

A Comparative Study of the Male Terminalia
of the Mycetophilidae of Nearctic America.

A Thesis

Presented to the Faculty of the Graduate School of
Cornell University for the degree of

Doctor of Philosophy.

By

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Biography

Elizabeth Gault Fisher was born in 1909 in Baltimore, Maryland. She is the daughter of Dr. William A. Fisher and Anne C. Baylor Fisher. She attended the Calvert School of Baltimore, St. Timothy's School of Catonsville, and the Roland Park Country School of Baltimore, graduating from the latter in 1929. She was registered as a Special Student in the Johns Hopkins University in 1927-1928. She entered Cornell University in 1930, receiving her B.S. in 1934. She then entered the Graduate School of Cornell University.

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Introduction

The fungus gnats or Mycetophilinae constitute a large, but inconspicuous family of Nemocerous flies. They have long remained a shunned group because of their smallness, dull coloring, and the difficulties in the way of their accurate determination. Since the final determination depends largely on the structure of their male terminalia, a comparative study of these parts is attempted.

These gnats occur in great numbers wherever there are damp woods, ravines, caves, or escarpments. Adults may be found at any season of the year in such situations; in winter they occur principally beneath the bark of forest trees; in summer they may be taken by sweeping the vegetation. They have their times of abundance. A ravine that produced numerous gnats in June will produce but few in July. I found this particularly striking in Canada. In late August the fungus gnat collecting on the Gaspé Peninsula, N. Quebec, was poor; while a few days later on Cape Breton Island, Nova Scotia, they were the most abundant insect taken by sweeping. These two regions are

essentially similar. There also appear to be periods of dominance of certain genera, *Exechia* and *Bolitophila* in May and June, *Mycomyia* in August and September.

The larvae are peripneustic maggots except *Polylepta* and *Diadocidia* which are propneustic and *Ceroplastus* which is apneustic. They have distinct, heavily sclerotized heads with reduced antennae except in *Bolitophila*. Many of the larvae are fungivorous; many are saprophytic. One has been reared from birds' nests, *Jocosis* sp.; one from liverworts, *Boletina dubia* Staeger; one from saturated moss, *Onoriste apicalis* Mg., and one from pitcher plant leaves, *Sciara macfarlanei* Jones.

The pupae are free (*Bolitophila*, *Mycomyiini*, *Leptomorphus*, *Lepoclepta*, and *Leia*) or enclosed in a cocoon (*Diadocidiinae*, *Sciophila*, *Tetragoneura*, *Jocosis*, *Exechiini*, *Phronia*, and *Mycetophila*) but never in a puparium. Some are active (*Ditomyiinae* and *Bolitophilinae*); others remain quiescent (*Ceroplastinae* and higher *Mycetophilinae*).

The adults are small flies, their coloration ranges from black to reddish browns and yellow.

The head is spherical to elongate, slightly flattened in front and inserted rather low on the thorax. The compound eyes are oval (reniform in *Symmerus*), except in the *Sciarinae* where they are nearly or quite connected above the antennae by a narrow bridge. The antennae are placed low on the head; they are eleven to seventeen jointed, generally sixteen jointed, cylindrical in most

forms, but may be greatly compressed, usually little longer than the thorax; the two basal segments are generally broader and shorter constituting the scape; the remaining or flagellial segments are similar beyond the basal one which is elongate. Two or three ocelli are present. When there are only two ocelli, the median one is lacking. The laterals may be close to the margins of the compound eyes, or they may be close together on the front, or all three ocelli may be arranged in a row or triangle. The proboscis is small, rarely elongate; the palpi are generally incurved and usually of three to four joints.

The thorax is generally highly arched, the shape of its sclerites varying considerably in the various genera, becoming progressively more compact in the highly specialized genera of the Mycetophilinae. The prothorax may consist of anterior and posterior divisions of the pronotum and propleura. The mesonotum is divided into scutum, scutellum, and postscutellum. The latter is subdivided into postnotum (= mediotergite) and pleurotergite. Each mesopleuron is divided into anepisternite, sternopleurite (= metasternum), and pteropleurite (= epimeron). The metanotum is represented in the membranous area connecting the two aliters. The metapleuron is represented in the hypopleurite (= meson? + metapleuron). The meso- and metasternum are represented by the furcosternites only.

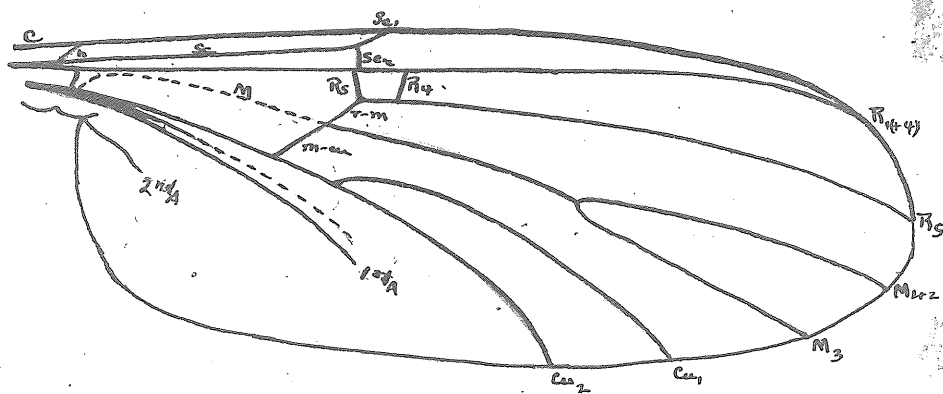
The abdomen has six to eight visible abdominal segments in the male, the last one carrying the male terminalia.

malium; it has seven to nine in the female. The structure of the terminal abdominal segments in the male will be discussed in the next chapter.

The coxae are greatly enlarged and elongated except in the Coliariinae. The trochanters are small. The femora are more or less thickened. The tibiae are slender with apical spurs; the tibial setae may be irregularly arranged or in regular rows. The tarsi are slender.

The wings are oval with either or both macro- and microtrichia present. A discal cell is lacking.

A purely hypothetical Mycetophilid wing is labelled below:



I have used the Comstock-Needham system of wing venation. The short branch of R_2 was called R_{1+3} by Johannsen and R_2 by Edwards; Edwards regards R_{2+5} as absent. Edwards calls the first and second anal veins the anal and axillary veins, respectively. I have followed Edwards's nomenclature of the short branch of R_2 as R_1 . R_{1+1} is called R_1 by most workers. I have also called

it R_1 ; for in cases where the free portion of R_2 is lacking, R_3 may be considered to continue to the wing margin unbranched, or R_4 may be considered to unite entirely with R_1 .

The Mycetophilinae of North America have been monographed by Johannsen. Since that time several new species have been described, chiefly by Garrett and Van Duzee. F. S. Edwards has revised the generic classification of the family. Because of these additions and changes, it has seemed well to include keys, where possible and to add generic descriptions.

The nomenclature follows Edwards' revision. Since this differs from that of Johannsen's monograph, the basis of all North American work, the following summary of changes from Shaw (1935) is copied here with a few additions and changes. Only recent Nearctic genera are listed.

Subfamilies and Genera
of Johannsen

Subfamilies and Genera
of Edwards

Subfamily Bolitophilinae

Subfamily Bolitophilinae

Bolitophila - - - - - Bolitophila

Subfamily Mycetobinae

Subfamily Ditomyiinae

Mycetobia (= Anisopodidae or ~~Mycetobiidae~~)

Palaeoplatyura ----- (= Ceroplutinae)

Atomyia Atomyia

Lymnecerus Lymnecerus

Subfamily Diadocidiinae

Subfamily Diadocidiinae

Diadocidia Diadocidia

Subfamily Ceroplatinae

Subfamily Ceroplatinae

Asinsulium Asinsulium

Ceroplatus }
Cerotelion }

Ceroplatus

Hesperodes Hesperodes

Apemon Apemon

Platyura Platyura

(Mycetobiinae) Palaeoplatyura

Subfamily Macrocerinae

Subfamily Macrocerinae

Macrocera Macrocera

Subfamily Sciophilinae

Subfamily Sciophilinae

Monociona Monociona

Eudicrana Eudicrana

Tetragoneura { Tetragoneura
Tetrapestroneura

Sciophila Sciophila

Paratina Paratina

Polylepta { Polylepta
Lpeolepta

Empulia	-----	Synspha
Diolozickia	-----	Diolozickia
Hadroncuta	-----	Syntetras
Hadroncuta	-----	Hadroncuta
Neocompheria	-----	Neocompheria
Mycomya	-----	Mycomya
Diomonus	-----	

Subfamily Mycetophilinae

Leptomorphus	-----	Leptomorphus
Neuratelia	} -----	Neuratelia
Odontopoda		
Pathinia	-----	Pathinia
Acnemia	-----	Acnemia
Arana	-----	Arana
Gnoriste	-----	Gnoriste
Coelosia	-----	Coelosia
Allocotocera	-----	Allocotocera
Boccosia	-----	Boccosia
Boletina	-----	Boletina
Rondaniella	-----	Rondaniella
Leia	-----	Leia
Megophthalmia	-----	Megophthalmia
(Coliarinse)	-----	Phyxia?

Subfamily Mycetophilinae

Anatella	-----	Anatella
----------	-------	----------

Trichonta -----	Trichonta
Cordyla -----	Cordyla
Brachypeza -----	Brachypeza
Rhynchosia -----	Rhynchosia
Allodia -----	Allodia
Paronia -----	Phronia
Telmaphilus -----	
Execnia -----	Execnia
Dynatosoma -----	Dynatosoma
Epicypta -----	Epicypta
Opistholoba -----	Mycetophila
Mycothera -----	
Mycetophila -----	
Sceptonia -----	Sceptonia
Zygonia -----	Zygonia
Delopsis -----	Delopsis

Subfamily Sciariinae

Subfamily Sciariinae

Eugnoriste -----	(omitted by Edwards)
Pyxia -----	(Sciophilinae)*
Trichosia -----	Trichosia
Zygoneura -----	Zygoneura
Metangela -----	(omitted by Edwards)
Phorodonta -----	Phorodonta
Sciara -----	Sciara
	(Neosciara) of Petty
	Peyerimhoffia

* - The larvae however closely resemble those of Sciara.

The chief changes are in the limits of the sub-families Sciophilinae and Mycetophilinae, those of Johannsen's first series of the Mycetophilinae being included in the Sciophilinae and his second series forming the Mycetophilinae.

Johannsen's and Edward's rejection of *Belmira*, *Polyxena*, *Fungivora* and *Lycoria* has been followed.

Phyxia is discussed under the Sciarinae rather than the Sciophilinae.

I have limited my discussion to recent Nearctic forms. The fauna of New England, especially that about Ithaca, New York; Cape Breton Island, Nova Scotia; Meramec State Park, Missouri; Brookings, S. D.; and Jasper National Park, Alberta have been more fully studied than that of other regions. Mr. C. B. D. Garrett has supplied illustrations and specimens of some British Columbian species.

The synonymy is listed for each subfamily, genus, and species. No descriptions are given except to new species. The male terminalial structure of all available species is described and figured. In a few cases the figures are copies of published figures. For some of Garrett's species I have had drawings. (these have unfortunately not been published by Garrett).

The genera *Sciara* and *Macrocera* have been slighted. Time is not available for the former, and the necessary

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The genera *Sciara* and *Macrocera* have been slighted. Time is not available for the former, and the necessary

type material for the latter.

An attempt is made to list the known distribution of each species. This is based largely on the original description, Johannsen's monograph, the New York State List, New Jersey State List, Cole and Lovett's Oregon List, Chew and Townes North Carolina List, Johnson's Diptera in Fauna of New England and other sources listed in Bibliography. To this list I have made additions from the Cornell University collection and from my own collection.

Chapter II

The Male Terminalia

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General discussion

A fundamental arthropod abdominal structure has been outlined by Snodgrass. It is based on the assumption that all segments were primitively alike, since insects arose from polypod ancestors. Thus, the abdominal segments at some stage in Hexapod history had the same essential structure as the thoracic and gnathal of the body; that is, they were appendage bearing.

The primitive ring-like segment became a limb-bearing segment, and to increase the proficiency of these limbs, a separate pleural or limb bearing area was set apart from the sclerotized dorsum and the venter of each segment. Thus, there are four distinct areas in the hypothetical insect segment, a tergum, a sternum, and two pleural areas. A study of the structure of a modern insect shows these four divisions in the gnathal and thoracic and sometimes the genital segments. In the abdomen and the remainder of the head segments these fundamental divisions of the segment are obliterated. The abdomen has given up all locomotor functions to the thorax; it has become the center for digestion, respiration, and reproduction. It has lost all vestiges of locomotor appendages except in its genital and postgenital

segments (except in the embryos and larvae of certain insects, and in the Apterygota). There is a division of these abdominal segments into two parts only, the tergum and "sternum". These definitive sternal plates of the insect abdomen are composite sclerites formed by the continuous sclerotization of the true sterna and the flattened limb bases (or the pleural areas), and thus, according to Snodgrass, are more correctly termed zygo-sterna.

From embryological evidence, twelve is generally considered to be the primitive number of abdominal segments in insects.

Thus, primitively there are three postgenital segments. The anus opens at the end of the twelfth segment. In most insects, however, no trace of a twelfth segment or periproct is found, and the periproct is probably reduced to the membranous area at the end of the eleventh segment in which the anus is now situated. Many Dipterous larvae have a distinct anal plate (=periproct).

The eleventh segment with its appendages, the cerci, is present in the embryos of many insects and in some of the lower insects but not recognizable in the higher insects. Thus, the tenth segment is usually the anus bearing segment in the higher insects.

The ninth segment in the male forms the genital segment. The ejaculatory duct, with a few exceptions, opens to the exterior between the ninth and tenth segments and is "intersegmental in position." There is recent evidence that it may open primitively on the tenth segment. An evagination of the body wall may carry the gonopore outward forming a penis, or the gonopore may be at the tip of the aedeagus, a copulatory organ composed of the penis and the parameres, or of the parameres alone.


The gonopods are the appendages of the eighth and ninth segments. They are absent on the eighth segment except in female insects (the first valvulae) and in the male Machilis (abdominal styli). Those of the ninth segment form the second valvulae of the females and the styli and gonapophyses (true parameres) of the male.

A gonopod primitively consists of three parts in contrast with the other abdominal appendages when present:

1. The basal lobe or plate (coxite)
2. A lateral, distal stylus (clasper);
3. A median, proximal gonapophysis (true paramere) which probably are coxal endites.

Both the stylus and the gonapophyses may be moveable on the coxite by small muscles originating on the coxite and inserted upon the base of the appendage. There are no intrinsic muscles. "Thus in the fundamental organization of the gonopods there are only two sets of appendicular structures that are independently moveable by muscles inserted directly on their bases. These structures are the styli and the gonapophyses."

The basal lobes or coxites of the second gonopods in the male may:

- 
1. unite with each other
 2. unite with the ninth sternum forming a zygosternum.
 3. form free lobes of the ninth segment
 4. unite with both sternum and tergum of the ninth segment.

The styli may be:

1. lost
2. form moveable clasping organs.

The gonapophyses are muscled appendages, "mesal processes of the bases of the gonopods." They are associated with the penis in generalized insects. They are said to be united in the higher insects with the penis or with each other to form the aedeagus, the penis being partly or entirely suppressed and are called parameres. "The term paramere, however, has been given to many different processes of the genital complex in

the pterygote insects, and it is not certain that any of them is a true gonapophysis." The gonapophyses may be:

1. lost in higher insects
2. form true parameres in some lower insects

History

The determination of the homologies of the parts of the male terminalia throughout the orders of insects has never been attempted, but a bewildering amount of work has been done among the various orders of insects upon the structure of the male terminalia with little regard to establishing the true homologies of these regions. A. Peytoureau in 1895 made a comparative study of them in the Orthoptera. A. E. Snodgrass in 1931 and 1936 published papers on the morphology of the insect abdomen. G. C. Crampton has published several papers mostly from a phylogenetic standpoint. Additional papers by many others are listed in the bibliography at the end of this paper; a repetition of them here seems unnecessary.

Within the order Diptera the naming of these parts has had no uniform nomenclature based on homology. The structure of the male terminalia has been studied in many families. A. E. Snodgrass (1902) studied its structure in two genera of Muscidae. He pointed out that revolution of the terminalia occurred so that the ninth tergite was ventral and the tenth segment lay

below the opening of the genital chamber. He also pointed out that the revolution occurred behind the seventh segment indicated by the normal orientation of this segment.

R. S. Snodgrass (1904) studied the "hypopygium" of the Tipulidae. He pointed out that the body of the ninth segment is often made up of four plates (tergum, two pleura, and sternum). The two pleura may take various positions or be absent. Attached to the posterior rim of the hypopygium are from one to three lobe-like appendages. Westhoff also studied the structure of the terminalia in the Tipulidae. He recognized three claspers (not always developed).

