

- Subscutellar fringe usually present; hind femora rarely with ventral spines (only some *Cheilosia*); hind tarsi without ventral longitudinal combs 9
9. Without thoracic bristles; usually with a distinct patch of hairs in front of metathoracic spiracle; eyes and face strongly pilose; face with a tubercle Callicerini
 With thoracic bristles; if without thoracic bristles, then eyes and/or face bare; usually without a metathoracic spiracular hair patch; if patch present, then face with a snout, not a tubercle Cheilosini
10. Antenna with a terminal style Cerioidini
 Antenna with an arista 11
11. Arista distinctly pilose Sericomynini
 Arista bare Milesini

TRIBE PIPIZINI

Head: face pilose, usually without a tubercle except for *Trichopsomyia* which has a small tubercle in some species; oral margin not notched, even; facial grooves reduced to large elongate pits at the bases of the eyes; facial stripes not differentiated; ocellar triangle small, distinctly before the posterior margins of the eyes; eyes pilose, holoptic in the male.

Thorax: without bristles; pro-anepimera pilose; meso-katepisterna with separate dorsal and ventral pile patches; meso-anepimera with posterior portion bare; metathoracic pleurae bare; metasterna bare; plumulae elongate; scutellum with ventral pile fringe. Legs without ventral femoral spines. Wings: anterior crossvein always clearly located before the middle of the discal cell, usually at about basal fourth of discal cell; without radial sector bristles.

Abdomen: elongate, never constricted.

Discussion: The tribe Pipizini is quite distinct from all other milesine tribes because of the predominance of primitive adult characters it displays. Of these primitive characters, the lack of an apical notch in the oral margin is found elsewhere only in the Nearctic species of *Chamaesyrrhus* and the simple type faces are unique among milesine syrphids. Despite the primitive nature of adult pipizines, the larvae are predatory, a feature not possessed by other larval milesine syrphids. However, as discussed above, this habit of the pipizines suggests that the tribe may belong in the other subfamily, the Syrphinae.

The tribe Pipizini includes only two Neotropical genera, *Pipiza* Fallén and *Trichopsomyia* Williston. *Pipiza* is undoubtedly the most primitive member of the tribe since it is the only genus in the tribe in which the males lack a postanal hood, a specialization found only in the tribe Pipizini. *Trichopsomyia*, on the other hand, is one of the most highly derived genera of Pipizini in that it has: 1) the ninth

sternite of the male usually elongate; 2) the antennal pits separated; and 3) traces of a facial tubercle. The last two specializations are unique among the pipizine genera. A tentative phylogeny for the World pipizines has been diagrammed (Diag. 1).

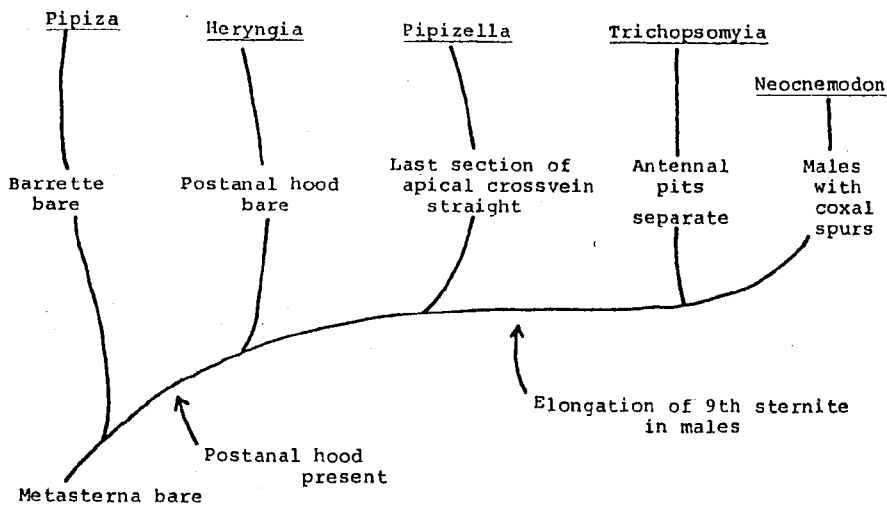


Diagram 1, Phylogeny of the Pipizini.

KEY TO THE NEOTROPICAL GENERA OF PIPIZINI

1. Barrette pilose; anterior meso-anepisternum with some long hairs; antennal pits separate *Trichopsomyia* Williston
- Barrette bare; anterior meso-anepisternum without any long hairs; antennal pits confluent *Pipiza* Fallén

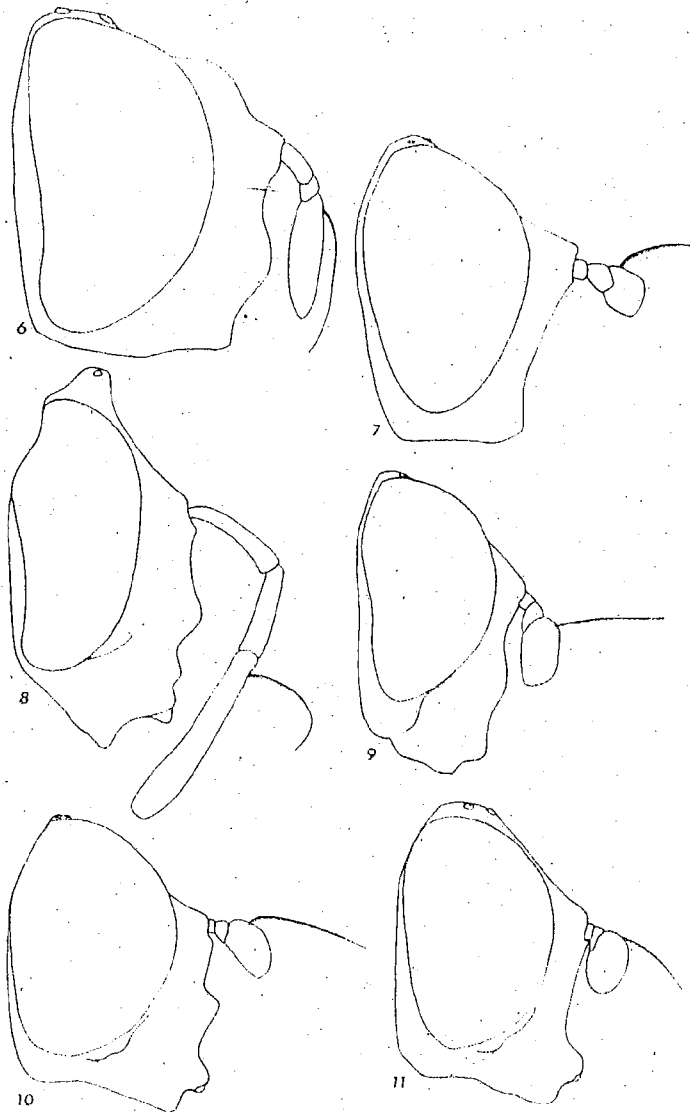
Genus *Pipiza* Fallén

(Fig. 7, 34)

Pipiza Fallén, 1810, Spec. ent. novam Dipt. disp. meth. exhibens., p. 11.
Type-species, *Musca noctiluca* Linné, 1758 (subsequent designation;
Curtis 1837, Brit. Ent. 13: pl. 669).

