

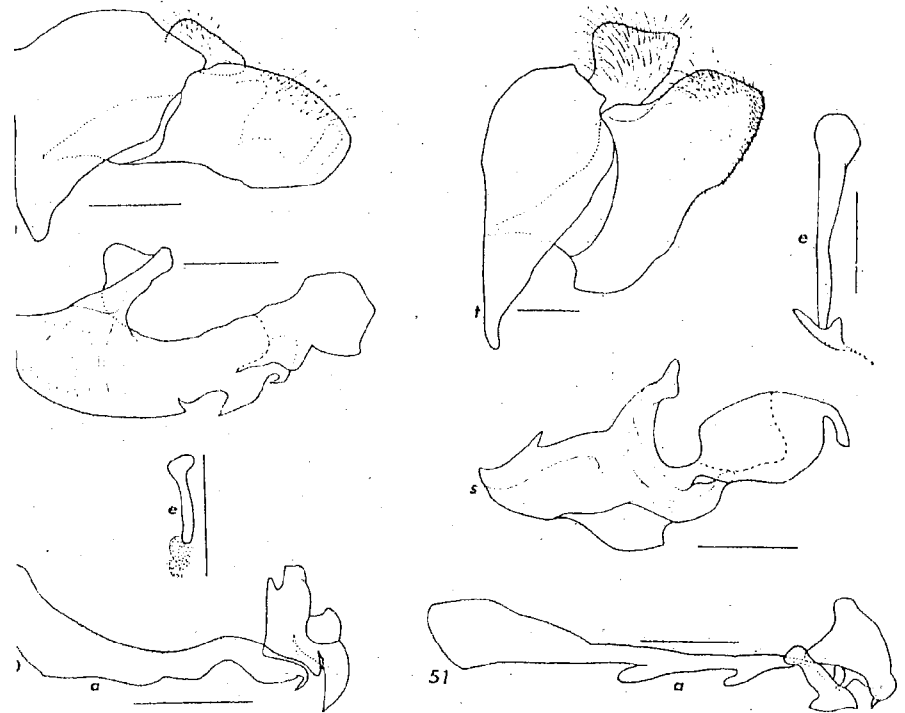
scribed. Fluke (1951) has revised the genus and provided a key with numerous figures illustrating the heads, abdominal patterns, and male genitalia.

Genus *Quichuana* Knab

(Figs. 30, 50)

Quichuana Knab, 1913, *Ins. Insci. Mens.* 1:13. Type-species, *Quichuana sylvicola* Knab, 1913 (original designation).

Head: higher than broad; face pollinose and pilose broadly on sides, shiny and bare medially, concave beneath antennae, with medial tubercle, straight beneath tubercle; cheeks narrow, usually longer than broad; facial grooves short, extending to the level of tubercle; facial stripe indistinct; frontal prominence medium height, about one-half to three-fourths as high as broad at base as measured in profile, above the middle of head; front of male long, more than twice as long as vertical triangle; vertical triangle short, as broad as long; front of female long, slightly shorter than face, about one-half as broad as



Male genitalia. 50, *Quichuana pogonosa* Fluke. 51, *Habromyia chrysotaenia* Fluke. aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

antennae as long, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes thinly pilose, narrowly holoptic in male. Antennae variable in length, from as long as to one-half as long as face; third segment elongate, usually more than twice as long as broad except only slightly longer than broad in *cestus*; arista bare, long, about as long as antenna.

Thorax: longer than broad, with short pile, without tomentum or pollinose markings; meso-katepisterna either with a narrowly connected or separated ventral and dorsal pile patches; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae usually bare; metasterna frequently greatly developed; metathoracic spiracle small, with diameter about equal to width of third antennal segment; plumulae short, unbranched. Legs: hind femora swollen; hind tibiae arcuate, without apical spur. Wings: marginal cell open, apical cell petiolate, with petiole longer than stigmatic crossvein; stigmatic crossvein present.

Abdomen: elongate.

Material examined: 25 (25); *auratus* (Walker)*, *bezzii* Ceresa*, *borgmeieri* Carrera & Lane* (HT), *calathea* Shannon* and *pogonosa* Fluke*.

Discussion: *Quichuana* is readily recognized among the eristalines by its pilose eyes and long antennae. It is related to *Mallota* but *Mallota* has short antennae and is thickly pilose on thorax. Twenty-five species of *Quichuana* are known. 21 from the Neotropical Region and 4 from the southern part of the Nearctic Region (Mexico). Hull (1945) has revised *Quichuana* and provided keys and illustrations.

Genus *Habromyia* Williston

(Figs. 21, 51)

Habromyia Williston, 1888, Trans. Amer. Ent. Soc. 15:284. Type-species, *Habromyia coeruleithorax* Williston, 1888 (monotypy).

Edwardsiella Hull, 1941, J. Wash. Acad. Sci. 31:437. Type-species, *Edwardsiella ochracea* Hull, 1941 (original designation). *New Synonymy*.

Lycopale Hull, 1944, J. Wash. Acad. Sci. 34:129. Type-species, *Mero-macrus vittata* Hull, 1937 (original designation). *New Synonymy*.

Criorthrix Hull, 1949, Trans. Zool. Soc. London 26:391. Type-species, *Habromyia rectilinea* Hull, 1942 (original designation). *New Synonymy*.

Head: higher than broad; face pollinose and pilose broadly on sides, shiny and bare medially, ranging from straight to deeply concave beneath antennae, with a median tubercle, straight beneath tubercle;

cheeks broad or narrow, ranging from as broad as long to longer than broad; facial grooves short, extending to level of facial tubercle; facial stripes indistinct; frontal prominence ranging from very low to greatly produced, above middle of head; front of male long, always as long as vertical triangle, frequently longer than vertical triangle; vertical triangle long, more than twice as long as broad at occiput; front of female long, as long as or longer than face, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes bare, narrowly dichoptic in male. Antennae short, ranging from one-half as long as to about as long as face; third segment either orbicular or elongate, never more than twice as long as broad; arista bare, long, slightly longer than antenna, thick.

Thorax: longer than broad, with short pile and usually tomentum, usually with longitudinal vittae and/or transverse bands; meso-katepisterna with separate dorsal and ventral pile patches; meso-anepimera with posterior portion bare, meropleurae bare; metathoracic pleurae bare; metasterna greatly developed; metathoracic spiracle large, usually as large as third antennal segment; plumulae elongate, single or multibranching. Legs: hind femora swollen; hind tibiae slightly arcuate, with or without apical spur. Wings: marginal cell open; apical cell petiolate, with petiole as long as or longer than stigmatic crossvein; stigmatic crossvein present.