R. S. Snodgrass (1904) studied the terminalia of the Dolichopidae. The structure is essentially the same as in the Tipulidae and the Asilidae. There are two pairs of clasping lobes. The body cavity of the ninth segment does not open into that of the eighth segment by a foramen at its anterior end but by an aperture situated on the anterior part of the left side.

Major S. R. Christophers (1915) studied the Culicidae and pointed out that rotation of the male genitalia occurs through 180° in most of the Nematocera.

J. C. H. de Meijere studied the male terminalia in Trichocera.

F. W. Edwards (1920) studied the "genitalia" of the Nematocera, especially the Culicidae; he emphasized the

revolution of the genitalia and discussed in detail the structure in the Culicidae.

G. C. Crampton (1922) compared the "genitalia" of male Diptera and Mecoptera with those of other orders. The Mecoptera approach the Dipteran type closely. He pointed out that the torsion in Diptera differs from that in sawflies, as the anal segment is revolved in Diptera and not in sawflies. The so called cerci of the proctiger, or tenth segment, he believes may possibly be paraprocts of the cerci.

Major J. R. Christophers (1923) in his studies on mosquitoes found that rotation of the genitalia might be either to the left or to the right and involves the eighth, ninth, and tenth segments and occurs twenty-four to forty-eight hours after the emergence of the imago.

F. Muir studied Mycetophila marginata and found that the ninth sternite and the coxites were fused. The anal segment had a distinct tergite and sternite. The seventh and eighth segment were reduced and telescoped into the sixth. There is a narrow strip of chitin which "hinges" the eighth sternum to the hypopygium. The styles are complex.

F. M. Root (1923 and 1924) studied the male terminalia of Anopheles.

H. J. Hackett (1924) studied the male terminalia in the Anthomyiinae.

F. W. Cole (1927) emphasized the difference between the revolution of the terminalia and the twisting of the postabdomen in the Syrphidae and Pipunculidae.

M. Dziedzicki (1889) gave a description of the type of terminalium found in the genus Phronia; Lundstrom of Sciophila, and Landrock of Solitophila. No other work, aside from drawings and brief notes on the terminalial structure, has been done on the Mycetophilid terminalia.

Mycetophilidae

Retraction

There are eight pregenital or visceral segments (I-VIII), one genital (IX), and one postgenital (X) segment in the abdomen of the Mycetophilidae. In the simpler Mycetophilidae (such as Solitophila) there are eight clearly visible pregenital segments, each with a normal dorsal sclerite and ventral sclerite. As we proceed to more highly specialized forms, we find that in some cases the eighth segment is partially hidden under the edges of the seventh segment (as Symmerus, Diadocidia). In still more specialized forms (as Execia, Mycetophila) the pregenital portion of the abdomen apparently consists of only six segments. But if these insects are immersed in a caustic potash solution, the seventh and eighth segments will be forced into view. They have been reduced in size and retracted or telescoped into the sixth segment. A retracted segment may be reduced to a narrow ring. The amount of retraction

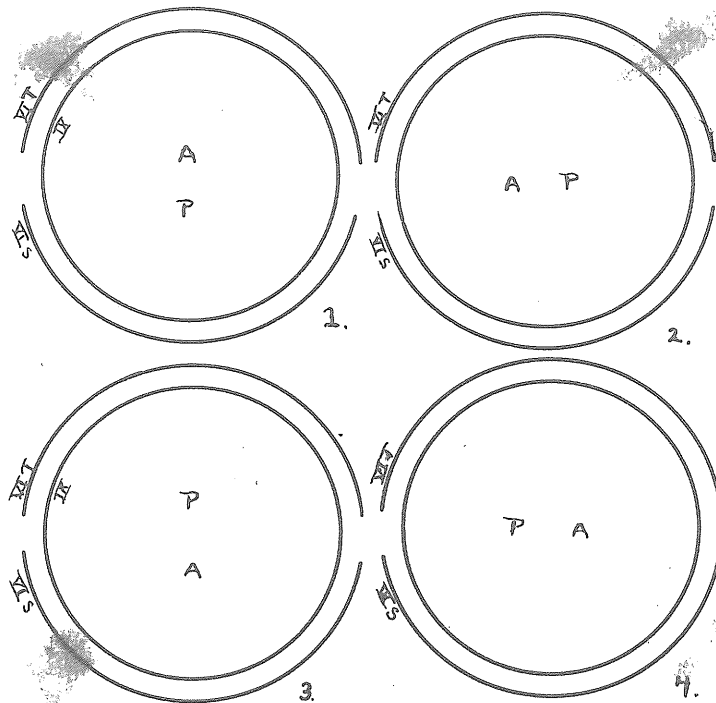
for the different genera may be seen in the chart on page 23.

Rotation.

The terminalium may revolve upon the abdominal tip. Normally the alimentary canal lies above the genital organs and the anus above the aedeagus. But if the terminalia revolve in either a clockwise or counterclockwise direction, the anus may be found to the right, the left, or below the aedeagus, assuming that the anal segment is involved in the rotation. I am justified in assuming this because of its position in relation to the other parts of the genital segment. The anal segment is almost invariably composed of three lobes; the two smaller lobes are always adjacent to the ninth tergum; the single large lobe is always adjacent to the aedeagus. If the anal segment did not revolve with the ninth segment as one whole, the three lobes would occupy various positions in relation to the adjacent parts of that ninth segment, but this does not occur.

This rotation, thus, differs from that of male sawflies in having the anal segment involved. It also differs from the crowding of the postabdomen over to the left side of the preabdomen as in the Cyrtulidae and the Pipunculidae ("circumversum" of Fuerborn). It is similar to that in the Juliidae ("inversum" of Fuerborn), yet it differs from these in the degree of rotation.

The relationship of the anus to the penis indicates the degree of the rotation as shown in the diagrams below:



- IX - genital segment.
 - A - position of anus
 - P - position of penis
 - VI - T - Tergum of VI segment
 - VI - S - Sternum of VI segment
- (all caudal aspect, the 7th and 8th segments omitted.)

- fig. 1 - No rotation
- fig. 2 - 90° counterclockwise rotation (or 270° clockwise)
- fig. 3 - 180° counterclockwise or clockwise rotation.
- fig. 4 - 90° clockwise (or 270° counterclockwise.

C. A. Christopher in his paper on the male genitalia of Anopheles states:

"A most important point in regard to the genitalia as a whole is their orientation. In the Tipulidae and Chironomidae, as in most Hemocera, the main claspers are ventrally placed and the anus is dorsad of the genital

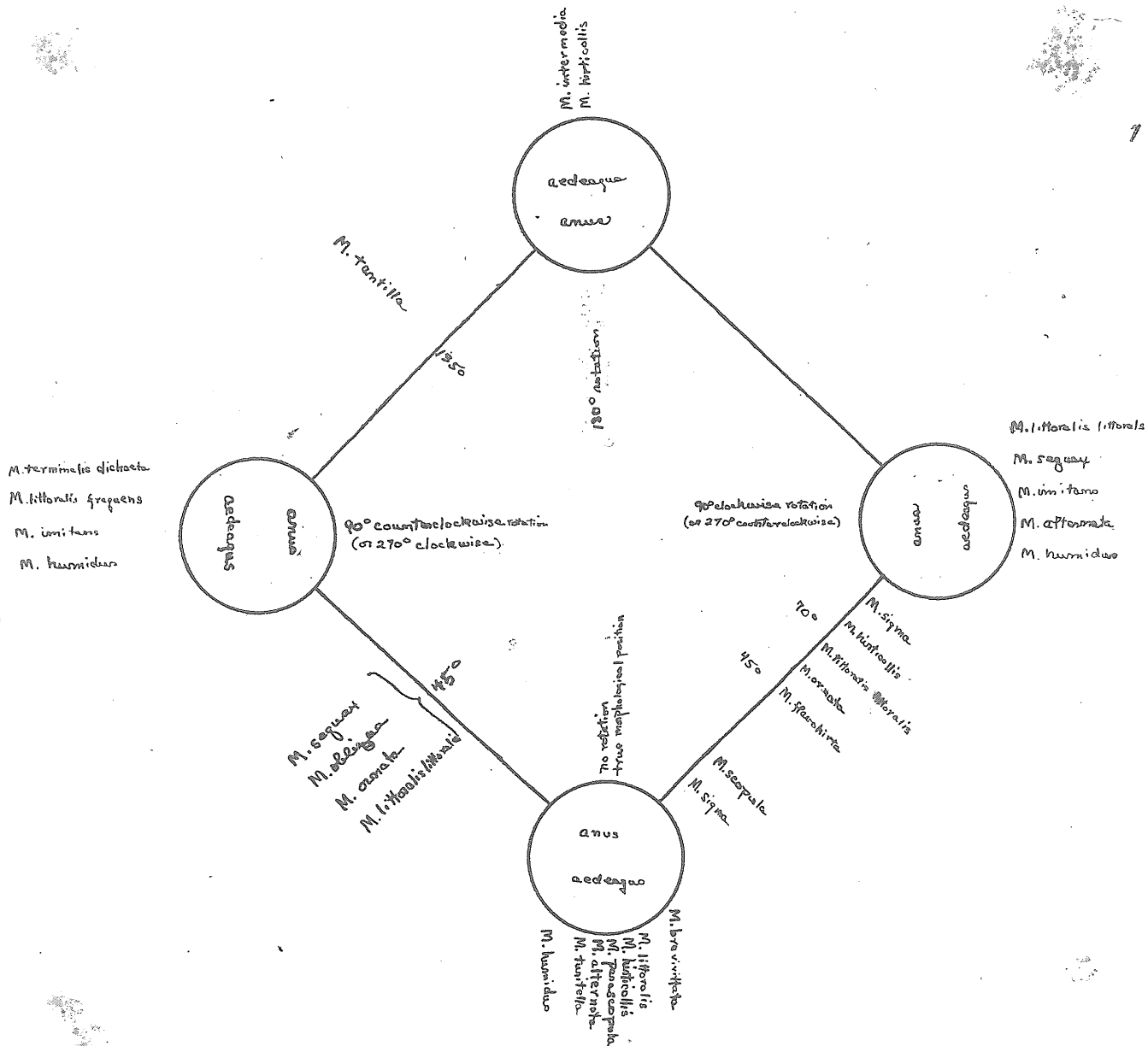
opening. In Anopheles the claspers are apparently dorsal structures, the anal lobe with the anus being ventral to the theca, i. e., the opening of the alimentary canal is ventrad of the genital opening. This condition which holds good for the Culicidae as a whole, is due to torsion of the 8th and 9th segments upon the rest of the abdomen through an angle of 180°, (as is shown by the position of the last ventral ganglion, which is rotated along with them). In the Culicidae, other than Anopheles, this torsion is complete, in so much that externally no trace of this remarkable modification remains. --- In Anopheles close examination usually enables one to see that some twisting has occurred, and the claspers are generally held more or less laterally."

The Mycetophilidae approach nearer to the condition in Anopheles. Of all the Mycomyias examined only two individuals had a complete torsion through 180° (Mycomyia hirticollis and Mycomyia intermedia). But seven other individuals of one of these species (Mycomyia hirticollis) had no rotation. Rotation, when it occurs, in the Mycetophilidae is apparently almost invariably incomplete. In many cases there is no rotation at all.

An individual apparently can not change the degree of rotation after it has once become established.

The degree of rotation differs in different individuals of the same species as well as in different species

of the same genus. Since often specimens of the same species were taken throughout the season at the same place and time, I doubt whether the degree of rotation is dependant on the maturity of the individual. It is apparently haphazard as shown in the diagram below for the genus Mycomyia.



The name of the species is placed beside the degree of its terminalium's rotation.

rotation and retraction are apparently not correlated. In the Bolitophilini there is no rotation and no retraction; in the Mycomyiini there is retraction and rotation; in the Euechini there is retraction but no rotation. The chart below indicates the amount of retraction and whether it is accompanied by rotation or not.

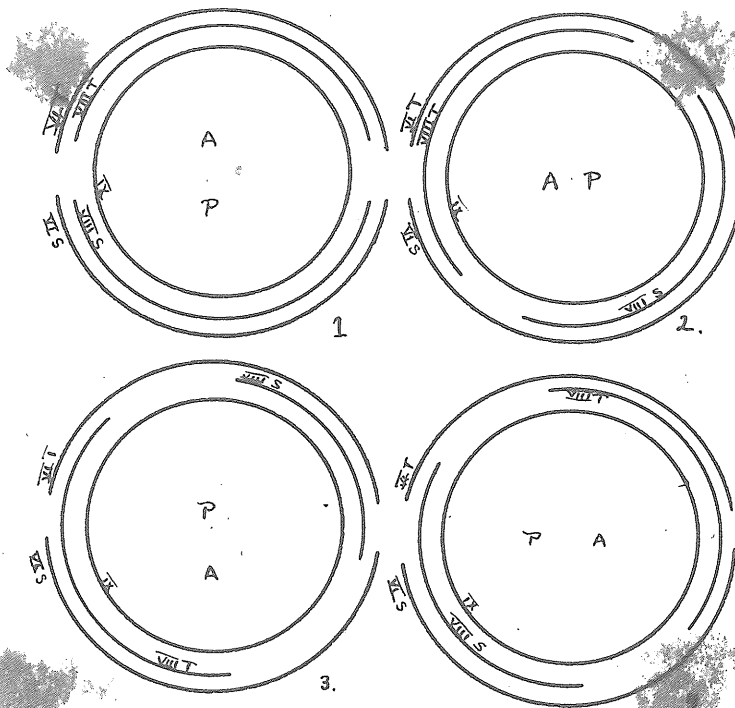
<u>Genus</u>	<u>Retracted segments</u>	<u>Capable of Rotation</u>
Bolitophila	none	No
Gymmerus	VIII partially	Yes
Ditomyia (none available)	----	---
Ditomyia (?)	VIII	No
Diadocidia	VIII partially	Yes
Macrocera	VIII partially	Yes
Asindulum	none	No
Ceroptatus	VIII	Yes
Apemon	none	No
Platyura	none, or VIII or VIII + VII	Yes or No
Palaeoplattyura	none	No?
Hesperodes (none available)	----	---
Mycomyia	VIII	Yes
Neocompheria	VIII	Yes

Speclepta (none available)		----
Coelosia	VII + VIII	Yes
Ouedrickia	VIII partially	No
Gnoriste	VII + VIII, or VIII + a small VII but not retracted	Yes
Synapha (none available)	----	---
Boletina	VIII + VII partially or VIII only	Yes
Madroneura (none available)	-----	---
Synteana	(VIII according to Landrock)	(none available)
Budicrana	VIII	No
Allocotocera	(VIII according to Landrock)	(none available)
Leptonorphus	VIII	No
Polylepta	none (VIII according to Landrock)	No
Neuratelia	VIII	No
Odontopoda (none available)	----	----
Paratina	VIII	?
Phthinia	VII + VIII	Yes
Sciophila	VIII	Yes
Acnemia	VIII	No
Monoclonia	VIII	No
Azana	VIII	No
Rondaniella	VIII + VII partially	No
Docosia	VIII + VII	No
Tetragoneura	VIII + VII, or VIII + VII partially	No
Leia	VIII + VII partially	Yes
Megoptnalimiva	?	?

Anatella	VIII + VII	No
Erechia	VIII + VII	No
Rhynchosia	VIII + VII	No
Brachepeza	VIII + VII	No
Allodia	VIII + VII	No
Dynatosoma	VIII + VII	No
Cordyla	VIII + VII	No
Trichonta	VIII + VII	No
Phronia	VIII + VII	No
Mycetophila	VIII + VII	No
Epicyta	VIII + VII	No
Delopsis	VIII + VII	No
Zygomyia	VIII + VII	No
Coep-tonia	VIII + VII	No
Eugnoriate	none	Yes
Trichosia (none available)	----	---
Zygoneura	none	Yes?
Pnyxia		
Metangela (none available)	----	---
Phorodonta(none available)	----	---
Sciara	VIII partially or none	Yes but usually No
Peyerimhoffia (none available)		---

When rotation is accompanied by retraction the eighth segment partially rotates with the terminalium

but legs slightly behind as shown in the diagrams below:



VI T - VI tergum VIII T - VIII tergum
 VI S - VI sternum VIII S - VIII sternum
 A - position of anus P - position of penis
 Caudal aspects - VII segment omitted

fig. 1 - no rotation
 fig. 2. rotation 90° counterclockwise
 fig. 3. rotation 180° counterclockwise
 fig. 4. rotation 90° clockwise

The positions taken by the eighth segment would seem to indicate that rotation may be either clockwise or counterclockwise.

Ordinarily the seventh segment is apparently not involved in the rotation or so little involved as to be unapparent. Therefore, rotation probably occurs behind the seventh segment.

