex below and the broad upper surface of the posterior four, black or brown, the tarsi black.

Wings cinereous hyaline, the veins mostly luteous; epaulet brown. Squamae white. Halteres yellow.

Abdomen rusty reddish, with tessellate, yellowish-tinged pollen except on the apices of the segments, with a rather narrow, median black vitta which expands on the fourth segment but reaches only to the apical third. Hair wholly black, appressed, basal segments without discals, the fourth with a row. Genitalia shining red, the posterior forceps brown. Fifth sternite brown, the lobes subtriangularly produced and projecting obliquely downward.

**FEMALE.**—Front as wide as either eye, widening anteriorly from the vertex; second antennal segment reddish above; apical genital segments brown.

**TYPES.**—Holotype, male, and allotype, female, East London, Cape Province, February 1, 1925 (H. K. Munro). The holotype has been returned to Mr. Munro.

Superficially this species resembles *vulpinus* Fallén, but in addition to the black-striped femora lacks discals on the intermediate abdominal segments, the fifth sternite is differently colored and the pleural pile is black.

***Linnaemya neavei*, new species**

Legs reddish yellow; trochanters black; front coxae brown on inner surface; pleural pile yellow; third antennal segment not angulate near the base. Length, 10 mm.

**MALE.**—Head yellow in ground color, the upper part of the front and the occiput to the lower level of the eyes black, thickly white pollinose. Front three-fifths as wide as either eye; nine pairs of frontals, the upper pair strong and reclinate; ocellars long; parafrontals and vertex with yellowish hair, the former with a partial row of black hairs near the frontals; frontal vitta pale orange. Occiput white pilose; the black occipital cilia do not extend to the lower edge of the eyes. Cheeks almost half as wide as the eye-height, wholly whitish pilose. Proboscis not longer than the head, the palpi concealed. Antennae black; third segment broad, slightly widened at the truncate, very slightly oblique apex; arista thick, short pubescent, the penultimate segment four times as long as wide.

Thorax black, cinereous pollinose and wholly pale yellow pilose; humeri, sides of mesonotum, and the scutellum pale luteous. Scutellum with black hair and one pair of discals, some of the hairs stout.

Legs reddish yellow; front coxae broadly brown on their inner surface, the others mostly brown in ground color; trochanters and a small spot at the base of the femora brown; tarsi black.

Wings cinereous hyaline; veins luteous, becoming yellow at the base; epaulet brown. Squamae whitish. Halteres yellow.

Abdomen rusty reddish yellow, with a black median vitta that expands on each segment and extends entirely across the broad apex of the fourth segment; pollen yellowish cinereous, somewhat tessellate; hair black, the under side of the first and second segments with pale yellow pile; no discal bristles on the intermediate segments, the fourth with a row. Genitalia reddish, the posterior forceps brown. Fifth sternite brown, the apices of the lobes gently concave.

**TYPE.**—Male, east of Mt. Mlange, Portuguese East Africa, October 3–7, 1913 (S. A. Neave), in British Museum of Natural History.

This species closely resembles *angulicornis* Speiser but is readily distinguished by the brown epaulet and simple antennae.

***Linnaemya parcesetosa* Villeneuve**

*Micropalpus parcesetosus* VILLENEUVE, 1916, Ann. S. Afr. Mus., XV, p. 471.

Male, Njala, Sierra Leone, April 4, 1925 (E. Hargreaves); male, Yappi, Gold Coast, September, 1915 (Dr. J. J. Simpson); female, Doon-side, South Africa, January 13, 1917; male, Makandi, South Africa, June 10, 1911 (F. G. Evans); male and female, Pretoria, Transvaal, January 14, 1914, and October 1, 1918 (H. K. Munro); male, Barberton,

Natal, May 17, 1913 (H. K. Munro); female, Du River Camp No. 3, Liberia (J. Bequaert).

***Linnaemya luckmani*, new species**

Abdomen rusty reddish yellow, with black median vitta and tessellate white pollen; epaulet brown; antennae black. Length, 10 mm.

**FEMALE.**—Head mostly yellow in ground color, the upper part of the occiput probably luteous or olivaceous; face and cheeks with white, the front and occiput with pale ochreous pollen, although the front may be mostly dark in ground color and bear white pollen. Front four-fifths as wide as either eye, widening anteriorly; nine pairs of frontals, the upper pair strong and reclinate; ocellars long; frontal hair black. Occiput white pilose, the black occipital cilia not extending to the lower edge of the eye. Cheeks half as wide as the eye-height, pale yellow pilose. Proboscis a little more than half as long as the head-height; palpi about twice as long as wide, with black apical bristle. Antennae black, the incisures narrowly reddish; third segment somewhat widened to the apex; penultimate arisal segment about three times as long as wide.

Thorax blackish, the humeri, sides of mesonotum, and the scutellum luteous; hair black on the dorsum, yellow on the pleura and sides of the mesonotum and scutellum. Scutellum with coarse black hairs and one or two pairs of discals.

Legs reddish; extreme bases and tips of the femora and the tarsi black.

Wings cinereous, the veins reddish basally; epaulet brown or brownish red. Squamae yellowish, the lower lobe rather grayish with yellow border. Halteres yellow.

Abdomen rusty reddish, the white pollen tessellate, the apices of the second to fourth segments increasingly widely shining, the fourth almost half bare; hair black, pale yellow on the under side of the first two segments. Abdomen with a rather narrow black median vitta extending from the base to the middle of the fourth segment. Second segment without discals, the third with or without one pair, the fourth with a row and a few irregularly placed ones on the basal half; second and third segments each with a pair of median marginals, the fourth with a row.