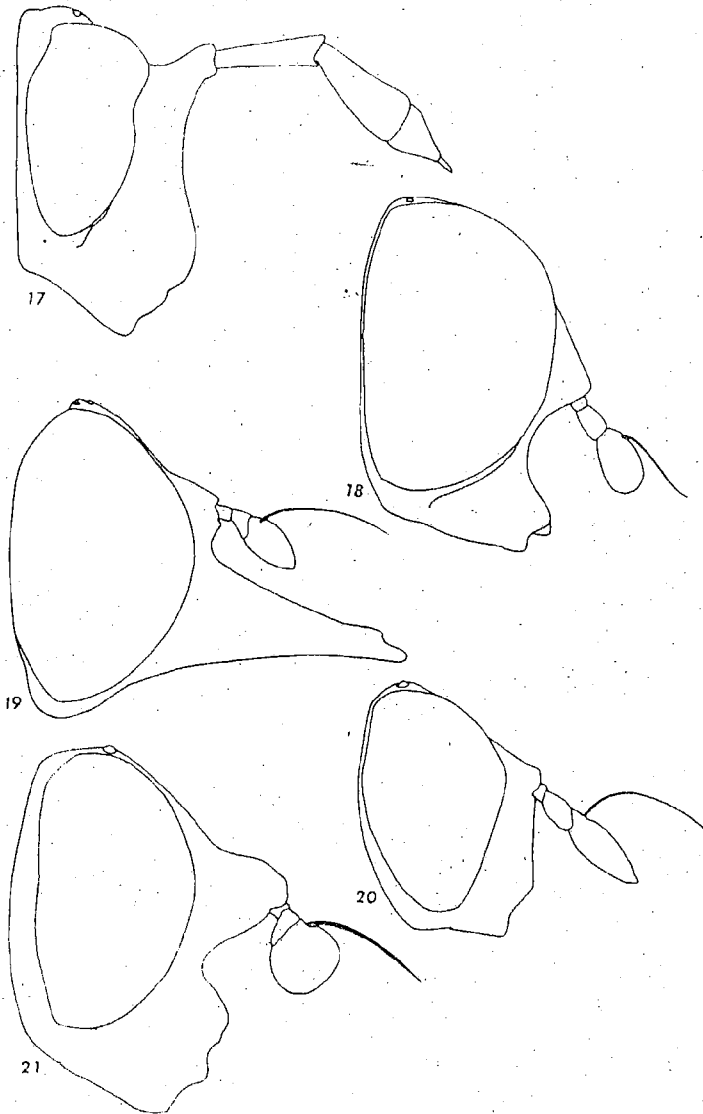
Head: two-thirds higher than long; face straight with a slightly projecting epistoma, with pubescences; frontal prominence distinct, conically produced forward, at middle of head; front of the male long, usually twice as long as eye contiguity, flattened, not puffed-out; front of the female broad, almost as broad at antennae as long, longer than face, with convergent sides above. Antennae short; third segment roughly quadratic, slightly deeper than long; arista shorter than antenna, thick.

Thorax: roughly 30% as long as broad. pro-mesopisterna strongly pilose; meso-anepisterna with anterior portion without long pile, barrettes bare. Legs: hind femora slightly swollen. Wings: apical cell acute; subcosta ending usually beyond the level of the anterior cross-vein, except before it in *aurantipes* Bigot.



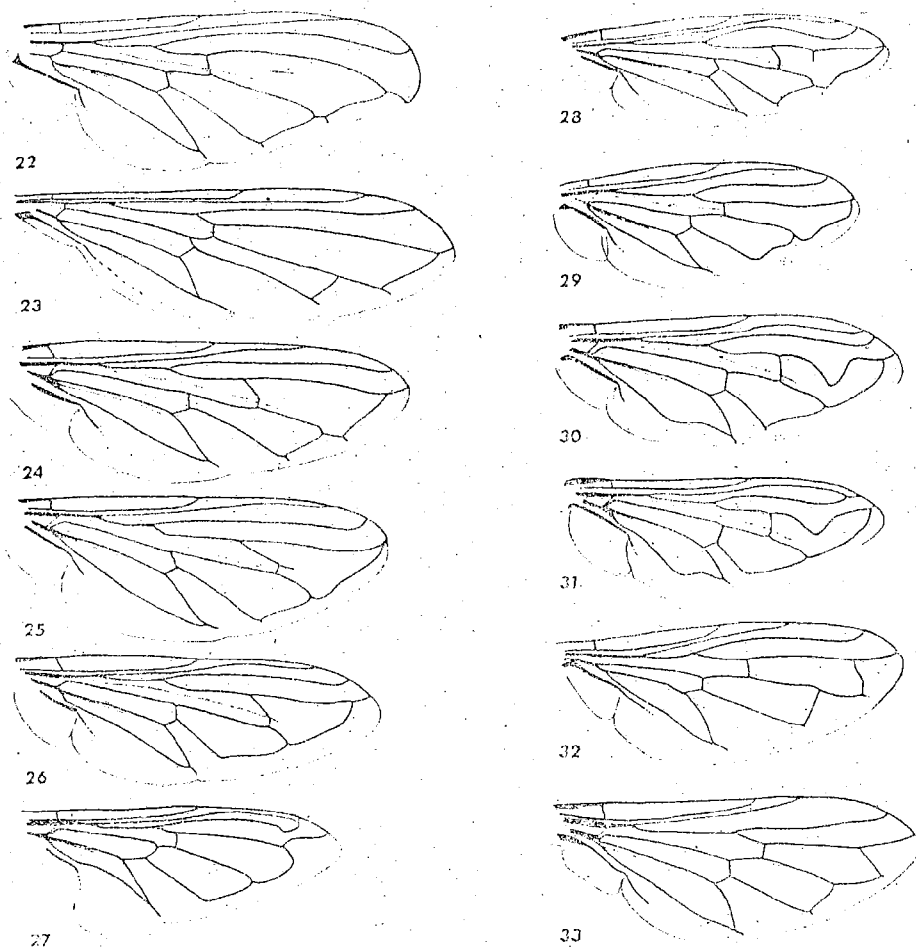
Heads, lateral view. 6, *Trichopsomyia lasiotibialis* Fluke, male; 7, *Pipiza chiripennis* Shannon & Aubertin, male (PT); 8, *Lepidomyia* species no 1 Thompson, female (HT); 9, *Macrometopia atra* Philippi, male; 10, *Chromocheilosia bicolor* (Shannon & Aubertin), male (PT); 11, *Chromocheilosia bicolor* (Shannon & Aubertin), female.

is represented in the Neotropical Region by only three species which are restricted to the Andes of Chile and Argentina. The two species of *Pipiza* described by Enderlein from Brazil belong to the genus *Trichopsomyia*. The aedeagus of the Neotropical species of *Pipiza* examined is quite different from that of some of the Nearctic species and



Heads, lateral view. 17, *Ceriana travassosi* Lane & Carrera, male (HT); 18, *Alipumilio* species no 1 Thompson, male (HT); 19, *Rhingia nigra* Macquart, female; 20, *Sterphus* Nova Teutonia species, male; 21, *Habromyia rectilinea* Hull, female.

indicates that the South American species should be considered as forming a species group separate from their northern relatives. The aedeagus of the Neotropical species is elongate and tubular in shape, not orbicular, and is without dorsal or ventral prolongations. Shannon and Aubertin (1933) provide a key to all the Neotropical species of *Pipiza*. Philippi's *flavipes* should be considered a *nomen nudum* since Philippi himself clearly states it was not described [*nicht beschrieben*].