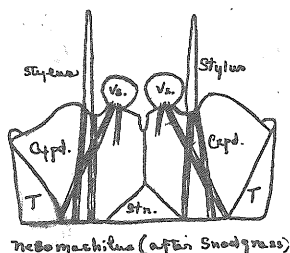
Structure of Terminalium

I have called the closely united ninth and tenth

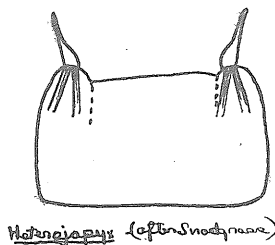
segments of the male the terminalium.

The terms male genitalia and hypopygia have been generally used for the genital segment. Genitalia refers properly to chitinizations of the genital tube, hypopygium to the ventral plate of the ninth segment. Male copulatory apparatus and male armature have been used but since here the anal segment is closely incorporated with the genital segment the term male terminalium seems the best.

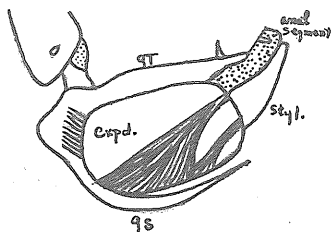
It is the Tysanurans that give us a clue to its homologies. In *Machilus* the venter of each visceral abdominal segment consists of a sternum and lateral coxopodites (= limb bases) each bearing a distal stylus and vesicle. The abdominal styli are moveable by muscles arising on the coxopodites.



When distinct coxopodites are absent, the styli are borne by the zygosternum, and the muscles of the styli arise upon the stylus-bearing areas of this zygosternum.



The structure of the terminalia in *Panorpa* gives us a further clue. The coxites are separate lobes borne on the complete annulus of the ninth segment. The styles are articulated by muscles originating in the coxites.

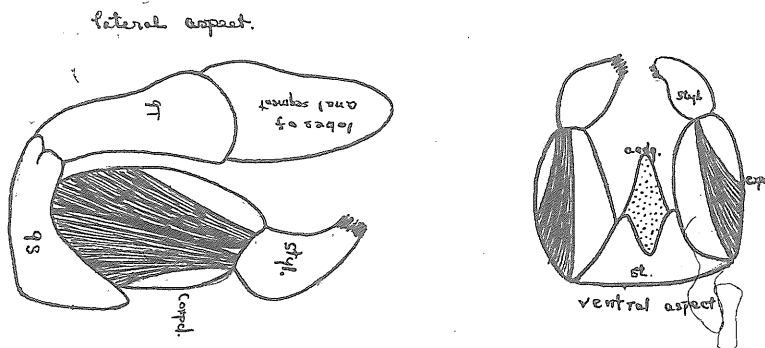


In the Tipulidae the terminalia structure is similar to that in *Panorpa*. The styles are well developed, often bilobed or even bipartite. In some species the coxites are separate pleural plates; they are usually completely united with the sternum.

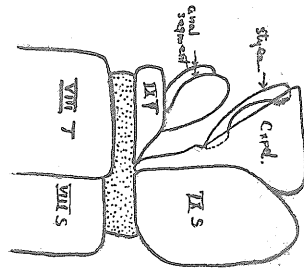
Sclerotization of ninth segment

In the Mycetophilidae the coxites may be separate pleural plates, united with the sternum, or more or less united with each other.

Symmerus lauta may be selected as an example of the first condition with separate pleural plates (coxpd.) The styles are articulated by muscles inserted on the coxites (often called basistyles).

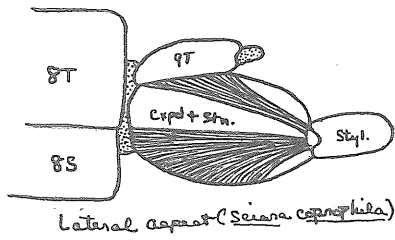


Platyura n. sp. (#112) may also be used as an example of this condition. The styles articulate near the base of the coxite rather than at its distal end. But it is essentially similar to Panorpa and Symmerus lauta.

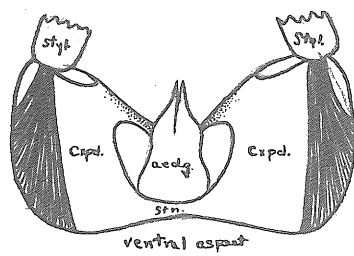


The second condition where the coxites are united with the sternum is the most common condition in the Mycetophilidae. There are two distinct types recognizable in this group, the "Macrocera-type" and the "cup-type."

The Macrocera-type occurs in such genera as Bolitophila, Macrocera, Apenon, some Platyura, and in the Sciariinae.



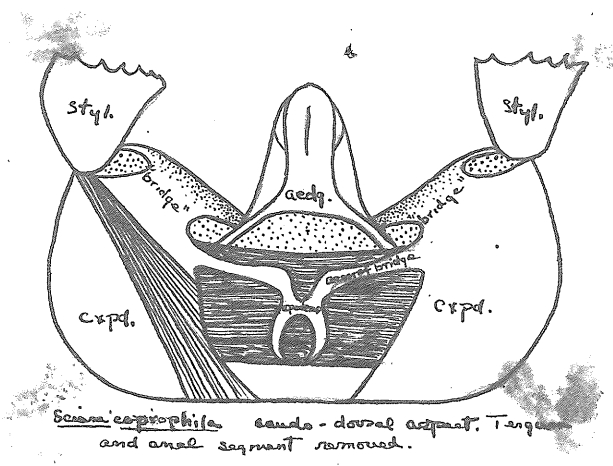
Lateral aspect (Sciara coprophila)



ventral aspect

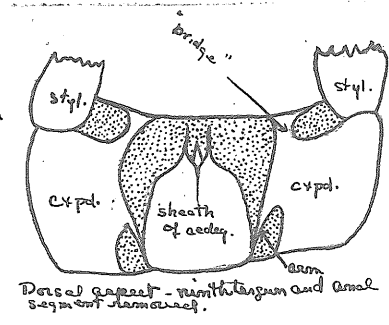
Sciara coprophila may be used to illustrate this type. The sternum and coxopodite are united by the continuous sclerotization of these two areas but the coxopod region is distinguishable from the sternal region. The inner side of the coxopod region is

have called the "bridge". (The width of the "bridge" is of generic value.) The aedeagus is small, often weakly sclerotized and confined to the ninth segment. The ninth tergite is small and broad. The anal segment projects from under its hind border.



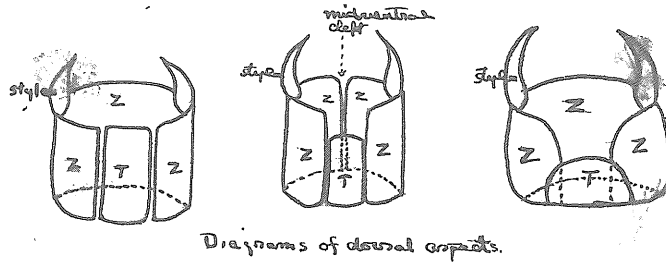
The "bridges" dorsally give off mesally directed arms which unite to form an apodeme for muscle attachment and support of the aedeagus.

In *Bolitophila* the "bridge" is narrow. The arm is given off from the dorsal edge of the coxopodite portion of the zygosternum.



In the sup-type the two coxopodites are apparently

even more closely united with the sternum by the continuous sclerotization of these three areas. The ninth segment has taken the form of a cup; the zygosternum forming three sides and the tergum the fourth side as diagrammed below:



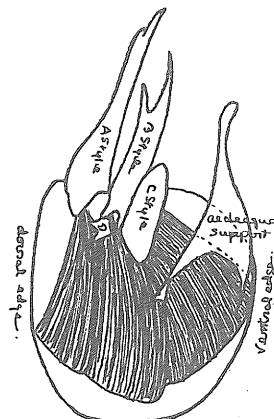
The intersegmental membrane has become invaginated into the cup, so that the latter has a membranous lining.

The zygosternum may be deeply cleft on its mid-ventral line as shown in the second diagram or a separate plate may be developed in the cleft as in Leia ovivittata (Plate 18, fig. 1.). I do not believe this ventral plate is homologous with the true sternum but is a secondarily developed sclerite.

The styles are rarely simple, often lobed or even completely divided to their insertion into separate parts.

The lateral portions of the zygosternum probably represent the coxopodites as the muscles are inserted upon them as is shown here.

The third condition, in which the coxopodites are united to each other, I have found only in Utomyia n.sp.(C).



Leia rugosaria - dorsal aspect of zygosternum - half.

Here the coxopodal portions of the zygosternum are united dorsad of the aedeagus obliterating a genital chamber.

There are other unique types (Necempheria spp.) that are not referable to these basic types. They are probably secondary specializations.

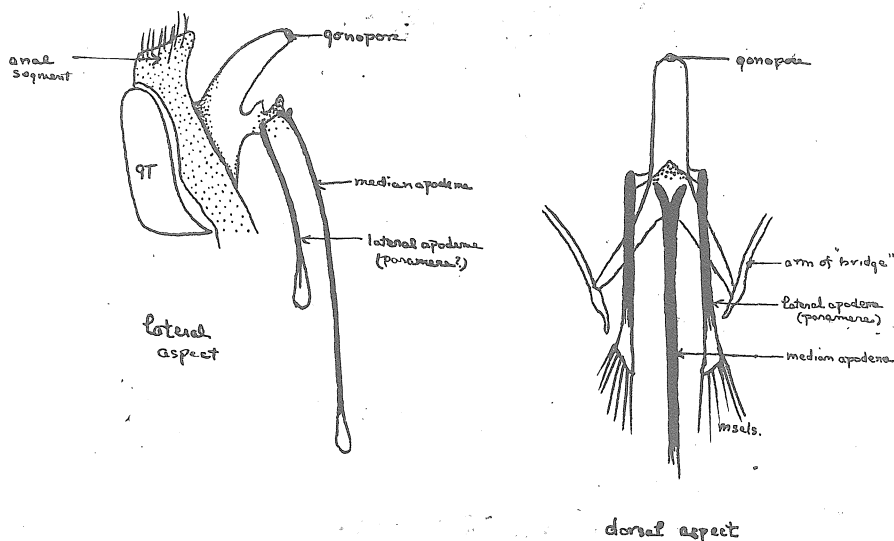
A further discussion of the sclerotization of the ninth segment will be given later for each available Nearctic species.

Aedeagus

The gonopore is located in the membrane between the ninth and tenth segments. It is located on a phallic papilla arising from the floor of the genital chamber. The phallus is probably formed, according to Snodgrass, by a tubular outgrowth of the body wall or possibly by the union of phallic lobes. Mesal lobes of the appendages of the ninth segment, the gonapophyses, probably took no part in its formation. The so-called parameres of this paper are probably secondary specializations in the sclerotization of the phallus and are probably not homologous. There is apparently, no phallobase, the aedeagus forming the entire phallus.

The aedeagus is very variable throughout the family, but because of its minute size and the distinctive characteristics of the surrounding ninth segment, it is of little importance in specific distinctions.

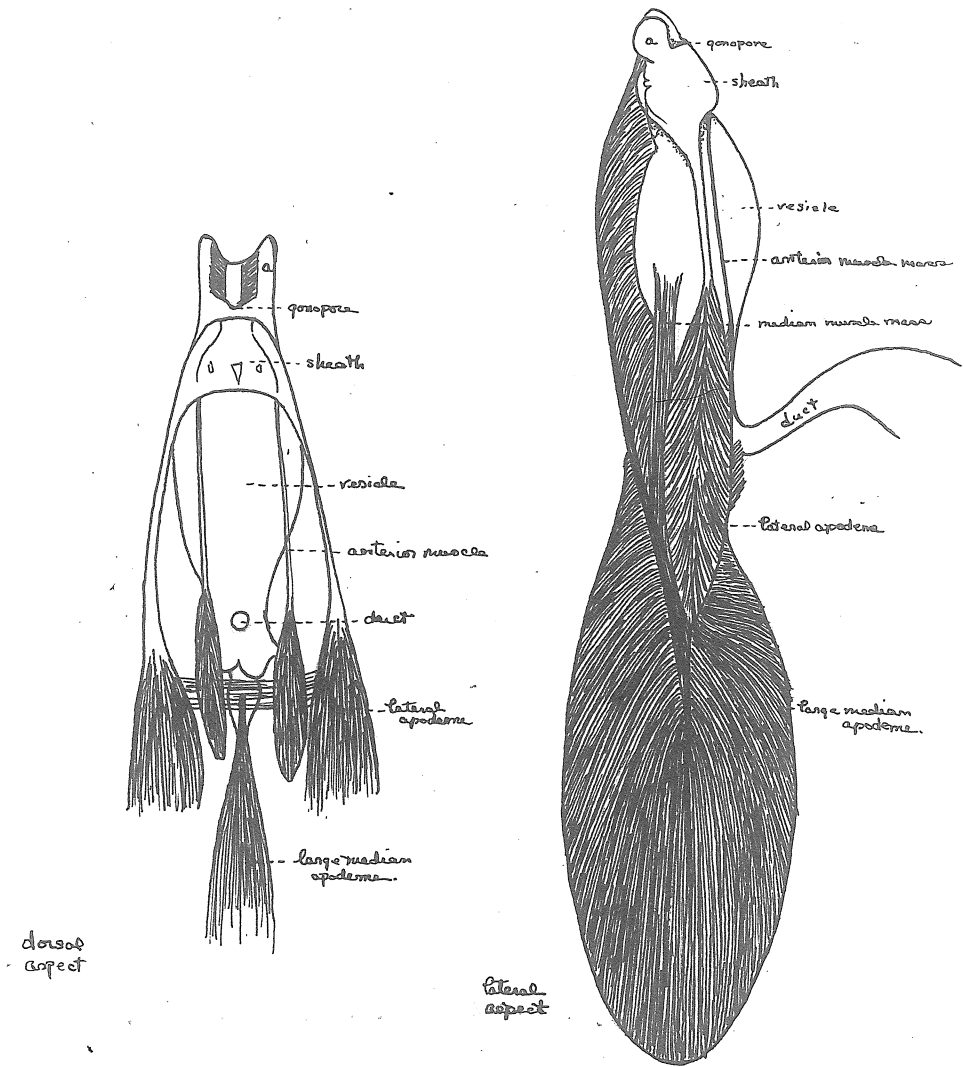
In its simplest form it is a typical elongate tubular aedeagus arising from the floor of the genital chamber supported at its base by sclerotized arms that run laterad to the dorsal edges of the zygosternum as in Exechia aviculata (plate 30, fig. 19.). The tubular aedeagus in Platyura diluta var. longisetata is supported by sclerotized arms from the dorsal part of the "bridge", by the anal segment, and by apodemes (parameres?)



In other cases it may be protected by a sclerotized sheath. In Bolitophila cinerea (page 42, fig. 2.) the aedeagus is sclerotized and covered by a sclerotized sheath composed of two plates. At their lateral angles are the "parameres." These have muscles inserted on their bases that arise from the zygosternal base. Here also, sclerotized arms of the dorsal edges of the zygosternum help to support the aedeagus.

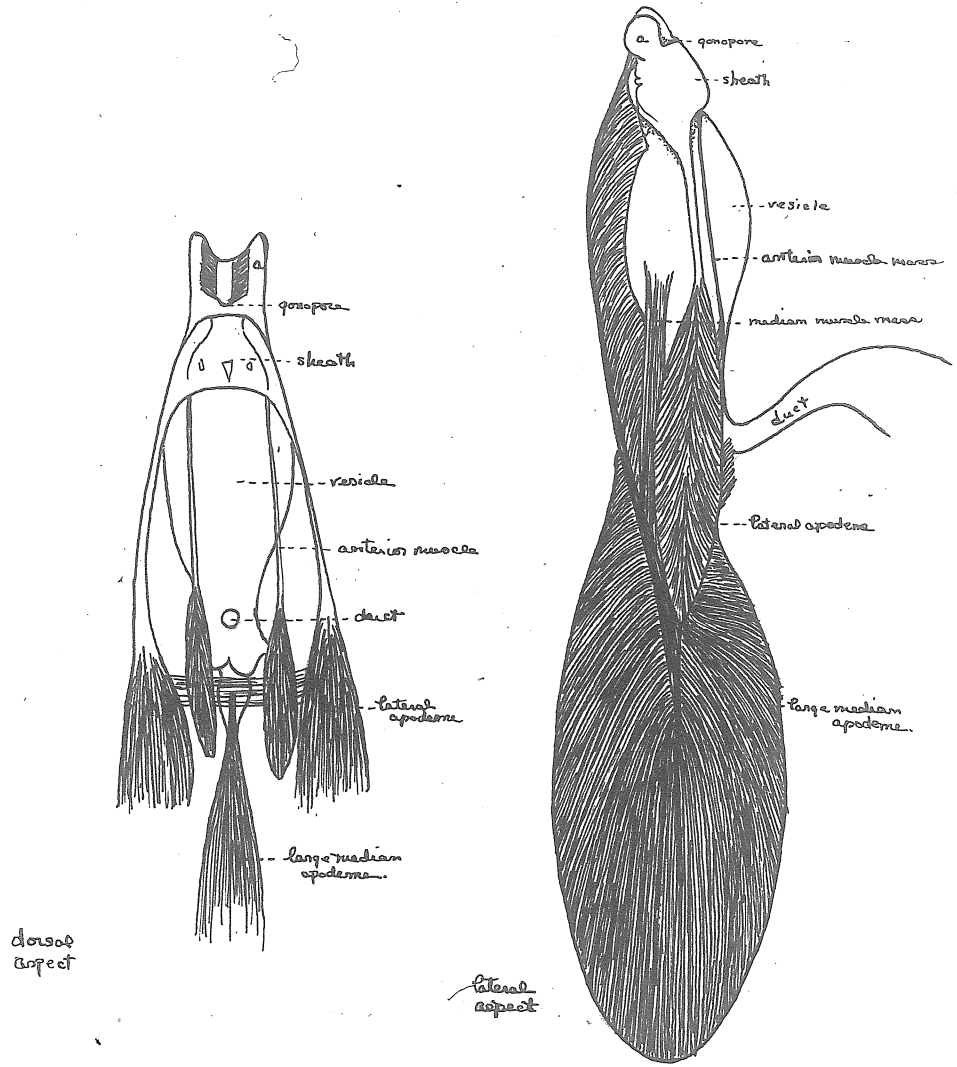
In another type, the aedeagus may be a strongly

musculated sheath, as in Asindulum montanum, and have apodemes that extend far basally into the seventh segment. The ejaculatory duct enters the terminalium expanding to a vesicle. The gonopore is borne on the terminal flexible membranous area "a".