**TYPES.**—Holotype, female, and paratype, female, Ngare Narok, Masai Reserve, British East Africa, December 31, 1913, 6000 ft. (O. A. Luckman).

This species bears a close resemblance to *angulicornis* Speiser but is readily distinguished by the black-haired mesonotum.

***Linnaemya angulicornis* Speiser**

*Micropalpus angulicornis* SPEISER, 1910, 'Kil-Meru Exped.,' X, p. 138.

Female, east of Mt. Mlanje, Portuguese East Africa, October 3–7, 1913 (S. A. Neave), in British Museum of Natural History; female, Stanleyville, Congo, April 17, 1915 (Lang and Chapin); female, Sawmills, Rhodesia, April 2, 1913 (Janse); two males and one female, Balla Balla, Southern Rhodesia, March, 1931 (A. Cuthbertson); female, Salisbury, Southern Rhodesia, May 16, 1913 (ex *Cirphis* larva); female, Nelspruit tp., South Africa, October, 1927; two males and three females, Barberton, South Africa, August 1, 1913, June 7, 1913 (L. S. Harden-

berg); May 28, 1914, and November 18, 1927 (H. K. Munro); two males, Pretoria, January 5, 1919 (H. K. Munro); two males, Maroelapan, South Africa, September 11, 1915.

***Linnaemya alboscuteolata* Speiser**

*Micropalpus alboscuteolatus* SPEISER, 1910, 'Kil-Meru Exped.,' X, p. 138.

Two females, Lukolela, Congo, December 16, 1930 (J. P. Chapin); male and two females, Mt. Mlanje, Nyasaland, August 22, September 5, 9, 10, 1913 (S. A. Neave); female, Durban, Natal, November 15, 1924; female, Lake George, Uganda, June 6, 1911 (C. C. Gowdey); female, Masai Reserve, British East Africa, April 10, 1913 (T. J. Anderson); female, Tshibinda, Tanganyika, August 21-27, 1931 (Alice Mackie); female, Nyakasura, Toro, Uganda, August 21, 1931 (J. L. Shillito).

***Linnaemya nyasa*, new species**

Abdomen rusty yellow or reddish yellow, with a black spot on the first segment and sometimes a vitta or triangle on the second; no discals on second segment; thorax almost all yellow pilose. Length, 12 to 13 mm.

MALE.—Head yellow, the upper part of the front and half of the occiput dark in ground color, the pollen white or with brassy yellow tinge. Front half as wide as either eye; ten to twelve pairs of frontals, the upper pair strong and reclinate; ocellars fine and rather short; hair black, sparse. Occiput yellow pilose, with a row of several black bristles behind the cilia above; black occipital cilia ending before the lower edge of the eye, but there may be a row or more of black hairs extending on to the posterior part of the cheeks. Cheeks four-ninths as wide as the eye-height, usually yellow-haired but there may be a few scattered black hairs, especially behind. Proboscis hardly three-fourths as long as the head-height; palpi five times as long as wide, with black apical bristle and several hairs. Antennae brownish red, the third segment mostly black, the basal ones with brown areas; third segment moderately widened to the oblique apex; penultimate arisal segment twice as long as wide.

Upper half of pleura, humeri, sides of mesonotum, and scutellum rusty yellowish in ground color, the mesonotum and lower half of the pleura blackish; pollen yellowish cinereous; pile wholly pale. Scutellum with coarse black hairs on the disc and one pair of discals.

Legs reddish yellow, the tarsi black.

Wings cinereous, the basal half broadly yellow in front, the veins bordered with brown beyond the middle of the wing. Epaulet reddish yellow. Squamae pale yellowish or almost white. Halteres yellow.

Abdomen shining rusty reddish yellow, the depression of the first segment and a vitta or apical triangle on the second black, the broad apex of the third segment and the fourth, dark, rusty reddish; second and third segments each with a linear white pollinose band on the base, the fourth white pollinose on the basal half or more in some views. Second segment without discals, the third with a pair, second and third each with a pair of median marginals, the fourth with a row of marginals and discals. Hair black, yellow on the under side of the first segment.

**FEMALE.**—Front two-thirds as wide as either eye; mesonotum with a few black hairs behind the suture and some coarse ones on the front margin; second abdominal segment without black spot.

**TYPES.**—Holotype, male, and allotype, female, Mt. Mlanje, Nyasaland, September 11, 1913. Paratypes: male and two females, Mt. Mlanje, November 3, 1912, and September 10 and 16, 1913, all collected by Mr. S. A. Neave. The types are in the British Museum of Natural History.

### ***Linnaemya lamborni*, new species**

Abdomen pale, the second segment with a blackish vitta and without discals; wings strongly bicolored; mesonotum with black hair. Length, 11 to 12 mm.

**FEMALE.**—Head yellow in ground color, the upper part of the front and the upper half of the occiput blackish, densely whitish pollinose, the frontal pollen with yellowish tinge. Front about three-fifths as wide as either eye, widening anteriorly from the vertex; eight or nine pairs of frontals, the upper pair strong and reclinate; ocellars long; parafrontals with black hair. Occiput white pilose, the coarse occipital cilia ending before the lower edge of the eye, but there may be a row or double row of black hairs extending to the posterior part of the cheeks. Cheeks two-fifths as wide as the eye-height, with rather long yellow hair, some of the hair sometimes black. Para-facials of almost even width, without hairs below the frontals. Proboscis two-sevenths shorter than the head-height; palpi five or six times as long as wide, reddish yellow, the apices sometimes black, the hairs mostly coarse and black. Antennae brown, the incisures broadly reddish; third segment not broadened apically; arista brown, the penultimate segment not twice as long as wide.