Abdomen: variable, ranging from short subtriangular and flattened to long and subcylindrical.

Material examined: 10(10); *barbiellini* Ceresa*, *chrysotaenia* Fluke* (PTs), *coeruleithorax* Williston*, *ochracea* (Hull)* (HT) and *rectilinea* Hull*.

Discussion: *Habromyia* is easily recognized among the helophilines by its bare and holoptic or narrowly dichoptic eyes, short body pile, dark anterior wing margin and patterns of tomentum on mesonotum. The genus is rather homogeneous except there is considerable variation in the shape of both the frontal prominence and abdomen. A couple of genera, *Edwardsietta*, *Lycopale*, and *Criorthrix*, have been described on the basis of slight differences in the shape of both the frontal prominence and abdomen. However, the differences integrate into each other and I can not find any other significant differences that correlate with either abdomen or frontal prominence shape.

In the typic genus, *Habromyia*, the frontal prominence ranges from not differentiated (*barbiellini*) to as high as broad at base as measured in profile (*coeruleithorax*). The abdominal shape ranges from short, subtriangular and flattened in *barbiellini* to long, parallel-sided and apically pointed in *coeruleithorax*. The other three genera were described by Hull for differences in the abdominal shape and frontal prominence which are within the range of variation mentioned above. Since I am unable to find any other significant differences between

these genera and *Habromyia*, I have synonymized them. The type of *Meromacrus vittata* Hull, the only known specimen of *Lycopale* Hull, could not be found at the United States National Museum and is presumed lost. Thus the synonymy of *Lycopale* is made on the basis of Hull's descriptions only.

Genus *Mallota* Meigen

(Fig. 52)

Mallota Meigen, 1822, Syst. Besch. 3:377. Type-species, *Syrphus fuciformis* Fabricius, 1794 (subsequent designation; Rondani, 1844, Nuov. Ann. Sci. Nat. Bologna (2) 2:452).

Head: higher than broad; face pollinose and pilose broadly on sides, shiny and bare medially, deeply concave beneath antennae, with a median tubercle, straight beneath tubercle; cheeks broad, broader than long; facial grooves short, extending above the level of the tubercle; facial stripes indistinct; frontal prominence low, slightly more than one-half as high as broad at base when measured in profile, above middle of head; front of male long, slightly longer than ocellar triangle; vertical triangle long, about a third longer than broad at occiput; front of female broad, about as broad at antennae as long, slightly shorter than face, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes thinly pilose or bare, dichoptic or holoptic in male. Antennae short, about one-half as long as face; third segment quadrate, usually slightly broader than long; arista bare, long, about twice as long as antenna.

Thorax: about as broad as long, with mesonotal pile long and dense, without tomentum nor pollinose markings; meso-katepisterna and ventral continuously pilose from ventral margin to dorsal; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae bare; metathoracic spiracle large, as large or larger than third antennal segment; plumulae long unbranched. Legs: hind femora greatly swollen; arcuate; hind tibiae flattened laterally, arcuate, without distinct apical spur. Wings: marginal cell open; apical cell petiolate, with petiole as long as or longer than stigmatic crossvein; stigmatic crossvein present.

Abdomen: suboval with long pile.

Material examined: 49(10); *aberrans* Shannon* (HT), *analis* (Macquart)*, *bautias* (Walker), *inversa* Shannon* (HT), *posticata* (Fabricius) and *sackeni* Williston.

Discussion: *Mallota* species are typical bee mimics with dense long mesonotal pile. This bee-like appearance along with their massive hind femora will readily separate *Mallota* from the other Helophilina. *Mallota* is predominantly a northern temperate genus with about ten

species found along the Andes in South America. Curran (1953) has indicated that the Ethiopian and perhaps Oriental mallotas do not belong in *Mallota* proper, but probably in other genera. Curran (1940) has provided a key to all the New World species.

Genus *Eristalis* Latreille

(Fig. 53)

Eristalis Latreille, 1804, Nouv. Dict. Hist. Nat. 24:194. Type-species, *Musca tenax* Linné, 1758 (subsequent designation; Curtis 1832, Brit. Ent. 9: pl. 432).

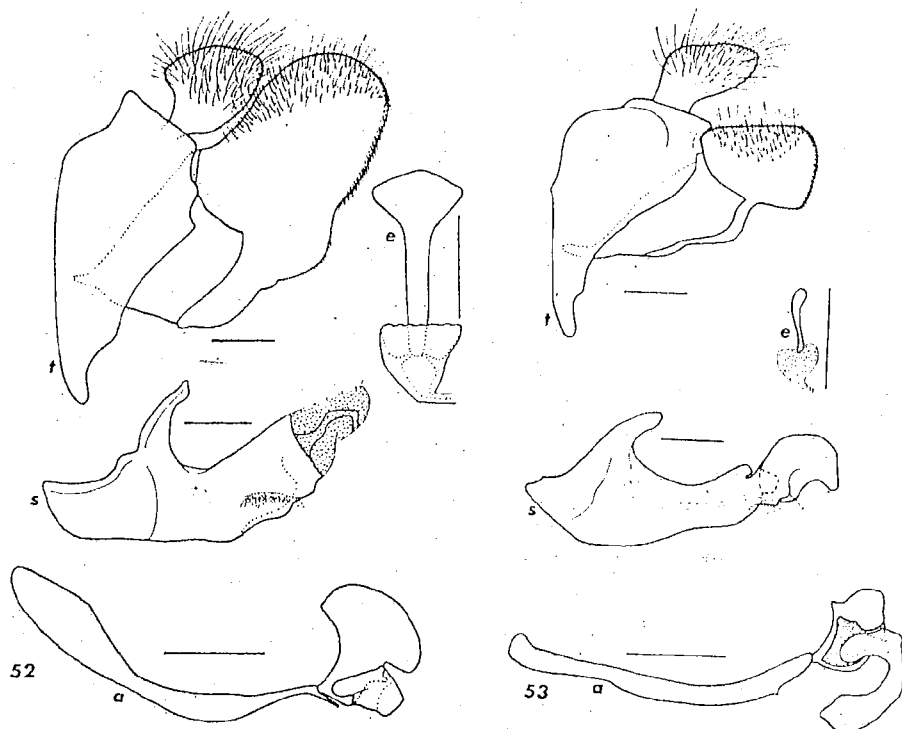
Head: about twice as high as broad; face broadly pilose and pollinose on sides, shiny and bare medially, straight except for medial tubercle and slight outward production at antennal pits, with tubercle on lower third of its length, strongly produced downward, with about one-third of facial length below eyes; cheeks broad, broader than long; facial grooves short, extending along lower third of eyes; facial stripes indistinct; frontal prominence low, on the upper third of head; front of male long, about twice as long as eye contiguity, slightly longer than vertical triangle; vertical triangle small, as broad as long; front of female broad, broader than long, about two-thirds as long as face, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes pilose, with two denser longitudinal pile bands, holoptic in male. Antennae short, about one-fourth as long as face; third segment quadrate, slightly longer than broad; arista bare, long about twice as long as antenna.