Surrounding the distal end of the vesicle is a sheath. It has two lateral arms that run cephalad along the sides of the vesicle. These serve as lateral apodemes where they are widened basally. The base of

muscled sheath, as in Asindulum montanum, and have apodemes that extend far basally into the seventh segment. The ejaculatory duct enters the terminalium expanding to a vesicle. The gonopore is borne on the terminal flexible membranous area "a".

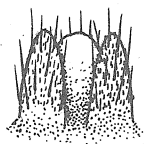


Surrounding the distal end of the vesicle is a sheath. It has two lateral arms that run cephalad along the sides of the vesicle. These serve as lateral apodemes where they are widened basally. The base of

the vesicle has a large median apodeme arising from its ventral aspect. There are also three muscle masses, a ventral, median, and anterior. There are no supporting arms from the zygosternum. The function of these muscles must be the movement of the distal parts of the structure upon the vesicle for they have no body wall connections, originating on the vesicle apodemes and inserted on the sheath.

Tenth segment

The tenth segment almost always consists of a membranous ring surrounding the anus. From this membrane the two supra-anal and the single sub-anal lobes arise. These often project beyond the tergal margin.

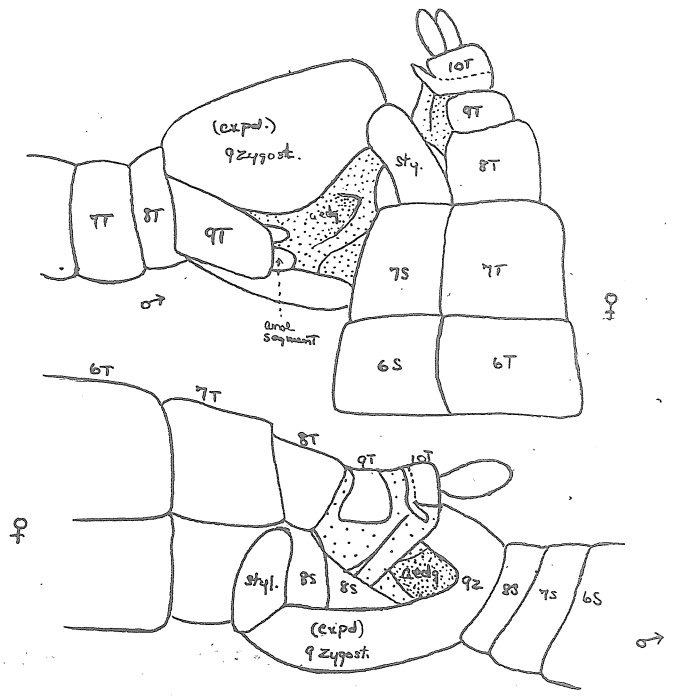


Exceptionally there are only two lateral lobes present, or the subanal plate may be divided so there are four anal lobes. The anal or tenth segment is often so closely connected to the ninth tergum (as in *Boletina* and *Mycomyia*) that I am uncertain as to whether the characteristic "combs" and lobes are structures of the tergum of the ninth or tenth segment.

Coition

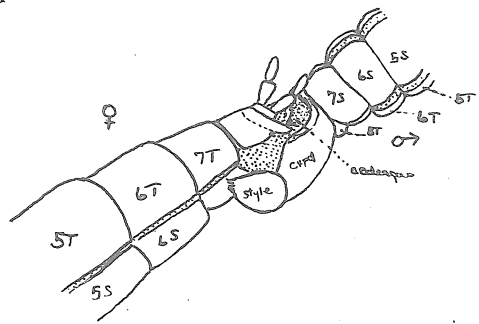
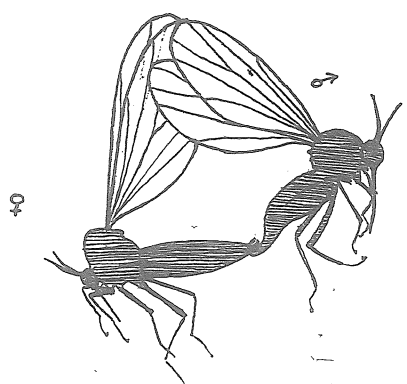
I have seen coition only in the *Solarinae*. The

exact position of parts is difficult to make out and attempts to clear the parts causes the two specimens to become separated. The figures below are from untreated specimens (Sciara sp.).

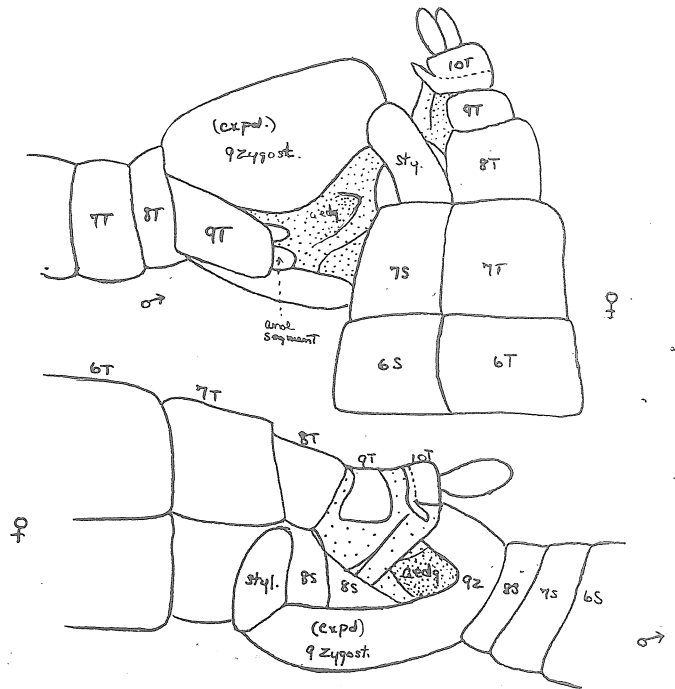


This is a species without rotation.

Coupling in a species with rotation may be illustrated by Eugnoriste occidentalis.

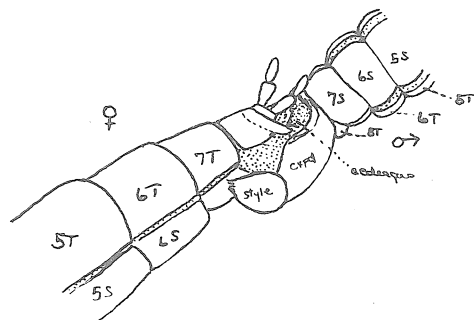
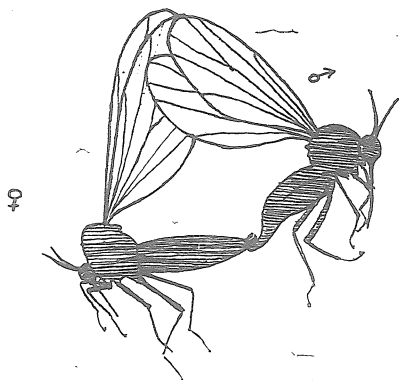


exact position of parts is difficult to make out and attempts to clear the parts causes the two specimens to become separated. The figures below are from untreated specimens (Sociara sp.).



This is a species without rotation.

Couition in a species with rotation may be illustrated by Eugnoriste occidentalis.



Methods

The method of studying the terminalia was simple. The number of visible abdominal segments was counted, and the amount of rotation the terminalium had undergone and whether this rotation was apparently clockwise or counterclockwise was noted. I found it important to make notes on the rotation before the abdominal tip was treated with caustic potash, as rarely the terminalium would right itself during treatment.

Dry specimens were relaxed, and then the abdominal tip was removed and placed in 10% caustic potash solution. The length of time depended on the sclerotization of the terminalium. It was then washed in water and run through various strengths of alcohols (50, 65, 75%) and stored in small cotton plugged vials within larger vials. Each small vial, notes on its rotation etc., and the specimen from which the terminalium was taken were assigned the same number. Alcoholic specimens were washed in water and then treated similarly.

Many untreated alcoholic specimens were examined to study the non-sclerotized areas and the muscles.

Key to Nearctic Subfamilies

1. Cross-vein m-cu present, or veins M and Cu connected by a fusion ----- 2.
Cross-vein m-cu absent; veins M and Cu not connected by a fusion ----- 6.
2. Cross-vein r-m distinct, not obliterated by the fusion of veins R and M ----- 3.
Cross-vein r-m obliterated by the fusion of R and M at the point where the cross-vein usually is, or M angulate at r-m and m-cu in Palaeoplatyura ----- 5.
3. Cross-vein m-cu far proximal of r-m; M with a distinct straight basal section ---- Bolitophilinae
Cross-vein m-cu close to r-m, base of M usually absent ----- 4.
4. Sc long ending in C; R absent; r-m and m-cu in same straight line ----- Diadocidiinae
Sc short ending free; R present and rather long ----- Ditomyiinae
5. Antennae short, often flattened; head not furrowed on the occiput ----- Ceroplatinae
Antennae long, slender; head with two longitudinal furrows on the occiput, one on each side the ocelli ----- Macrocerinae
6. Eyes nearly or quite connected above the antennae ----- Sciariinae
Eyes rounded or notched near the antennae, but never nearly or quite connected above the antennae ----- 7.
7. Microtrichia of the wing irregularly arranged; tibial setae irregularly arranged (except in the Mycomyiini); Sc usually long ----- Sciophilinae

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Eyes rounded or notched near the antennae, but never nearly or quite connected above the antennae ----- 7.
7. Microtrichia of the wing irregularly arranged; tibial setae irregularly arranged (except in the Mycomyiini); Sc usually long ----- Sciophilinae

Microtrichia of the wing in more or less definite lines; tibial setae always regularly arranged in longitudinal rows; Sc short, lateral ocelli close to eye margins ----- Mycetophilinae

Subfamily Solitophilinae

Solitophilinae, Winnertz, Verh. zool. - bot. Ges. Wien.
15: 657. 1863.

This subfamily includes but one recent genus, Solitophila. The genus Hesperinus, formerly included here, is now considered to belong to the family Bibionidae; Arachnocampa is now considered to belong to the Ceroplatinae (Edwards 1929). Landrock (1925) splits those species off from Solitophila in which R_4 ends in R_1 as the genus Solitophilella. This one character does not seem to me sufficient to warrant a generic separation within such an evidently harmonious group. I can find no other constant differences. My studies of the terminalia of his proposed genus show no differences of generic value.

This subfamily may be distinguished from all others by the elongate, seventeen jointed antennae, the long and slender legs and wings, and the wing venation. The Radius is three branched; R_2 is short and cross-vein like; $m-cu$ cross-vein present or M and Cu contiguous for a short distance at the place where the cross-vein usually is; $r-m$ cross-vein distinct; cell M subequal to one half the length of cell A .

Solitophila Meig.

1818. Solitophila, Meigen, Syst. Besch. Zweifl. 1:220

1836. Messala, Curtis, Brit. Ent. 531

1836. Leptocera, Meigen, in litt. (Meigen. Syst. Besch. Zweifl. I; 221.)

1935. Bolitophilella, Lamirock, Wien Ent. Zeit. 42:176.

These fungus gnats appear to be the most primitive of the family. They are long slender species, with slender antennae, nearly as long as the body in the male, shorter in the female. Head rounded with three ocelli; palpi four segmented. Thorax highly arched at the anterior end of the mesonotum; sternopleurites large; pteropleurites narrowed below; pleurotergites but slightly raised above the general thoracic level, more prominently so ventrally; outline of the metanotum in lateral aspect angulated at its midpoint. Wings long and narrow; R_2 two branched; basal cells R and M distinct; m-cu cross-vein distinct or M and Cu coalesced for a short distance; a pseudo-stigma present at the tip of R_1 . Coxae moderate for the family. Legs long and slender, their setae irregularly arranged. Abdomen long and slender with eight visible segments in the male and nine in the female.

The male terminalia are simple in structure. There is no retraction of either the seventh or eighth segments. The terminalia are non-rotatable. The ninth segment consists of a distinct tergum and a zygosternum, composed of the fused coxites and the sternum. The ninth tergum is broader than long; the anal segment projects from

beneath it (two dorsal and a single ventral lobe). The styles are well developed and always simple in form; they are articulated to the latero-coxal margins of the zygosternum. There are no secondary lobes developed upon either zygosternum or tergum. There are, sometimes, slight knob-like lobes at the dorsal edges of the zygosternum. The zygosternum has a narrow sclerotized "bridge" connecting its dorsal and ventral portions across the genital chamber on either side the aedeagus (see page 30.). Its narrowness is a generic character. The zygosternum is entire on its ventral aspect; that is, it is not deeply cleft or divided on its midline. The aedeagus varies considerably but consists of "parameres", sheath, and penis. The styles are articulated by muscles inserted upon the base of the zygosternum. Mesad of the "bridge" are the "parameres", which have muscles inserted on their bases that originate at the zygosternum base. These "parameres" are often very reduced. The dorsal edges of the zygosternum (not the bridge) give off arms that support the aedeagus (see page).

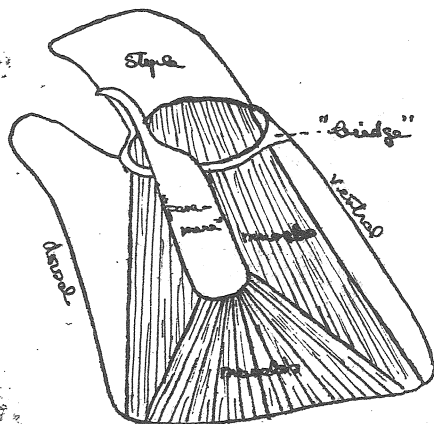
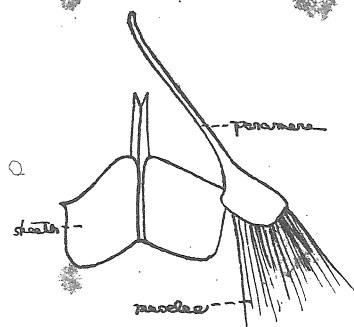


Diagram of mesal aspect of zygosternum half and paramere (*P. cinerea*)

Diagram of dorsal aspect of penis and associated parts (*P. cinerea*)



The males of North American species can be separated by the following key taken from my paper (Ms.).

1. Vein R_4 ending in C (Bolitophila Mg.) --- 2.
 Vein R_4 ending in R_1 (Bolitophilella Landr.)
 ----- 11.
2. Petiole of Cu atrophied at its base ----- 3.
 Vein Cu_1 atrophied at its base - disjuncta Loew
 Neither the base of the petiole of Cu nor
 the base of Cu_1 atrophied ----- 4.
3. Styles with tips "spoon-shaped with the tip
 chitinized" (i. e. sclerotized) -----
 ----- clavata Garrett
 Styles with type bifid ----- recurva Garrett
4. Cu_2 joins the anal vein near its distal end
 ----- 5.
 Cu_2 does not join the anal ----- 6.
5. Styles "small, tips bifid, about equal in
 length" ----- connectans Garrett
 Styles not bifid ----- alberta Fisher
6. Styles with the inner tip ending in a scler-
 otized point ----- acuta Garrett
 Styles not so ----- 7.
7. Sc ends proximal of the base of R_3 ----- 8.
 Sc ends distal of the base of R_3 ----- 9.
8. Thorax light with dark stripes -- velmae n. sp.
 Thorax light in color ----- distus Fisher
 Thorax dark in color ----- montana Coq.