Thorax rather luteous, the pectus darker, the mesonotum black except on the broad posterior and lateral margins; hair yellow, black on the mesonotum except at the sides; scutellum with coarse black hair and one pair of discals.

Legs rusty reddish yellow, the tarsi black.

Wings brown on the subapical half, the apex cinereous, almost the basal half yellowish; epaulet reddish yellow. Squamae yellow, with white sheen. Halteres reddish yellow.

Abdomen rusty reddish yellow or reddish, the broad apex of the third segment more or less ferruginous and with black lateral triangles, the second with a median black stripe and a small black apical spot on each side, the first black in the depression. Hair black, yellow only at the base on the under surface. Second segment with a pair of strong median marginals, the third with a pair of strong discals and median marginals, the fourth with a row of discals and marginals.

**TYPES.**—Holotype, female, Ibadan, southern Nigeria, December 1, 1913 (Dr. W. A. Lamborn), in British Museum of Natural History; paratype, female, Ibadan, Olokemji, southern Nigeria (Bridwell Collection), in U. S. N. M.

This species is close to *nyasa*, new species, but the almost wholly black-haired mesonotum will distinguish it. In addition, the wings are much darker beyond the middle and there are other less conspicuous differences. It is to be expected that the male genitalia will also provide additional characters, since this is the case in other closely-related species.

***Linnaemya aculeatus* Villeneuve**

I have not seen a description of this species, but there is a specimen in the Vienna Museum, from northern Tanganyika, labelled as type of *Tachinomima aculeatus*.

Proboscis one-fourth longer than the head-height; front two-thirds as wide as either eye; frontal hair black; cheeks with mostly yellow hair; antennae reddish brown; penultimate arisal segment less than three times as long as wide.

Mesonotum black, the sides and small prescutellar spot reddish; pleura rusty reddish, the scutellum dark red, with numerous discals. Mesopleura, upper part of pteropleura and the mesonotum black-haired.

Legs reddish, the tarsi black.

Wings brownish, darker in front and basally. Squamae light brownish. Halteres yellow.

Abdomen shining dark reddish, the second segment with two rows of spines in the middle, the third with a row of marginals and discals and some scattered median discals; fourth segment with three rows of spines, the one extending across the middle strongest. Hair black.

***Linnaemya pilitarsis* Villeneuve**

*Tachinomima pilitarsis* VILLENEUVE, 1913, Rev. Zool. Afr., III, p. 27.

Male, Ibanda, Uganda, November 26, 1911 (C. C. Gowdey); male, Umtali, Southern Rhodesia, September, 1927; male and two females, Salisbury, Southern Rhodesia, November, 1929, August, 1932, and September 30, 1932 (A. Cuthbertson); two females, Nyakasnea, Toro, Uganda, October, 1931 (J. F. Shillito).

This is an easily recognized species. There are four or five pairs of postsutural dorsocentrals, the pile of the thorax is wholly black, and the rusty reddish or reddish-yellow abdomen has a wide black median vitta. In the male the arms of the posterior forceps are greatly modified and the outer forceps are explanate and curved, whereas the fifth sternite has a pair of median arms flanked on either side by a deep U-shaped excision. The epaulet in both sexes is brown, and the wings are cinereous with the costal border more or less luteous on the basal half. There are no infrasquamal setulae, the pteropleural bristle is quite short, and the proboscis is considerably longer than the head-height.

***Linnaemya ethelia*, new species**

Abdomen robust, shining rusty reddish; wings strongly bicolored, pleura black-haired. Length, 10 mm.

FEMALE.—Head yellow, the front darker, the upper part of the occiput blackish. Front a little narrower than eye, widening anteriorly; seven pairs of frontals, the

upper pair stronger and reclinate; ocellars long but fine; hair black. Occipital pile yellow, a few coarse black hairs near the vertex and a double row of black hairs extending from the occipital cilia to the cheeks. Cheeks half as wide as the eye-height, bearing long black hairs. Proboscis about three-fourths as long as the head-height, palpi about five times as long as wide. Basal antennal segments reddish, the third missing.

Thorax black, the upper half of the pleura, sides of the mesonotum and the scutellum reddish, the pollen yellowish. Scutellum with three pairs of discals and coarse black hairs.

Legs reddish; tarsi black.

Wings cinereous brown, obliquely yellow on the basal third; epaulet reddish. Squamae pale brownish red. Halteres reddish yellow.

Abdomen shining dark rusty red. Second and third segments each with a pair of discals, the fourth with a row; second segment with a pair, the third and fourth each with a row of marginals. Hair black, broadly yellow on the base of the under surface.

HOLOTYPE.—Female, Amani, Tanganyika, November, 1921 (A. H. Ritchie), in British Museum of Natural History.

Related to *pictipennis* Curran, but readily distinguished by the absence of pollen on the fourth abdominal segment, more evenly colored wings, etc.

#### ***Linnaemya pictipennis* Curran**

CURRAN, 1927, Amer. Mus. Novit., No. 258, p. 19.

The original description was based on two specimens taken at Stanleyville, Congo, in March.

The basal third of the wing is orange, the following half brown, and the broad apex brownish gray. The abdomen is robust, shining reddish, with the fourth segment rather thickly white pollinose, and the scutellum bears one pair of discals and coarse black hair.

#### ***Linnaemya conformis* Curran**

CURRAN, 1927, Amer. Mus. Novit., No. 258, p. 19.

Female, Isipingo, South Africa, May 25, 1922 (H. E. Irving); female, Port Shepstone, South Africa, August 22, 1920 (H. K. Munro); female, Illovo, South Africa, June 22, 1919; three females, Mt. Mlanje, Nyasaland, August 27 and September 26, 1913 (S. A. Neave); female, Solai District, Kenya, September 14, 1919 (T. J. Anderson); male, Ibanda, Uganda, May 24, 1911 (C. C. Gowdey); female, Kampala, Uganda, March 19, 1909 (C. C. Gowdey); female Ngare, British East Africa, December 31, 1913 (A. O. Luckman). The type series is also before me.