Thorax: slightly longer than broad, with long pile; meso-katepisterna continuously pilose from ventral to dorsal margin; meso-anepimera with posterior portion bare; meso-pleurae bare except for barrettes pilose; metathoracic pleurae bare; metathoracic spiracle large, larger than antenna; plumulae long and multibranched. Legs: simple. Wings: without microtrichia; marginal cell petiolate; apical cell petiolate, with petiole as long as stigmatic crossvein; stigmatic crossvein present.

Abdomen: oval in males and suboval in females.

Material examined: 1? (1); *tenax* (Linné).

Discussion: Vockeroth (in litt.) is currently working on a generic revision of the genus *Eristalis*, *sensu lato*, and his preliminary findings indicate that *Eristalis* should be restricted to *tenax* and related species only. The rest of the species formally placed in *Eristalis* belong to a number of other genera but all the Neotropical species belong to either *Eoseristalis* or *Palpada*. These three genera can be easily distinguished by pile characters: *Eoseristalis* has all of the posterior part of thoracic pleurae bare, including the posterior meso-anepimera, meso-



Male genitalia. 52, *Mallota sackeni* Williston. 53, *Eristalis tenax* (Linné), a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

pleurae and barrette and metapleurae; *Palpada* and *Eristalis* both have the barrettes pilose; but *Palpada* also has a distinct patch of long hairs in front of and at base of the metathoracic spiracle. *Eoseristalis* is apparently restricted to the temperate Andes, whereas *Palpada* is found throughout the Neotropical region. *Eristalis* is represented in the Neotropical Region by only its cosmopolitan type-species, *tenax*.

Genus *Eoseristalis* Kanervo

(Fig. 54)

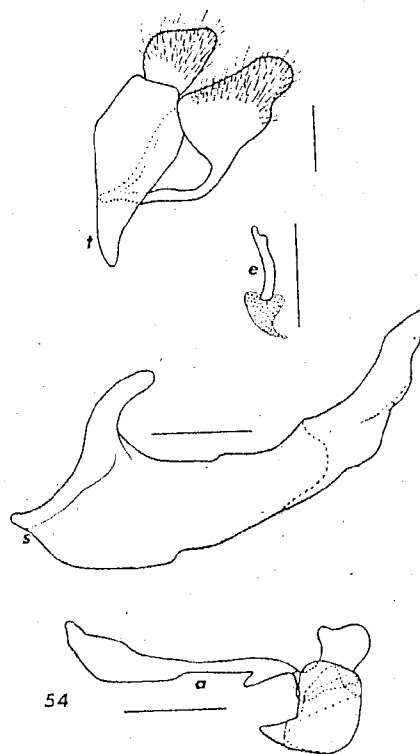
Eoseristalis Kanervo, 1938, Annal. Univ. abo. (turku.), ser. A, 6:12.
Type-species, *Eristalis cerealis* Fabricius, 1805 (by original designation).

Head: only about one-third higher than broad; face almost completely pilose and pollinose except for a narrow medial area bare and shiny, with a large broad low median tubercle, with tubercle on lower third of face, slightly concave beneath antennae, straight below tubercle,

not produced greatly below eyes; cheeks narrow, as long as broad; facial grooves short, extending to level of tubercle; facial stripes indistinct; frontal prominence low, slightly above middle of head; front of male long, about twice as long as eye contiguity; vertical triangle short, about one-half as long as front of male, equilateral; front of female broad, slightly broader at antennae than long about three-fourths as long as face, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes pilose, holoptic in male. Antennae short, about one-fourth as long as face; third segment quadrate, as long as broad; arista usually sparsely pilose on basal one-half, long, about one and one-half times as long as antenna.

Thorax: about as broad as long, with long pile; meso-katepisterna continuously pilose from ventral to dorsal margin; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae bare; metathoracic spiracle large, larger as third antennal segment; plumulae long, multibranching. Legs: simple. Wings: without microtrichia; marginal cell petiolate; apical cell petiolate, with petiole as long as stigmatic crossvein; stigmatic crossvein weak.

Abdomen: oval.



54, male genitalia of *Eoseristalis arbustorum* (Linné). a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

Material examined: 22? (?): *arbustorum* Linné, *assimilis* Macquart*, *bogotensis* Macquart*, *broussii* Williston, *intricarius* Linné, *latifrons* Loew, *nemorum* Linné, *obscurus* Loew, *pertinax* Scopoli, *rupium* Fabricius, *saxorum* Wiedemann and *transversus* Wiedemann.

Discussion: *Eoseristalis* is readily distinguished from *Eristalis*, *Palpada* and related genera by its almost completely bare posterior thoracic pleurae (posterior meso-anepimera, meropleurae, and metathoracic pleurae, all bare). *Eoseristalis* includes most of the North American and European species formerly placed in *Eristalis* and is restricted to the temperate Andes in South America. The genus was apparently unrecognized because of the confusion about the type-species of *Eristalis*. Most authors have accepted *arbustorum* Linné as the type-species of *Eristalis* and have used Rondani's *Eristalomyia* for the species related to *tenax*. Wirth *et al.* (1965) indicate that *tenax* Linné is the correct type for *Eristalis*, designated by Curtis (1832). Thus *Eristalomyia* with its type-species *tenax* becomes an objective synonym of *Eristalis* and the *arbustorum* group was without a name. However, *Eoseristalis*, previously considered a synonym of *Eristalis*, is an available name for the *arbustorum* group. Curran (1930) has included the New World species of *Eoseristalis* his *Eristalis* key and Bean (1949) has figured the peripheral system of the male genitalia for most Nearctic species (includes a few Neotropical ones).

