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## REVISION OF *NEOMUSCINA* TOWNSEND

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This little-known genus may be of some economic importance from a hygienic standpoint, although its role may be a minor one. The adults are commonly collected on feces and rotting vegetable material, while labels on specimens in several collections indicate that the adults enter houses and airplanes. Townsend, in describing the genus, mentioned they commonly entered tents and caves during the heat of the day. Curran (1934, p. 465) reports that Aldrich observed the adults deposit living larvae in feces.

In an arroyo in El Salvador, I took a long series of *nudinervis* Stein on human feces in which several individual ascarids were visible. At the same time, these flies were seen flying from the feces onto rotting mangos on the ground and onto fresh mangos that were still hanging onto the trees growing along the bank. I have also taken other species on feces and in houses in Panama, Venezuela, and Brazil.

A long series of specimens in the United States National Museum from Panama bear labels that indicate they were taken in fruit-fly traps, and others bear the label "Formes sp." It is not clear whether these latter specimens are predators of ants or were reared from their nests. The adults were also frequently collected on low-growing vegetation at the edge of, and deep in, the forest along jungle paths.

*Neomuscina* is predominantly Neotropical in distribution, although the genotype, *tripunctata* Van der Wulp, occurs as far north as the southwestern United States, and one species may occur in West Africa (see the discussion after *transporta*, new species).

At this time I wish to thank Drs. H. H. Ross and B. D. Burk of the Illinois Natural History Survey for comparing the

accompanying description and several specimens of *tripunctata* with a cotype in the Survey's collection. Dr. F. van Emden of the Imperial Institute of Entomology, London, kindly sent notes on characters found on specimens of the genotype of *Spilopteromyia* in the British Museum (Natural History). To Dr. C. W. Sabrosky of the Division of Insect Identification of the Bureau of Entomology of the United States Department of Agriculture I am indebted for detailed notes on the cotype of *zosteris* in the United States National Museum and for comparing specimens with it. He also brought together a long series of specimens of this genus which the museum authorities made available for study. To Dr. C. H. Curran I am especially grateful for encouragement and suggestions as well as for making the specimens of this genus in the American Museum available for study and verifying several original references not available to me.

Unless otherwise stated after the description all holotypes are, or will be, deposited in the American Museum of Natural History.

#### NEOMUSCINA TOWNSEND

*Neomuscina* TOWNSEND, 1919, Proc. U. S. Natl. Mus., vol. 56, p. 541; MALLOCH, 1921, Ent. News, vol. 32, p. 41; 1925, Ann. Mag. Nat. Hist., ser. 9, vol. 16, pp. 89, 92; SÉGUY, in Wytsman, 1937, Genera insectorum, fasc. 205, p. 349.

*Spilopteromyia* MALLOCH, 1921, Ann. Mag. Nat. Hist., ser. 9, vol. 8, p. 422; SÉGUY, in Wytsman, 1937, Genera insectorum, fasc. 205, p. 344 (as subgenus of *Dichaetomyia*); VAN EMDEN, 1942, Ann. Mag. Nat. Hist., ser. 11, vol. 9, p. 677.

This genus may be defined as Phaoniinae that lack the posterodorsal calcar on hind tibiae and have a bare propleura and prosternum; the pteropleura has hairs in the center, and the stem vein (coalesced first and second wing veins) has one or more hairs on at least the ventral surface adjacent to the humeral cross vein; there are one or more hairs on the third vein beyond its juncture with the second (node) only on ventral surface in the subgenus *Spilopteromyia*, while the third vein is entirely bare in *Neomuscina*, *sensu stricto*; all other veins, except costa, are bare; the fourth wing vein has a strong, rounded forward curvature beyond the middle of the apical section, and it ends behind the wing tip. The following sclerites are bare: infra-alar bulla, postalar declivity, suprasquamal ridge, metapleura below calyptrae, and that portion of the pteropleura named the infrasquamal ridge by Van Emden (1941, p. 252). The supraspiracular convexity has short hairs or pile but lacks distinct bristles or

setulae. There is no facial tubercle, and the females lack cruciate bristles on the frontal vitta; the hind coxae are bare below.

There are several other characters that are not considered at this time to be of primary generic significance, but that are possessed by all species known to me, namely: bare eyes, plumose arista, no median or submedian bristles on fore tibiae except a short anterodorsal one; notopleura with setulae adjacent to the anterior one of two bristles; sternopleurals 1:2; scutellum with hairs or setulae on sides and ventral surface at least near the basal lateral angles; hairs on the subtriangular portion of the hypopleura above the hind coxae. In all females except *capalta*, new species, there are two intra-alar bristles on each side, while in the males there are one or two intra-alars depending upon the species. There is always a pair of prescutellar acrostical bristles.

It has been my experience that the number and arrangement of the pre-apical bristles on the mid femora in related genera are quite variable within the species, but in this group they are surprisingly constant in the different species, the only exception being in a few specimens of the genotype and *nudinervis* Stein. In no species, except *Neomuscina* (*Spilopteromyia*) *apicata* (Stein), are there pre-apical mid femoral bristles on any of the anterior surfaces.

*Neomuscina* appears to be most closely related to certain segregates of the Neotropical *Cyrtoneuropsis* Malloch, *Airalips* Snyder, and certain groups of *Helina* Robineau-Desvoidy, *sensu lato*; it appears to link the Cyrtoneurini with the Mydaeini. Certain Ethiopian species of *Dichaetomyia* Malloch possess many of the essential characters found in species of *Neomuscina*, but the bare prosternum and more strongly curved fourth vein will invariably separate *Neomuscina* from *Dichaetomyia*.

It is of interest to note that the adults of many species of *Dichaetomyia* Malloch and most of the Cyrtoneurini are collected in environments similar to those of *Neomuscina*.

Townsend included a single species, *cavicola* Townsend, when he described *Neomuscina*. In later contributions, Malloch pointed out that *cavicola* Townsend and *Muscina texana* Hough were synonyms of *Muscina tripunctata* Van der Wulp which therefore becomes the genotype of *Neomuscina*. Malloch also showed that *Mydaea nudinervis* Stein belongs in *Neomuscina*.

In describing *Spilopteromyia*, Malloch compared it with *Dichaetomyia*, and Séguy treated it as a subgenus of *Dichaetomyia*. In working up the Ethiopian *Dichaetomyia*, Van Emden pointed out that *Spilopteromyia* and several other genera placed as subgenera of *Dichaetomyia* by Séguy were not closely related to that genus.

It appears that *Spilopteromyia* is more closely allied to *Neomuscina*, and it is my opinion that it should be treated at most as a subgenus of it. The only character that I have been able to find that may be of value in distinguishing *Spilopteromyia* from *Neomuscina*, *sensu stricto*, is the presence of hairs on the ventral surface of the third wing vein beyond the node; and with the discovery of a new species, *currani*, which has only a single one on this wing vein it appears that the genus definitely grades into *Neomuscina*.

*Spilogaster apicata* Stein, the genotype of *Spilopteromyia*, has a single pre-apical anterodorsal bristle on the mid femora which is possessed by no other species of *Neomuscina*, *sensu stricto*, and which might be used to distinguish *Spilopteromyia* further. However, another species, *atincticosta*, described later in the paper, possesses all the characteristics of *Spilopteromyia* but lacks the pre-apical, anterodorsal, mid femoral bristle.

#### KEY TO *Neomuscina* TOWNSEND, SENSU LATO

- A. Third wing vein entirely bare. . . . . *Neomuscina*, *sensu stricto*, 1
- Third wing vein with one or more hairs on ventral surface beyond the node. . . . . Subgenus *Spilopteromyia* Malloch, 26
- 1. With one or more pairs of distinct, presutural, acrostical bristles. . . . . 2
- Without distinct, presutural, acrostical bristles. . . . . 10
- 2. Hypopleura with setulae below spiracle. . . . . *tripunctata* (Van der Wulp)
- Hypopleura without setulae below spiracle. . . . . 3
- 3. Mid femora with two strong, pre-apical, dorsal to posterior bristles. . . . . 4
- Mid femora with three strong, pre-apical, dorsal to posterior bristles. . . . . 5
- 4. With two pairs of presutural, acrostical bristles. . . . . species 1
- With one pair of presutural, acrostical bristles. . . . .
- . . . . . *zosteris* (Shannon and Del Ponte)
- 5. With two median anterodorsal bristles on hind tibiae. . . . .
- . . . . . *nudistigma*, new species
- With one median anterodorsal bristle on hind tibiae. . . . . 6
- 6. Base of femora infuscated and usually one or more coxae with dark streaks . . . . . 7
- Base of femora and all coxae entirely yellow to fulvous. . . . . 9
- 7. Cross veins, at least, broadly infuscated. . . . . 21
- Cross veins not broadly infuscated. . . . . 8

8. *Males*: Intra-alars 2; eye facets not greatly enlarged above and in front  
       .....*dauida*, new species  
*Males*: Intra-alars 1; eyes with an area of greatly enlarged facets above  
       and in front.....*macrops*, new species
9. Dorsocentrals normally 2:3; males with two submedian anterodorsal  
    bristles on hind tibiae; second and third abdominal segments mostly  
    yellow.....*triseta*, new species  
    Dorsocentrals 2:4; males with a single median anterodorsal bristle on hind  
    tibiae; second and third abdominal segments entirely infuscated. . .  
    .....*sanespra*, new species
10. Dorsocentrals 2:3.....11  
      Dorsocentrals 2:4.....14
11. Mid femora with three pre-apical bristles, a dorsal, posterodorsal, and  
    posterior one.....12  
    Mid femora with only two pre-apical bristles, usually the dorsal one is  
    absent.....*capalta*, new species
12. Wings unspotted, hyaline.....species 2  
    Wings with at least the anterior cross vein infuscated.....13
13. Calyptrae deep brown, the margins infuscated; hind femora with a com-  
    plete row of long, anteroventral bristles; third wing vein bare ven-  
    trally.....*inflexa* (Stein)  
    Calyptrae white to pale yellow, the margins not infuscated; hind femora  
    with only two or three long, anteroventral bristles at apex; third wing  
    vein with a single ventral setula beyond node...*currani*, new species
14. Mid femora with two pre-apical bristles.....15  
    Mid femora with three pre-apical bristles.....21
15. Hind tibiae with two submedian, anterodorsal bristles; most of thoracic  
    pleura infuscated.....19  
    Hind tibiae with one submedian, anterodorsal bristle; most of thoracic  
    pleura fulvous.....16
16. Mid and hind femora infuscated on basal half or more.....  
    .....*mediana*, new species  
    Mid and hind femora entirely fulvous to light brown.....17
17. Margins of calyptrae infuscated.....*fulvifrons*, new species  
    Margins of calyptrae not infuscated.....18
18. With an uninterrupted dark cloud from apex of subcostal vein to apex of  
    second vein; fore tibiae with a short, submedian, anterodorsal bristle  
    .....*nigricosta*, new species  
    With a distinct spot at apex of subcosta and a faint spot towards apex of  
    second vein; fore tibiae without a short, submedian, anterodorsal  
    bristle.....*transporta*, new species
19. Cross veins and costal margin with faint but distinct darkened clouds;  
    hind femora with a complete row of strong, posteroventral bristles..20  
    Cross veins and costal margin without trace of darkened cloud; hind  
    femora with only two to four posteroventral bristles on basal one-half  
    .....*atincta*, new species
20. Thorax and femora entirely fulvous.....*transporta*, new species  
    Thorax and mid and hind femora mostly infuscated..*nudistigma*, new species
21. Posterior thoracic spiracle with several black setulae in at least the postero-