Wings, dorsal view. 22, *Rhingia nascia* Say; 23, *Chamaespheringia argentifacies* Shannon & Aubertin; 24, *Anerioptera aureorufa* (Philippi); 25, *Stilbosoma ruficeps* Philippi; 26, *Criorhina caudata* Curran; 27, *Ornidia obsca* (Fabricius); 28, *Ceriana acra* Curran; 29, *Nausigaster flukei* Curran; 30, *Quichuana pogonosa* Fluke; 31, *Palpada precipuus* (Williston); 32, *Orthonevra pulchella* Williston; 33, *Alpumilio* species n° 1 Thompson (HT).

Genus *Trichopsomyia* Williston

(Fig. 6, 35)

Trichopsomyia Williston, 1888, Trans Amer. Ent. Soc. 15:259. Type-species, *Trichopsomyia polita* Williston, 1888 (subsequent designation; Hull 1949, Trans. Zool. Soc. London 26:330).

Head: higher than long; face with a distinct median tubercle, shiny, with pubescence restricted to a narrow band along eye margin; epistoma not produced; frontal prominence not differentiated, at middle of head; antennal pits separated; front of the male long, twice as long as or longer than eye contiguity, flattened below and swollen above where it meets eye contiguity; front of female broad, about as broad at antennae as long, as long as face, with sides slightly convergent above; occiput produced slightly posteriorly on upper third. Antennae long; third segment elongate, longer than first two segments together, more than twice as long as broad; arista not thick, shorter than antenna.

Thorax: about as long as broad; pro-anepisterna bare; meso-anepisterna with anterior portion with some long pile, barrettes pilose. Legs: hind femora swollen apically. Wings: apical cell acute, with subcosta ending beyond level of anterior crossvein.

Abdomen: elongate, not distinctly emarginate.

Material examined: 11(11); *catharinensis* (Enderlein)*; *curranii* Fluke* and a number of undetermined species.

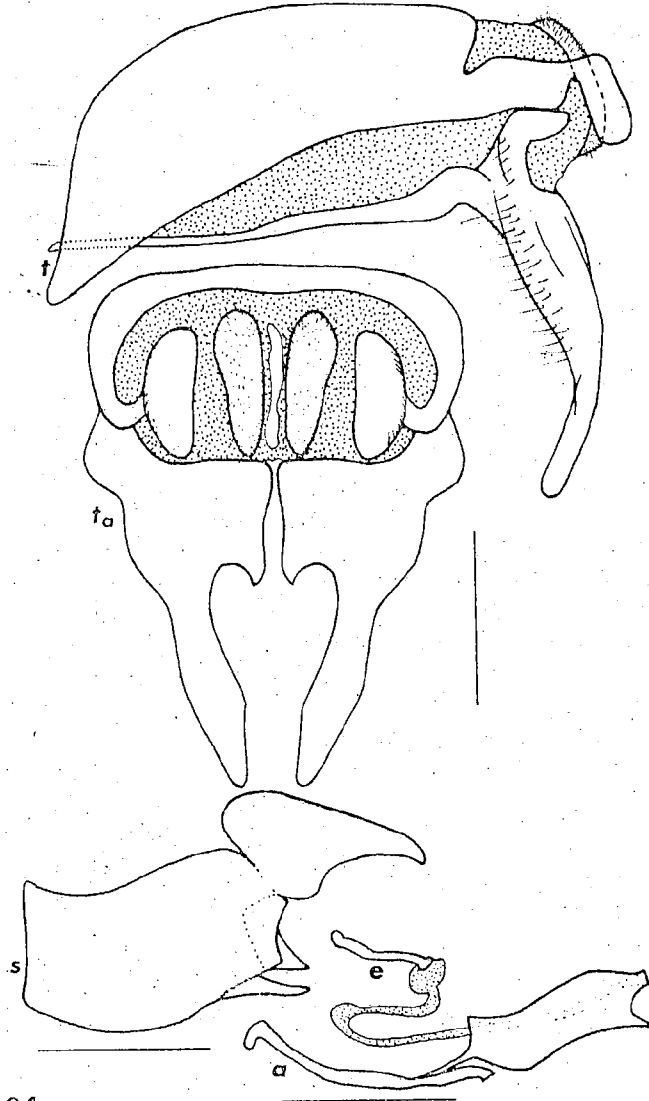
Discussion: The species of *Trichopsomyia* form a rather distinctive genus of pipizines with their: 1) separate antennal pits; 2) swollen hind femora; 3) patchy eye pile; and 4) facial tubercle. The genus includes 11 described species and is restricted to the Neotropical Region. Nine species of *Trichopsomyia* have been described from Brazil, one from Peru and one from Bolivia. Fluke (1937) provides the most recent key to the species of the genus. However, since Fluke only includes 7 of the 11 species and some of the characters he uses in his key appear to be variable, a revision based at least on genitalic characters is needed.

TRIBE CHEILOSINI

Head: face never strongly sexually dimorphic, usually with a tubercle except *Portevinia* and *Rhingia* with none; oral margin notched anteriorly; facial grooves elongate; males with holoptic eyes; antennae short, never elongate; arista long, usually longer than antennae.

Thorax: pro-anepimera pilose; pro-anepisterna pilose; meso-anepisterna with anterior portion bare; meso-anepimera with posterior

portion bare; barrettes bare; metasterna underdeveloped, usually pilose except bare in *Chamaesyrrphus*; scutellum without emarginate rim, with ventral pile fringe; legs simple except for some species of *Cheilisia* with ventral bristles or spines on hind femora; wings with apical cell acute, with long petiole, with anterior crossvein usually before middle of discal cell except at middle in *Ferdinandea*.

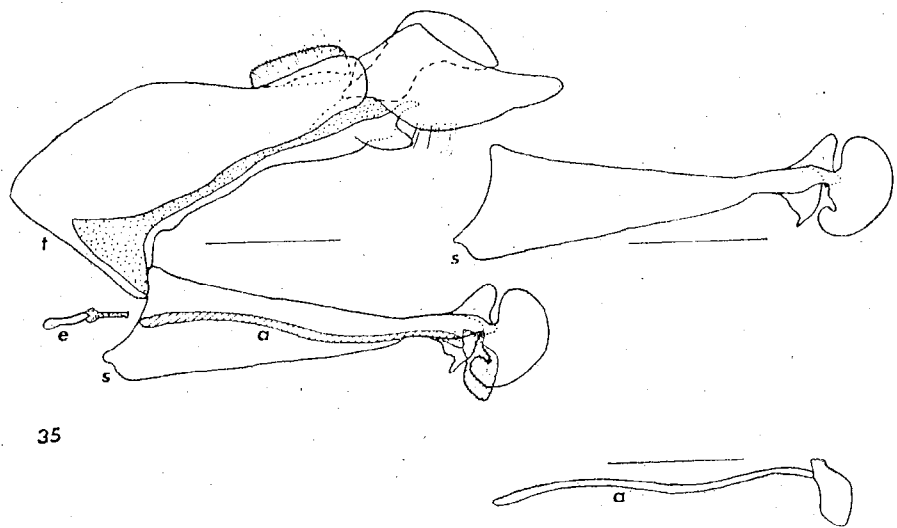


34

34, male genitalia of *Pipiza claripennis* Shannon & Aubertin (PT). a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9, all lateral view except t_a, anterior view.