Genus *Palpada* Macquart

(Fig. 31, 55)

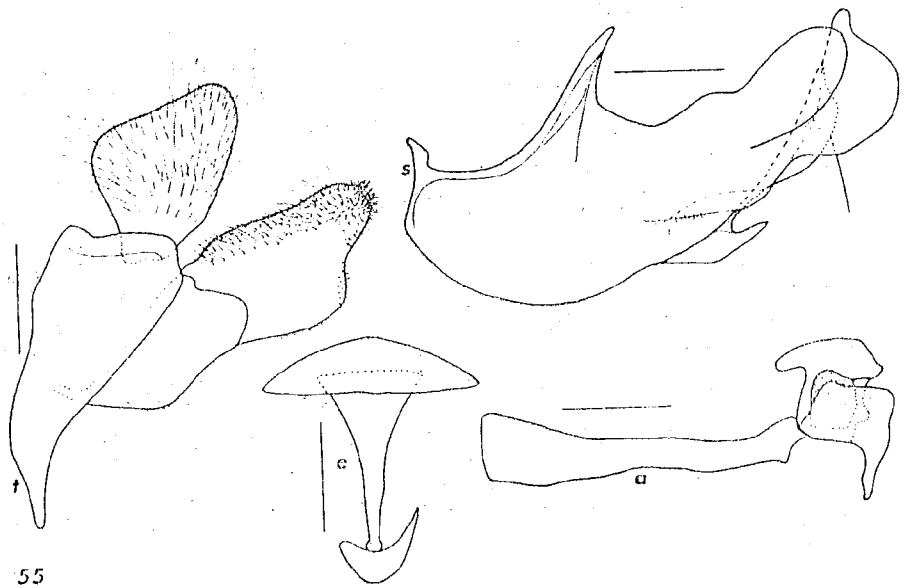
Palpada Macquart, 1834, Hist. Nat. Ins. Dipt. 1:512. Type-species, *Palpada scutellata* Macquart, 1834 (monotypy) = *Milesia conica* Fabricius, 1805.

Head: higher than broad; face broadly pilose and pollinose on sides, shiny and bare medially, concave beneath antennae; with a large median tubercle on lower third, straight beneath tubercle, may be produced greatly below eyes; cheeks usually broad, ranging from slightly longer than broad to much broader than long; facial grooves short, extending to the level of the tubercle; facial stripes indistinct; frontal prominence usually low, above middle of head; front of male usually slightly puffed-out, long, usually twice as long as vertical triangle, always longer than eye contiguity; vertical triangle short, about two-thirds as broad at occiput as long; front of female long, usually as long as face and twice as long as broad at antennae, with slightly convergent sides above; ocellar triangle small, equilateral. Eyes bare or short pilose, holoptic in males. Antennae short, about one-fourth as long as face; third segment usually quadrate, as long as broad; arista bare, longer than antenna, at least one and one-half times as long as antenna.

Thorax: longer than broad, with either long or short pile, without tomentum; meso-katepisterna usually continuous pilose from ventral to dorsal margin, sometimes with narrowly divided dorsal and ventral pile patches; meso-epimera with posterior portion bare; meropleurae bare except for barrettes pilose and a few hairs in front of metathoracic spiracle; metathoracic pleurae bare except for a distinct patch of pile below spiracle; metathoracic spiracle large, larger than third antennal segment; plumulae long, multibranching. Legs: hind femora swollen, frequently strongly swollen; hind tibiae flatten laterally, arcuate, frequently ciliate. Wings: usually with extensive areas of microtrichia; marginal cell petiolate; with petiole as long as stigmatic crossvein; stigmatic crossvein present.

Abdomen: oval to elongate.

Material examined: about $100 \pm$ ($100 \pm$); *agrorum* (Fabricius)*, *albifrons* (Wiedemann)*, *aemulus* (Williston)*, *atrimanus* (Loew)* (HT), *cosmius* (Schiner)*, *dorothea* (Hull)* (HT), *doris* (Curran)*,



55

55, male genitalia of *Palpada ochraceous* (Williston). a, aedeagus and apodeme; c, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

erraticus (Curran)* (PTs), *glabella* (Hull)* (HT), *gundlachi* (Loew)* (LTs), *fasciatus* (Wiedemann)*, *furcatus* (Wiedemann)*, *precipuus* (Williston)*, *pygolampus* (Wiedemann)*, *testaceicornis* (Macquart)*, *thalia* (Hull)* (HT), *vinetorum* (Fabricius)* and two dozen new or unidentified species.

Discussion: *Palpada* contains most of the Neotropical species formerly included under the name *Eristalis*. However, *Eristalis* is quite different from these Neotropical species (See discussion under *Eristalis*). *Palpada* appears to be the oldest available name for the Neotropical species. Curran (1930) has provided a key to the New World species of *Eristalis* including both *Eoseristalis* and *Palpada* but the key is outdated and now includes less than half of the described species.

Genus *Meromacrus* Rondani

(Fig. 56)

Meromacrus Rondani, 1848, Studi Ent. (Turin) 1:70. Type-species, *Meromacrus ghilianii* Rondani, 1848 (monotypy).

Thalamopales Hull, 1949, Trans. Zool Soc. London 26: 401. Type-species, *Helophilus scitus* Walker, 1857 (original designation).
New Synonymy.

Head: higher than broad; face broadly pilose and pollinose on sides, bare and shiny medially, concave beneath antennae, with or without a low median tubercle on lower third, straight below tubercle, not greatly produced below eyes; cheeks narrow, longer than broad; facial grooves short, extending to level of tubercle; facial stripes indistinct; frontal prominence low, on upper third of head; front of male long, more than twice as long as eye contiguity, as long as or longer than vertical triangle; vertical triangle long, about twice as long as broad at occiput; front of female short to long, from one-third shorter than to slightly longer than face, slightly longer than broad at antennae; ocellar triangle small, equilateral. Eyes bare, holoptic in male. Antennae short, about one-half as long as face; third segment pointed, slightly longer than broad; arista bare, about one-third longer antenna.

Thorax: about as broad as long, with very short pile, with distinct patterns of tomentum; meso-katepisterna with narrowly separated dorsal and ventral pile patches; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae bare except frequently for a few hairs above coxal articulation; plumulae long, multibranching. Legs: hind femora swollen; hind tibiae slightly arcuate. Wings: with anterior margin dark, with microtrichia; marginal cell petiolate; apical cell petiolate, with petiole as long as stigmatic crossvein; stigmatic crossvein present.

Abdomen: oval to suboval, rarely elongate.