- ventral corner in addition to the flap-like coverings of hairs. . . . . 22
- Posterior thoracic spiracle without any black setulae in addition to the flap-like covering of hairs. . . . . 23
22. Thoracic pleura and femora fulvous. . . . . *nudinervis fulva*, new subspecies
- Thoracic pleura and femora mostly infuscated. . . . .
- . . . . . *nudinervis nudinervis* (Stein)
23. Wings with infuscated areas. . . . . 25
- Wings without infuscated areas. . . . . 24
24. At least posterior four femora infuscated on basal three-fourths or more; male with intra-alars 1. . . . . *instabilis*, new species
- All femora fulvous; male with intra-alars 2. . . . . *shadei*, new species
25. Posterior four femora infuscated. . . . . *similata*, new species
- Posterior four femora mostly fulvous. . . . . *neosimilis*, new species
26. Dorsocentrals 2:3. . . . . *currani*, new species
- Dorsocentrals 2:4. . . . . 27
27. Costal margin darkened. . . . . 28
- Costal margin not darkened. . . . . *atincticosta*, new species
28. Margins of calyptrae infuscated. . . . . *tinctinervis* Stein<sup>1</sup>
- Margins of calyptrae not infuscated. . . . . *apicata* (Stein)

### ***Neomuscina tripunctata* (Van der Wulp)**

*Muscina tripunctata* VAN DER WULP, 1896, Biologia Centrali Americana, vol. 2, p. 305.

*Muscina texana* HOUGH, 1900, Biol. Bull., vol. 1, p. 25.

*Neomuscina cavicola* TOWNSEND, 1919, Proc. U. S. Natl. Mus., vol. 56, p. 541.

*Neomuscina tripunctata*, MALLOCH, 1921, Ent. News, vol. 32, p. 41; 1925, Ann. Mag. Nat. Hist., ser. 9, vol. 16, p. 92.

MALE: Length 8 mm. Head fulvous, back of head and posterior portion of frontal vitta darkened, densely white pruinulent. Front at narrowest about as wide as distance across posterior ocelli inclusive. Frontal vitta at narrowest part 1.0 to 2.0 times as wide as diameter of anterior ocellus. With a complete row of parafrontal bristles which become shorter posteriorly, the posterior pair backwardly and outwardly directed, about as long as anterior pair. The anterior series of parafrontal bristles inwardly directed and those on posterior half inwardly and forwardly directed. Anterior ocellar and subapical parafrontal bristles subequal and stronger than others. In profile, juncture of parafacials and parafrontals 0.75 as long as greatest width of third antennal segment, parafacials scarcely narrowed below. Cheeks about twice as high as width of third antennal segment. Facial ridges with black setulae continued to opposite middle of third antennal segment. Antennae fulvous, slightly darker

<sup>1</sup> This species not seen but included on basis of Stein's description.

apically, inserted slightly above middle of eyes and extending to opposite lower margin; third segment about 2.25 times as long as second. Longest arisal hairs a little longer than greatest width of third antennal segment. Palpi yellowish fulvous, proboscis shiny brown. Eye facets slightly larger in center in front.

Thorax black, the humeri, postalar callosities, apex and ventral surface of scutellum fulvous, with yellowish gray pruinescence, quadrivittate, usually with a variable fulvous spot near base of pra. With a pair of distinct brown median vittae and a less distinct, but broader, lateral pair, in certain views, with a median vitta from base of scutellum to transverse suture. Acrosticals 1:1; dorsocentrals 2:4; intra-alars 2; pra very short but distinct. Scutellar setulae descending onto ventral surface at basal lateral angles; hypopleura with some longer hairs in front of spiracle and above base of hind coxae and with some shorter ones below spiracle. The spiracle without simple black setulae among the yellow flap-like covering of hairs. Supraspiracular convexity with moderately long, fine, pale hairs.

Legs fulvous. Fore femora normal. Fore tibiae with one strong and one weak subdorsal and one strong posteroventral apical bristle. Mid femora with three or four basal anteroventral and with longer and more widely spaced ventral bristles on basal half and with one pre-apical subdorsal, posterodorsal, and posterior bristle. Mid tibiae with two strong and one to two weaker posterior bristles. Hind femora with a row of anteroventral bristles, only the pre-apical two or three as long as, or longer than, greatest diameter of femora where situated, and with a row of more slender posteroventral bristles on basal one-half. Hind tibiae with two or three median anterodorsal and two anteroventral bristles. The posterodorsal setulae slightly longer and more upstanding than usual.

Abdomen yellowish brown, darker towards apex, with grayish pruinescence, second and third visible tergites with a median basal dark spot and the fourth with indications of a narrow darker median vitta. Second tergite with a few short lateral apical bristles, the third with two median and three or four lateral apical bristles which are stronger than those on second. The fourth with a row of strong discals, subapicals, and apicals. Basal sternite setulose; others, except fifth, with several strong apicals. Hypopygium fulvous.

Wings faintly yellowish hyaline, more yellow along costal

margin. Stem vein with several long hairs on dorsal and ventral surface opposite humeral cross vein. Anterior cross vein with a very faint yellow cloud; posterior cross vein slightly curved. Fourth vein strongly curved forward, ending slightly behind wing tip. Calyptrae faintly yellow. Halteres pale fulvous.

FEMALE: Length 8 mm. Similar to the male. Front at vertex 0.33 of greatest head width, almost parallel sided. With about three strong, parafrontal bristles on each side between which are shorter and weaker bristles. The posterior two pair outwardly, others inwardly, directed. Inner and outer vertical and subapical parafrontal bristles subequal, stronger than other bristles on front. Palpi a little wider, particularly at apex. The fulvous area on scutellum and near pra more extensive, and the median thoracic vitta more distinct.

Fore tibiae with the apical posterodorsal bristle stronger. Mid femora with the anteroventral and posteroventral bristles subequal, shorter than in the male. Anteroventral and posteroventral bristles on hind femora shorter and less numerous.

SPECIMENS EXAMINED: Two males and one female, paratypes of *cavicola* Townsend from New Mexico and Arizona in the United States National Museum, and 11 males and 21 females from Arizona.

An occasional specimen in the above series lacks the pre-apical, posterodorsal, mid femoral bristle on one side, and the body color in one paratype is slightly darker than described.

Dr. Burk kindly sent several notes on the cotype of *tripunctata* Van der Wulp in the Illinois Natural History Survey Collection in which he states that the specimen is rubbed, but apparently hypopleural hairs below the spiracle are present. The width of the narrowest part of the front as compared to the distance across the posterior ocelli inclusive in cotype is six compared to seven units while in specimens sent for comparison the proportion is 12 to 10, respectively. Thus the actual width in these specimens is almost twice as wide but the proportional width of front is essentially about as wide as distance across posterior ocelli inclusive. The hind femoral bristles are said to be the same in cotype and the specimens compared with it, "but hind femur slightly stouter in type."

***Neomuscina zosteris* (Shannon and Del Ponte)**

? *Mydaea sparsiplumata* STEIN, 1918, Ann. Hist. Nat. Mus. Natl. Hungarici, vol. 16, p. 218.



*Muscina zosteris* SHANNON AND DEL PONTE, 1926, Rev. Inst. Bact., Buenos Aires, vol. 4, p. 579.

*Neomuscina zosteris* SHANNON AND DEL PONTE, 1927, Rev. Inst. Bact., Buenos Aires, vol. 5, pp. 142, 146.

MALE: Length 6.5 to 7.0 mm. Head yellowish, with grayish pruinescence. Upper half of back of head black. Front at narrowest part 1.2 times as wide as diameter of anterior ocellus. Parafrontals contiguous for a short distance at middle of front. With three or four pairs of parafrontal setulae and numerous shorter setulae reaching to opposite anterior ocellus. Outer verticals, anterior and posterior ocellar and pre-apical parafrontal bristles subequal. Juncture of parafacials and parafrontals 0.9 of width of third antennal segment, the parafacials narrowed to 0.66 of antennal width below. Cheeks 1.6 times as high as width of third antennal segment. Antennae yellow, third segment about 3.5 times as long as second. Antennae inserted opposite middle of eyes, extending slightly below lower level of eyes. Aristal hairs more widely spaced than usual; the longest are about as long as greatest width of third antennal segment. Palpi and proboscis fulvous yellow, the latter shiny.

Humeri and apex of scutellum yellow, remainder of thorax yellowish brown, grayish pruinulent, with two vittae inside the row of dorsocentral bristles and with a wider vitta outside, which is interrupted at the transverse suture. Acrosticals 1:1; dorso-centrals 2:4; intra-alars 2; pra 0.6 as long as posterior notopleural bristle. Without black setulae among the flap-like covering of hairs of posterior thoracic spiracle.

Legs yellowish, becoming slightly brownish apically, the tarsi definitely brownish. Fore tibiae with a very short, submedian, anterodorsal bristle, the apical dorsal, posterodorsal, and posteroventral bristles almost equal. Mid femora with a complete row of rather long, fine, ventral bristles and a row of short, but stout anteroventral bristles on basal half and with a pre-apical posterodorsal and posterior bristle. Hind tibiae with three posterior bristles. Hind femora with a row of anteroventral bristles which are stronger on apical one-half and with a row of slender bristles on basal two-thirds. Hind tibiae with a median anterodorsal and two to three anteroventral bristles.