Abdomen: oval to suboval, never constricted.

Discussion: The two-segmented aedeagus is a specialization that precisely defines the tribe Cheilosini. The only other milesine groups which have a two-segmented aedeagus are the *Criorhina* and *Tropidia* groups of Milesini. The two-segmented aedeagus of these groups is clearly of a different basic type. The presence of thoracic bristles and the lack of hind femoral spines in the Cheilosini will also distinctly separate the cheilosines from the Milesini. Characters 4-8 (see appendix I) indicate the primitive nature of cheilosines and when these characters are used in combination they will distinguish the tribe from all other syrphids. The tribe Cheilosini can be divided into two subtribes based on the position of the arista, pilosity of metasterna, and size of the alula. The Pelecocerina has the arista inserted apically on the third antennal segment, metasterna bare and the alula reduced. The subtribe Cheilosina has the arista inserted basad, metasterna pilose and the alula not reduced.



35. Male genitalia of *Trichopsomyia lasiotibialis* Fluke. a, aedeagus and apodeme; s, sternum 9; t, tergum 9; all lateral view.

The tribe Cheilosini is predominantly northern in distribution. Only the genus *Rhingia* is found extensively outside of the Holarctic region. The phylogenetic position of *Rhingia*, the only Neotropical cheilosine genus, has been characterized by Hull (1949) as highly specialized (Phylogeront). However, I would consider *Rhingia* as the most primitive member of the subtribe Cheilosina. The presence of a metathoracic spiracular hair patch and the long costa support my contentions. I would suggest the following phylogenetic relationships between the world genera (Diag. 2).

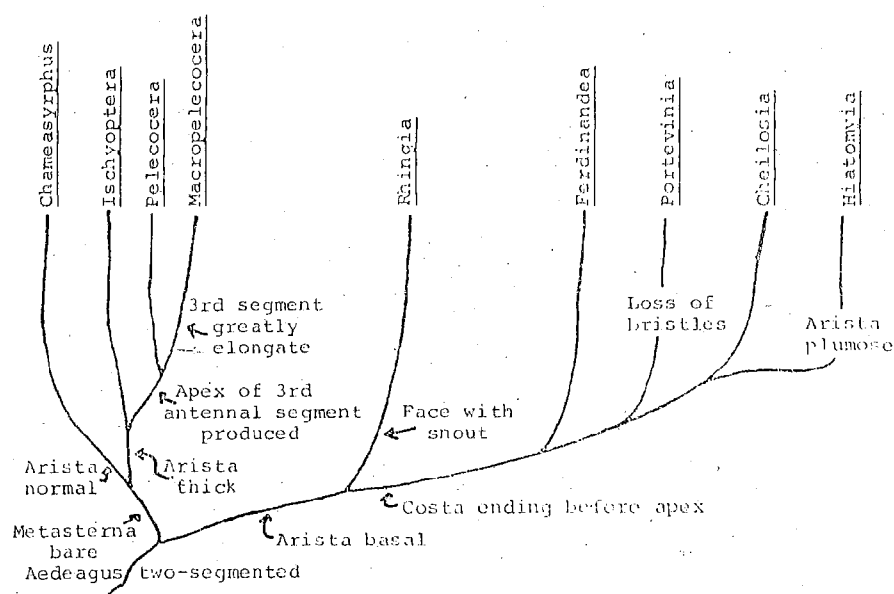


Diagram 2, Phylogeny of the Cheilosini.

KEY TO THE NEOTROPICAL GENERA OF CHEILOSINI

1. Face drawn out into a long, porrect snout (Fig. 19); costa and third vein (r4+5) ending well behind the apex of the wing (Fig. 22) *Rhingia* Scopoli
- Face without a snout; costa and third vein ending at or before the apex *Cheilosia* Meigen

Genus *Rhingia* Scopoli

(Fig. 19, 22, 36)

Rhingia Scopoli, 1763, Ent. Carniol, p. 358. Type species, *Conops rostrata* Linné, 1758 (monotypy).

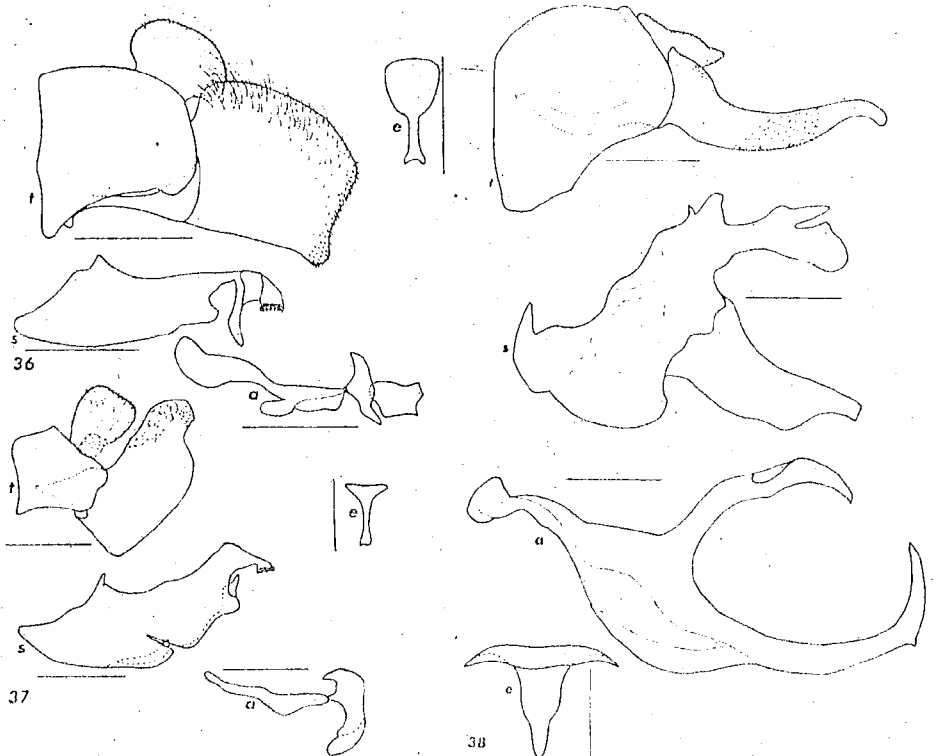
Head: greatly longer than high; face with lower part greatly drawn out in a porrect snout, bare; facial grooves short, extending to level of epistoma; facial stripes distinct, narrow; antennal pits confluent; frontal prominence distinct, low, clearly above middle of head; front of male small, one-half or shorter than eye contiguity; front of female with parallel sides, ranging from one-half to three-fourths as broad at antennae as long (as measured perpendicularly from oral margin to frontal prominence); ocellar triangle small, distinctly before posterior margins of eyes. Eyes bare. Antennae short; third segment suboval, slightly pointed apically, as long as or longer than first two

segments; arista bare or with very fine pubescences, longer than antennae.