- 9. Stigma subobsolete; styles "oval with a nose-shaped inner lobe below the middle directed inwards" ----- bilobata Garrett
 Stigma brown to subobsolete; styles not as above ----- 10.
- 10. Styles "sausage-like with the tip constructed smaller, this smaller part ending in two tips" ----- subteresa Garrett
 Styles broad, tapering distally to a blunt knob. ----- hybrida Meig.
- 11. Cu_1 arises apparently at M either by the fusion with M or by the reduction of the m-cu cross-vein ----- 12.
 Cu_1 arises below M; m-cu cross-vein distinct ----- 16.
- 12. Cu_1 fused with M; A_2 straight ----- 13.
 Cu_1 arises at M; m-cu cross-vein being greatly reduced ----- 14.
- 13. Subobsolete stigma ----- atlantica Fisher
 Stigma brown ----- dubiosa Van Duzee
- 14. Styles "scoop-shaped, tips truncate with one corner ending in a sniton (sclerotized) point" ----- duplus Gar.
 Styles "long, base narrow, tip wider and bifid, outer branch short, inner longer and directed in and upwards" --- patulosa Gar.
 Styles not so ----- 15.
- 15. Styles without teeth ----- cinerrea Mg.
 Styles with a subterminal ventral knob, and two terminal dorsal teeth ---- perjata Car.
 (Eastern form)
- 16. Styles with a heavily sclerotized subterminal, ventral knob and two terminal dorsal teeth ----- perjata Car.
 (Western form)

43

Styles "round tapering to a narrow tip snape, the rim chitinized and with two or three black chitin points directed inwards and bristly hairs" ----- rasa Gar.

Styles with an inner sclerotized blade at tip; dorsal edge of the zygosternum with a mesally projecting lobe ----- cinerea Mg.

Styles "short dorsally, the base thick, outwardly about halfway straight, then angling to the inner tip. The top truncate." ----- simplex Gar.

B. acuta Garrett

1925. acuta, Garrett, sixty-one New Diptera, Cranbrook, B.C.

Recorded from: Michel, Fort Steele, Cranbrook, and Vancouver, B. C. (Garrett) June-August. Coy Glen, Ithaca, N. Y., May. Big Intervale Margaree, Cape Breton Island, N. S. August (E.G.F.)

"Hypopygium, dististyles (styles of this paper), the base narrow, swelling on the outer side to the middle, then sharply running to the inner tip, which ends in a sharp chitin point." (Garrett)

I believe that an Ithaca and a Nova Scotian specimen belong here, but no comparison with type material has been possible. The Ithaca specimen is illustrated here (Plate 1 fig. 7). The terminalium is of the typical *Solitophila*-type. The styles are simple, slightly enlarged distally, with a sharp, heavily sclerotized, subapical spine. (Plate 1, fig. 7).

B. alberta Fisher

alberta, Fisher. (Ms.)

Recorded from: Jasper National Park, Jasper,
Alberta. August.

The male terminalium is of the typical Boli-
tophila-type. The styles are bilobed distally;
one lobe is directed mesally, the other distally;
the distal lobe is a dull point; the mesal lobe is
a dull blade. The "parameres" are elongate and
prominent. The figure (plate I fig. 2) is after
that from my manuscript article.

B. atlantica Fisher

1934. atlantica, Fisher, Canad. Ent. 66:276. fig. 1.

Recorded from: Mt. Madison, New Hampshire. July.

The male terminalium is of the typical Boli-
tophila-type. The styles are elongate, bear an
inwardly directed, boot shaped, terminal lobe; it
appears truncate in dorsal or ventral aspect. Along
the entire truncate border or sole of the boot is a
close-set group of stout, short, blunt spines. The
dorsal hind angle of the zygosternal wall have slight
lobes (as in B. cinerea). The figure (Plate I fig. 6)
is from my article.

B. bilobata Garrett

1925. bilobata, Garrett, Sixty-one New Diptera, Cran-
brook, B. C.

Recorded from: Cranbrook, Creston, and Vancouver,
B.C. (Garrett) - July.

"Hypopygium, dististyles fleshy, oval with a
nose-shaped inner lobe below the middle, directed
inwards." (Garrett)

No specimens or published illustrations are
available. I have an unpublished illustration of
the dorsal aspect of the terminalium. From the
description and this illustration I suspect this
species may be synonymous with B. aperta Lundstrom.

B. cinerea Mg.

1818. cinerea, Meigen, Syst. Besch. I:321.

Recorded from: Ithaca, N. Y. - May-Sept. (Johannsen).
Buffalo, N. Y. - May (M. C. Van Duzee). Albany, N. Y.
April-May (D. B. Young). Upper Adirondack County,
Moosehead Lake, Lower Kennebec, Washington Co.,
Maine; White Mts. Mt. Monadnock, Hampton, N. H.
June - Oct. (Johnson). Berkshires, Mass. May
(Johnson) Greenville Co., S. C. Feb-May (Shaw
and Townes); Europe.

The styles of specimens from Cayuta Lake
and Coy Glen, Ithaca, N. Y. are globular basally
ending in an inner distal blade-like edge which
is heavily sclerotized. Each dorsal hind angle
of the zygosternum has a small lobe. (Plate I
figs 5, 5a).

This is the species that has been called B. cinerea in this country. The terminalium apparently differs from the European B. cinerea illustrated by Landrock (Berl. mt. Zeit 57:41. 1912). I have not seen the type.

This species is the commonest *Bolitophila* in the spring at Ithaca, N. Y.

B. clavata Garrett

1925. clavata, Garrett, Sixty-one New Diptera. Cranbrook, N. C.

Recorded from: Cranbrook, Michel, and Vancouver, B. C. Sept. - Oct. (Garrett).

"Hypopygium, dististyles rather long, base narrow, tip spoonshaped with the rim chitinized." (Garrett).

No specimens or illustrations are available.

B. connectans Garrett

1925. connectans, Garrett, Sixty-one New Diptera.

Recorded from: Michel, B. C. - Sept. (Garrett)

"Hypopygium fleshy, dististyles small, tips bifid, about equal in length." (Garrett).

No specimens or illustrations are available.

B. disjuncta Loew

1869. disjuncta, Loew, Besenr. wrop. Dipt. I: 13. 17.

Recorded from: Julietta, Idaho; New Hampshire (Loew-Johannsen); Moosehead Lake region, Mt. Desert Island,

Maine, Lower Green Mt. Res., Vermont, White Mt. Area,
N. H. June, July (Johnston), Conn. May-July (F. A.
Chow); Albany, New York (D. B. Young in N. Y. Hist.);
Gaspé, P. Quebec, August (L.G. Fisher).

The styles are globular basally. Distally, they
end in a median point and an inwardly directed blade-
like edge. This blade is wider dorsally. In dorsal
aspect this blade appears as a blunt point. (Plate
1 fig. 8).

Landrock's illustration agrees well with our
Nearctic specimens.

B. distus Fisher

distus, Fisher, (Ms.)

Recorded from Old Forge, New York. July.

Styles with an inner blade-like edge, such
as in B. cinerea, but with outer distal angles
produced into low points. The "parameres" are long
and visible in dorsal aspect.

The illustration (Plate 1 fig. 1) is from my
manuscript article.

B. aubiosa Van Duzee

1928. aubiosa, Van Duzee, Calif. Acad. Sci. 17:32

Recorded from: Marin Co., Calif. - March (Van Duzee).

Abdomen brown with posterior margins of seg-
ments and the hypopygium darker brown. -- Appendages

in this form being very short and in the type nearly concealed, the hypopygium forming a nearly round tip to the abdomen." (Van Duzee).

No specimens or illustrations are available.

B. duplus Garrett

1925 duplus, Garrett, Sixty-one New Diptera, Cranbrook, B.C.

Recorded from: Cranbrook, Michel, Vancouver, and Savray Isle, B. C. July, Sept. (Garrett).

"Hypopygium, dististyle scoop shape, tips truncate with one corner ending in a chitin point. From within are two chitin appendages, the lower one long, curved upwards, the upper with a narrow base and clavate, the tip foot-shaped." (Garrett)

No specimens or illustrations are available.

B. hybrida Mg.

1804. hybrida, Meigen, Klass. I. 47 (Macrocera)

1818. fusca, Meigen, Syst. Besch. I. 221.

Recorded from: Mayfield Cave, Indiana (Adams - Joh.); Selkirk Mts., B. C. (Joh.); White Mts., N.H. (Coq.-Joh.), Mt. Monadnock, Lake Winnepesaukee, N. H.; Upper Aroostock Co., Moosehead Lake, Mt. Desert I., Me.; Lower Green Mts., Vt. June-Sept.; Berkshires, Mass. June-Aug. (Johnson); Wells (Young), Little

Valley (M. J. Van Duzee), Albany, and McLean, N. Y.
(Joh.) May-July; Forest Grove and Tillamook, Oregon,
March (Cole and Burrill); Haywood Co., N. C. and
Greenville Co., S. C., July, August (Shaw and Townes);
Europe.

The terminalium is of the typical form. The
styles are subglobular tapering to terminal blunt
knob. (Plate 1 figs. 4, 4a)

Landrock's illustration agrees well with our
Nearctic forms.

B. montana Coquillet

1901 montana, Coquillet, Proc. U. S. Nat. Mus. 23:
593.

Recorded from: Ithaca, N. Y. (Joh.); Mt. Washington,
N. H. (Coq.); Mt. Desert I. June (Johnson).

Originally described only from a female from
New Hampshire, Johannsen refers a male specimen
from Ithaca, N. Y. to this species. No terminal-
ium is available for study.

B. patulosa Garrett.

1925. patulosa, Garrett, Sixty-one New Diptera, Cran-
brook, B. C.

Recorded from Stanford University, Calif. - Febr.
(Garrett).

"Hypopygium, dististyles rather long, base
narrow, the tip wider and bifid; the outer bracts

52

short, the inner longer and directed in and upwards."
(Garrett.)

No specimens or illustrations are available.

B. perlata Garrett

1925 perlata, Garrett, Sixty-one New Diptera, Cranbrook, B. C.

Recorded from: Bull River, B. C., July (Garrett); Gaspe, P. Quebec (C. P. Alex. coll.); Conn? (Shaw coll.) (E.G.F.).

"Hypopygium, dististyle arcuate, the chiton tips spiral, appearing bifid, with two strong teeth, unique form." (Garrett).

The eastern forms I place here after comparison with a paratype. These eastern forms have a shorter m-cu cross-vein.

The western paratype is illustrated in Plate I figures 9, 9a, 10. The "bridge" terminates apparently before reaching the ventral wall of the zygosternum.

d. raga Garrett

1925. raga, Garrett, Sixty-one New Diptera, Cranbrook, B. C.

Recorded from: Crow's Nest, B. C. (Garrett)

"Hypopygium, dististyles round, tapering gradually to a narrow tip shape, the rim chitonized and with two or three black chiton points

directed inwards and bristly hairs." (Garrett).

B. recurva Garrett.

1925. recurva, Garrett, Sixty-one New Diptera, Cranbrook, B. C.

Recorded from B. C. and Alberta, Sept. (Garrett).

"Hypopygium, dististyles with a thin base, tips bifid, the outer the longest, the other curved upwards and downwards." (Garrett).

B. simplex Garrett.

1925. simplex, Garrett, Sixty-one New Diptera, Cranbrook, B. C.

Recorded from: B. C., Aug. - Sept. (Garrett).

"Hypopygium dististyle short dorsally, the base thick, outwardly about half way straight then angling to the inner tip. The top is truncate. No chitin." (Garrett).

B. subteresa Garrett.

1925. subteresa, Garrett, Sixty-one New Diptera, Cranbrook, B. C. Oct. (Garrett).

"Hypopygium, dististyles sausage like with the tip constructed smaller, this smaller part ending in two tips; one is chitinized." (Garrett).

B. velmae n. sp.

Male - Length 5 mm. Head fuscous above; antennae almost as long as the body, brown, base of third

segment yellowish; palpi yellow. Thorax light brown; mesonotum with three prominent dark stripes; anepisternites and ventral portion of sternopleurites a darker brown than the remainder of the pleura. Abdomen uniformly brown. Fore tibiae .8 times longer than their basitarsi. Coxae, trochanters, and femora yellow; tibiae and tarsi brown. Knobs of halteres greyish, stalk yellow. Sc ends in A above the origin of R_2 ; R_4 ends in C at the outer end of the pale stigma; m-cu present but stout and short.

Holotype in C. U. Collection No.

Type locality: Big Intervale Margaree, Cape Breton Island, Nova Scotia. Aug. 30. 1936.

I take pleasure in naming this species for my friend, Velma Knox.

The styles are subovoid with two small subapical teeth. The "parameres" are apparently not separate from the penis or are rudimentary. (Plate 1 fig. 3.).

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Subfamily Diadocidiinae

1863 Diadocidiinae, Winnertz, Verh. Zool. - bot. Ges. Wien
13:656.

This subfamily may be distinguished from the others by the presence of both m-cu and r-m cross-veins equidistant from the base of the wing in practically the same line. C extends beyond the tip of R_2 which is unbranched. Wing membrane with macrotrichia.

There is but one genus, Diadocidia.

Diadocidia Ruthe

1831. Diadocidia, Ruthe, Isis. II:1210
1834. Macroneura, Macquart, Suites a Buffon I: 146
?1850. Aslada, Loew, Bernstein Fauna: 35.

Head round; ocelli three. Thorax highly arched; prothorax, mesonotum, scutellum, and pleurotergites setose; setae of pleurotergites bare. Abdomen with eight visible segments; the eighth segment small and sometimes partially retracted. Terminalium rotatable. Legs with tibial setae irregularly arranged. Wing membrane with macrotrichia. Sc. long and ending in C; R_2 unbranched arising near base of wing; base of M wanting; r-m and m-cu in the same line.

The terminalial structure of the only species I have studied is discussed under that species, D.

ferruginosa

The Nearctic species may be separated by this key after Johannsen (1909):

Sc₂ wanting; apex of R₁ proximal of the tip of Cu₁ ----- ferruginosa Meig.

Sc₂ present; apex of R₁ usually opposite the tip of Cu₁ ----- borealis Coq.

D. ferruginosa Mg.

1830. ferruginosa, Meigen, Syst. Besch. VI:294.4
(Mycetobia)

1831. flavians, Muthe, Isis II. 1211 (Diadoecidia)

1834. vinthemi, Macquart, Suites a Buffon. I: 147.
34 (Macroneura)

Recorded from Ithaca, N. Y., Aug. (Joh.); Auburndale, Mass., July (G. W. Johnson - Joh.) Wells, N. Y., July (Young - N. Y. List); Erie Co., N. Y. May - Aug. (Mr. C. Van Duzee - N. Y. List) McLean, N. Y. Aug. and Gloverville, N. Y. (E. G. F. - C. U. coll.); Cape Breton Island, Nova Scotia, Aug. (E.G.F.); Greenville Co, N. C., July (Shaw and Townes).

Terminalium rotatable. Eighth abdominal segment may be partially retracted and may be partially rotated along with the terminalium. Macrocera-type of terminalial structure. Styles simple, tapering to a single heavily sclerotized point, which is slightly curved. Ninth tergum with distal, mesally directed, group of setae which vary in size in different individuals. Ninth tergum larger than for

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the typical macrocera-type, longer than broad, and somewhat globular in form. The penis is subtubular, simple, without apodemes. Plate II, figs. 1 and 2.

9. borealis

1900. borealis, Coquillett, Proc. Wash. Acad. Sci. II: 390.

Recorded from: Lowe Inlet, B. C. (Coq.); Forest Grove, Oregon, Febr., March, May (Cole). Haywood Co., N. C., Greenville Co., S. C. July (Shaw and Townes).

I do not know this species.

In one female taken by Cole the tip of R_1 is distinctly proximal of the end of the Cu_1 .

Subfamily Ditomyiinae

1863. Mycetobiinae, Winnertz, Verh. Zool. - bot. Ges. Wien. 13:666.

1916. Ditomyiinae, Edwards, Ann. Mag. Nat. Hist. 17⁸:115.

1919. Ditomyidae, Keilin, Ann. Mag. Nat. Hist. 3⁴:33.

The old subfamily name Mycetobiinae was changed to Ditomyiinae when the genus Mycetobia was placed in the family Anisopodidae.

This subfamily is similar to the Ceroplatinae "differing mainly in the reduced subcosta and the longer vein R_4 . Another character, possibly more important, which will also serve to distinguish them from the Ceroplatinae, is the presence of definite strong bristles on the posterior divisions of the pronotum (humeral angles)." (Edwards).

Keilin, on the basis of larval and pupal structure, considered this subfamily a separate family, the Ditomyidae. He considers that larvae of this family bear a closer resemblance to the larvae of the Sibionidae than to other Dipterous larvae in the structure of labrum, mandibles, maxillae, and spiracles.

The adult morphology does not point to such a separation.