Pleura black-haired; scutellum with one pair of discals and coarse, short, bristly hair; trochanters and inner border of the front coxae black,

the remaining coxae partly black; tarsi black. Abdomen with the first segment mostly black, the second with a median black vitta in the male. Palpi about three times as long as wide.

This species may prove to be the same as *tarsalis* Villeneuve.

***Linnaemya gowdeyi*, new species**

Abdomen shining rusty reddish; pleura black-haired, palpi short; basal antennal segments reddish. Length, 11 mm.

FEMALE.—Head yellow, front reddish, the upper half of the occiput black in ground color; pollen white. Front two-thirds as wide as either eye; seven or eight pairs of frontals, the upper pair long and reclinate; ocellars long and strong; frontal hair black. Occiput yellow pilose; occipital cilia replaced below by a double row of black hairs extending to the cheeks. Cheeks four-ninths as wide as eye-height, yellow-haired, sometimes with a few black hairs intermixed. Proboscis slightly longer than the head-height; palpi twice as long as wide, bearing only short hairs. Antennae reddish, the third segment mostly brown, slightly widening apically, the apex oblique and convex above; penultimate arisal segment not twice as long as wide.

Thorax black, with white pollen; upper half of the pleura, broad sides of the mesonotum and the scutellum reddish; hair black. Scutellum with a pair of strong discs and perhaps some short ones. Pteropleural bristle long.

Legs reddish, the tarsi black; pulvilli elongate.

Wings tinged with brown, the costal border yellowish on the basal half; epaulet orange. Squamae very pale brownish, the border orange. Halteres reddish yellow.

Abdomen shining rusty reddish, the apices of segments darkened, the fourth thinly pollinose laterally; depression of the first segment and triangles on the apices of the second and third black. Second and third segments each with pair of discs, the fourth with a row; second segment with a pair of marginals, the third with a row, the median pair widely separated from the others and with a weak pair between them, the fourth with a row of shorter, finer bristles. Hair black, yellow on the base of the under side.

TYPE.—Female, Mt. Ruwenzori, Uganda, 10,000 ft., May 15, 1911 (C. C. Gowdey), in British Museum of Natural History.

The male probably has an uninterrupted, median black vitta on the abdomen.

***Linnaemya victoria*, new species**

Abdomen shining dark orange or brownish red; thorax black-haired; antennae brown; coxae reddish. Length, 11 mm.

MALE.—Head yellow, front reddish, becoming black posteriorly, the occiput black in ground color on the upper half; pollen pale yellowish. Front half as wide as eye, the sides parallel on the upper two-fifths; eleven to thirteen pairs of frontals, the upper pair strong and reclinate; ocellars long and divergent; hair black. Occiput yellow pilose; occipital cilia long, replaced below by a double row of black hairs extending to the cheeks. Cheeks slightly more than one-third as wide as the eye-height, the hair mixed black and yellow, sometimes all black. Proboscis slightly



longer than the head-height; palpi twice as long as wide, with a long apical bristle. Antennae brown, the incisures and inner surface of the second segment brownish yellow; third segment moderately wide, widening to the oblique apex, the upper and lower corners rounded; second aristal segment three times as long as wide.

Thorax black, the sides of the mesonotum and scutellum brownish red, the pleura with some dark reddish areas on the upper half; hair black, the pollen cinereous white. Scutellum with black hair and several pairs of discals. Pteropleural bristle long.

Legs reddish, tarsi black; pulvilli long.

Wings brownish gray, the veins bordered with yellowish brown, the costal border rather orange on the basal half; epaulet reddish. Squamae light brownish, with yellow border. Halteres reddish yellow.

Abdomen shining dark rusty reddish, the fourth segment thinly white pollinose on the basal half. First and second segments each with a pair of discals, the fourth with a row; second and third segments each with a pair of marginals, the fourth with a row, the second with a pair of weaker median marginals between the strong pair, both rows of bristles on the fourth segment broadly interrupted in the middle. Hair black, yellow at the base on the under surface. Abdomen with most of the first segment, a vitta on the second and a black apical triangle on the third, black.

**FEMALE.**—Front two-thirds as wide as either eye, gradually widening from the vertex forward; three pairs of discal scutellars; pleura reddish on the upper half. Pulvilli short. Abdomen darker, the apices of the segments broadly darkened; fourth segment with a pair of discals in front of the broadly interrupted, regular row; first segment rather narrowly black in the middle, the second with a small apical spot, the third with a large apical black triangle.

**TYPES.**—Holotype, male, and allotype, female, Vumba, Southern Rhodesia, March, 1931. Paratype: female, Nyakasnea, Toro, Uganda, October 5, 1931 (J. F. Shillito).

Related to *gowdeyi*, new species, but the two are certainly distinct. In the female the presence of an extra pair of discals on the fourth abdominal segment, much more widely interrupted discal row of bristles, and the blackish antennae will distinguish this species.

#### ***Linnaemya shillitoi*, new species**

Abdomen dark rusty reddish, with trace of narrow median black vitta; hair wholly black; wings dark gray, darker in front. Length, 11 mm.

**MALE.**—Head yellowish-white pollinose, the front thinly so, seven-tenths as wide as either eye; nine pairs of frontals, the upper pair reclinate; hair black, rather fine; ocellars long. Occipital cilia black, extending to the cheeks; pile pale yellowish. Cheeks about half as wide as the eye-height, clothed with long yellowish and black hair. Proboscis black, shorter than the head-height; palpi red, about twice as long as wide. Antennae black; third segment broad, very slightly widening toward the apex, the upper apex broadly rounded; basal aristal segment about three times as long as wide.