Wings hyaline, very light yellowish brown. Cross veins infuscated, the anterior one most distinct. Calyptrae very pale

brown, in certain views margins darker. Halteres yellow. Posterior cross vein moderately curved.

Abdomen brownish, first segment, except a narrow brown apical band and basal half of second, yellow. With an indistinct median basal spot on second and third segments; grayish pruinose except at base of the clothing setulae. Basal sternite setulose, others with a row of apical bristles.

This description is based on one male from Tucuman, Argentina (Parker), the type locality of *zosteris*. Dr. Sabrosky compared this specimen with a cotype of *zosteris* in the United States National Museum and considered them conspecific, although the ground color of the cotype is lighter.

I strongly suspect that *Mydaea sparsi-plumata* Stein is the same as *zosteris*, since the above specimen agrees quite well with Stein's description, except that the color is lighter and in this respect agrees quite well with the type of *zosteris*. However, *zosteris* is tentatively considered to be distinct until the type of *sparsi-plumata* can be examined for several characters not mentioned in its description.

#### **Neomuscina species 1**

There is a single female specimen from Santa Cruz, Rio Grande do Sul "Fr. Stieglmayr leg. July 10" in the United States National Museum which it is believed Malloch determined as *zosteris*. It possesses two pairs of presutural acrostical bristles, but in other respects agrees with the cotype of *zosteris*. Until more material can be examined to determine the constancy of this character, I prefer to treat it as a possible variant without naming it. It is of interest to note that it is from the same locality and taken by the same collector as Stein's *sparsi-plumata*.

#### **Neomuscina triseta, new species**

MALE: Length 8.5 mm. Head 2.0 times as high as long, fulvous, grayish white pruinose, the back of head to lower one-third of eyes black. Front at narrowest part not so wide as diameter of anterior ocellus. Parafrontals and parafacials narrow along their entire length, not much wider than greatest arisal diameter, in profile they are visible only at their juncture. Cheeks as high as width of third antennal segment. With four or five pairs of well-developed anterior parafrontal bristles, and with

a row of very short ones extending posteriorly to anterior ocellus. Anterior and posterior ocellar, inner and outer vertical bristles short, but distinct, subequal, weaker than the strongest parafrontals. Facial ridges with short setulae continued to opposite insertion of arista. Eyes large, the facets on the dorsal anterior portion enlarged. Antennae yellow fulvous, inserted opposite center of eyes and extending to opposite the ventral margin. Third antennal segment 2.8 times as long as second. Longest arisal hairs as long as width of third antennal segment. Palpi and proboscis fulvous, the latter shiny.

Thoracic dorsum, hypopleura, pteropleura below the infraalar bulla, and metapleura brown; the humeri, apex, and ventral surface of scutellum and balance of pleura fulvous; all parts are gray pruinulent, the disc distinctly quadrivittate. Acrosticals 1:1; dorsocentrals 2:3; intra-alars 2; pra 0.5 as long as anterior notopleural bristle; hypopleura with a few setulae only above hind coxae. Scutellar setulae descending onto ventral surface except at apex. Posterior thoracic spiracle without accessory setulae.

Legs entirely fulvous. Fore femora normal. Fore tibiae with a very short, median, anterodorsal and a few shorter, scarcely developed setulae towards apex, apical anterior, posterodorsal, and posteroventral bristles strong, subequal. Mid femora with a row of about six long ventral bristles on basal two-thirds and with a few weaker anteroventral ones on basal one-half, with one preapical dorsal posterodorsal and posterior bristle. Mid tibiae with two strong median posterior bristles and one or two much shorter ones beyond. Hind femora with a complete row of anteroventral bristles, the apical three or four more robust and with a row of posteroventral bristles on basal two-thirds to one-half. Hind tibiae with one long and one shorter median anterodorsal bristle, with three short median anteroventral bristles.

Wings yellowish hyaline, the costal area slightly more yellowish, but without a distinct cloud. Posterior cross vein with a mere trace of an infuscated cloud. Coastal setulae and thorns scarcely developed. Posterior cross vein slightly curved. Calyptrae brownish hyaline, margins of both dark brown. Halteres yellow.

FEMALE: Length 8.5 mm. Similar to the male, differing from it in having the front at vertex 0.27 of greatest head width widened to 0.3 anteriorly. The parafrontals 2.0 times as wide

as diameter of anterior ocellus, clearly visible in profile. With a complete row of parafrontal bristles, the posterior two pairs outwardly, the others inwardly directed. Frontal vitta brownish black, slightly reddish anteriorly. Inner and outer vertical bristles strong, as well developed as the subapical parafrontal bristles. The anterior ocellars shorter but more well developed than postocellar bristles. Hind tibiae with only one anterodorsal bristle and two or three median anteroventral bristles. Third visible abdominal tergite with only the apical row of bristles, fourth with the apical row much reduced, scarcely discernible.

TYPE MATERIAL: Holotype, male, Guatemala City, Guatemala, 5000 feet, August 20, 1943 (F. M. Snyder); allotype, female, Antigua, Guatemala, June 23, 1923 (E. G. Smyth); paratypes, female, Cuernavaca, Mexico, 5000 feet, August 15, 1943 (F. M. Snyder).

There is a male from La Providencia, Guatemala (C. M. Roullard), in the United States National Museum which agrees in all respects with the type series except that there are four pairs of postsutural dorsocentral bristles. This is, I suspect, an unusual specimen. It can be separated from *sanespra* by the other characters mentioned in the key as well as by the lighter-colored abdomen and its larger size.

### ***Neomuscina sanespra*, new species**

MALE: Length 7 mm. Head yellow with grayish yellow pruinescence; upper half of back of head black, grayish pruinescent. Front at narrowest part as wide as diameter of anterior ocellus. Parafrontals contiguous for about 0.45 of their length, with a complete row of bristles and setulae, anterior four pairs strongest. Juncture of parafacials and parafrontals about 0.25 as long as width of third antennal segment, the parafrontals almost obscured below. Cheeks as high as width of third antennal segment. Antennae inserted opposite the lower 0.42 of eye, extending to slightly below lower level. Antennae fulvous yellow, third segment 3.2 times as long as second. Longest arisal hairs 1.25 times as long as greatest width of third antennal segment. Palpi yellowish fulvous. Proboscis brown.

Thorax fulvous, the dorsum except humeri reddish brown with dense grayish pruinescence, with four indistinct vittae. Acrosticals 1:1; dorsocentrals 2:4; intra-alars 2; pra 0.6 as long as posterior notopleural bristle. Propleural bristle brownish yellow

and the single stigmal bristle black, neither of these bristles with obvious strong accessory bristles. Posterior thoracic spiracle without accessory setulae among the flap-like covering of hairs.

Legs yellow, the posterior four pairs become gradually brownish from trochanter to tarsi. Fore tibiae with a distinct submedian anterodorsal setula and with strong subequal apical dorsal, posterodorsal, and posteroventral bristles. Mid femora with a complete row of slender posteroventral and a row of similar anteroventral bristles on basal one-half. Mid tibiae with two strong, submedian, posterior bristles and with several shorter ones between and beyond. Hind femora with a complete row of anteroventral bristles and a row of posteroventral bristles on basal one-half. Hind tibiae with a median anterodorsal bristle and with three more slender anteroventral median bristles.

Wings hyaline, slightly yellowish brown. Anterior cross vein with a scarcely discernible narrow cloud. Posterior cross vein slightly curved. Calyptrae yellowish brown; margins, especially of upper one, darker brown when viewed above and in front. Halteres yellowish.

Abdomen brownish black, bluish gray pruinose. Extreme lateral basal area of first visible segment yellowish brown and with an indistinct basal dark spot on second and third visible segments. The pruinoscence absent at base of clothing setulae so that the bristles appear to be inserted in shiny spots. Basal sternite fulvous, each of the other sternites dark towards apex. With a row of strong apical bristles except on fifth.

HOLOTYPE: Male, Espirito Santo, Brazil, in United States National Museum.

The left mid and hind legs are missing and the right mid leg is rather twisted, so that it is difficult to see clearly the apex of the femora. The apical posterodorsal and posterior bristles are clearly visible, and there appears to be the socket of a dorsal bristle. For this reason it is keyed as having three subapical bristles. If there are actually two, it will run to *zosteris* and may be separated from it by the longer and more closely placed arisal hairs and the darkened abdomen. It appears closely related to *fulvifrons*, new species, but the presence of a pair of pre-sutural acrostical bristles and the more ventrally inserted antennae should separate *saneptra*.

This is the only species in *Neomuscina*, *sensu lato*, known to me that lacks the usual one or two strong black accessory bristles adjacent the prothoracic and stigmatal bristle.

***Neomuscina davida*, new species**

MALE: Length 6 to 7 mm. Head 2.5 times as high as long, fulvous, grayish pruinulent, the lower posterior portion of cheeks and back of head black to brown. Front at narrowest part about 2.0 times as wide as diameter of anterior ocellus. Parafrontals normally very narrowly separated at narrowest part, each about 0.8 as wide as diameter of anterior ocellus. With about five pairs of inwardly directed, anterior, parafrontal bristles. The posterior pair of parafrontal bristles strong, outwardly and backwardly directed. In profile, juncture of parafacials and parafrontals 0.3 to 0.33 as long as width of third antennal segment, parafacials narrowed below. Cheeks as high as width of third antennal segment. Facial ridges with setulae continued dorsally to about opposite dorsal one-third of third antennal segment. Antennae fulvous, in profile inserted opposite middle of eyes, extending to slightly above lower margin of eyes. Third antennal segment 2.25 times as long as second. Arista with longest hairs slightly longer than width of third antennal segment. Palpi fulvous; proboscis dark brown to black, sparsely grayish pruinulent. Eye facets very slightly enlarged in front above base of the antennae.

Thorax black to dark brown; humeri, postalar callosity, and a variable apical portion of scutellum yellowish, with dense, slightly yellowish gray pruinoscence. With four brown vittae, the two median ones narrow. Acrosticals 1:1, the presutural pair 0.5 to 0.66 times as long as anterior presutural dorsocentral; dorsocentrals 2:4; intra-alars 2; pra short but distinct. Scutellar setulae descending to, but not onto, the ventral surface except at extreme lateral angle. Hypopleura sometimes with a few pale hairs in front of spiracle. Posterior spiracle without simple setulae interspersed among the flap-like covering of hairs.