There are two North American genera in this subfamily, Ditomyia and Cynaerus, separable as follows:

Key to Nearctic Genera of Ditomyiinae (after Edwards)

1. Eyes reniform; R_4 hardly any longer than the second portion of R_3 ; anepisternites and postnotum bristly ----- Cynaerus Walk.

Eyes rounded; R_4 much longer than the second portion of R_5 ; anepisternites and postnotum bare

----- Ditomyia Winn.

Genus Ditomyia Winnertz.

1846. Ditomyia, Winnertz, Stett. ent. Zeit. VII, 14, 3. 1846.

Head flattened in front; three ocelli in a straight line; the middle one smallest; eyes rounded; palpi four jointed; antennae $2+15$ jointed. Thorax highly arched; scutellum small; postnotum highly arched, bare; anepisternites bare. Wing long; C extends beyond R_5 ; Sc short; R_4 long ending in either C or R_1 ; base of M lacking; M and Cu forked; anal vein complete. Abdomen with seven segments in both male and female.

There has been only a single Nearctic species described in this genus. I have a specimen that I refer, temporarily, to this genus. It apparently is closest to the genus Nerviuncta of the Australian region.

Key to Nearctic species

1. Cross-vein r-m obliterated; macrotrichia present on the wing membrane --- D. sp. #42

Cross-vein r-m present ----- D. euzona

D. euzona Loew

1869. euzona, Loew, Berl. ent. Zeit. XIII. 1

Recorded from: D. G. (Loew). Franconia, N. H.
(Johnson)

No specimens or illustrations are available.

I do not know this species.

D. (?) sp. #42

Recorded from Great Falls of Potomac, Va.

This species is unique in that there is no genital chamber. The anal segment has only two lobes instead of the typical three. The ninth tergum is apparently absent. The styles are simple with a distal concavity edged on the innerside with a heavily sclerotized rim. The "bridges" are united to each other obliterating an open genital chamber. The penis is ventrad of this zygosternal structure. The penis is simple without apodemes. Plate II. fig. 3.

This type of terminalium may not be characteristic for the genus; I place it in this genus with a question.

Genus Symerus Walker

1848. Symerus, Walker, List. Dipt. Brit. Mus. I:88.
1852. Plesiastina, Winnertz, Stett. Ent. Zeit. XIII:55.4.
1865. Centrocnemis, Philippi, Verh. Zool. bot. Ges. Wien. 15: 619 (4).

Similar to Ditomya. Eyes reniform; ocelli three. Anepisternites and postnotum setose. Fore tibiae with slender setae on the inner side. C ends at R_5 ; Sc rudimentary; R_2 shorter than in Ditomya; A forks proximal of the base of R_4 ; M fainter than adjacent veins; anal complete reaching the wing margin; Macrotrichia on wing membrane. Anepisternites and postnotum setose. Abdomen

with seven visible segments; the eighth is partially retracted in the male.

Terminalium rotatable. The only species available for a study of the terminalial structure is S. lauta. The coxites are separate from the sternum (see text figure p. 28.) i.e. no zygosternum is found. The styles are simple. The anal segment is apparently composed of two enormous setose lobes.

There are four described Nearctic species.

Key to Nearctic species

1. Thorax black; abdomen mainly black ----- 2
Thorax yellow or yellow with a median black
fascia ----- 3
2. R_1 upturned ----- tristis Loew
 R_1 not upturned ----- coquila Garrett
3. Abdomen yellow, segments with wide, black posterior margins ----- annulata Meig.
Abdomen black above, the segments with pale margins ----- lauta Loew

S. annulata Mg.

1830. annulata, Meigen, Syst. Besch. VI; 294. 3.
(Plesiastina)
1848. ferruginosa, Walker, List Ins. Brit. Mus. I:88.
1850. flava, Zetterstedt, Dipt. Scand. 9:3447(?)
(Ceroplatus)
1856. vittata, Walker, Ins. Brit. Dipt. 3:64(3)
(Ditomyia)

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1848. ferruginosa, Walker, List Ins. Brit. Mus. I:88.
1850. flava, Zetterstedt, Dipt. Scand. 9:3447(7)
(Ceroplatus)
1856. vittata, Walker, Ins. Brit. Dipt. 3:64(3)
(Ditomyia)

1890. pallida, Giglio-Tos, Boll. Mus. Zool. Comp.
Torino. 5 (84) pl. 2. fig. 5. (Ditomyia)

Recorded from: Riverton, N. Y. April (Smith), New
Hampshire (Joh.) Moosehead Lake area, Maine; White
Mts., N. H.; Upper Connecticut River area; Mt. As-
cutney area, Brattleboro area, Vt. June-July; Berk-
shires, Mass. July-Aug. (Johnson); Corvallis, Ore-
gon. Sept. (Cole).

S. apicalis was listed as a synonym, but is
now considered a distinct species (Tarwid 1933).
The figure is a copy of Tarwid's figure. I have
seen no specimens. Plate VI, fig. 6.

S. coquila Garrett

1925. coquila, Garrett, Sixty-one New Diptera. Cran-
brook, B. C. p. 12.

Recorded from: Cranbrook, B. C., June (Garrett).

Described from the female only.

S. lauta Loew

1869. lauta, Loew, Berl. Ent. Zeit. XIII:132. 3.
(Plesiastina)

Recorded from: Ithaca, N. Y., Aug. (Joh.); Little
Valley, N. Y., June; N. Evans, N. Y. July (M. C.
Van Duzee) (N.Y. State List); Capens, Me. July;
Eastport, Me. July; Mt. Washington, N. H. July (John-
son), Vt. (Shaw).

Tergum large. anal segment with two large and
prominent lobes. Sternum entire; coxites separate.

Styles simple, globular with serrate tips; a sclerotized notch on their dorso-mesal margins. Plate II figs. 8 and 8a.

S. tristis Loew

1859. tristis, Loew, Berl. Ent. Zeitschr. XIII:131.
2. (Plesiastina).

Recorded from: Mt. Desert, Me. Aug.; (Johnson);

Mass. (Wheeler-Joh.); D. C. (Osten Sacken)

Described from the female.

Subfamily Macrocerinae

1863. Macrocerinae, Winnertz, Verh. zool. - bot. Ges. Wein.
XIII:675.

This subfamily contains only two recent genera, the cosmopolitan genus, Macrocera, and the exotic genus, Chiasmoneura. Edwards considers Speiser's Promacrocera invalid as it is based on a single variable character.

This family is close to the Ceroplatinae. It was erected for those forms differing from the Ceroplatinae primarily in having extremely long antennae.

"Head with two longitudinal furrows on the occiput, one on each side the ocelli. Anepisternal bristles (usually) present. Legs with longish pubescence but without any differentiated bristles. Front tibiae with a fairly well-marked apical comb; hind tibiae without combs. Empodia well developed. (Edwards 1925) Two spurs of posterior tibiae always short and equal. (Edwards 1929).

Macrocera Mg.

1803. Macrocera, Meigen, Illiger's Mag. 2:261.

1800. ? Euphrosyne, Meigen, Nouv. Classif. d. Mouch. a
deuxail. p. 10.

1845. ? Macroure, Berendt, Organ. Nette in Bernst. 1:51.

1863. Geneja, Liroy, Attidell Instit. Veneta. 9. 229.

Head round, with two longitudinal furrows on the occiput. Ocelli three, laterals larger. Palpi four

jointed, the first segment short, the rest of equal length, or the fourth longer. Antennae generally 2+14 jointed. Thorax highly arched; sclerites shaped as in Ceroplastinae, the pleurotergites raised above the general pleural level especially posteriorly. Anepisternites usually setose. Legs long and thin; the fore legs shorter; tibiae pubescent without differentiated bristles; spurs short. Wings hyaline or spotted and streaked with brown, often longer than the abdomen, held divaricate in repose. C extends beyond tip of R_5 , usually to the wing tip; Sc complete, ending in C; Sc_2 present or absent; tip of R_1 often swollen; R_4 ends in C; stalk of M_3 short; basal portion of M indicated by a weak vein or by a thickening of the wing membrane; m-cu present; first anal incomplete, 2nd anal usually complete. Abdomen long and somewhat depressed; apparently seven segmented in both sexes.

Terminalium as described on pages 27-30; simple in form (so simple, in fact, that species differentiation by their means is difficult). The zygosternum has enlarged coxapodal regions with the wide "bridge" forming a mesal side. The styles are simple, usually with strong terminal teeth. Tergite small, quadrangular. Anal segment typical, with two supranal lobes and a single subanal lobe.

This genus is in need of revision. The wing color

pattern have been used in the differentiation of species, but it is highly variable. I have made no attempt at a revision as I have before me only a single type, M. geninata Joh. I have specimens of most of the other species and others apparently so close to these that I cannot decide which specimen represents the typical species without reference to type material. Therefore the several apparently new species in my own and in the Cornell University collection I have made no mention of here with the exception of one very distinct species (M.sp.#137).

I can only give a key to Eastern forms. M. floridana is omitted.

Key to Eastern Nearctic Species (after Shaw and Fisher)

1. Apex of wing hyaline ----- 2.
apex of wing dusky ----- 5.

2. Size large, nine mm. or more in length - nobilis
Johnson
Size not over six mm. ----- 3.

3. No distinct spot covering the petiole of media
----- 4.

A distinct spot covering the petiole of media;
apex of R_1 thickened ----- inconcinna Loew

4. Thorax dark yellow ----- immaculata Loew

Thorax deep shining black with non-sclerotized
areas, prothorax and hypopleurites yellow
----- sp.#137

5. With a preapical as well as an apical band on
wing ----- 6.

- With but a single cloud on the apex of the wing, no preapical fascia ----- 10.
6. Abdomen luteous, apex blackish ----- 7.
 Apex of each abdominal segment blackish, distance from tip of R_4 to R_5 over twice as great as from R_1 to R_4 , wings with two bands connected with each other along the veins and with two smaller spots ----- 9.
7. Wing with a band extending from the apex of Sc to the anal angle ----- nebulosa Coq.
 Wing without a band extending from the apex of Sc to the anal angle ----- 8.
8. Terminalium as in figure ----- fisheri Snaw
 Terminalium not so ----- hirsuta Loew
9. Thorax without dorsal stripes ---- formosa Loew
 Thorax with dorsal stripes -- formosa var. indigena Joh.
10. Apex of R_1 thickened ----- clara Loew
 Apex of R_1 not thickened ----- geminata Joh.

M. beringensis Malloch

1923. beringensis, Malloch, N. Am. Fauna 46: 177.

Recorded from: St. Paul Island, Pribilof Islands, Summer (Malloch).

"Hypopygium stout, apex of lateral arms each with a stout black thorn on the inner angle." (Malloch)

M. bicolor Garrett

1925. bicolor, Garrett, Sixty-one New Diptera, Cranbrook, B. C. p. 7.

Recorded from Cranbrook, B.C., July. (Garrett)

Known from the female only.

M. clara Loew

1869. clara, Loew, Berl. Ent. Zeitschr. 13:133.

Recorded from: D. C. (Loew). Widely distributed in New England. N. Y., May-July; Me., N. H., Mass., Conn., R. I. June-Sept. (Johnson) Greenville Co., N.C. May (Shaw and Townes); West River, N.S. Aug.; Ridgewood, N. J., June; Falls Church, Va., Sept. (C.U. coll.).

Terminalium typical for the genus. Styles with two teeth which are subterminal and slightly unequal in size and dissimilar in shape. Plate II fig. 4.

M. clavinervis Van Duzee

1928. clavinervis, Van Duzee, Proc. Calif. Acad. Sci. 17:35.

Recorded from Huntington Lake, Fresno Co., California, July. (Van Duzee).

"Hypopygium black, basal joint of claspers yellowish apical joint brown with black teeth hairs black."

M. diluta Adams.

1903. diluta, Adams, Kas. Univ. Science Bull. 2:22.

Recorded from Arizona, August. (Adams).

I do not know this species. The specimen labelled P. diluta in the Cornell collection I believe

is sp. #4 of Johannsen (1909).

M. distincta Garrett.

1925. distincta, Garrett, Sixty-one New Diptera.
Cranbrook, B. C. p. 8.

Recorded from Cranbrook, B.C. and Caulfield, B. C.
(Garrett).

No mention is made of the terminalium.

M. fisheri Shaw.

1935. fisheri, Shaw, Canad. Ent. 67:229. plate 9.
fig. 2.

Recorded from Greenville and Transylvania Counties,
S.C. May-Sept. (Shaw).

The figure is from the type. Plate II fig. 7.

M. floridana Johnson

1925. floridana, Johnson, Psyche 22:299.

Recorded from: St. Augustine, Fla., April. Greenville
Co. S.C. March-Oct. (Shaw and Townes).

M. formosa Loew.

1866. formosa, Loew, Berl. Ent. Zeitschr. 10:6

Recorded from - Little Valley, N.Y. July (M.C.V.);
Ithaca, N.Y., July (Joh.); Beaver Kill, Aug. (E.T.
Cresson Jr.) (N.Y. State List). Delaware Water Gap.
N.J., August. (N.J. State List). Mooshead Lake, Mt.
Desert, Me. Mt. Ascutney, Vt., July; Berkshire,
Boston, Mass., Conn. June-Sept.

I do not know the typical subspecies.

M. formosa var. indigena Joh.

1909. formosa var. indigena Johannsen. Me. Ag. Exp. Sta. Bull. 172:270, 271. fig. 93.

Recorded from Ithaca, N. Y. June (Joh.); Buffalo, June (M.C.V.).

Terminalium of the typical Macrocera type; styles ending in two terminal teeth. Plate VI fig. 6.

M. geminata Joh.

1909. geminata, Johannsen, Me. Agr. Exp. Sta. Bull. 172:272, 273. fig. 94.

Recorded from Ithaca, N. Y. June. (Joh.); Buffalo, June (M.C.V.).

Terminalium of the typical Macrocera type; styles with two terminal teeth which are subequal and similar in shape. Plate II. fig. 5.

M. hirsuta Loew

1869. hirsuta, Loew, Berl. Ent. Zeitschr. 13:132.

Recorded from: D.C. (Loew); Mt. Lake, N.Y., June (Young); Wells, N.Y., July (M.C.V.); S. Wales, N.Y. July (M.C.V.); Colden, N.Y., Aug.-Sept. (M.C.V.) (N.Y. State List). Moosehead Lake, Wash. Co., Mt. Desert, Me.; White Mts. N.H. June-July; Berkshires, Conn. River Valley, Boston, Mass.; Conn. June-Sept. (Johnson).

I do not know this species.

M. hirtipennis Van Duzee

1928. hirtipennis, Van Duzee, Proc. Calif. Ac. Sci. 17:36.

Recorded from North Mt. Penn. June and Niagara Falls,
N.Y. June. (Johnson); Marble Falls, Ark., May (E.G.F.);
Black Rock Mt., May (C.U. coll.); Greenville Co.,
May (Shaw and Townes).

Styles typical with 2 terminal teeth. Plate
VI fig. 9.

M. inconcinna Loew.

1869. inconcinna, Loew, Berl. ent. Zeitschr. 13:133.
Recorded from: D.C. (Loew); Orange Mts. N. J. (N. J.
List), Niagara Falls, N.Y., June (Johnson); Mt. Des-
ert, Washington Co., Moosehead Lake areas, Me.; White
Mts., N.H.; Lake Champlain and Northern Green Mts.
areas, Vt., June, July. Berkshires and Boston, Mass.,
Conn. May-Sept.

Known from the female only.

M. nebulosa Coq.

1901. nebulosa, Coquillett, Proc. U.S. Nat. Mus. 23:
594.

Recorded from: White Mts., N.H., July. Clementon,
N.Y. June-Aug. (Johnson); S. Wales, N. Y. July (M.C.V.);
Mt. Desert and Wash. Co., Me., July, Lake Champlain
and Northern Green Mts. areas, Vt.; Berkshires, Boston,
Mass; R. I. June-Aug. (Johnson).

I have seen no males.

M. nobilis Johnson

1922. nobilis, Johnson, Occ. Papers East. Soc. N. H.
5:21. fig. 10 (wing).

Recorded from: Mt. Washington, N. H., July 24, 1915
(2,000 ft.) Mt. Monodnock, N.H., July 28, 1917,
Chester, Mass. Aug. (Johnson).

" -- hypopygium brown, base yellow -- "

M. pilosa Garrett.

1925. pilosa, Garrett, Sixty-one New Diptera p. 8.

Recorded from: Cranbrook, B. C., June.

Known from the female only.

M. similis Garrett.

1925. similis, Garrett, Sixty-one New Diptera p. 8.

Recorded from Michel, B.C. Sept.

Known from the female only.

M. trivittata Johnson, Occ. Pprs. Bost. Soc. N.H. 5:21

Recorded from: Farewell Creek, Saskatchewan. August.

" -- the hypopygium is darker and more hairy"
than in M. nobilis.