Thorax black, the humeri, sides of the mesonotum, scutellum and most of the pleural suture reddish; pollen rather thin, cinereous; hair wholly black. Four pairs

of postsutural dorsocentrals; infrasquamal setulae present and strong. Pteropleural bristle long.

Legs reddish, the tarsi black; pulvilli of medium length.

Wings brownish gray, darker in front. Squamae brownish gray, with brown rim. Halteres orange.

Abdomen dark rusty reddish, with an interrupted slender median black vitta; apex somewhat darkened; second and third segments each with a pair of discals. Hair wholly black. Posterior forceps with a broad, transverse depression across their middle; outer forceps broad, convex above, concave below, the apex obtuse, with a small curved spur above.

HOLOTYPE.—Male, Makasura, Toro, Uganda, October 19, 1931 (J. F. Shillito), in British Museum of Natural History.

#### ***Linnaemya torensis*, new species**

Abdomen dark rusty reddish, the intermediate segments with discals; wings dark cinereous with orange tinge in front on basal half; abdomen wholly black-haired; pteropleural bristle not extending to apex of squamae. Length, 12 mm.

MALE.—Head whitish pollinose, the face and cheeks with yellow tinge; front four-fifths as wide as either eye; nine pairs of frontals, the upper pair slightly reclinate, an additional two pairs opposite the antennae; hair sparse, rather fine; ocellars fairly weak. Occipital cilia long; pile pale yellowish; a row of black hairs behind the cilia. Cheeks half as wide as the eye-height, with sparse, black bristly hairs. Proboscis shorter than the head-height; palpi about twice as long as wide. Antennae reddish; third segment brown, rather wide, gently widening to the truncate apex; penultimate arisal segment twice as long as wide.

Thorax reddish, the sternopleura and mesonotum, except its sides, black in ground color; pollen cinereous; hair wholly black; pteropleural bristle ending considerably before the apex of the squamae; three pairs of strong postsutural dorsocentrals. Scutellum dark reddish, with coarse black hair.

Legs reddish, the tarsi scarcely darkened; pulvilli of medium length.

Wings brownish gray, darker along the veins, tinged with orange on the basal half in front. Squamae brownish orange; halteres pale orange.

Abdomen dark rusty reddish, the median vitta represented by small black spots on the apices of the segments, the apex of the abdomen somewhat darkened. Second and third segments each with a pair of discals. Hair wholly black. Posterior forceps rather narrow, tapering from the base to the acute apex; outer forceps long, with subparallel sides, the upper edge straight, the apex curved inward toward the body.

HOLOTYPE.—Male, Nyakasnea, Toro, Uganda, October 7, 1931 (J. F. Shillito), in British Museum of Natural History.

#### ***Linnaemya bequaerti*, new species**

Abdomen dark rusty reddish, mostly clothed with reddish hair. Length, 12 mm.

FEMALE.—Head yellowish, front reddish, the upper half of the occiput black in ground color; pollen white, pale yellow on the front and occiput. Front a little more than two-thirds as wide as either eye, gradually widening anteriorly; nine pairs of frontals, the upper pair strong and reclinate; ocellars long; hair black. Occiput yellow pilose, a row of black hairs behind the upper cilia; cilia replaced below by a

double row of black hairs extending to the cheeks. Cheeks half as wide as the eye-height, yellow-haired. Proboscis one-half longer than the head-height; palpi very short, with apical bristle. Antennae reddish; third segment mostly brown, slightly widening to the obtuse, slightly oblique apex; penultimate arisal segment five times as long as wide.

Thorax reddish, the lower part of the pleura with some black areas, the disc of the mesonotum black. Pollen yellowish and white on the pleura, brownish yellow on the mesonotum; pile yellow on the pleura, and on the sides and posterior border of the mesonotum. Scutellum with reddish hair and several pairs of discals. Pteropleural bristle not reaching to the end of the squamae.

Legs reddish, including the tarsi.

Wings brownish gray, broadly yellow in front on the basal third; epaulet reddish. Squamae brownish orange. Halteres reddish yellow.

Abdomen dark orange, clothed with orange pile except on the dorsum of the first two segments; fourth segment with yellow pollen on more than the basal half. Second segment with two pairs of strong discals and a laterally interrupted row of marginals; third segment with five strong discals and a row of marginals, the fourth with row of discals and marginals.

Types.—Holotype, female, and paratype, female, Behungi, Uganda, April 4, 1927 (J. Bequaert); paratype, female, Tshibinda, Tanganyika, August 21–27, 1931 (Alice Mackie).

There are a few infrsquamal setulae situated in a horizontal row. The color of the pile distinguishes *bequaerti* from any of the known African species.

#### ***Linnaemya aptus*, new species**

Thorax yellow pilose; trochanters black; epaulet yellow. Length, 9 to 11.5 mm.

MALE.—Head yellow, the upper half of the front and more than the upper half of the occiput black in ground color; pollen white, tinged with yellow on the front. Front two-thirds as wide as either eye, with almost parallel sides on the upper third; nine to eleven pairs of frontals, the upper pair strong and reclinate; ocellars long; hair yellow. Occiput pale yellowish pilose, the occipital cilia sometimes continued to the cheeks. Cheeks about two-fifths as wide as the eye-height, the hair yellow; two or three black bristles anteriorly. Proboscis three-fourths as long as the head-height; palpi four or five times as long as wide, with black apical bristle. Antennae black, the apex of the second segment reddish; third segment gently widening to the oblique apex; penultimate arisal segment not twice as long as wide.