Material examined: 38 (36); *acutus* (Fabricius)*, *anna* Curran*, *brunneus* Hull*, *cingulatus* Sack*, *decorus* (Loew)*, *draco* Hull* (HT, PTs), *ghilianii* Rondani*, *gloriosus* Hull*, *milesia* Hull*, *niger* Sack, *obscurus* Hine*, *panamensis* Curran*, *pratorum* (Fabricius)*, *ruficornis* (Wiedemann)*, *scitus* (Walker)* (HT) and *zonatus* Loew*.

Discussion: The petiolate marginal cell and presence of tomentum will distinguish *Meromacrus* from all the other syrphids. *Thalamopales* Hull was erected for a species with a "greatly produced" frontal prominence and elongate abdomen. Hull thought his new genus was "nearest" *Meromacrus*. I have studied the type-species of *Thalamopales*, *scitus* Walker, and I can find no differences between the two genera other than the elongate abdomen. The frontal prominence of *scitus* is no more produced than in some of the typical *Meromacrus* species which lack a tubercle. Since I don't consider the elongate abdomen of *scitus* to be anymore than a trivial difference I have synonymized *Thalamopales*. Hull's subgeneric name, *Metameromacrus*, is not available, since no type-species was designated.

Genus *Lycastirrhynchus* Bigot

(Fig. 57)

Lycastirrhynchus Bigot, 1859, Rev. Mag. Zool. (2) 9: 307. Type-species, *Lycastirrhynchus nitens* Bigot, 1859 (monotypy).

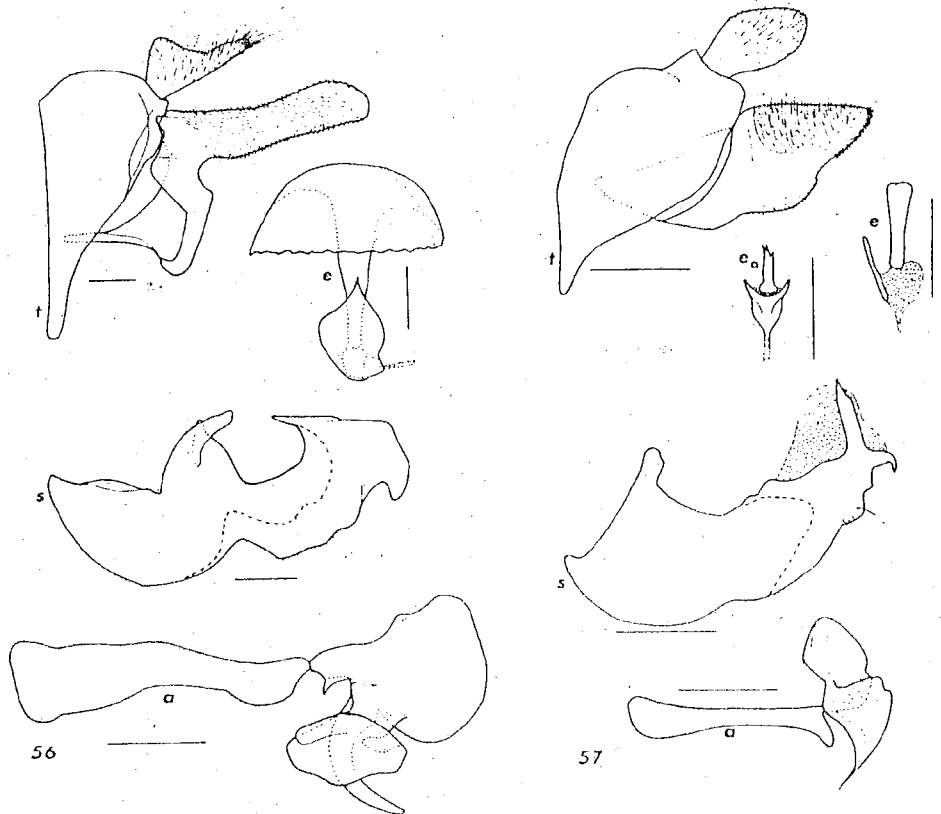
Head: about one-third broader than high; face pilose and polli-nose on sides, bare and shiny medially, snoutlike, strongly concave beneath antennae, with snout produced straight forward, with snout above level of bottom of eyes; cheeks linear, much longer than broad; facial grooves short, extending along lower half of eyes; facial stripes indistinct; frontal prominence low, above middle of head; front of male short, as broad as long, one-half as long as vertical triangle; vertical triangle rectangular, slightly longer than broad; front of female short, about two-thirds as long as face when face measured vertically from oral margin, about as broad as long, with sides only slightly convergent above; ocellar triangle small and equilateral. Eyes bare, broadly dichoptic in male. Antennae short, about one-third as long as face when face measured vertically from oral margin; third segment slightly elongate, little longer than broad, pointed; arista bare, long, about twice as long as antennae.

Thorax: longer than broad, with short pile and usually dark polli-nose longitudinal vittae; meso-katepisterna with broadly separated dorsal and ventral pile patches; meso-ancipimera with posterior portion bare; meropleurae bare except for barrette pilose and a few hairs in front of metathoracic spiracle; metapleurae bare except for a distinct patch of pile below the spiracle; metathoracic spiracle large, about as large as third antennal segment; plumulae short and unbranched. Legs: simple except hind femora slightly swollen. Wing: without microtrichia; marginal cell petiolate; apical cell petiolate, with petiole longer than stigmatic crossvein; stigmatic crossvein present.

Abdomen: oval.

Material examined: 5(3); *mexicana* Curran*?

Discussion: *Lycastriirhynchus* is one of the few syrphids with a snout-like face and it can be easily separated from all of the other snout-faced syrphids by its looped third vein and petiolate marginal cell (see *Rhingia* for notes on other snout-faced syrphids). Van Doesburg (1963) has presented a key to all the species of *Lycastriirhynchus*.



Male genitalia. 56, *Meromacrus cingulatus* Sack. 57, *Lycastriirhynchus mexicana* Curran. a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view, except e, anterior view.