M. unica Garrett.

1925. unica, Garrett, Sixty-one New Diptera p. 8.

Recorded from: Cranbrook, B.C., July; Caulfields, B.C.,
May.

No mention is made of the terminalium.

M. variola Garrett.

1925. variola, Garrett, Sixty-one New Diptera p. 7.

Recorded from: Cranbrook, B.C. and Banff, Alberta.

No mention is made of the terminalium

M. villosa Garrett

1925. villosa, Garrett, Sixty-one New Diptera p. 8.

Recorded from: Fernie, B.C., June, July.

No mention is made of the terminalium.

M. sp. #2. of Johannsen.

Recorded from Little Wind River, Wyo.

Known from a female only.

M. sp. #4. of Johannsen.

Recorded from Pine Lake, Wisc.

A defective specimen lacking the abdomen.

A specimen in the C.U.C. from Gloversville, N.Y.

I believe may be the same species. A style of this species is illustrated on Plate II, fig. 6. There is also another specimen in the C.U. protom material from the McLean Bog, N.Y., Aug. that may be the same species.

M. sp. #11 of Johannsen

Recorded from Friday Harbor, Washington, July.

Known from the female only.

M. sp. #137

Recorded from: Black Rock Mt., Rabun Co., Ga. May

The styles have 3 dorsally directed teeth.

This species is defective lacking antennae. The

shining black color and the form of the styles are
unique. Plate III, fig. 11.

In C. U. collection.

Subfamily Ceroplatinae

1863. Ceroplatinae, Binnertz, Verh. Zool. - bot. Ges. Wien. XIII; 648.

F. W. Edwards (1925) characterizes this subfamily as follows:-

"Head not furrowed on the occiput. Anepisternites bare, (short hairs may occur (Malloch); they occur in Asindulum montanum). Pleurotergites large and prominent. Tibiae with ranges of short but always distinguishable bristly spines. Front tibiae without comb; hind tibiae (except in Rhynchoplatyura) with two distinct apical combs, one on the outer side and one on the inner. Empodia and pulvilli absent. Vein R_4 short, or rarely absent. Cross-vein r-m obliterated by fusion of M with R_5 for a longer or shorter distance (except in Palaecoplatyura); m-cu always present; Cu_1 and Cu_2 evenly divergent beyond m-cu. Macrotrichia never present on the membrane." (Edwards 1925). "Spurs of hind tibiae unequal" (Edwards 1929). (Only one spur on hind tibiae in some exotic forms.) (Palaecoplatyura has a comb on the fore tibiae).

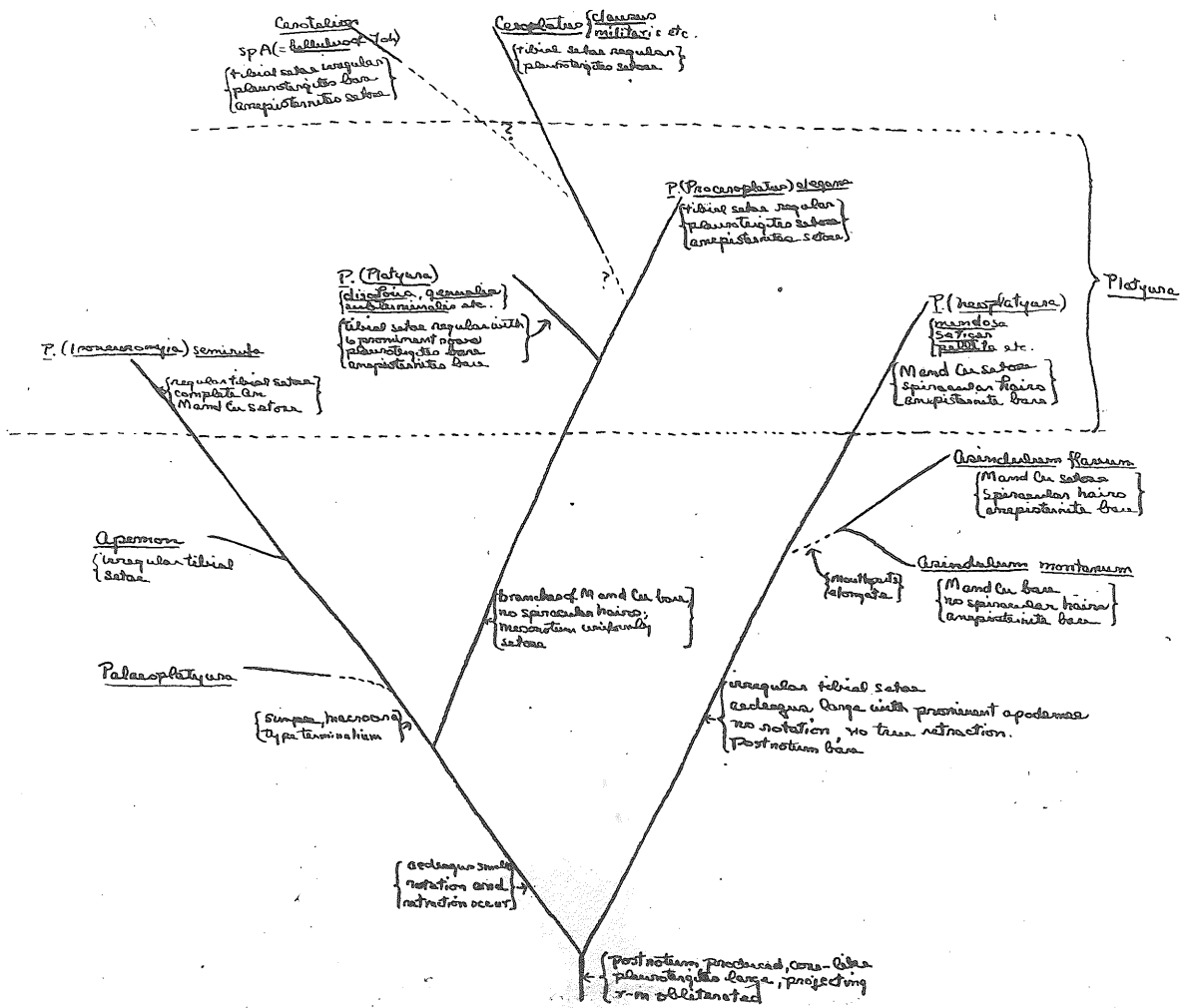
In the Nearctic region this new concept of the subfamily produces one change, the inclusion of Palaecoplatyura in this subfamily rather than in the old subfamily Mycetobiinae. Ceroplatinae and Ceroteliinae are united under the name Ceroplatinae.

Key to Nearctic Genera (partly after Edwards, partly
after Johannsen).

1. Labella greatly elongate and fleshy - Asindulum Latreille
Mouthparts not elongate ----- 2.
2. Antennae stout and flattened, palpi porrect with a
swollen terminal segment ----- Ceroplatus Bosc.
Antennae not conspicuously flattened, palpi normal - 3.
3. Media with a distinct fold-like basal extension; m-cu
vertically or inwardly oblique ----- 4.
Media without a basal extension; m-cu more or less
outwardly oblique ----- Platyura Mg.
4. R_4 ends in R_1 ; three ocelli; pleurotergites and post-
notum bare ----- Apemon Joh.
 R_4 ends in costa ----- 5.
5. No ocelli; m-cu obliterated as usual -- Hesperodes Coq.
Three ocelli; m-cu short but distinct - Palaeoplatyura
Meun.

This subfamily includes two polyphyletic genera,
Ceroplatus and Platyura. Edwards (1929) divided each into
a number of subgenera. Each genus includes diverse el-
ements differing in terminalial structure, arrangement of
tibial setae, in presence or absence of setae on anepi-
sternites, pleurotergites, pteropleurites, hypopleurites,
and postnotum. The tree below is an attempt to show what
I believe may represent truer relationships than the

present generic divisions would indicate:-



I recognize three main types of terminal structure in this subfamily:

I - "macrochaeta-type"

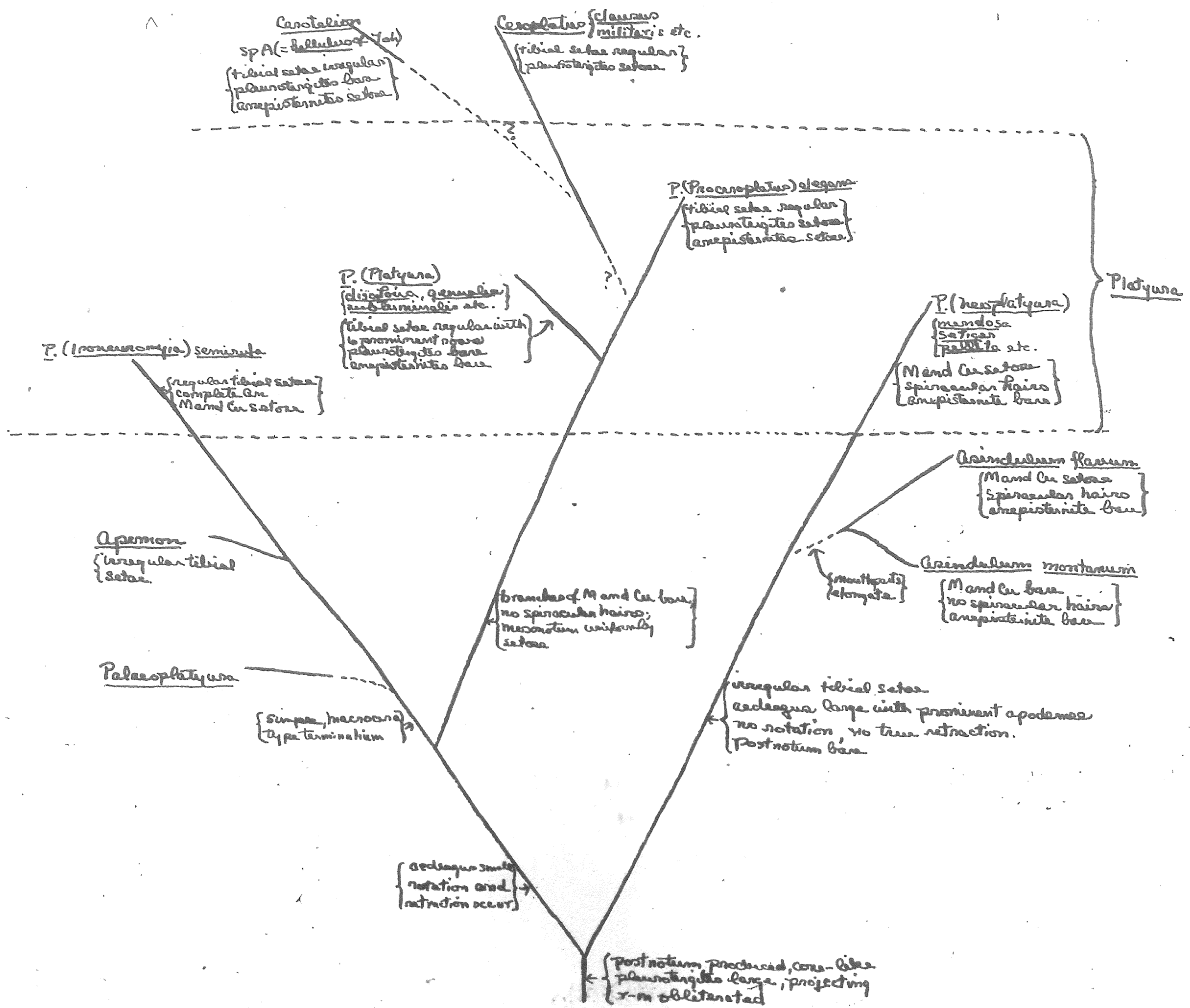
Ceroplatus bellulus of Joh. coll. (Cerotelis)

Palaeoplatyura johnsoni?

apemnon - all species.

Platyura (Isoneuromyia) semirufa

present generic divisions would indicate:-



I recognize three main types of terminalia structure in this subfamily:

I - "macrochaeta-type"

Cerotelia bellulus of Joh. coll. (*Cerotelia*)

Palaeoplatyrus johnsoni?

Aperson - all species.

Platyrus (Pseudoceromyia) seminuda

II. "Cup-type" with a small aedeagus, with rotation and retraction-

Ceroplatus (Ceroplatus) clausus

Ceroplatus (Ceroplatus) militaris

Platyura (Proceroplatus) elegans

Platyura (Platyura) scusalis

Platyura (Platyura) scapularis

Platyura (Platyura) unicolor

Platyura (Platyura) subterminalis

Platyura bidentata (near Proceroplatus).

Platyura (Platyura) aeosta

Platyura (Platyura) fascipennis aequax

III. "Cup-type" with large aedeagus having long apodemes extending back, without rotation or retraction.

Asindulum montanum

Platyura (Neoplatoryra) mendozae

Platyura (Neoplatoryra) pelleta

Platyura (Neoplatoryra) setiger

Platyura (Neoplatoryra) bella

Platyura (Urytalpa) sp. n.

Asindulum Latreille

1808. Asindulum, Latreille, Hist. Nat. Crust. Ins. 14:290.

1846. ~~Macrorhynchus~~ Asindulum, Winnertz, Stett. Ent. Zeit. 7:16(4).

1857. Adelinia, n. Costa, Il Giambatt. Vico. 2:447

Antlemon Loew was listed as a synonym by Johannsen (1909); Edwards (1925) treats it as a distinct genus on

the basis of labella structure.

Head oval; ocelli three; mouth parts elongate; the labella fleshy, longer than the rest of the proboscis; palpi normal. Prothorax divided by a deep groove into anterior and posterior parts except dorsally. Thorax bare except prothorax, anepisternites, mesonotum and scutellum. Mesonotum flat above. Postnotum forming a cone-like caudad projection over the base of the abdomen. Abdomen with eight visible segments. Tibial setae irregular; spurs 1-2-2; hind tibiae with both inner and outer combs. Wings with setulae irregularly arranged. R_4 ends in costa; r-m cross-vein obliterated by the coalescence of M and A for a short distance. Anal veins strong.

Key to Nearctic species of *Asindulum* (after Johannsen).

1. Length about 8 mm.; basal portion of abdomen black
distal portion yellow or infuscated; thorax
mostly black ----- montanum Roeder

Length about 5 mm.; basal portion of abdomen
yellow or abdomen entirely black ----- 2.

2. Abdomen wholly and thorax mainly black - coxale Loew

Abdomen of male basally yellow; distally brown or
black ----- flavum Winn.

A. coxale Loew.

1869. coxale, Loew, Berl. Ent. Zeit. 13:132.4.

Recorded from: Hudson Bay Territory (Loew); Montreal,

que. (Joh.) Mt. Desert, Me., Aug. (Johnson); Hampton,
N.H. July (Shaw-Johnson).

"Abdomen and hypopygium black; the superior for-
ceps slender; the inferior pair broad, neither very
prominent." (Joh.)

I have not seen this species.

A. flavum Winn.

1846 flavum, Winnertz, Stett. Ent. Zeit. 7:17 (Macror-
hyncha).

Recorded from: N.H.

The figure is a copy of the ventral aspect after
Lundstroem. Plate II, fig. 13.

A. montanum Hoeder

1887. montanum, Hoeder, Wien. Ent. Zeit. 6:116.

Recorded from: N.J. July. (N.J. List) S.D. (Aldrich);
Me., Mass., Vt., N.H. July-Aug. (Johnson). Widely
distributed in New York.

There is no retraction or rotation. The terminal-
ium is of the "cup-type" with a large aedeagus provided
with apodemes extending anteriorly beyond the base of
the ninth segment. (see page 34 for a discussion of the
structure of the aedeagus.) The ninth zygosternum
with a median membranous area. (Plate II, fig. 11).
The ninth tergum is wide forming half the wall of the
"cup"; its ventro-caudal angles are produced into a
hook-like lobes. (Plate II, figs. 12 and 14.) The
styles are simple; they articulate inside the zygo-

sternum wall at about one half its length, instead of at its caudal edge. (Plate II, fig. 16.).

Ceroplatus Bosc.

1792. Ceroplatus, Bosc., Acta Soc. Hist. Nat. Paris 1:1.42.

1852. Cerotelion, Rondani, Dipt. Ital. Prodrumus 1:191.2.

Cerotelion and Ceroplatus agree so closely in structure that I consider them congeneric.

Head oval. Ocelli three, close together. Antennae very much flattened. Palpi reduced, porrect, with a swollen terminal segment. Prothorax with a lateral groove. Mesothorax as in Asindulum; postnotum not so prominently cone-shaped; pleurotergites prominent. Thorax bare except prothorax, mesonotum, scutellum and sometimes the pleurotergites. Tibial setae often regularly arranged. Wings with setulae of the wing membrane irregularly arranged. Vein R_4 ends in R_1 or in the costa; cross-vein r-m obliterated by the fusion of R and M for a short distance. Abdomen with seven visible abdominal segments.