Thorax: longer than broad, with bristles, with or without metathoracic spiracular hair patches, with separate dorsal and ventral sternopleural pile patches. Wings with costa extending beyond the apex.

Abdomen: oval and emarginate.

Material examined: 46(2); *campestris* Meigen, *nasica* Say, *nigra* Macquart*, and *rostrata* (Linné).



Male genitalia. 36, *Rhingia nigra* Macquart; 37, *Notiocheilosia nitescens* Shannon & Aubertin (HT); 38, *Orthonovera anniae* Sedman. a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum ♀; t, tergum ♀; all lateral view.

Discussion: *Rhingia* is the only syrphid genus which has the costa extended beyond the apex of the wing. *Rhingia* is also one of the few genera of the Milesinae with a snoutlike face. The only other genera of the Milesinae with snout-like faces are *Lycastris* Walker, *Lycastri-rhynchus* Bigot and *Paratropidia* Hull. *Rhingia* can be separated from *Lycastris* by its lack of costal crossveins, from *Lycastri-rhynchus* by its open marginal cell and straight R 4+5 vein, and from *Paratropidia* by its simple unswollen hind femora and non-rimmed scutellum.

Rhingia is obviously a relatively old genus: (1) known from both Miocene and Oligocene fossil remains, (2) almost worldwide in distribution, (3) morphologically primitive. *Rhingia* is absent only from the Australian fauna and has its greatest species abundance in the Oriental region. Only three Neotropical species of *Rhingia* have been described, two from Brazil and one from Ecuador. However, two of these species are probably synonyms. *Rhingia harrisi* Curran appears to be only a color variant of *nigra* Macquart. *R. nigra* is frequently cited as the type-species of *Lycastirrhynchus* Bigot. The type-species of *Lycastirrhynchus* is *nitens* Bigot by monotypy and Kertész (1910) synonymy of *nitens* under *nigra* is wrong (see discussion under *Lycastirrhynchus*). There is no key to the Neotropical species of *Rhingia*. However, the comparative notes in Fluke's description of *longirostris* (1943) will serve to separate the two valid neotropical species.

TRIBE VOLUCELLINI

Head: Face pilose, with a tubercle; oral margin notched anteriorly; facial grooves elongate, long, almost extending to antennal bases; facial stripes differentiated; antennal pits confluent; ocellar triangle small, distinctly before the posterior margin of eyes; eyes pilose, usually holoptic in male except dichoptic in *Copestylum nasica* group. Antennae short, shorter than face; third segment longer than broad except in *Tachinosyrphus*; arista plumose except bare in *Tachinosyrphus*.

Thorax: usually with distinct bristles except in some *Copestylum*. pro-anepisterna pilose; pro-anepimera pilose; metasterna pilose and underdeveloped; meropleurae with a metathoracic spiracular pile patch. Legs: simple, without spines on hind femora. Wings: with anterior crossvein always clearly located before the middle of the discal cell, with radial sector bristles, with apical crossvein either straight or recessive never directed outward.

Abdomen: short, oval or suboval, never elongate, emarginate, nor constricted.

Discussion: The volucellines are a rather homogeneous group of flies, easily recognized by their straight or recessive apical crossvein and plumose arista. Only *Tachinosyrphus* does not have a plumose arista but *Tachinosyrphus* is unique among the Syrphidae in that it has bristle-like hairs on the abdomen. The presence of bristles, the underdeveloped metasterna, basal anterior crossvein and the lack of hind femoral spines indicates that the volucellines are one of the more primitive milesine tribes. All the New World volucellines except the Holarctic species *bomblyans*, have the anterior part of the mesoanepisterna bare whereas the rest of the world volucellines have this area pilose. Thus the Neotropical volucellines and the Nearctic species derived from the Neotropical region (see discussion on transition between Neotropical and Nearctic milesine faunas) are clearly distinct from the other volucellines and are placed in a separate subtribe, Ornidina. Two

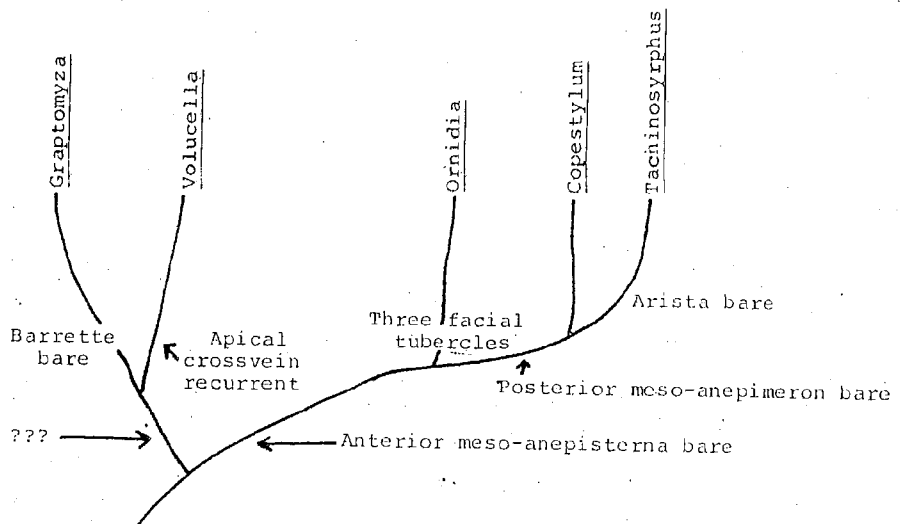


Diagram 3a, Phylogeny of the Volucellini, incorporating a monophyletic origin for the Old World forms.

possible phylogenetic arrangements are suggested for the tribe. It is not possible to say which of these two plans represents the actual phylogeny to the tribe without knowing more about the Old World genus *Graptomyza*. The answers to such questions as the larval feeding habits of *Graptomyza*, whether saprophytic or scavenging in nests of Hymenoptera, are needed to indicate whether the Old World forms are monophyletic (Diag. 3a) or diphyletic (Diag. 3b).

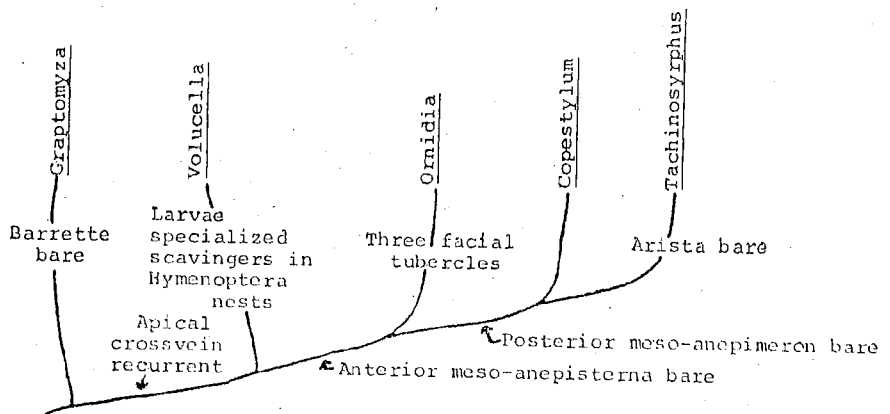


Diagram 3b, Phylogeny of the Volucellini, incorporating a diphyletic origin for the Old World forms.