There is considerable confusion in the literature as to the type-species of *Lycastriirhynchus*. Most authors (Hull, 1949, Fluke, 1956) have cited *Rhingia nigra* Macquart as the type-species without explanation. *Lycastriirhynchus* was described by Bigot for a single new species, *nitens*. Thus *nitens* is the only possible type-species. The confusion in the literature probably stems from Kertész (1910) synonymy of *nitens* Bigot under *Rhingia nigra* Macquart. Why Kertész made the synonymy is not explained in his catalogue citation. Macquart in his description clearly stated that *nigra* had normal venation which would

immediately eliminate it from being the same as *nitens* (the looped third vein and petiolate marginal cell of *nitens* are not usual among most syrphids). Further, Macquart does not mention any body marking, only stated that the fly is black. This is in contrast to *nitens* which has distinct mesonotal vittae and a pair of light colored spots on the abdomen. I think there can be no doubt that Macquart described a true *Rhingia* and Bigot's *nitens* is distinct from it since there exists both, a common South American *Rhingia* which agrees perfectly with Macquart's description and a fly which agrees with Bigot's *nitens* and belongs to *Lycastri-rhynchus*. Thus *nitens* Bigot is a valid species (*NEW STATUS*), not a synonym of *nigra* Macquart.

TRIBE MILESINI

Head: face usually bare except *Macrometopia*, *Milesia* and some *Criorhina*, either concave or tuberculate or straight; oral margin notched anteriorly; facial grooves elongate; antennal pits usually confluent except in *Cacoceria*; ocellar triangle usually before posterior margin of eyes. Eyes bare except in *Macrometopia*, either holoptic or dichoptic in male. Antennae usually short, shorter than face except in *Sphecomyia* and *Cacoceria*; third segment orbicular or elongate; arista always bare.

Thorax: usually short pile; anterior meso-anepisterna usually bare, completely pilose in *Spilomyia*, some *Temnostoma* and *Milesia*, and with a small patch of pile in *Odyneromyia* and *Valdivia*; meso-katepisterna usually with separate dorsal and ventral pile patches except patches united in *Temnostoma* and *Takaomyia*; metasterna usually developed, either pilose or bare; scutellum with or without ventral fringe; plumulae present. Legs: hind femora frequently greatly swollen and/or armed with apical ventral spurs or plates, always with ventral spines. Wings: anterior crossvein usually at or beyond middle of discal cell except before middle in *Valdivia* and *Hemixylota*; marginal cell usually open except closed in *Milesia*; third vein frequently with a shallow loop, rarely with a deep loop into apical cell.

Abdomen: variable in shape, from oval to elongate to constricted.

Discussion: The tribe Milesini is a rather heterogenous group as compared to the other tribes recognized here. The Milesini is best defined by exclusion: milesines are those flies 1) with anterior crossvein usually at or beyond middle of discal cell, 2) without a terminal style on antenna, 3) without thoracic bristles, 4) without basal setal patch on hind femur, 5) without ventral spines on anterior four femora, and 6) without plumose arista. Milesine flies, in general, tend to be rather bare flies with bare faces and arista, whereas most other syrphids tend to be pilose flies.

Hull (1949) has recognized six tribes within the Xylotinae, the equivalent of my tribe Milesini, which he characterized as follows:

"First, the *Xylotini*; these are short pilose, setaceous species with the face concave, the femora either slender or greatly swollen and the abdomen sometimes petiolate. Second, the *Tenmostomini*; large, wasp-like, usually bright yellow pollinose, the femora simple, the anterior crossvein at or near the middle of the discal cell. Third, the *Milesini*; large flies with front more or less produced, the face concave, or plano-concave, the marginal cell closed, or open, the femora slender and often toothed. Fourth, the *Criorrhini*; large, shaggy, woolly, usually long pilose flies, the face generally tuberculate, the metasternum pilose; *Lycastis* possibly belongs here, or by itself. Fifth, the *Pocotini*, in which the metasternum is pubescent and the face concave, and which are also rather long pilose as a rule. Lastly the *Tropidini*, in which the face is distinctly tricarinate". Hull 1949:356.

Hull's--subfamily groupings roughly correspond to the tribes recognized here. The limited work done on male genitalia in the course of this study tends to support Hull's groupings of genera, and perhaps, when the tribal groups are revised on a world-wide basis using genitalic characters, they will be found to be sufficiently distinctive to warrant formal recognition as subtribes. However, for the present I have not assigned a definite category rank to Hull's tribes but I have indicated the genera I place in these respective grouping in the tribal table (see Appendix I).

KEY TO THE NEOTROPICAL GENERA OF MILESINI

1. Eyes pilose *Macrometopia* Philippi
Eyes bare 2
2. Hind femur with apical ventral spur, tooth or plate 3
Hind femur without any ventral projections 8
3. Marginal cell (R1) closed and petiolate *Milesia* Latreille
Marginal cell open 4
4. Anterior meso-anepisternum pilose; hind femur with a single small ventral spur *Spilomyia* Meigen
Anterior meso-anepisternum bare; hind femur with a bifid spur or ventral plate 5
5. Anterior crossvein (r-m) with a long spur (Fig. 25)
..... *Stilbosoma* Philippi
Anterior crossvein without a spur 6
6. Metasternum bare *Crioprora* Osten-Sacken
Metasternum pilose 7
7. Hind femur greatly swollen, with a large ventral bifid spur near the apex; metasternum not divided by membranous band
..... *Senogaster* Macquart

- Hind femur without a bifid spur, not greatly swollen, with a prominent subapical lateral plate; metasternum divided into two parts by a basal membranous band *Tropidia* Meigen
8. Anterior edge of mesonotum and posterior dorsal edge of occiput with a transverse row of short spines; post-metacoxal bridge complete *Ceriogaster* Williston
- Mesonotum and occiput without a transverse row of spines; post-metacoxal bridge usually not complete 9
9. Antennae elongate, longer than the face; first antennal segment more than three times as long as broad *Cacoceria* Hull
- Antennae short, shorter than the face; first antennal segment never more than twice as long as broad 10
10. Metasternum bare 15
- Metasternum pilose 11
11. Scutellum with a ventral pile; meta-episternum bare 12
- Scutellum without a ventral pile fringe; meta-episternum with a few long hairs *Syritta* Saint Fargeau and Serville
12. Face concave, subcarinate; antennae elongate, about as long as face; third antennal segment elongate, usually twice as long as wide; hind femur short and greatly swollen; hind tibia strongly arched; with very short body pile . . . *Neplas* Porter
- Face usually tuberculate (Fig. 12); antennae short, much shorter than the face; third antennal segment orbicular or kidney-shaped, never longer than wide; hind femur elongate and usually not greatly swollen; hind tibia usually not arched; with at least long, thick mesonotal pile 13
13. Anterior crossvein (r-m) at or before middle of the discal cell (1st M2) 14
- Anterior crossvein at the distal fourth of discal cell *Criorhina* Meigen
14. Apical cell petiolate, with petiole longer than humeral crossvein (Fig. 24) *Aneriophora* Stuardo and Cortes
- Apical cell not petiolate, closed at wing margin *Flukea* Etcheverry
15. Face straight, with distinct keels (Fig. 20) *Sterphus* Philippi
- Face either concave or tuberculate, never straight 16