Legs brownish fulvous, the base of fore femora and basal two-thirds to three-fourths of mid and hind femora infuscated. Fore femora normal. Fore tibiae with a very weak, submedian, anterodorsal setula and a few weaker ones beyond, none longer than tibial diameter; apical dorsal, posterodorsal, and posteroventral bristles well developed, the posterodorsal one shortest.

Mid femora with five to seven ventral bristles on basal half and with a pre-apical dorsal, posterodorsal, and posterior bristle. Mid tibiae with two median posterior bristles and with a few weaker ones beyond. Hind femora with a complete row of anteroventral bristles, those on apical half are longest and with a row of posteroventral ones on basal one-half to two-thirds. Hind tibiae with a median anterodorsal and two to four weaker anteroventral bristles.

Wings brownish yellow hyaline, slightly darker towards costal margin. Without distinct spots. Posterior cross vein distinctly curved. Calyptrae yellowish, the halteres darker.

Abdomen black, grayish pruinulent, basal two segments slightly yellowish at base and with a transverse dark apical band. Second to fourth tergites with a dark central basal spot. Third tergite with three lateral apical bristles, the fourth tergite with a row of strong discals and subapicals and with a row of shorter and weaker apical bristles. Basal sternite brownish orange, setulose. Second with four to six strong apical bristles, others except fifth with two apical bristles.

FEMALE: Length 7 mm. Similar to the male, front at vertex 0.3 of head width, parallel sided, black except on apical one-third where it is fulvous. Parafrontals broader, with a row of six to eight parafrontal bristles, the posterior two pairs outwardly directed. Inner and outer verticals, anterior ocellars, and anterior parafrontal bristles long and strong, subequal. Abdominal bristles weaker.

TYPE MATERIAL: Holotype, male, David, Republic of Panama, June 6, 1943 (F. M. Snyder); allotype, female, El Cermeno, Panama, December, 1939, to January, 1940, fruit-fly trap (Zetek). Paratypes: Five males, same data as holotype; one male, Natal, Brazil, October 8 to 20, 1943 (F. M. Snyder); one female, Maturin, Venezuela, May 20, 1943 (F. M. Snyder).

Additional records from Higuito, San Mateo, Costa Rica (Pablo Schild), and 8 kilometers west of San José, Costa Rica, November–December, 1924, El Cermeno and Barro Colorado Island, Panama.

A male and female from San José, Costa Rica, have the abdomen with the fulvous areas more extensive but agree in all other respects with the type series.

This species is very similar to *instabilis* but may be separated from it in the male sex by the two intra-alar bristles on each side,

slightly wider front, and stronger, forwardly directed posterior series of parafrontal bristles. The females are less easily separated except for the presence of presutural acrostical bristles and the slightly more fulvous basal abdominal tergites.

***Neomuscina macrops*, new species**

MALE: Length 6 mm. Head fulvous, grayish pruinulent, back of head dark from top to middle. Front at narrowest part about as wide as greatest diameter of arista. Parafrontals contiguous and extremely narrow along most of their length, separated only near base of antennae. In profile, juncture of parafacials and parafrontals about 0.25 of width of third antennal segment, almost obscured below. With four to six pairs of rather weak, anterior, parafrontal bristles and with a few scarcely discernible ones along posterior half, only the posterior pair of this last group distinct. Cheeks as high as width of third antennal segment. Facial ridges with setulae to opposite about basal one-third of third antennal segment. Antennae and palpi yellowish fulvous; third antennal segment 2.75 times as long as second. Arista hairs as long as width of third antennal segment. Proboscis shiny brown. Eyes with an area of greatly enlarged facets on dorsal half in front, the largest facets at least three times as large as the smallest ones so that the eyes appear to have two sections.

Thorax brown, grayish pruinulent, humeri fulvous. Bristled and marked as in *davida* but with a single intra-alar bristle on each side.

Legs as in *davida* but slightly darker in color; the bristles on hind femora are longer than the corresponding ones in that species.

Wings hyaline; calyptrae white; halteres yellow.

Abdomen brownish, slightly bluish gray pruinulent, with a dark median basal spot on second and third visible tergites. Apex of first and second visible tergites with an indistinct apical dark band; third with two or three lateral apical bristles; fourth with a row of strong discal, subapical, and apical bristles. Basal sternite hairy.

HOLOTYPE: Male, Caracas, Venezuela, 3000 feet elevation, September 25, 1943 (F. M. Snyder).



*Neomuscina capalta*, new species

MALE: Length 6 mm. Head three times as high as long, brownish fulvous, grayish pruinulent; back of head to lower margin of eyes black. Front at narrowest part not so wide as diameter of anterior ocellus. Parafrontals and parafacials very narrow along their entire length, not so wide as greatest diameter of arista except at their juncture with parafacials where they are 0.5 of greatest aristal diameter; in profile they are scarcely visible. Cheeks as high as width of third antennal segment. With a complete row of very short parafrontal setulae, only the pre-apical pair very well developed and equal to the anterior ocellar, the inner and outer vertical bristles. The very strong posterior ocellar bristles as long and strong as the anterior presutural dorsocentral bristles. Facial ridges with very short setulae which continue to opposite middle of third antennal segment. Eyes large, the facets in front enlarged. Antennae fulvous, inserted opposite lower 0.4 of eyes, extending to slightly below lower margin of eyes; third segment 3.0 times as long as second. Aristal hairs sparse, the longest about as long as width of third antennal segment. Palpi fulvous; the dark brown proboscis shiny.

Thorax black, the humeri and apical margin of scutellum fulvous with brownish gray pruinescence over dorsum. Four very narrow dark vittae are scarcely visible. Dorsocentrals 2:3, the anterior presutural pair weak; intra-alars 1; pra short, 0.5 as long as anterior notopleural bristle. Scutellar setulae descending onto ventral surface at base. Posterior thoracic spiracle with one or more accessory setulae in the posteroventral corner in addition to flap-like covering of hairs.

Legs very dark brown to black, the anterior coxae, apices of femora, and the fore tibiae light brown. Fore femora normal. Fore tibiae bare at middle, the apical bristles strong but the posterodorsal ones shorter than others. Mid femora with one pre-apical posterior and posterodorsal bristle, the ventral setulae weak. Mid tibiae with three to five median posterior bristles. Hind femora with some moderately developed anteroventral bristles, those on apical half stronger and slightly longer. Hind tibiae with one median anterodorsal and two to three weaker median anteroventral bristles.

Wings slightly brownish with a dark brown cloud from apex of subcosta to apex of second vein extending posteriorly to second

vein, both cross veins infuscated. Costal setulae and thorn scarcely developed. Posterior cross vein nearly straight. Calyptrae and halteres pale brown.

Abdomen black, grayish pruinose, with dorsal and lateral checkering. Two or three strong, lateral, apical bristles on third visible tergite and a row of strong discal and weaker apical bristles on fourth. Basal sternite hairy.

TYPE MATERIAL: Holotype, male, Port of Spain, Trinidad, September 29, 1943 (F. M. Snyder); paratype, male, Barro Colorado Island, Canal Zone, February 13, 1929 (C. H. Curran).

There are three males and two females from Barro Colorado Island, June, 1942 (J. Zetek) bearing the label "Formes sp." in the United States National Museum collection which are teneral. The wings have only faint clouds or are clear, as may be expected with teneral specimens. The females are unique in the genus as they possess only a single intra-alar bristle on each side.

### ***Neomuscina inflexa* (Stein)**

*Cyrtoneurina inflexa* STEIN, 1918, Ann. Hist. Nat. Mus. Natl. Hungarici, vol. 16, p. 223.

One male from Nova Teutonia, Brazil, April 6, 1939, latitude 27° 11' S., longitude 52° 23' W. (Fritz Plaumann) which I tentatively identify as this species agrees quite well with Stein's description but is smaller, 6 compared to about 8 mm. long, and the body color is more castaneous. Additional descriptive notes are as follows:

Third antennal segment 2.5 times as long as second. Facial ridge with setulae continued to opposite insertion of arista. Proboscis shiny brown. Intra-alars 1; scutellar setulae descending onto ventral surface of scutellum. Hypopleura with hairs only above hind coxae. Posterior thoracic spiracle without accessory setulae. Mid femora with a row of ventral bristles on basal two-thirds and with a pre-apical dorsal, posterodorsal, and posterior bristle. Basal abdominal sternite hairy; others with moderately well-developed apical bristles except fifth.

Stein, in a note following the description of *Mydaea tinctinervis*, states that *inflexa* is very similar in habitus to that species which is described as having some short bristles at base of third wing vein. If *inflexa* has third wing vein hairs, then I have obviously incorrectly identified the above specimen.

### **Neomuscina species 2**

There is a specimen from Tapachula, Mexico, August 17 to 19, 1943 (F. M. Snyder), which is quite similar in structure to *currani* except there are no hairs on third vein. Wings are entirely hyaline, and the general body color appears to be fulvous. Because of its teneral condition I hesitate to name it.

### **Neomuscina mediana, new species**

FEMALE: Length 6.25 mm. Head fulvous brown, whitish pruinulent, darkened from top of head to its lower half. Front darkened on basal one-half; at vertex, front 0.26 of head width, parallel sided. With four pairs of strong, inwardly directed, parafrontal bristles between which are one or two shorter pairs and with two posterior ones which are backwardly and outwardly directed. Anterior parafrontals, anterior ocellar, inner and outer vertical bristles subequal. Cheeks 1.2 times as high as width of third antennal segment. The setulae on facial ridge continued to a point opposite insertion of arista. Antennae fulvous orange, slightly darker apically, inserted opposite middle of eyes and extending to lower level. Third antennal segment almost 4.0 times as long as second. Longest arisal hairs as long as width of third antennal segment. Palpi fulvous. Proboscis shiny brown.

Thorax fulvous brown, grayish yellow pruinulent, along the mid-line inside the dorsocentral bristles is a dark castaneous brown stripe overlaid with dense pruinescence, on each side of which is a dark brown vitta. Along the outer side of the dorsocentral bristles is a moderately wide, lighter brown vitta. Scutellum slightly lighter at tip, with a dark area along the sides near the base and with a silvery pruinulent spot on disc inside each basal scutellar bristle. Dorsocentrals 2:4; intra-alars 2; pra 0.5 as long as the strong, anterior, notopleural bristle. Scutellar setulae descending to, but not onto, the ventral surface except on basal lateral angle. Hypopleura haired above hind coxae and in front of spiracle. The latter without interspersed simple setulae.