KEY TO THE NEOTROPICAL GENERA OF THE VOLUCCELLINI

1. Arista bare *Tachinosyrphus* Hull
 Arista pilose 2
2. Posterior portion of meso-anepimeron pilose
 *Ornidia* Lepeletier and Serville
 Posterior portion of meso-anepimeron bare
 *Copcostylum* Macquart

Genus *Ornidia* Lepeletier and Serville

(Figs. 16, 27, 44)

Ornidia Lepeletier and Serville, 1828, Encyclopedie methodique 10:786.
 Type-species, *Syrphus obesus* Fabricius, 1775 (original designation).

Head: face concave beneath antennae, straight below median tubercle, with distinct median tubercle and two small lateral tubercles on either side of median tubercle, frontal prominence distinct, low above middle of head; front of male short, one-half as long as eye contiguity, slightly puffed out; front of female narrow, about twice as long as wide at antennal bases, as long as face, with convergent sides above, puffed out, with a transverse depression about one-third of frontal length above antennae, with two short longitudinal depressions extending about one-third the length of front above transverse depression. Eyes pilose, holoptic in male. Antennae short, shorter than face; third segment elongate, twice as long as broad at base; arista plumose, as long as antenna.

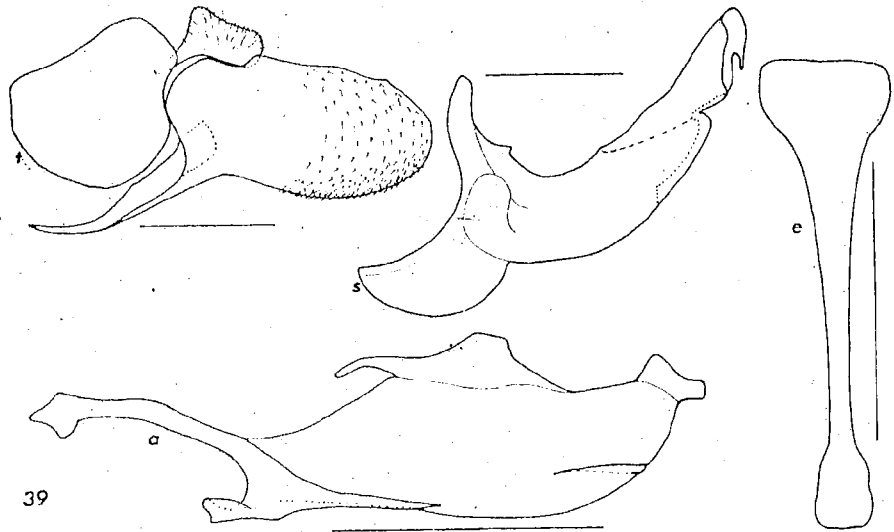
Thorax: about as long as broad; notopleurae enlarged, swollen and elongate posteriorly on lateral one-half; meso-anepisterna with anterior portion bare; meso-katepisterna with posterior half completely pilose; meso-anepimera with posterior portion pilose; mero-pleurae with barrettes pilose; scutellum with a pre-apical depression and without ventral pile fringe. Wings: without microtrichia; marginal cell closed, petiolate, with apical portion angulate on posterior part; apical crossvein recessive.

Abdomen: suboval, convex, without bristles.

Material examined: 4(4); *obesa* (Fabricius)*, and *major* Curran*.

Discussion: *Ornidia* can be readily recognized by its three facial tubercles and pilose posterior meso-anepimera. Both of these characters

are unique in the Volucellini. *Ornidia* is endemic to the Neotropical Region but *O. obesa* has been widely distributed throughout the Old World tropics by man (Hull, 1929:196). Curran (1930) provides a key to the four known species.



39, male genitalia of *Myolepta luteola* (Gmelin). a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

Genus *Tachinosyrphus* Hull

Tachinosyrphus Hull, 1936, Proc. Ent. Soc. Wash. 38:167. Type-species.
Tachinosyrphus pseudotachina Hull, 1936 (original designation).

Head: Face bloated, in profile evenly convex from antennae to slightly above oral margin where it forms an acute cone; cheeks large, about one-half as wide as eye height; frontal prominence low, at upper third of head; front of male swollen, slightly longer than eye continuity. Eyes strongly pilose, holoptic in male. Antennae short; third segment subglobose; arista bare, about twice as long as antennae.

Thorax: about as long as broad; meso-katepisterna continuous pilose from dorsal to ventral margin; posterior meso-anepimera bare; barrettes pilose; scutellum without pre-apical depression and sub-scutellar fringe. Wings: without microtrichia; marginal cell closed; apical crossvein recessive; spurious vein absent.

Abdomen: oval, flattened slightly, with very dense long bristle-like hairs on the fourth segment.

Material examined: 1 (1); *pseudotachina* Hull* (HT, AT).

Lepidopsis Curran, 1925, Ann. Mag. Nat. Hist. (9) 16:247. Type-species, *Lepidopsis compactus* Curran, 1925 (monotypy). *New synonymy*.

Volosyrpha Shannon, 1929, An. Mus. Nac. Hist. Nat. Buenos Aires 34:575, (as a subgenus of *Volucella*). Type-species, *Volucella (Volosyrpha) tibialis* Shannon, 1929 (original designation). *New synonymy*.

Volucellosia Curran, 1930, Amer. Mus. Novit. 413:5. Type-species, *Volucella fornax* Townsend, 1895 (original designation). *New synonymy*.

Head: face usually concave beneath antennae, usually straight below medial tubercle, in some species straight from antennae to oral margin, in a few other with a snout, always with a median tubercle, without lateral tubercles; frontal prominence distinct, low, usually above middle of head except below the middle in *Nasica* group; front of male short except long in *Nasica* group, ranging from one half as long as to as long as eye contiguity, in *Nasica* group as long as face, and slightly puffed-out; front of female variable in size, ranging from four times as long as to shorter than wide at antennal bases, usually as long as face, with sides convergent above, usually with two lateral crescent shaped depressions. Eyes pilose, holoptic in male except dichoptic in *Nasica* group. Antennae short, shorter than face; third segment elongate, ranging from twice to about five times as long as broad at base; arista very variable but always with some sort of long hairs present.