16. Third antennal segment deeper than long 17
 Third antennal segment orbicular or elongate, never deeper than long 18
17. Scutellum with apical emarginate rim .. *Philippimyia* Shannon
 Scutellum without apical emarginate rim .. *Crioprorra* Osten-Sacken
18. Face bright yellow in ground color; metathoracic spiracle distinctly larger than third antennal segment *Sterphus* Philippi
 Face dark in ground color; metathoracic spiracle usually much smaller than third antennal segment 19
19. Face usually with a tubercle; if without facial tubercle, then either with strongly constricted abdomen or wings bicolored, anterior edge dark and posterior part light 20
 Face concave; abdomen not strongly constricted and wings never bicolored 21
20. Apical cell petiolate, with petiole as long as or longer than humeral crossvein *Valdivia* Shannon
 Apical cell not petiolate, closed at wing margin
 *Odyneromyia* Shannon and Aubertin
21. Anterior crossvein distinctly before middle of discal cell; males with dichoptic eyes *Hemixylota* Shannon & Aubertin
 Anterior crossvein at or beyond middle of discal cell; males with holoptic eyes *Xylota* Meigen

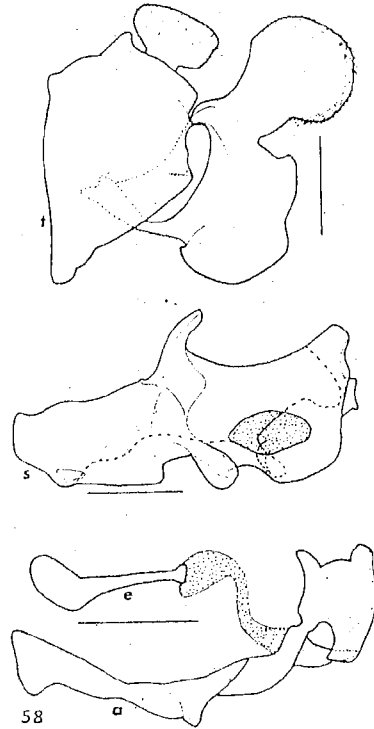
Genus *Ceriogaster* Williston

(Fig. 59)

Ceriogaster Williston, 1888, Trans. Amer. Ent. Soc. 15:285. Type-species, *Ceriogaster fascithorax* Williston, 1888 (monotypy).

Head: higher than long; face bare, pollinose except keels shiny. carinate, with strong medial and lateral keels, with medial keel slightly concave below antennal pits and slightly rounded below the concavity into a low indistinct tubercle; cheeks narrow; facial grooves long, extending about two-thirds the distance to antennal pits; facial stripes indistinct; frontal prominence low, slightly above middle of head; front of male short, about two-thirds as long as vertical triangle; vertical triangle long, more than twice as long as broad at occiput; front of female broad, as broad at antennae as long; ocellar triangle always distinctly before posterior margin of eyes; occiput with a transverse row of short strong spines on upper half. Eyes bare,

narrowly dichoptic in male, with an oblique transverse impressed groove at level of antennal pits. Antennae elongate, slightly shorter than face; third segment always elongate, two or more times as long as broad; arista long, longer than either antenna or face.



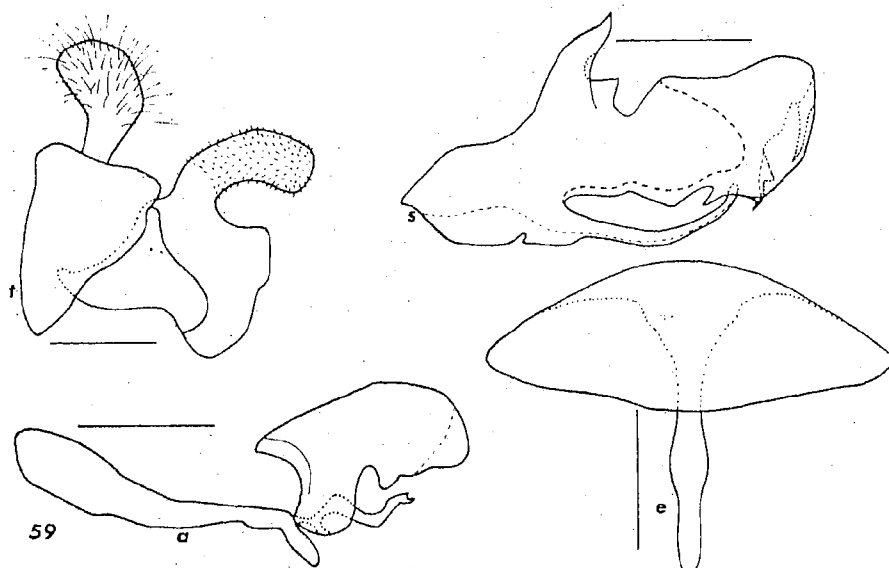
58, male genitalia of *Neplas armatipes* Curran. a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

Thorax: longer than broad, with transverse row of short strong spines on anterior edge of mesonotum, with a pair of median interrupted transverse golden pollinose bands on anterior half, with one band on anterior edge and the other in front of transverse suture, with very short pile; meso-katepisterna with separate dorsal and ventral pile patches; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae bare; metasterna bare, developed; postmetacoxal bridge always complete; metathoracic spiracle small; plumulae very short but distinct; scutellum without ventral pile fringe and without distinct apical, emarginate rim. Legs: anterior tarsi flattened, always dark; hind femora swollen; hind tibiae with ventral basal knife edge. Wings: marginal cell open; apical cell

petiolate; anterior crossvein at or slightly before middle of discal cell, straight.

Abdomen: slightly petiolate, with constriction on second segment, with third and fourth segments forming a short club.

Material examined: 9(9); *aureopila* Hull*, *fascithorax* Williston*, *scutellata* Curran*, *spinosa* (Shannon)* and about half dozen undetermined species.