Fore legs fulvous, mid and hind legs brown, the femora infuscated on basal two-thirds to three-fourths. Fore femora normal. Fore tibiae with a short but distinct median anterodorsal bristle, and with the apical bristles strong, the posteroventral longest, the dorsal and posterodorsal subequal. Mid

femora with four to five ventral bristles on basal one-half and with a pre-apical posterodorsal and posterior bristle. Mid tibiae with five to seven posterior bristles, two towards the base of the series longest. Hind femora with four strong anteroventral bristles on apical one-third and with three to four more slender posteroventral bristles on basal half. Hind tibiae with one median anterodorsal and two median anteroventral bristles.

Wings hyaline; with a brownish spot between apex of subcosta and first vein which is subconfluent with another spot around anterior cross vein, a less distinct, long narrow cloud towards apex of second vein, and with a faint cloud around the very slightly curved posterior cross vein. Calyptrae yellowish white. Halteres pale fulvous.

Abdomen dark brown to black, with bluish white pruinescence. The base of first visible tergite pale brown. With only a very faint basal median spot on second and third tergites and a faint apical band on second. Third tergite with two to three apical lateral bristles and with a row of discal and subapical bristles on fourth tergite. Basal sternite fulvous, setulose.

HOLOTYPE: Female, Botanical Garden, Rio de Janeiro, Brazil (H. Souza Lopes).

### ***Neomuscina fulvifrons*, new species**

FEMALE: Length 6 mm. Head entirely fulvous except for two round infuscated spots on back on each side between neck and dorsolateral portion, whitish pruinulent. The ocellar tubercle rather brown, whitish pruinulent, and the very narrow frontal triangle fulvous brown. Front at vertex 0.26 of head width and only very slightly widened anteriorly. With three pairs of strong and three or four pairs of weaker parafrontal bristles, the weaker ones inserted between the stronger ones, all except the posterior two pair are inwardly directed, while the latter are outwardly directed. Anterior ocellars, inner and outer vertical bristles strongest; the postocellar and the strong parafrontal bristles subequal. Juncture of parafacials and parafrontals about 0.66 as long as width of third antennal segment; the parafacials narrowed below. Antennae fulvous, inserted slightly above middle of eyes and extending to slightly below lower level of eyes. Third antennal segment 3.2 times as long as second. Arisal hairs rather sparse, the longest almost as long as greatest width of third antennal segment. Cheeks as high as width of

third antennal segment. The pale hairs on facial ridges continued to opposite about the middle of third antennal segment. Palpi pale fulvous. Proboscis shiny fulvous.

Thorax fulvous, the dorsum more brownish fulvous, densely grayish pruinulent; with four vittae, the lateral ones are widest. Apex of scutellum yellowish fulvous. Bristled as in *mediana*, but usually without hypopleural hairs in front of the spiracle.

Legs fulvous. Fore femora normal. Fore tibiae with a very short, median, anterodorsal setula and with a few shorter ones beyond; with the apical anterior, posterodorsal, and posteroventral bristles strong, subequal. Mid femora with about six ventral bristles on basal half and with about three shorter and more slender anteroventral ones on basal one-fourth; with a pre-apical posterodorsal and posterior bristle. Mid tibiae with three to five posterior bristles. Hind femora with a row of anteroventral bristles, only those on apical one-third longer than femoral diameter and with about three widely placed, slender, posteroventral bristles on basal half which are about as long as femoral diameter.

Wings pale brownish hyaline; with a very faint cloud around anterior cross vein. Posterior cross vein very slightly curved. Calyptres pale brownish yellow, the upper one slightly darker than the lower one; with a dark brown border on upper one and usually there is a dark border on lower one. Halteres fulvous.

Abdomen brownish fulvous, the apical half of second and the entire third and fourth tergites are darker; all with light bluish white pruinoscence which surrounds the brown spots in which the clothing setulae are inserted. Basal tergite with a very narrow, dark apical band, second with a broader apical band, second and third tergites with a small basal dark spot. The second and third tergites have three or four apical lateral bristles and fourth has a row of discals and subapicals. Sternites pale yellow; the basal one setulose, others with a pair of apical bristles.

TYPE MATERIAL: Holotype, female, Itaquaquecetuba, São Paulo, Brazil, January, 1929 (C. H. T. Townsend), in United States National Museum. Paratypes: Two females, Nova Teutonia, Brazil, latitude 27° 11' S. and longitude 52° 23' W., October 7, 1937 (Fritz Plaumann); Trancas, Argentina (H. L. Parker).

The margin of the lower calyptres are darker in the paratypes.

This species is quite similar to *nigricosta*, but the unspotted wings and the longer antennae should serve to separate the two species.

***Neomuscina nigricosta*, new species**

**FEMALE:** Length 7.0 mm. Head yellow, yellowish gray pruinulent, only the frontal triangle and back of the head to opposite middle of lower half of eyes dark. Front at vertex 0.28 of head width, parallel sided. With a complete row of inwardly directed parafrontal bristles, the posterior two pairs outwardly directed. Inner and outer verticals and anterior ocellar bristles subequal, well developed, postocellars smaller. Juncture of parafacials and parafrontals about 0.5 as long as width of the comparatively broad third antennal segment, parafacials virtually obliterated below. Cheeks 0.75 as high as width of third antennal segment. Facial ridges with several series of fine, hair-like setulae continued to opposite dorsal three-fourths of third antennal segment. Antennae, palpi, and proboscis fulvous, the last shiny. Antennae inserted opposite middle of eyes, descending to about level of lower margin. Third antennal segment 3.0 times as long as second. Arista with moderately long scattered hairs, the longest about as long as width of third antennal segment.

Thorax pale brownish fulvous with yellowish brown pruinescence, and four narrow, distinct, dorsocentral vittae. Dorsocentrals 2:4, the anterior two postsutural pairs more weakly developed; intra-alars 2; pra 0.5 as long as posterior notopleural bristle. Scutellar setulae descending to, but not onto, ventral surface except at basal lateral angles. Posterior thoracic spiracle without interspersed setulae; hypopleura with some pale hairs only above hind coxae.

Legs fulvous, the tibiae and tarsi brown. Fore femora normal. Fore tibiae with a very weak median anterodorsal bristle and apically with a subequal, anterior, posterodorsal, and posteroventral bristle. Mid femora with about four moderately well-developed bristles on basal half of ventral surface and with a pre-apical posterodorsal and posterior bristle. Mid tibiae with two to four posterior bristles. Hind femora with four or five well-developed anteroventral bristles on apical half and with several very much shorter ones on basal half of anteroventral and posteroventral surfaces. Hind tibiae with one anterodorsal and two shorter and weaker, anteroventral, median bristles.

Wings yellowish hyaline, with a very dark brown costal cloud which extends from apex of subcosta to apex of second vein and posteriorly to about middle of submarginal cell. Anterior and posterior cross veins broadly infuscated, the former subconfluent with costal cloud. Costal setulae and thorns scarcely developed. Posterior cross vein very slightly curved. Calyptrae fulvous hyaline, halteres concolorous with calyptrae, the base of knobs slightly darker.

Abdomen black, base of first and second visible tergites fulvous, the fulvous portion of second tergite broadly interrupted at center of a dark median vitta. With a row of weak discal bristles on apical tergite. Basal sternite setulose.

HOLOTYPE: Female, Port of Spain, Trinidad, September 29, 1943 (F. M. Snyder).

***Neomuscina transporta*, new species**

MALE: Length 5 mm. Head fulvous, grayish pruinulent, back of head from top to lower one-third dark. Front at narrowest part as wide as diameter of anterior ocellus. The parafrontals contiguous along most of their length. With about four or five pairs of fairly strong, inwardly directed, anterior, parafrontal bristles and three to five pairs of weaker, outwardly directed, posterior, parafrontal bristles. Juncture of parafacials and parafrontals about 0.5 as long as width of third antennal segment, the parafrontals narrowed to 0.5 the length of juncture below. Cheeks as high as width of third antennal segment. Setulae of facial ridges continued to opposite about the dorsal one-third of third antennal segment. Antennae inserted opposite lower 0.4 of eyes, fulvous yellow. Third antennal segment 2.7 times as long as second. Longest arisal hairs 1.25 to 1.50 times as long as width of third antennal segment. Palpi yellowish fulvous. Proboscis shiny fulvous brown.

Thorax fulvous, with sparse silvery pruinescence, with a trace of presutural darkened mid stripe which is more densely overlaid with pruinescence and with indications of two narrow vittae beside the dark mid area. Acrosticals 0:1; dorsocentrals 2:4; intra-alars 1; pra short but distinct. Scutellar setulae descending onto ventral surface of basal lateral angles. Hypopleura with hairs only above hind coxae. Posterior thoracic spiracle without interspersed simple setulae.

Legs fulvous, the tibiae more brownish fulvous. Fore femora

normal. Fore tibiae without median bristles, but with the apical dorsal and posterodorsal bristle rather weak, the posteroventral one stronger. Mid femora with a row of about eight long, slender, ventral, hair-like bristles on basal one-half to one-third, with a pre-apical posterodorsal and posterior bristle. Hind femora with about eight anteroventral bristles which are rather hair-like towards base and become longer and stouter towards apex and with three or four posteroventral hair-like bristles on basal one-third to one-half which are about as long as femoral diameter. Hind tibiae with one strong and one weak, submedian, antero-dorsal bristle, the weaker one towards apex and with three or four finer, median, anteroventral bristles.

Wings pale yellowish hyaline, with a brownish spot at apex of subcosta to first vein and a fainter one at apex of second vein. Both cross veins with a narrow faint cloud. Posterior cross vein moderately curved. Calyptrae and halteres pale.

Abdomen fulvous brown, apical portion of first to third tergites dark brown, the fourth entirely brown, all with grayish pruinescence. With a faint, dark, variable, dorsocentral vitta. Tergal bristles rather weak; a short lateral discal and lateral apical pair of bristles on third and a row of discal and apical bristles on fourth visible tergites. Basal sternite setulose; others with all bristles rather long, subequal, apicals not strongly differentiated.