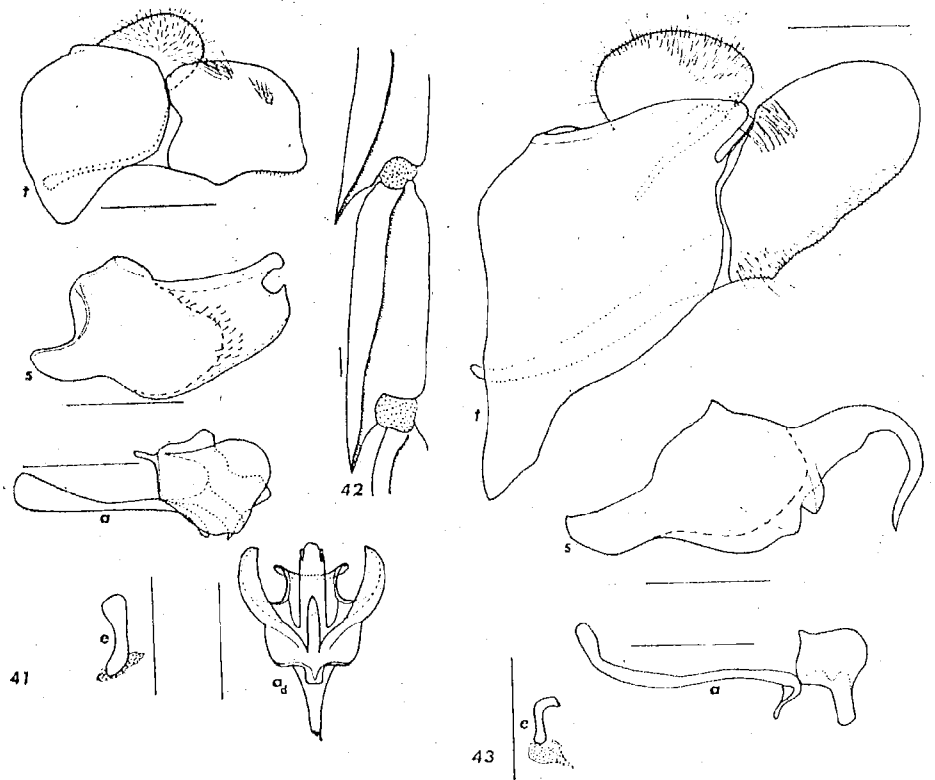
Thorax: as long as or longer than broad and with or without bristles; meso-anepisterna with anterior portion bare; meso-katepisterna with either separate dorsal and ventral pile patches or continuously pilose; meso-anepimera always bare; meropleurae with barrettes either pilose or bare; scutellum with or without a pre-apical depression or ventral pile fringe. Legs: usually simple although hind tibiae greatly swollen in *Hirtipes* group. Wings: with or without microtrichia; marginal cell open or closed and petiolate; apical crossvein always recessive.

Abdomen: suboval to oval, convex and without bristles.

Material examined: 300+(275); *azurea* (Philippi)*, *belinda* (Hull)*, *circe* (Curran)*, *compactus* (Curran)*, *dracaena* (Curran)*, *eugenia* (Williston), *fasciata* (Macquart), *fornax* (Townsend), *fuscipennis* (Macquart)*, *haagi* (Jaennicke), *hirtipes* (Macquart)*, *horvathi* (Szilady), *impressa* (Hull)*, *isabellina* (Williston), *marginata* (Say), *meretricias* (Williston)*, *nigra* (Greene), *obscurior* (Curran)*, *pallens* (Wiedemann)*, *picta* (Wiedemann)*, *pusilla* (Macquart), *sapphirina* (Bigot)*, *scutellata* (Macquart)*, *scutellata* (Williston)*, *selecta* (Curran)*, *smithae* (Thompson)*, (HT), *spinigera* (Wiedemann)*, *spinithorax* (Arribalzaga)*, *tripunctata* (Hull)*, *tympanitis*

(Fabricius)*, *unipunctata* (Curran), *vesicularia* (Curran), *violacea* (Curran)*, *vulva* (Fluke)*, *zephyra* (Curran)* and about two dozen new species.

Discussion: *Copestylum* is a very large (over 300 species) and diverse genus it is clearly separated from all other volucellines by its: 1) bare anterior meso-anepisternum; 2) bare posterior meso-anepimeron; and 3) pilose arista. Many generic names have been proposed for the species of this genus but since these names are based either on: 1) single or small groups of species with a few unique specializations (*Volosyrpha* Shannon, *Vicreckomyia* Curran, *Apophysophora* Williston, *Volucellosia* Curran and *Copestylum* s. s.), or 2) larger groups with characters which since have been shown to be variable (*Phalacromyia* Rondani), they have not here been recognized as representing valid genera. Clearly the names based on variable characters cannot be accepted representing good genera but the names for the small



41, male genitalia of *Chromocheilosia bicolor* (Shannon & Aubertin). 42, hind tarsus, ventral view, of same species. 43, male genitalia of *Copestylum spinithorax* (Arribalzaga). a, aedeagus and apodeme; e, ejaculatory apodeme; s, sternum 9; t, tergum 9; all lateral view.

specialized species groups may be said to represent valid genera. However, splitting these specialized species groups off as separate genera will leave the remaining genus a poly- and paraphyletic mess, since all the species groups are clearly derived from one common ancestral species with the three above mentioned characters. Thus I have synonymized all these genera. Since many of these generic names have been used in the syrphid literature, I have included a key to them. Curran provides a series of keys to the Neotropical species of *Copestylum* (1930 *Volucella** and *Copestylum s. s.*; 1939 *Volucella**; 1947 *Vesicularia* group; and 1953 *Abdominalis* and *Esuriens* groups). Also Fluke (1953) has revised the *Scutellata* Macquart group.

KEY TO THE FORMERLY SEPARATE NEOTROPICAL GENERA
OF COPESTYLUM, s. l. (BASED ON CURRAN 1930)

1. Arista bushy plumose, appearing more or less straplike 2
Arista loosely plumose 3
2. Hairs of arista all of about the same length and extending to the tip *Copestylum s. s.* Macquart
Arista with dorsal and ventral row of longer, isolated hairs and with the apex broadly bare *Volosyrpha* Shannon
3. Arista pectinate, with long hairs above and extremely short hairs below *Volucellosia* Curran
Arista plumose, the ventral hairs never imperceptible 4
4. Scutellum basally either with a very strong acute tubercle or with three weak tubercular swellings 5
Scutellum without tubercles basally 6
5. Scutellum with three rather weak tubercular swellings which bear dense black pile; vertex of female strongly produced upward *Apophysophora* Williston
Scutellum with a median, strongly produced, acute tubercle *Viereckomyia* Curran
6. Eyes of male widely separated; front much longer than the face *Megametopon* Giglio-Tos
Eyes of male contiguous; front shorter than the face or at most slightly longer 7
7. Pile of eyes dense and with scale-like hairs intermixed *Lepidopsis* Curran
No scale-like hairs on the eyes *Volucella* Geoffroy¹

(1) New World species, except Holarctic *bombylans* a true *Volucella*, are now included in *Copestylum*.

TRIBE CALLICERINI?

Notiocheilosia,¹ gen. n.

(Fig. 37)

Head: about one-third higher than long; face very broad, occupying more than one-half of head width, strongly pilose, broadly pollinose on sides, straight with a small low median tubercle slightly nearer to oral margin than to antennae; oral margin with an anterior notch and epistoma distinctly produced at tip of notch; cheeks broad, about two-thirds as broad as long, pilose, pollinose; facial grooves elongate, short, extending only to level of tubercle; facial stripes very narrow, pilose, pollinose; frontal prominence not differentiated from surrounding area, at upper third of head; frontal triangle of male puffed-out slightly, pilose, as long as eye contiguity, about twice as broad as long, with a medial impressed groove; vertical triangle of male small, equilateral and less than one-half as long as eye contiguity, about twice as broad as long, with a medial impressed groove; vertical triangle of male small, equilateral and less than one-half as long as eye contiguity; front of female broad, about one-fourth longer than broad at antennae, with a medial impressed groove on lower part of front like male, about one-third shorter than face, shiny, pilose; ocellar triangle small, equilateral, at posterior margin of eyes. Eyes strongly pilose and holoptic in male, thinly pilose and dichoptic in female, facets of uniform size. Antennae: short, about one-fourth as long as face; first two segments about as long as broad; third segment roughly orbicular; arista basal, slightly less than twice as long as antenna, bare.