Thorax yellowish, the disc of the mesonotum and the pectus black, thickly cinereous pollinose; pile yellow. Scutellum with stout bristly hairs and one pair of discals. Pteropleural bristle not quite reaching the apex of the squamae.

Legs reddish yellow; trochanters, a stripe on the inner border of the front coxae, spots on the other coxae and on the base of each femur and the tarsi, black, the femora with a large brown spot apically. Pulvilli elongate.

Wings cinereous hyaline, the costal border yellowish in front on the basal half; epaulet yellow. Squamae white. Halteres yellow.

Abdomen rusty reddish yellow, with whitish, somewhat tessellate pollen; hair black, yellow basally on the under side. Second and third segments each with a pair

of discals and median marginals, the fourth with a row of each. First segment black basally, the second with indications of a median vitta. Posterior forceps turned upward at the tip.

**FEMALE.**—Front four-fifths as wide as either eye; seven or eight pairs of frontals; no black hairs behind the occipital cilia; puvilli short.

**TYPES.**—Holotype, male, Bujoma Forest, Uganda, June 17, 1910 (C. C. Gowdey); allotype, female, Palango, Uganda, March 3, 1910 (C. C. Gowdey). Paratypes: male, Ibadan, southern Nigeria, December 2, 1913 (Dr. W. A. Lamborn); two females, Yapi, Gold Coast, November, 1915 (Dr. J. J. Simpson); two males, Talodi, Sudan, September 11, 1933, on grass (A. A. Salam). Types in British Museum of Natural History.

### ***Linnaemya affinis* Corti**

*Micropalpus affinis* CORTI, 1895, Ann. Mus. Civ. Genova, XXXV, p. 137.

Female, Boma, Congo, June 17, 1915 (Lang and Chapin); male, Kampala, Uganda, November 17, 1915 (C. C. Gowdey); female, Mt. Mlanje, Nyasaland, August 26, 1913 (S. A. Neave); male and female, Ngare Narok, Masai Reserve, British East Africa, December 31, 1913, about 6000 ft. (A. O. Luckman); female, Fort Portal, Uganda, October, 1931, and female, Nwanga, September 26, 1931 (E. G. Gibbins).

This species is extremely like *vulpinus* Fallén, but the abdomen is usually more reddish, the cheeks always have two or more coarse black hairs anteriorly, and the wings are more gray with the basal third or fourth more or less orange in front. The pteropleural bristle is long, extending to the apex of the squamae, and there are one or two very fine infrasquamal setulae.

Two of the specimens before me have been determined by Dr. Villeneuve, and I have accepted his identification of the species. However, it is possible that Corti's name applies to one of the other forms, but this cannot be determined without an examination of the type.

### ***Linnaemya vulpinus* Fallén**

*Tachina vulpinus* FALLÉN, 1810, Vet. Acad. Handl., XXXI, p. 283.

*Tachina variegata* WIEDEMANN, 1824, Anal. Ent., p. 42; 1830, 'Aussereur. Zweifl.,' II, p. 311.

Two males, Weenen, Natal, August–September, 1923 (H. P. Thompson); three males, Pretoria, Transvaal, January 5, 1919; two males and female, Barberton, South Africa, August 13; two males and three females, Barberton, May 28, 1914, May 10, 1919, April 25, 1920, and August 24, 1924 (H. K. Munro); two males and two females, New Hanover, Natal, November 17 and December 16, 1913 (C. B. Hardenberg); female, New Hanover, September 13, 1915; two females, Gordon's Bay, January, 1919 (R. Voss); male, Kaapmuiden, South Africa, May 3, 1920.

I have examined the type of *variegata*. The species is easily recognized by the characters used in the key. The thorax is wholly yellow pilose, the mesonotum rarely mostly black-haired in the female, the palpi about twice as long as wide, pulvilli of male elongate and the abdomen tessellate in some views. African specimens are usually darker than most of those from Europe, but there is no difference in the genitalia, and some African examples are fully as pale-colored as any Palaearctic specimens I have seen.

***Linnaemya turbida* Brauer and Bergenstamm**

*Micropalpus turbida* BRAUER AND BERGENSTAMM, 1893, Denkschr. Acad. Wissenschaft., Wien, LX, p. 184 (Erigone, 1891, *nomen nudum*).

Female, Lake George, Uganda, June 15, 1911 (C. C. Gowdey); two females, Mt. Mlanje, Nyasaland, August 23, 1913 (S. A. Neave); female, Maiwale, Nyasaland, March 13, 1933 (A. W. Lamborn); female, Katanga, Congo, August 8–11, 1931 (J. Ogilvie); female, Kapepa, Uganda, July 2, 1931 (G. H. E. Hopkins); male, Kaia River, West Nile, Uganda, August, 1928 (G. H. H. Carpenter); male, Fort Portal, Uganda, October, 1931, (E. G. Gibbins). The type, from "Cape," has been examined.

Readily recognized by the strongly bicolored wings, yellow pilose pleura and black pilose mesonotum, reddish legs with only the tarsi black, reddish epaulet and rather long, slender palpi. The scutellum bears one long pair of discals and some short, bristly hairs, and the intermediate abdominal segments each bear a pair of discals and median marginals.

***Linnaemya* species**

A single female in rather poor condition, collected by Dr. J. J. Simpson at Yapi in the northern territories of the Gold Coast, differs from *vulpinus* Fallén in having the trochanters and epaulet reddish and the abdomen with less extensive black areas. It undoubtedly represents a distinct species but, owing to doubt about its preservation, I do not describe it.