FEMALE: Length 5 mm. Similar to the male. Front at vertex 0.28 of head width, parallel sided. The front brownish behind and becoming more fulvous anteriorly. With a row of five to six inwardly directed anterior and two outwardly directed, posterior, parafrontal bristles. Subapical parafrontal, anterior ocellar, inner and outer vertical bristles subequal; postocellar bristle about 0.5 as long. Thorax with the central darkened area extending farther postsuturally. The notopleural setulae adjacent to the anterior bristle less numerous. Intra-alars 2. Apical bristles on fore tibiae stronger, but the bristles on ventral surfaces of mid and hind femora shorter. Only the apical anteroventral bristles on hind femora as long as femoral diameter. Hind tibiae with a single, median, anterodorsal bristle. Abdomen with only the discal and apical row of bristles on fourth tergite distinct and upstanding, and even these are rather short.

TYPE MATERIAL: Holotype, male, and allotype, female, Stat. Accra, Africa, September 6, 1943 (M. A. Locke), No. A-660 43-17769 in United States National Museum.



I suspect that this species was taken from an aircraft which traveled from South America or was an importation via the same method. During almost 16 months of intermittent collecting in West Africa, including the vicinity of the airport at Accra, Gold Coast, no *Neomuscina* were collected, although many were taken in a shorter period of time in Central America and eastern South America.

The species has been keyed out twice because of the presence of a weak, apically situated, anterodorsal bristle on the hind tibiae in the holotype. The darker mid and hind femora and the thorax should separate *nudistigma* from *transporta* quite readily. In both sexes of *transporta*, the bristles on ventral surface of the hind femora are less numerous, weaker, and more widely spaced than in *nudistigma*.

Actually, *transporta* appears to be more closely allied to *nigricosta* and *fulvifrons*. Besides the characters mentioned in the key, the weaker abdominal bristles should help separate *transporta*. In *nigricosta*, the mid and hind tibiae are decidedly darker than in *transporta*.

#### ***Neomuscina nudistigma*, new species**

**MALE:** Length 5.5 mm. Head twice as high as long, brownish fulvous, grayish pruinulent. The back of the head to lower one-fourth of eyes black. Front at narrowest part 2.0 as wide as diameter of anterior ocellus. Parafrontals subcontiguous, about as wide as diameter of anterior ocellus. Juncture of parafacials and parafrontals 0.5 as long as width of third antennal segment, slightly narrowed below. Cheeks as high as width of third antennal segment. With a complete row of parafrontal bristles, the ones that reach to beginning of the narrowest portion of front quite well developed, the posterior ones shorter and more hair-like. The anterior ocellar bristle and the most well-developed parafrontal bristles subequal; postocellars, inner and outer vertical bristles short and fine. Facial ridge setulae continued to opposite base of the arista. Eyes large, inner central area with slightly enlarged facets. Antennae fulvous, inserted opposite middle of eyes, descending to slightly above their lower level. Third antennal segment 2.3 times as long as second; arista plumose, the longest hairs slightly longer than greatest width of third antennal segment. Palpi fulvous, slightly wider towards apex. Proboscis shiny brownish black with very sparse pruinescence.

Thorax deep brown, grayish pruinulent. Humeri, apex of scutellum, propleura, and a variable portion of the postalar callosities yellowish brown. Thorax distinctly quadrivittate, the outer vittae wider than the inner ones and broadly interrupted at transverse suture. Acrosticals 0:1, sometimes some of the presutural acrostical setulae are slightly stronger than usual; dorsocentrals 2:4, the anterior two pair slightly shorter than the posterior ones; intra-alars 2; pra absent. Scutellar setulae descending onto ventral surface except at apex. Hypopleura with a few setulae only above hind coxae. Anterior spiracular hairs yellow, those of posterior one more brownish; without interspersed simple setulae along margin of the latter.

Legs yellowish brown, the basal one-half to one-third of fore femora, basal half to three-fourths of mid femora and hind femora infuscated. Fore femora normal. Fore tibiae with a scarcely developed median anterodorsal bristle and with a strong, apical, dorsal, and posteroventral bristle and a somewhat weaker posterodorsal apical bristle. Mid femora with an almost complete row of posterior to posteroventral bristles, with a pre-apical posterodorsal and posterior bristle. Mid tibiae with three median posterior and a subapical posterior bristle. Hind femora with a complete row of strong, closely placed, anteroventral and posteroventral bristles. Hind tibiae with two median anterodorsal and three or four weaker anteroventral bristles.

Wings yellowish hyaline, with a very faint dark area extending from subcosta to apex of first vein and extending posteriorly to the latter vein. The cross veins with an indistinct cloud. Posterior cross vein almost straight. Costal setulae and thorns scarcely developed. Calyptrae hyaline; halteres pale brown, the base of knobs somewhat darker.

Abdomen brownish black, grayish pruinulent. The base of second, third, and fourth visible tergites with a small, sub-round central spot, the clothing setulae inserted in small dark spots. When viewed from the side, first, second, and third visible tergites with a dark apical margin. Third tergite with one or two lateral discal and apical bristles; fourth with an irregular row of subbasals, discals, and apicals. Basal sternite setulose, the others with well-developed apical bristles.

FEMALE: Length 5.5 mm. Similar to the male, differing from it in having the front at vertex 0.3 of head width, the sides sub-parallel. Frontal vittae black, reddish at base of antennae.

With a complete row of parafrontal bristles and a few shorter setulae beside them, the strongest parafrontal, the anterior ocellar, inner, and outer vertical bristles subequal, the postocellars 0.5 as long and strong. Palpi more broadened throughout. Mid femora with the posteroventral bristle shorter and occupying the basal half to two-thirds. Hind femora with the ventral bristles shorter and only well developed at apex of anteroventral surface. Posterior cross vein more curved. The apical row of bristles on apical abdominal tergite not so long and strong.

TYPE MATERIAL: Holotype, male; allotype, female; and paratype, female; Caracas, Venezuela, May 23, 1943 (F. M. Snyder).

***Neomuscina atincta*, new species**

MALE: Length 6 mm. Similar to *nudistigma*. Head more brownish. Front at narrowest part about as wide as diameter of anterior ocellus; parafrontals subcontiguous. In profile, juncture of parafacials and parafrontals only slightly longer than greatest diameter of arista, narrowed to 0.5 this width below. Anterior ocellar bristles not nearly so long and strong as the strongest parafrontal bristles. Third antennal segment 2.6 times as long as second.

Thorax as in *nudistigma*, the humeri and other parts of thorax less extensively fulvous.

Legs brownish yellow, the femora except apices black, the posterior four tibiae darker. Bristled as in *nudistigma*, but with the anteroventral bristles on hind femora less numerous and shorter towards base, and with only three or four posteroventral bristles at base.

Wings entirely hyaline. Abdomen less brownish.

FEMALE: Length 6 mm. Similar to the male, shaped and bristled as in female of *nudistigma*, but the front about 0.27 of head width. Hind femora with only two or three strong bristles towards apex of anteroventral surface.

TYPE MATERIAL: Holotype, male, Barro Colorado Island, Canal Zone, October, 1942 (J. Zetek); allotype, female, Higuito, San Mateo, Costa Rica (Pablo Schild); both in the United States National Museum.

***Neomuscina nudinervis* (Stein)**

*Cyrtoneurina nudinervis*, STEIN, 1918, Ann. Hist. Nat. Mus. Natl. Hungarici, vol. 16, p. 226.

*Neomuscina nudinervis*, MALLOCH, Ann. Mag. Nat. Hist., ser. 9, vol. 16, p. 92.

MALE: Length 6 mm. Quite similar in general habitus and coloring to *nudistigma*. Head similarly colored. Front at narrowest not so wide as diameter of anterior ocellus. Para-facials and parafrontals at narrowest not so wide as greatest diameter of arista. At their juncture, the para-facials and para-frontals are 2.5 times as long as the greatest arista diameter. The parafrontal bristles on apical half and the anterior and posterior ocellar bristles are subequal in length, and inner and outer vertical bristles are smaller. Palpi are not broadened.

Thorax colored and bristled as in *nudistigma*, but with a single pair of intra-alar bristles on each side, and the pra is short but distinct. Posterior spiracle not darker than the anterior one and with several setulae on the posteroventral corner.

Legs dark, only the apex of fore femora, basal half to two-thirds of fore tibiae with the apex of mid femora and apical fourth of hind femora fulvous to yellow. Mid femora with the ventral bristles fine on basal half and with a pre-apical dorsal, postero-dorsal, and posterior bristle. Hind femora with the posteroventral bristles longer, more widely spaced, and confined to basal two-thirds. Hind tibiae with a single, median, anterodorsal bristle and a few more well-developed anterodorsal setulae basad to the strong median bristle.

The spot at apex of subcosta is slightly darker and distinct only to the apex of first wing vein.

Base of abdomen lighter in ground color and with the apical dark tergal marks broader and more distinct.

Otherwise as in *nudistigma*.

FEMALE: Length 6 mm. Similar to the male and to the female of the preceding species, differing from them in having the front at vertex 0.22 of head width, parallel sided. Only the post-ocellar bristles less well developed. Bristles on the basal one-third of posteroventral surface of hind femora are shorter. The apical row of bristles on fourth visible tergite undeveloped and the others much shorter than in the other species.

SPECIMENS EXAMINED: Eighty-one males and 74 females from Moca Guatalon, Guatemala; San Salvador, El Salvador; Higuito, San Mateo, Costa Rica; David, Barro Colorado Island, Panama; Balboa, Panama Canal Zone; and Caracas, Venezuela.

Many of the specimens from Barro Colorado Island bear labels "Formes sp." and "bred from Polyporaceae."

Stein describes this species from a male in Bezzi's collection

from Cordoba (Mexico?). Malloch records it from Demerara, British Guiana.

As in most species of *Neomuscina* having darkened clouds in the wings, teneral specimens lack the clouds or have them very faint and indistinct. In the above series, there are two specimens which have only two preapical bristles on the mid femora. They will run with difficulty to *mediana*, but may be readily separated from that species by the presence of black setulae among the flap-like covering of hairs of the posterior thoracic spiracle, as well as darker thoracic color.

***Neomuscina nudinervis fulva*, new subspecies**

MALE: Length 5 mm. Anterior one-fourth of parafrontals, parafacials, and cheeks and peri-oral region yellow, grayish pruinulent, remainder of head black, grayish pruinulent. Front at narrowest part about as wide as diameter of anterior ocellus. The very narrowest part about as wide as diameter of anterior ocellus. The very narrow parafrontals narrowly contiguous. The parafrontal bristles longest on the noncontiguous portion and very short and directed forward on the posterior portion. Outer vertical, anterior, and posterior ocellar bristles weakly developed, inner verticals not distinguishable. Antennae inserted opposite middle of eyes, descending to opposite lower margin of eyes. Facial ridge setulae in a single series extending to about opposite middle of third antennal segment. Antennae and palpi yellowish. Longest arisal hairs about as long as the comparatively narrow third antennal segment. Proboscis brown, subshiny.