Thorax: with mesonotum about as long as broad excluding scutellum, with pile long in male and short in female, without bristles; pro-anepisterna pilose; pro-anepimera pilose; meso-anepisterna with anterior portion with only very short pubescences; meso-katepisterna broadly and continuous pilose from ventral margin to dorsal margin; meso-anepimera with posterior portion with only very short pubescences; meropleurae bare except for a large patch of long pile in front of metathoracic spiracle; metathoracic pleurae bare; metasterna pilose, underdeveloped; plumulae elongate, almost as long as lower squama lobe; squamae without long pile on disk; scutellum without an apical emarginate rim, with a sparse ventral pile fringe. Legs: simple, hind femora without ventral spines. Wings: marginal cell open; apical cell closed, acute, petiolate, with petiole about as long as anterior crossvein; anterior crossvein straight, basal, before the basal fourth of discal cell; radial sector bristles present but weak in female; alulae normal not narrowed.

Abdomen: short, oval, non-emarginate, with 1st abdominal spiracle embedded in metathoracic epimeron.

Type-species: *Chilosia nitescens* Shannon and Aubertin.

(1) From the Greek, *Notios*, southern and *Cheilosia* referring to the syrphid genus.

Material examined: Holotype and allotype of type-species plus addition specimens of type-species.

Discussion: The position of *Notiocheilosia* in the phylogeny and classification of the Milesinae is problematic. It clearly does not belong to any tribe as presently characterized but I do not feel this exclusion from the other tribes is a sufficient reason for erecting a new tribe for its inclusion presently. The strongly basal anterior crossvein, underdeveloped and pilose metasterna, lack of femoral spines and the strongly pilose nature of *Notiocheilosia* places the genus among the more primitive tribes of the Milesinae. *Notiocheilosia* definitely does not belong with the Cheilosini because of its lack of a segmented aedeagus as Sedman (1955) has pointed out. The lack of thoracic bristles also excludes *Notiocheilosia* from the cheilosines. The presence of 1) tuberculate faces in both sexes, 2) subscutellar fringe, 3) pilose metasterna, 4) pilose eyes, and 5) lack of femoral spines, all exclude *Notiocheilosia* from the Chrysogasterini. The acute apical cell, lack of thoracic bristles, bare arista; all eliminate *Notiocheilosia* from the Volucellini. The tuberculate faces in both sexes, notched oral margin and pilose metasterna exclude the genus from the Pipizini. Only the presence of a basal arista separates *Notiocheilosia* from the Callicerini. However, the terminal styles may be of only minor importance in the recognition of *Callicera* as a separate tribe, thus *Notiocheilosia* may belong to the Callicerini.

I consider antennal differences of only minor significance in deciding whether a taxon should have tribal status or not, unless they are correlated with other characters. Since the peculiar arista of the pelecocerines is not correlated with any other major difference and the pelecocerines do have the characteristic two segmented aedeagus of Cheilosini, I have considered the pelecocerines as only a subtribe under Cheilosini. I have considered the terminal style of *Callicera* of tribal value in the adult fly because it correlates with the very unusual larval form. Since the larvae of *Notiocheilosia* are not known, it is not possible to securely assign *Notiocheilosia* to the Callicerini. However, because *Notiocheilosia* shares more characteristics with *Callicera* than any other milesine genera I am placing *Notiocheilosia* in the Callicerini. The characteristics *Notiocheilosia* shares with *Callicera* are: 1) pilose face; 2) pilose eyes; 3) pilose metasterna; 4) scutellum with ventral pile fringe; 5) low facial tubercle in both sexes; 6) mesokatepisterna almost completely pilose; 7) scutellum without apical emarginate rim; 8) meropleurae with a patch of pile in front of metathoracic spiracle (only in some species of *Callicera*); 9) short facial grooves; 10) undifferentiated or very narrow facial stripes; and 11) similar wing venation. In short, although *Notiocheilosia* has been tentatively placed in Callicerini, the genus is phylogenetically isolated from all other syrphid genera and likewise abundantly distinct.

Only one species of *Notiocheilosia* is known, *nitescens*. *Nitescens* is restricted to the Chilean Subregion of South America and is clearly described by Shannon and Aubertin (1933).

TRIBE CHRYSOGASTERINI

Head: oral margin notched anteriorly; face bare except for a few scattered scales in *Lepidomyia* Loew; antennal pits confluent except narrowly separated in *Chamaesphegina*. Eyes usually bare, pilose in *Chromocheilosia*, holoptic in male except dichoptic in *Neoascia*, *Sphegina* and *Lejogaster*. Antennae usually short, shorter than face, longer than face in *Lepidomyia*; arista bare, except for short pile in *Brachyopa*, usually longer than antenna, thin.

Thorax: pro-anepisterna pilose; pro-anepimera pilose except bare in some species of *Brachyopa*; meso-anepisterna with anterior portion usually bare except for upper posterior corner pilose in *Orthoneura*, *Myolepta* and *Lepidomyia*; meso-anepimera with posterior portion bare; metathoracic pleurae bare; metathoracic spiracle small; metasterna usually bare, underdeveloped; plumulae elongate except absent in *Sphegina* and *Neoascia*; scutellum without ventral pile fringe except with in *Chromocheilosia*. Legs: hind femora with ventral spines. Wings: anterior crossvein usually before middle of discal cell.

Abdomen: variable, either oval, elongate or constricted.

Discussion: The chrysogasterines form a rather homogeneous tribe characterized by: 1) anterior crossvein before the middle of discal cell; 2) bare eyes; 3) bare metasterna; 4) absence of subscutellar fringe; and 5) absence of facial tubercle in female. However, there is at least one genus which is an exception to each of the above characters: a species of *Myolepta* from Chile has the anterior crossvein beyond the middle of discal cell; some *Myolepta* species have pilose metasterna; *Chromocheilosia* has a distinct subscutellar fringe; and *Lepidomyia* has a facial tubercle in the female. Despite all these exceptions, a consensus of the five above characters will clearly delimit the tribe.

The tribe Chrysogasterini can be divided into two subtribes, Chrysogasterina and Spheginina. The Spheginina includes those genera with: 1) concave faces in both sexes; 2) narrow alulae; 3) pair of scutellar bristles; and 4) parallel-sided or constricted abdomens. Spheginina includes three genera, *Sphegina*, *Neoascia* and *Chamaesphegina*. The Chrysogasterina have: 1) usually tuberculate faces in the male; 2) normal broad alulae; 3) usually no scutellar bristles; and 4) usually oval abdomen. The Spheginina is a very distinctive group, first recognized by Williston (1886) as a tribe. Since that time the spheginines have been almost universally recognized as either a tribe or subfamily. However, the lack of subscutellar fringe, bare metasterna and femoral spines clearly places the Spheginina in with the chrysogasterines. The spheginines form a natural group when restricted to *Sphegina* and *Neoascia* (and now *Chamaesphegina*) as almost every worker has done except Hull (1949). Hull enlarged the spheginines to include *Takaomyia*, *Odyneromyia* and *Valdivia*. These three genera belong to the tribe Milesini with the *Temnostoma* group because of the presence of