***Linnaemya cuthbertsoni*, new species**

Second and third abdominal segments with some short, stout spines in addition to the bristles; pleura yellow-haired; epaulet reddish. Length, 12 to 13 mm.

MALE.—Head yellow, front reddish, the occiput black in ground color on the upper half; pollen white, yellowish on the front. Front about half as wide as eye; nine pairs of frontals, the upper pair strong and reclinate; ocellars fine; hair black. Occiput yellow pilose, with black hairs behind the upper cilia. Cheeks two-fifths as

wide as the eye-height, yellow-haired, but there may be one or two black hairs. Proboscis almost as long as the head-height, palpi about twice as long as wide, with yellow bristly hairs. Antennae brownish red or mostly reddish; third segment wide, the apex strongly oblique; penultimate arisal segment four times as long as wide.

Thorax reddish, the disc of the mesonotum and the pectus blackish; hair black, yellow on the pleura; mesopleura with some coarse, black, bristly hairs above. Scutellum with numerous short discals and one long pair; pteropleural bristle reaching to the apex of the squamae or nearly so. Infrascapular setulae present.

Legs reddish, the pulvilli elongate.

Wings brownish gray, the anterior border more or less luteous or yellowish on the basal half. Squamae whitish, with yellow border. Halteres yellow.

Abdomen dark rusty reddish, shining, the depression on the first segment black. Second and third segments each with a pair of long discals and several (variable in number) short discal spines; second segment with a pair of strong median marginals and some spines between them, the third with a row of marginals and a pair of median spines; fourth segment with a row of discals and marginals. Hair black, yellow basally on the under surface.

**FEMALE.**—Front half as wide as either eye, strongly widening anteriorly; seven pairs of frontals, frontal hair partly yellow; abdominal spines longer.

**TYPES.**—Holotype, male, Chirinda Forest, Southern Rhodesia, November, 1930 (A. Cuthbertson); allotype, female, Barberton, Cape Province, May 21, 1914 (H. K. Munro); paratype, male, Chirinda, Southern Rhodesia, October–November, 1911 (C. F. M. Swynnerton).

This species differs from *aculeatus* Villeneuve in having the pleura yellow pilose and fewer discal bristles.

#### ***Linnaemya longirostris* Macquart**

*Micropalpus longirostris* MACQUART, 1843, 'Dipt. Exot.' II, part 2, p. 46 (f.).

*Micropalpus salmacinus* SPEISER, 1910, 'Kil.-Meru Exp.' X, p. 136.

Female, Umbilo, Natal, October 2, 1915 (L. Bevis); female, Ngare Narok, British East Africa, December 31, 1913 (A. O. Luckman); male, East London, Cape Province, November 19, 1921; male, Citrus, Transvaal, October 22, 1923; female, Durban, Natal, November 15, 1924; female, East London, May 4, 1924; female, Port Shepstone, August 7, 1920 (H. K. Munro); female, Kampala, Uganda, August 11, 1932 (H. Hargreaves), parasitic on *Heliothis obsoleta* (?); female, Nyakasuru, Uganda, August 2, 1931 (J. F. Shillito); female, Salisbury, Southern Rhodesia, August, 1932 (A. Cuthbertson); female, Stellenbosch, South Africa, November 30, 1925 (R. J. Nel); one female with incomplete data, June 1, 1932.

Proboscis decidedly longer than the head-height and projecting far beyond the anterior oral margin; antennae varying from black to brownish red, or reddish with the third segment black. Pleural pile pale, that on the mesonotum mostly black. Legs reddish, the tarsi becoming black

apically. Wings grayish, the veins in the middle sometimes bordered with pale brownish, the base very broadly yellowish in front. The abdomen is yellow to pale rusty reddish, with or without a median black vitta and with the broad apex of the third segment and a median band on the fourth black or at least darkened. The infrasquamal setulae may be absent or represented by at most three hairs; the pteropleural bristle is long, and there are only three postsutural dorsocentrals.

***Linnaemya ingrami*, new species**

Legs reddish yellow, the tarsi black except basally; thorax yellow pilose; wings bicolored; epaulet yellow. Length, 10.5 to 13 mm.

MALE.—Head yellow, front somewhat darkened, the upper half of the occiput blackish in ground color; pollen white, sometimes more or less yellowish on the front. Front three-fifths as wide as eye; eight pairs of frontals, the upper pair longer and reclinate; ocellars moderately long; hair black. Occiput yellow pilose, a few inconspicuous black hairs behind the upper cilia, the cilia not extending to the cheeks. Cheeks almost half as wide as the eye-height, with yellow hair. Proboscis one-sixth shorter than the head-height; palpi about twice as long as wide, red, with black apical bristle. Antennae reddish, the third segment widening toward the strongly oblique apex, mostly brown or black; penultimate arisal segment three times as long as wide.

Thorax rather luteous, the pleura partly blackish, the mesonotum black in ground color except on the sides and posterior border, the whole rather ochraceous pollinose. Pile yellow. Scutellum translucent yellowish, with coarse black hair on the disc and yellow pile laterally. Dorsocentrals, 3-3; sternopleurals, 2-1.

Legs reddish, the tarsi mostly black.

Wings pale brownish or dark gray, the basal half pale orange, the apex and posterior border gray. Squamae with yellow tinge, the halteres pale orange.

Abdomen rusty yellowish, with or without an interrupted median black vitta composed of apical triangles on the second and third segment and the black basal spot, the apex of the third segment usually broadly ferruginous. Second and third segments each with a pair of discals. Median forceps united and ending in a long apical process; outer forceps rather broad, tapering, ending in a short hook.

FEMALE.—Front five-sixths as wide as either eye, widening from the vertex to the antennae, clothed with short black hair. Abdomen usually without black spots beyond the first segment.