Thorax brownish fulvous, the disc distinctly darker brown, brownish gray pruinulent. Marked as in *similata* but with the lanceolate apical scutellar spot extending only to about the middle of scutellar disc. Bristled as in *nudinervis*.

Legs fulvous, bristled as in *nudinervis*. Fore tibiae with a very weak, median, anterodorsal setula. Hind femora with a complete row of strong anteroventral bristles and a row of posteroventral bristles on basal half.

Wings marked as in *nudinervis*.

Abdomen castaneous, grayish pruinulent, with an indistinct dark basal spot at center of second and third visible tergites. The clothing setulae inserted in shiny dark spots. With a few moderately well-developed, lateral, discal, and apical bristles on

third visible tergite and with a complete row of discal and weaker apical bristles on apical tergite. Basal sternite setulose, others, except fifth, with moderately developed apical bristles.

FEMALE: Length 6.5 mm. Similar to the male, differing from it in having the head as in *nigricosta*. Thorax with a pair of intra-alar bristles on each side. Legs as in male, but the antero-ventral and posteroventral bristles on hind femora weaker, nevertheless well developed. Only the discal row of bristles on the apical tergite well developed, the other abdominal tergal bristles much weaker.

TYPE MATERIAL: Holotype, male, and allotype, female, Villarica, Paraguay, July, 1937 (F. Schade). Paratypes: Two males and one female, topotypical; one male, Rio de Janeiro, Brazil, November 24, 1933 (H. Souza-Lopes); one female, Nova Teutonia, Brazil, latitude  $27^{\circ} 11' S.$  and longitude  $52^{\circ} 23' W.$ , April 6, and one male, April 14, 1939 (Fritz Plaumann).

***Neomuscina instabilis*, new species**

MALE: Length 5 mm. Head 2.25 times as high as long, fulvous, brownish gray pruinulent. Back of head to lower level of eyes blackish, grayish pruinulent. Front at narrowest part as wide as diameter of anterior ocellus. The parafrontals contiguous at middle. In profile, juncture of parafacials and parafrontals about 0.5 as long as width of third antennal segment, the parafacials narrowed below. Cheeks as high as width of third antennal segment; a row of five to seven parafrontal bristles of moderate length which are continued to beginning of the narrowest portion of front, the remainder of the parafrontals with a row of very short setulae which are about half as long as the smallest anterior group of parafrontals. Inner and outer vertical and the anterior and posterior ocellar bristles short, subequal. Facial ridges with the very short setulae inserted to about level of arisal insertion. Antennae fulvous, the apical portion of third segment occasionally slightly darker. Antennae inserted opposite center of eyes, extending to slightly below the lower level of eyes. Third antennal segment 3.0 times as long as second. Longest arisal hairs as long as width of third antennal segment. Palpi yellowish, slightly infuscated on basal one-fourth; proboscis brownish black, shiny.

Thorax black, yellowish gray pruinulent. Humeri and apex of scutellum with a variable portion of postalar callosity brownish

fulvous. Disc with two narrow brown vittae which extend from anterior part of thorax to about opposite the second postsutural dorsocentral and two broader lateral vittae, broadly interrupted at the suture, which extend to level of posterior intra-alar bristle. Dorsocentrals 2:4, anterior two postsutural dorsocentral bristles somewhat shorter than the posterior two; intra-alars 1; pra minute or absent. Scutellar setulae descending onto ventral surface only at base. Hypopleura with setulae only above base of hind coxae; without setulae among the flap-like covering of hairs of the posterior thoracic spiracle.

Apices of femora and tibiae fulvous to fulvous brown, remainder of legs brown to brownish black. Fore femora normal. Fore tibiae with or without a very weak, scarcely distinguishable, median, anterodorsal setula, the apical dorsal and posteroventral bristles equal, stronger than the moderately well-developed posterodorsal bristle. Mid femora with a row of three to five ventral to posteroventral bristles on basal half, and with a pre-apical dorsal posterodorsal and posterior bristle. Mid tibiae with two to four posterior bristles. Hind femora with a complete row of anteroventral bristles and a row of posteroventral bristles on basal half to two-thirds. Hind tibiae with one median anterodorsal, and two or three weaker anteroventral bristles.

Wings very pale brownish hyaline. Cross veins not infuscated. Posterior cross vein almost straight, costal setulae and thorns scarcely developed. Calyptrae hyaline, margins slightly yellowish. Halteres yellow.

Abdomen dark brown to black except the basal portion of first visible tergite which is yellow to fulvous. Apices of first to third tergites with a dark transverse band and with a median spot on second and third tergites; the spot on second subconfluent with the apical band. Frequently with a grayish pruinescent patch at juncture of spot and band. The clothing setulae inserted in dark spots surrounded by dense grayish pruinescence; with two to four lateral apical bristles on third visible tergite and a complete row of subbasal, discal, and apical bristles on fourth segment, the latter weakest. Basal sternite setulose, others with moderately developed apical bristles.

FEMALE: Length 5.5 to 6.5 mm. Similar to the male. Front black, fulvous at base of antennae; at vertex front 0.25 of head width, parallel sided. With a complete row of alternating weak

and strong parafrontal bristles and with some very weak setulose hairs laterad to them. The stronger parafrontal, anterior ocellar, inner and outer vertical bristles subequal; the postocellars shorter and finer. The darker portions of the palpi and third antennal segment more distinct; the palpi slightly broader. Thorax with fulvous portion more extensive, especially at humeri. Intra-alars 2. Legs darker colored. The apical lateral bristles on third abdominal tergite and the apical row on the fourth are scarcely developed.

TYPE MATERIAL: Holotype, male, and allotype, female, David, Republic of Panama, August 29, 1943. Paratypes: Thirteen males and nine females, topotypical; one male and one female, Balboa, Panama Canal Zone, June 12, 1943; two males and three females, Port of Spain, Trinidad, September 29, 1943; one male and one female, May 14, one male, February 5 to 24, 1943, Natal, Brazil. (All F. M. Snyder.)

Additional specimens in rather poor condition seen from Barro Colorado Island, Tabernilla, and El Cermenó, Panama.

It is possible that this species is *stabilis* Stein (1911, p. 86) which I have not seen. Until the type can be examined, I have considered the above described species distinct on the basis of lighter colored legs, more numerous bristles on the mid tibiae and on the anteroventral and posteroventral surfaces of hind femora.

### ***Neomuscina schadei*, new species**

MALE: Length 5 to 5.5 mm. Very similar in structure to *instabilis*. The anterior parafrontal bristles are usually four to six in number. Parafrontals are very narrowly separated along their entire length.

Thorax fulvous brown, grayish yellow pruinose, the humeri and scutellum practically concolorous with disc. With four brown longitudinal vittae. Bristled as in *instabilis* but with intra-alars 2.

Legs entirely fulvous, occasional specimens with slight brownish tinge towards base of posterior femora.

Abdomen as in *instabilis*, but ground color is more fulvous brown.

FEMALE: Length 5 to 5.75 mm. Similar to the male, differs in having front at vertex 0.25 of head width, parallel sided. Colored and bristled as in female of *instabilis*, but third antennal



segment not so distinctly darkened apically. With two intra-alal bristles. Legs with the femora slightly more brownish.

TYPE MATERIAL: Holotype, male; allotype, female; paratypes, 12 males and nine females; all Villarica, Paraguay, June, 1937 (F. Schade).

Stein described *Mydaea dorsipunctata* (Stein, 1918, p. 215) from several females from Oxaca and Tapachula, Mexico, in Bezzi's collection. *Schadei* agrees with it in many respects, but until the type can be examined the two species are considered as distinct, mainly upon geographical distribution.

### ***Neomuscina similata*, new species**

FEMALE: Length 6 mm. Very similar to *nigricosta*, differing from it in having the frontal vitta black, except at the extreme apex; back of the head to almost lower margin of eyes black, grayish pruinulent; the proboscis shiny blackish brown.

Thorax as in *nigricosta* but with the vittae broader, darker and the median pair of vittae extending onto the scutellum as a pair of subshiny triangular marks, so that there appears to be a long, lanceolate yellow spot from apex to the base of scutellum.

Legs infuscated, the coxae, apical half of fore femora, and apices of mid and hind femora fulvous. Bristled as in *nigricosta* except that the mid femora has a pre-apical dorsal bristle in addition to the usual pre-apical posterior and posterodorsal one; hind femora with the basal anteroventral and posteroventral bristles more well developed and hind tibiae with three median anteroventral bristles.

Wings with the costal cloud reduced to a darkened area at apex of first wing vein and entirely enclosed within the marginal cell and another less extensive one at apex of second vein. Cross veins distinctly infuscated.

Base of abdomen with the fulvous spots replaced by smaller, indistinct brownish areas.

TYPE MATERIAL: Holotype, female, Port of Spain, Trinidad, September 29, 1943 (F. M. Snyder); paratypes: one female, topotypical; two females, Caracas, Venezuela, May 23, 1943 (F. M. Snyder), and Quebrada Secca, Venezuela.

### ***Neomuscina neosimilis*, new species**

MALE: Length 6 mm. long. Head yellow, grayish pruinulent, cheeks brownish and back of head from top to lower one-

fourth darkened. Front at narrowest part as wide as diameter of anterior ocellus. The parafrontals contiguous, the frontal vitta is reduced to a triangular portion beyond ocelli and at base of antennae. With about four pairs of anterior and six to eight pairs of posterior parafrontal bristles, the latter forwardly directed. Anterior ocellar, inner and outer vertical bristles subequal, 0.75 as long as the strong pair of pre-apical parafrontal bristles. In profile, juncture of parafacials and parafrontals 0.33 as long as width of third antennal segment, slightly narrowed below. Setulae on facial ridges continued to opposite insertion of arista. Antennae yellow, apex slightly fulvous; third segment 2.6 times as long as second. Longest arisal hairs as long as width of third antennal segment. Palpi pale yellow. Proboscis brown, lighter towards apex.