59, male genitalia of *Ceriogaster* species. a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

Discussion: *Ceriogaster* is unique among the syrphids because of its collar of short spines on both the occiput and anterior edge of mesonotum. Also, the complete postmetacoxal bridge is another rather uncommon character in the syrphids: only *Sphagina* (all); some *Ncoascia*, *Lepidomyia Valdivia*, *Ceriana* and *Baccha* have a complete postmetacoxal bridge. Hull (1943) has written a key to the nine species of the genus but it is impossible to use since its couplets conflict with each other and the description of various species.

Genus *Macrometopia* Philippi

(Figs. 9, 61)

Macrometopia Philippi, 1865, Verh. Zool.-Bot. Ges. Wien 15:740. Type-species, *Macrometopia atra* Philippi, 1865 (monotypy).

Head: higher than long; face strongly pilose, broadly pollinose on sides, shiny medially, with a weak medial keel, almost straight, with

a low medial tubercle, produced slightly downward below eyes; cheeks broad, broader than long; facial grooves short, extending along lower one-third of eyes margins; facial stripes indistinct; frontal prominence low, on upper third of head; front of male long, about one-fourth longer than vertical triangle; vertical triangle long, twice as long as broad at occiput; front of female broad, only slightly longer than broad at antennae, slightly longer than face, with strongly convergent sides above, only one-half as broad at ocellar triangle as at antennae; ocellar triangle clearly before posterior margin of eyes. Eyes strongly pilose, narrowly dichoptic in male. Antennae short, much shorter than face; third segment elongate ventrally, about twice as broad as long; arista long, longer than antenna.

Thorax: about as long as broad, with long pile, with mesonotum shiny and pleurae pollinose; meso-katepisterna with separate dorsal and ventral pile patches; meso-anepimera with posterior portion bare; meropleurae bare; metathoracic pleurae bare; metasterna bare and under developed; postmetacoxal bridge incomplete; metathoracic spiracle small; plumulae elongate; scutellum with ventral pile fringe, without apical emarginate rim. Legs: simple with hind femora not swollen and with very few small ventral spines. Wings: marginal cell open; apical cell closed at costa, without petiole; anterior crossvein slightly beyond middle of discal cell and slightly oblique.

Abdomen: oval in female, suboval in male.

Material examined: 1 (1); *atra* Philippi*.

Discussion: *Macrometopia* is the only genus in the tribe Milesini that has pilose eyes. Only one species of *Macrometopia* is known - *Macrometopia atra* Philippi, which is rather common in the Andes of Chile and Argentina.

Genus *Sterphus* Philippi

(Figs. 20, 60)

Sterphus Philippi, 1865, Verh. Zool.-Bot. Ges. Wien 15:737. Type-species, *Sterphus antennalis* Philippi, 1865 (original indication) = *Xylota coerulea* Rondani, 1863.

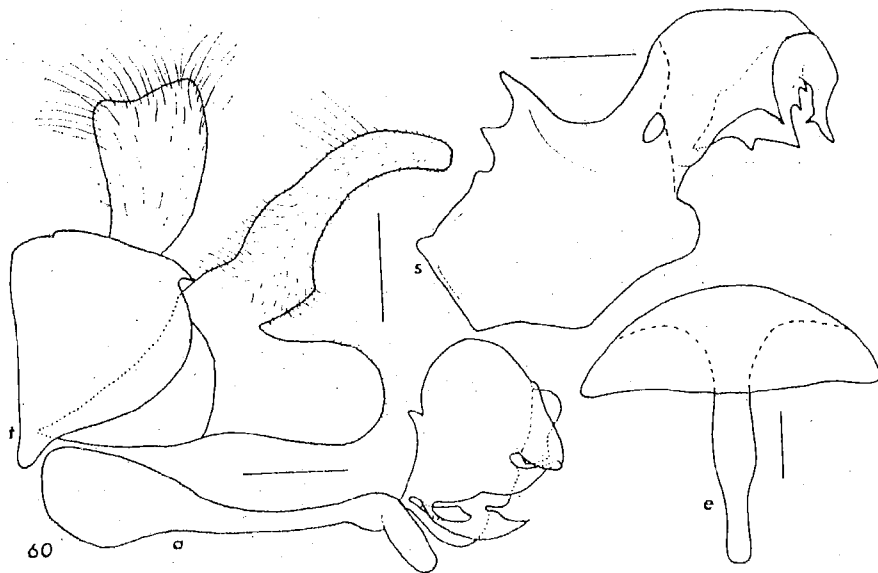
Crepidomyia Shannon, 1926, Proc. U.S. Nat. Mus. 69 (9):47. Type-species, *Crepidomyia tricrepis* Shannon, 1926 (original designation). *New Synonymy*.

Tatuomyia Shannon, 1926, Proc. U.S. Nat. Mus. 69 (9):48. Type-species, *Tatuomyia batesi* Shannon, 1926 (original designation). *New Synonymy*.

Senoceria Hull, 1930, Trans. Amer. Ent. Soc. 56:144, Type-species *Senoceria spinifemorata* Hull, 1930 (original designation) = *Xylota coarctata* Wiedemann, 1830. *New Synonymy*.

Mutillimya Hull, 1943, Rev. Soc. Ent. Argentina 12:139. Type-species, *Cerogaster auricaudata* Williston, 1892 (original designation).
New Synonymy.

Head: higher than long; face bare, either completely pollinose or pollinose only on sides, carinate, with medial and lateral keels, frequently with keel very strong and straight, rarely with medial keel slightly concave beneath antennal bases and swollen laterally near the oral margin; cheeks broad, as broad as or broader than long; facial grooves long, extending about two-thirds the way to the antennal bases; facial stripes indistinct; frontal prominence low, above the middle of the head; front of male short, slightly longer than vertical triangle; front of female broad, as broad as or broader at antennal bases than long; vertical triangle of male long, about twice as long as broad; ocellar triangle always distinctly before posterior margin of eyes. Eyes bare, narrowly holoptic in male. Antennae usually elongate, slightly shorter than face, sometimes only half as long as face; third segment usually elongate, rarely slightly orbicular, usually two or more times as long as broad; arista long, longer than antenna.



60, male genitalia of *Sterphus coeruleus* (Rondani). a, aedcagus and apodeme; s, sternum 9; t, tergum 9; all lateral view.

Thorax: longer than broad, usually with short pile, rarely with long pile, may have a pair of medially interrupted transverse golden pollinose bands on the anterior part of notum; meso-katepisterna with separate dorsal and ventral pile patches; meso-anepimera with posterior portion bare; micropleurae bare; metasterna bare and deve-