TYPES.—Holotype, male, Nyasaland, April 28, 1913, and allotype, female, Mt. Mlanje, Nyasaland, August 27, 1913 (S. A. Neave). Paratypes: six females, Mt. Mlanje, August 27, and September 10, 11, and 24, 1913 (S. A. Neave); male, Ashanti, Gold Coast, 1915 (Dr. A. Ingram); female, Barberton, South Africa, June 9, 1925 (H. K. Munro); male, Kilossa, Tanganyika, June 6, 1921 (Loveridge); female, Nairobi, British East Africa, July, 1930 (Van Someren); male, Nogob. Ruiru, Magerema, July 1, 1932 (H. C. J.).

***Linnaemya andersoni*, new species**

Cheeks with yellow pile, the mesonotum almost all black-haired. Length, 10 to 12 mm.

**MALE.**—Front about two-thirds as wide as either eye, gradually widening anteriorly, the parafrontals rather olivaceous in ground color and only thinly pollinose. Ten pairs of frontals, the upper pair somewhat reclinate; hair sparse, long and coarse; ocellars long and strong; outer verticals not developed; occipital cilia very long. Pollen whitish, more cinereous yellow on the occiput. Occipital pile pale yellow. Cheeks a little less than half as wide as the eye-height, bearing only yellow hair. Proboscis extending beyond the anterior oral margin, not quite as long as the head-height; palpi brown, a little more than twice as long as wide, bearing a fine apical bristle. Antennae black the basal segments more or less brown or brownish red, the incisures reddish; third segment strongly broadened apically, the apex oblique, angular above, rounded below, sometimes more or less reddish on the lower basal half; arista black, the penultimate segment four or five times as long as wide.

Thorax rather luteous, the pleura and pectus more or less extensively black, the mesonotum black except on the sides and posterior border. Pollen rather ochraceous. Pile yellow, the mesonotal hair almost all black. Scutellum translucent reddish yellow, with coarse black hair, the sides narrowly yellow pilose. Pteropleural bristle reaching to the apex of the squamae.

Legs reddish yellow, the tarsi black. Coxae and trochanters wholly pale.

Wings grayish, yellow on the basal half in front. Squamae white with yellow tinge. Halteres reddish yellow.

Abdomen rusty reddish yellow, with the usual black spot on the middle of the first segment and a slightly darkened median vitta, the apex of the third segment more or less strongly ferruginous; median vitta, most of the fourth segment and extreme base of the third with yellowish-tinged pollen. Second and third segment each with a pair of discals. Hair black, the under side of the first and second segment with fine yellow hair. Genitalia reddish, the median forceps as long as the outer, slender on the apical half, the outer forceps rather narrow, tapering to near the apex.

**FEMALE.**—Front five-sixths as wide as either eye, widening from the vertex to the anterior border, the hair shorter than in the male.

**TYPES.**—Holotype, male, and allotype, female, Sonje Valley, Solai District, Kenya, September 14 and 15, 1919 (T. J. Anderson). Paratypes: male, Umtali, Southern Rhodesia, April, 1923; female, Nyakasura, Toro, Uganda, November 1, 1931 (J. F. Shillito).

**GYMNOGLOSSA Mik**

*Gymnoglossa* MIK, 1898, Wien. Ent. Zeitung., XVII, p. 211.

Stein places this genus near *Demoticus*, but it seems to come very close to *Linnaemya* as indicated by Mik, differing chiefly in having the apical cell petiolate, the third vein bristled to beyond the anterior cross-vein, and the two basal segments of the arista elongate. I have before me a species from South Africa which differs from *transsylvanica* Mik in having the petiole of the apical cell considerably longer, the third



antennal segment strongly angulate just beyond the arista, reddish femora, etc.

***Gymnoglossa munroi*, new species**

Third antennal segment strongly angulated near the base; pleura black-haired; all arisal segments long. Length, 8 mm.

MALE.—Head yellow, the parafrontals and upper half of the occiput blackish, the pollen white. Front one-fourth wider than either eye; seven pairs of strong frontals, two pairs of proclinate orbitals and a divergent pair; ocellars long and divergent; parafrontals with sparse black hair. Occiput white pilose; outer verticals long, the occipital cilia long and extending to the cheeks which bear two or three bristles and a few black hairs. Cheeks a little less than half as wide as the eye-height. Proboscis as long as the head; palpi entirely absent. Antennae reddish, the third segment brownish red, with darker apex; third segment gently widening to the apex, the basal fourth strongly produced above and forming a triangle; arisal segments subequal in length.

Thorax black, black-haired, white pollinose, the humeri, sides of the mesonotum and the scutellum luteous. Scutellum with coarse black hairs and a pair of discals. Pteropleural bristle very long, reaching to beyond the apex of the squamae.

Legs reddish, the tarsi black.

Wings cinereous hyaline; apical cell long petiolate; bend of fourth vein with long vein-like appendage; third vein bristled to beyond the anterior cross-vein; first vein bristled opposite the humeral cross-vein. Epaulet reddish yellow. Squamae white. Halteres yellow.

Abdomen rusty reddish-yellow, with pale yellowish, tessellate pollen, the apices of the third and fourth segments bare dorsally. Hair black. Second and third segments each with a pair of discals and median marginals, the fourth with row of discals and marginals and coarse, bristle-like hair. Genitalia small. Base of abdomen with pale hair on the under surface.

TYPE.—Male, Pretoria, Transvaal, December 22, 1927 (H. K. Munro), returned to Mr. Munro.

This species bears a very strong superficial resemblance to *Linnaemya angulicornis* Karsch, but the base of the third antennal segment is a little more strongly produced.