Thorax brownish fulvous, yellowish white pruinulent, with four distinct vittae. Pleura and apex of scutellum fulvous. Dorsocentrals 2:4; pra very short; notopleura with only one or two setulae adjacent to the anterior bristle. Scutellar setulae descending onto ventral surface at basal lateral angles; intralalars 1; hypopleura with hairs in front of spiracle and above hind coxae. Posterior thoracic spiracle without interspersed simple setulae.

Legs fulvous. Fore femora normal. Fore tibiae with a weak median anterodorsal bristle, the apical dorsal, posterodorsal, and posteroventral one strong, of the three the posterodorsal bristle is shortest. Mid femora with about six ventral bristles on basal half and with a pre-apical dorsal, posterodorsal, and posterior bristle. Hind femora with a complete row of anteroventral bristles and a row of posteroventral ones on basal one-half to two-thirds. Hind tibiae with one median anterodorsal and three anteroventral bristles; the setulae along anterodorsal surface slightly longer and more hair-like.

Wings hyaline, with a spot at apex of subcosta which is subconfluent with the cloud around anterior cross vein and another around the slightly curved posterior cross vein. Calyptrae white. Halteres pale.

Basal two visible abdominal segments fulvous, others dark brown to black, bluish gray pruinulent; with an indistinct apical dark band on first two tergites and with a dark central basal spot on second and third tergite, the spot on third tergite scarcely distinguishable. Fourth tergite with about three discal

and apical bristles and with a row of discal, subapical, and apical bristles. Basal sternite setulose.

FEMALE: Length 6 mm. Similar to the male. Front at vertex 0.31 of head width, narrowed anteriorly to 0.26. Frontal vitta fulvous on anterior one-third, dark behind. With a complete row of strong parafrontal bristles.

Thoracic dorsum more fulvous and with less dense pruinescence. Intra-alars 2. Mid tibiae with two to three posterior bristles and the anteroventral and posteroventral bristles on hind tibiae more widely spaced. Third abdominal tergite without lateral discal bristles.

TYPE MATERIAL: Holotype, male, Nova Teutonia, Brazil, latitude  $27^{\circ} 11' S.$ , longitude  $52^{\circ} 23' W.$ , June 4, 1939 (Fritz Plaumann); allotype, female, Villarica, Paraguay, July, 1937 (F. Schade); paratype, one female, same data as allotype.

***Neomuscina currani*, new species**

MALE: Length 5.5 mm. Head yellow, silvery pruinulent; cheeks slightly orange, and back of head from top to lower two-thirds darkened. Front at narrowest part not quite so wide as diameter of anterior ocellus. Parafrontals contiguous on 0.5 their length. In profile, only the juncture of parafacials and parafrontals visible, and only as long as greatest arisal diameter. With three or four pairs of anterior parafrontal bristles, only the subapical one well developed. The remainder of parafrontals with about seven pairs of forwardly directed bristles, which are as long as the length of the anterior ocellar bristles and the parafrontal bristles except the strong subapical pair. Cheeks almost as high as width of third antennal segment. Facial ridges with pale, scarcely visible hairs to opposite middle of third antennal segment. Antennae pale yellow, inserted opposite lower 0.4 of eyes, extending to opposite their lower level. Third antennal segment 2.25 times as long as second. Longest arisal hairs as long as width of third antennal segment. Palpi pale yellow. Proboscis shiny light brown.

Thorax fulvous brown, humeri slightly and apex of scutellum lighter colored, densely grayish pruinulent, presuturally with two narrow brown vittae and postsuturally with four, the broader lateral pair narrowly join a prescutellar median pair. Dorsocentrals 2:3; intra-alars 2; pra 0.5 as long as posterior notopleural bristle; scutellar setulae descending onto ventral

surface at basal lateral angles. Hypopleura haired in front of spiracle and above hind coxae. Posterior thoracic spiracle without interspersed simple setulae.

Fore legs fulvous, mid and hind legs brown. Fore femora normal. Fore tibiae with a very short, median, anterodorsal setula, apically with one strong dorsal and posteroventral bristle, the apical posterodorsal bristle much reduced, scarcely distinguishable from the clothing setulae. Mid femora with one or two small, median, anterior, bristle-like setulae, a row of fine, ventral bristles on basal half and with one pre-apical dorsal, posterodorsal, and posterior bristle. Mid tibiae with two strong median posterior bristles and two or three much shorter ones on apical one-fourth. Hind femora with three moderately strong, anteroventral bristles on apical one-third and some shorter and finer ones on basal two-thirds, with two or three fine setulae on basal one-third of posteroventral surface, only the apical anteroventral bristles are as long as femoral diameter. Hind tibiae with two anterodorsal and three anteroventral bristles near middle.

Wings pale brownish hyaline. With distinct clouds over both cross veins and another from apex of subcosta to apex of second vein posteriorly to second vein. Third vein with a single setula on ventral surface beyond node. The fourth vein a little more gently curved than in other species. Calyptrae yellowish white; halteres yellow.

Abdomen as in *macrops* except the base of first and second visible tergites are slightly fulvous. The tergal bristles weaker.

FEMALE: Length 5.5 mm. Similar to the male. Front at vertex 0.27 of head width, parallel sided, with a row of five strong, parafrontal bristles, the posterior two pairs backwardly and outwardly directed. Front black, fulvous only at base of antennae. Third antennal segment slightly darkened apically. Thorax more uniformly quadrivittate. The apical posterodorsal bristle on fore tibiae well developed. Ventral bristles on mid femora and the apical anteroventral bristles of hind femora stronger, while the basal anteroventral bristles of hind femora are much weaker. The curvature of the fourth wing vein is more abrupt. The fulvous color of the abdomen is limited to a very small area on basal tergite.

TYPE MATERIAL: Holotype, male, Barro Colorado Island, February 19, 1929 (C. H. Curran); allotype, female, topotypical, February 21, 1929 (C. H. Curran).

This species appears to be midway between the typical *Neomuscina* and *Spilopteromyia*, as illustrated by the single setula on the ventral surface of the third wing vein.

***Neomuscina (Spilopteromyia) apicata* (Stein)**

*Spilogaster apicata* STEIN, 1904, Ann. Hist. Nat. Mus. Natl. Hungarici, vol. 2, p. 422.

*Spilopteromyia apicata*, MALLOCH, 1921, Ann. Mag. Nat. Hist., ser. 9, vol. 8, p. 442.

This species from Vilcanota, Peru, was described from a female in the Budapest Museum. Malloch recorded it from Colombia when he made it the genotype of *Spilopteromyia*; his specimens are deposited in the British Museum (Natural History). I have not seen these specimens nor any other which I consider to be conspecific. Dr. van Emden kindly communicated the fact that Malloch's specimens have one setula above and below on juncture of first and second wing veins; minute hairs on the subtriangular portion of hypopleura above hind coxae; and an anterodorsal, dorsal, posterodorsal, and posterior pre-apical mid femoral bristle.

Stein states that the front at base of the antennae is quite narrow for a female, being at most two-thirds as wide as the eye. The antennae and palpi are yellow. Dorsocentrals are 2:4; acrosticals 0:1; pra very short. The legs are blackish brown, the tips of the femora below are yellowish. The hind tibiae have one anterodorsal and two to three anteroventral bristles. The costal area of the wing to the tip except for a small clear space beyond first vein is brown and the cross veins are broadly infuscated. The calyptrae are white and the halteres are yellow. The species is 7.5 to 8 mm. long.

***Neomuscina (Spilopteromyia) atincticosta*, new species**

MALE: Length 5.5 to 6 mm. Head yellow, brownish yellow pruinulent. Front at narrowest point not wider than distance across posterior ocelli inclusive. Parafrontals contiguous; with a complete row of parafrontal bristles extending to opposite anterior ocellus. The anterior pair of parafrontal bristles only slightly longer than others and about as long as the anterior ocellar bristles, not so robust as the vibrissae. Inner and outer verticals not longer than other parafrontal bristles. Juncture of parafacials and parafrontals not so long as width of third anten-

nal segment, narrowed below. Cheeks 1.5 as high as width of third antennal segment, narrowed below. Facial ridges with a single row of short, fine setulae reaching to slightly below aristal insertion. Palpi yellow. Antennae yellow, inserted at slightly below middle of eye, reaching almost to lower margin of eye. Third joint 2.25 times as long as second, longest aristal hairs as long as width of third antennal segment.

Thorax fulvous, with grayish pruinescence. Dorsocentrals 2:4; acrosticals 0:1; intra-alars 2; pra as long as posterior notopleural bristle. Scutellar setulae descending onto ventral surface. Propleural and stigmatal bristles weakly duplicated. Sternopleurals 1:2 or 1:3.

Legs fulvous. Fore femora normal. Fore tibiae bare at middle. Mid femora with a row of ventral bristles on basal half, with a pre-apical dorsal, posterodorsal, and posterior bristle. Mid tibiae with three median posterior bristles. Hind femora with a complete row of long, fine, anteroventral and a row of posteroventral bristles on basal half. Hind tibiae with one median anterodorsal and three finer anteroventral bristles.

Wings hyaline, slightly yellowish at base, anterior cross vein only infuscated. Costal thorn and setulae scarcely developed. Posterior cross vein gently curved. Third vein with several setulae beyond node on ventral surface. Calyptrae hyaline with deep brown margins. Halteres yellow.

Abdomen fulvous, grayish pruinulent, the apical segments darker bluish brown. With an indistinct darker dorsocentral vitta. All setulae inserted in darker spots. One or two pairs of well-developed lateral apical bristles on second and third visible tergites and with a row of strong discal and apical bristles on apical tergite. Basal sternite setulose. Fifth sternite moderately cleft.

TYPE MATERIAL: Holotype, male, and paratype, male, Nova Teutonia, Brazil, latitude  $27^{\circ} 11' S.$ , longitude  $52^{\circ} 23' W.$ , July 5, 1939 (Fritz Plaumann).

***Neomuscina (Spilopteromyia) tinctinervis* (Stein)**

*Mydaea tinctinervis* STEIN, 1918, Ann. Hist. Nat. Mus. Natl. Hungarici, vol. 16, p. 220.

I am uncertain whether this species, which was described from Santa Catharina and São Paulo, Brazil, belongs in this segregate. Stein mentions that the third wing vein has short setulae

at the base, but does not state whether they are on the dorsal or ventral surface or both. He compares it with *inflexa*, which, if I have identified it correctly, belongs to *Neomuscina*, *sensu stricto*.

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