In the Nearctic forms that I have examined there are two types of terminalial structures:

1. "Macrocera-type"
2. "Cup-type" (modified).

The tergum is broad forming half the "cup". The zygosternum forms the other half; it may or may not have a midventral suture. The styles are simple, large, tapering distally with a small basal lobe on their mesoventral surfaces. The anal segment has but two lobes.

Key to Subgenera known to occur in North America
(after Edwards 1929)

1. Tibial setae irregularly arranged; R_2 ends in C;
pleurotergites bare ----- 2.
- Tibial setae regularly arranged ----- 3.
2. Face broad; tibial setae black; dorsal, external and
internal bristles on tibiae ----- Cerotelion
- Face narrow; tibial spurs yellow; bristles on inner
(posterior) side of hind and middle tibiae only;
hind tibiae suddenly enlarged, first hind tarsal
segment enlarged ----- Heteropterna
3. Pleurotergites bare; R_4 ends in C ----- Euceroplatus
- Pleurotergites hairy ----- 4.
4. R_4 ends in R_1 ; three ocelli ----- Ceroplatus
- R_4 ends in C; two ocelli ----- Placoceratias

The North American forms would be placed as follows:

Ceroplatus (Ceroplatus) carbonarius

Ceroplatus (Ceroplatus) clausus (= terminalis)

Ceroplatus (Ceroplatus) militaris

Ceroplatus (Cerotelion) apicalis

Ceroplatus (Cerotelion) bellulus (of Joh.) = sp. n. of
this thesis.

Ceroplatus (Euceroplatus) bellulus Will. (according
to Edwards)

Ceroplatus (Placoceratias) longimanus

Ceroplatus (Heteropterna) major

Key to Nearctic species (modified after Johannsen.)

1. Pleurotergites bare; R_4 ends in C; tibial setae irregularly

arranged ----- (Cerotelion) --- 2.

Pleurotergites with a patch of setae; R_2 ends in R_1 ;
tibial setae regularly arranged - (Ceroplatus) -- 4.

3. Thorax spotless, reddish yellow, pleura yellow; abdomen
reddish yellow, base of basal segment and the whole
of the apical segments black; length 3.7 mm. ---
----- apicalis Adams

Thorax with stripes ----- 3.

3. Base of R_2 well proximal of the tip of R_1 ; wing tip
clouded; cloud between tips of Cu_1 and Cu_2 -----
----- fasciata Carr.

Base of R_2 under tip of R_1 ; wings tinged with brownish
but without distinct clouds; fore metatarsus a
little longer than its tibia; length 5 mm. -----
----- ? bellulus Will. + sp. n.

4. Thorax and abdomen black, lateral margins of abdominal
segments whitish; wing with a black mark; length
10 mm. ----- carbonarius Boss.

Thorax more or less yellow ----- 5.

5. Abdomen more than half yellow ---- clausus Coq. (+ terminalis
Coq.)
Abdominal yellow confined to apical third of each seg-
ment ----- militaris Joh.

C. apicalis Adams

1903. apicalis, Adams, Kansas Univ. Sci. Bull. 2:2.92.

Recorded from: Kansas (Adams).

I have never seen this species.

C. bellulus Will.

1900. bellulus, Williston, Biol. Centr. Amer. I:219.

Recorded from: Mexico.

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Edwards (1929) places C. bellulus Will. in subgenus Euceroplatus. Johannsen's specimen from Pottstown, Penn. does not fit in this subgenus but in Cerotelion. Edwards has probably seen the type as it is in the British Museum. Johannsen's specimen is probably distinct. See sp. A below.

C. carbonarius Bosc.

1802-4. carbonarius, Bosc, Nouv. Dict. Nat. Hist. 4:543.

Recorded from: Carolina.

I have never seen this species.

C. clausus Coq.

1901. clausus, Coquillett, Proc. U.S. Nat. Mus. 23:594.

? 1905. terminalis, Coquillett, Journ. N.Y. Ent. Soc. 13:69.

1909. terminalis, Johannsen, Me. Agr. Exp. Stat. Bull. 172:236-237.

Recorded from: N.H., N.J. (Coq.); Ithaca, N.Y. (Joh.); Ithaca, N.Y. June and Aug. (C.U.C. - E.G.F.); S. Wales, N.Y. (M.C. Van Duzee - N.Y. State List); Mt. Desert, Me. Sept.; Franconia, N.H.; Kingston, R.I. Aug. (Johnson); Greenville, S.C. Sept. (Shaw and Townes).

The terminalia of specimens of C. clausus and C. terminalis in the Johannsen collection are identical. There are species in the Cornell Collection showing the coalesced part of the media longer than the petiole with the abdominal markings as described for C. clausus. The terminalia of all are identical except for a slight variation in the color of the dorsal tip of the style

and the density of the setae. There are no structural distinctions that I can find. I consider them as but variations of a single species. The type species of C. terminalis is from Kaslo, B.C.; I have not seen it.

Terminalia rotatable. Pygosternum entire; its wall strongly invaginated distally on the mid-ventral line. The styles are simple, stouter than in C. militaris the tips expanded in lateral aspect, flattened mesally; base of styles with small rounded lobes on ventro-mesal aspect; inner side of styles densely setose. Tergum quadrangular. (Plate III figs. 1 and 2.)

C. fasciata Carr.

1925. fasciata, Garrett, Sixty-one New Diptera, Cranbrook, B.C. p. 12.

Recorded from Cranbrook, B.C. (Garrett).

Known from the female only.

C. militaris Joh.

1909. militaris Johannsen. Ms. Agr. Exp. Stat. Bull. 172:237-238.

Recorded from: Ithaca, N.Y.; Intervale, N.H.; Philadelphia, Penn. (Joh.); Mt. Desert I., Me. Sept; Hampton, N.H. June. (Johnson).

Terminalia rotatable. Pygosternum slightly notched on its mid-ventral hind margin, with a median suture basal of the notch. Styles simple, elongate, pointed, with small basal lobes covered with numerous strong

setae. Base of styles dorsally with a "brush" of short, stout setae. Tergum large. (Plate II, figs. 9,10)

C. sp. A.

1909. bellulus, Johannsen, Me. Agr. Exp. Sta. Bull. 172: 239, 240.

Recorded from: Pottstown, Pa. (Johannsen); ? Brookline, Mass., July; ? Bottonwoods, R.I., July (Johnson).

See note under C. bellulus Will.

Terminalium (unprepared) of the Macrocera-type with a simple style which tapers to a sclerotized point. (Plate II, fig. 15).

Apemon Joh.

1909. Apemon, Johannsen, Genera Insectorum Fasc. 93. Mycetophilidae p. 20.

1911. Paraplatyura, Enderlein, Stett. Ent. Zeit. 72:163.

Three ocelli, laterals remote from the eye margins; front without strong setae; eyes pilose; palpi normal. Thorax as in Ceroplatus but lacking postnotal and pleurotergal bristles. Tibial setae irregularly arranged; claws with basal teeth; empodia large. Wing venation as in Platyura but with a vein-like fold in the wing forming the base of M. Abdomen compressed, with eight visible abdominal segments in the male.

Terminalia non-rotatable; simple, Macrocera-type, with little specific variation in the forms studied.

Key to Nearctic Species (partly after Johannsen).

1. Subcosta short, ending at or before the base of R_5 - 2.
 Subcosta ends distad of the base of R_5 ----- 3.
2. Total length 6 mm.; abdomen yellow with the anterior portion of each segment black. Western - gracilis Will.
 Total length 12 mm.; abdomen reddish yellow, the first segment black; wing cloud from midway between R_1 and R_5 to apex of anal vein. Western-- pectoralis Coq.
3. Mesonotum and abdomen reddish yellow, the first segment black; wing cloud from just before tip of R_5 to just beyond tip of Cu_1 ; Western ---- rufa Van Duzee
 Mesonotum black or with brown stripes ----- 4.
4. Abdomen almost wholly black ----- 5.
 Abdomen in part reddish yellow ----- 6.
5. Wings with a deep black cloud which extends from midway between Sc and R_1 pass vein M_{1+2} and at the margin of the wing passes vein M_3 - manteri Johnson
 Wings of male very faintly smoky, of the female more distinctly smoky, but never as above - nigriventris Johannsen
6. Mesonotum black, or black with a triangle back of the humerus and the dorso-pleural suture yellowish - 7.
 Mesonotum reddish yellow with three dark brown stripes; part of the third, fourth, and fifth abdominal segments yellow, other segments black - pulchra Will.
7. Mesonotum black; abdomen yellow except the first two segments ----- maudae Coq.
 Mesonotum black with a triangle back of the humerus and the dorso-pleural suture yellowish; abdomen with first and second segments black, fourth segment red, remaining segments black with a varying number of segments having reddish bases ---- similis Johnson

* maudae and pulchra have been reversed in Johannsen's key

A. gracilis Will

1893. gracilis, Williston, Kas. Univ. Quart. II:60 (Platyura)

Recorded from Washington (Williston).

There are no available specimens of this species.

A. manteri Johnson

1931. manteri, Johnson, Psyche 38:23.

Recorded from: Conn. June. (Johnson).

I have not seen this species.

A. maudae Coq.

1895. maudae, Coquillett, Canad. Ent. 27:199. (Platyura)

(nec. 1925. maudae Johnson. Fauna of New England.
List of Diptera p. 77).

Recorded from: Washington (Coq.); Corvallis, Oregon,
May (Cole and Lovett).

There is a female from Cooperstown, N.Y. in the Cornell Collection which I believe belongs to this species; it differs from the description only in having Sc_2 closer to the humeral cross-vein. There is a specimen in the Johannsen collection that varies little from the Cooperstown specimen; it is also a female.

I have seen no males.

A. nigriventris Joh.

1909. nigriventris, Johannsen, Me. Agr. Exp. Stat. Bull.
172:245.

Recorded from: Selkirk Mt., Roger Pass and Prarie Hill,
B.C. July (Bradley - Joh.).

The terminalium of the simple Macrocera-type;
styles elongate with two terminal teeth. (Plate III,
fig. 4.)

A. pectoralis Coq.

1895. pectoralis, Coquillett, Canad. Ent. 27:199 (Platyura)
(see males from Idaho of Johannsen's A. pectoralis Coq. 1909)
Recorded from: Nevada (Coquillett); Corvallis, Oregon,
June (Cole and Lovett).

This species is known from the female only. The
males included here by Johannsen are considered by Van
Duzee to be a distinct species, A. rufa, as he has
"three females agreeing with these males in having the
subcosta extending beyond the base of R_5 and all without
variation in this character, there seems to be no doubt
that it is distinct."

A. pulchra Will.

1893. pulchra, Williston, Kansas Univ. quart. 2:59
(Platyura)

Recorded from: Washington.

I have not seen this species.

A. rufa Van Duzee

1909. pectoralis (Idaho males) Johannsen, Me. Agr. Exp.
Sta. Bull. 172:243-244, figs. 77 and 88.

1928. rufa Van Duzee. Proc. Calif. Acad. Sci. 17:32, 33.

Recorded from: Idaho, June (Aldrich-Joh. as A. pectoralis)
Marin Co. and Sonoma Co., Calif. April, June; King Co.,

Washington. July. (M.C. Van Duzee).

See note under A. pectoralis.

This species has a simple Macrocera-type of terminalium. Styles elongate ending in two heavily sclerotized teeth. Plate III, fig. 3.

A. similis Johnson.

1931. similis, Johnson, Psyche 37:22, 23.

Recorded from: Franconia; Bretton Woods, Mt. Washington, N.H. June-July (Johnson as A. maudae); Me. (Johnson)

There is a specimen in the Cornell University Collection from Chelsea, Quebec that I believe may be this species. The fourth abdominal segment only is reddish as in some males (paratypes?).

The terminalium of the Quebec specimen is of the simple Macrocera-type with two terminal teeth on the styles. (Plate III, fig. 7.).

Hesperodes Coq.

1900. Hesperodes, Coquillett, Ent. News 11:429.

There is only one Nearctic species. H. johnsoni Coq. recorded from the Delaware Water Gap, N.J. July.

I do not know this genus.

Palaeoplatyura Meun.

1899. Palaeoplatyura, Meunier, Misc. Ent. 7:164. plate 2, fig.9.

Head flattened with three ocelli; palpi four jointed

antennae long with sixteen joints. Mesonotum highly arched; fairly strongly projecting pleurotergites; postnotum rounded, not projecting cone-like over the abdominal base. Legs slender; fore tibiae with a comb; empodia present. Wings broad; C produced beyond the tip of R_5 ; Sc ends in C distad of the origin of R_5 ; R_4 ends in C; basal section of M represented by a delicate vein; Cu forks proximad of m-cu; anals incomplete but strong.

This genus differs from all other Ceroplatinae as follows:

empodia present
r-m distinct
comb on fore tibia present
postnotum rounded

Johannsen placed this genus in the Mycetobiinae. The pteropleurites in Mycetobia, Ditomyia (? sp. #42), and Symerus do not reach the coxae but terminate high on the pleura; the sternopleurites are large. In Palaeoplatyura the pteropleurites reach the base of the coxae; the sternopleurites are smaller. The terminalia are of the Macrocera-type suggesting affinity with Apemon, Isoneuromyia, and Macrocera rather than with the Dityominiinae.

Terminalia non-rotatable; no retraction.

Key to Nearctic Species (after Johannsen).

1. Wings immaculate; Sc_2 absent; anal vein not reaching the margin of the wing ----- aldrichii Joh.

Wings with markings; Sc_2 present; anal vein reaches the margin of the wing ----- johnsoni Joh.

P. aldrichii Joh.

1909. aldrichii, Johannsen, Genera Insectorum, Mycetophilidae Fasc. 93. p. 10.

Recorded from Friday Harbor, Washington (Aldrich-Joh.)

"Hypopygium small, consisting of a pair of two jointed forceps, the basal joint stout, the terminal joint curved, about four times as long as broad, the apex toothed and densely ciliated on the inner side."

P. johnsoni Joh.

1909. johnsoni, Johannsen, Me. Agr. Exp. Sta. Bull. 172: 226-227.

Recorded from: Burlington, Vt. June (Johnson-Joh.); Ithaca, N.Y. June (Joh.-N.Y. State List); Fillmore Glen, Moravia, N.Y. (E.G.F.); Great Barrington, Mass. June (Johnson).

Eight visible abdominal segments; Johannsen says there are seven in his generic description; the specimens of P. johnsoni in his collection have eight. Terminalia of the Macrocera-type; "bridge" wide, dorsally with a thick mass of black setae. Styles simple with terminal teeth as in Macrocera. Anal segment with a mass of strong, black setae on the distal ends of the supra-anal lobes.

Platyura Meigen.

1804. Platyura, Meigen, Illiger's Mag. II:264.
1800. Zelmira, Meigen, Nouv. Class. Mouches 16 (no type)
1857. Orfelia, Costa, Il Giambatt. Vico 2:448.
1912. Isoneuromyia Brunnetti. Fauna Brit. India.

F.W. Edwards (1929) recently revised this genus placing Isoneuromyia, Proceroplatus, and Monocentrotia as subgenera and divided up the old genus Platyura (fasciata group). The majority of the N. American forms have not been placed in their respective subgenera. The available forms I would place thus:

Isoneuromyia - semirufa (=taeniata)
 elegantula

Neoplatyura - setiger
 mendosa
 ignobilis
 pellita
 bella

Autylapa - inops
 sp. #18

Proceroplatus - pictipennis
 elegans

(bidentata runs near here apparently
a new subgenus.)

Lapyruta - fasciventris

Platyura - fascipennis
fascipennis sequax
discoloria (=diluta)
genualis
scapularis
moesta
subterminalis

Platyura melasoma, notabilis, mendica, pullata, melasoma, lurida, fasciola, nigrita, divaricata are not available.

Edwards characterizes the genus as all members of the Ceroplatinae which possess the following combination of characters:

"Palpi incurved, slender, of three distinct segments. Labium well developed but always shorter than head, labella large. Antennae 16-segmented, shorter than body, cylindrical or somewhat flattened, not broadly flattened (as in Ceroplatus) nor pectinate (as in Platyrostiton). Tarsi and usually tibiae with small spiny bristles; no empodia; hind tibia with outer and inner apical combs, and at least one long spur. Wings without macrotrichia or membrane; media and radius fused for a shorter or longer distance; no trace of fold-like basal portion of media."

See notes on page 78 for terminalial structure of various species. In Isoneuroomyia there is retraction and rotation; the ninth tergum is broad; the zygosternum as in

Macrocoera, with simple styles. In Platyura, Proceroplatus, and Rutylapa the terminalia are rotatable; there is retraction; the zygosternum is of the "cup-type." Styles usually lobed. In Neoplatyura there is little or no retraction and no rotation. The aedeagus is similar to that of Asindulum with apodemes extending far anteriorly. The styles are usually small. Coxite portion of the zygosternum may be produced caudally beyond the base of the style so that the style appears to rise near its base.

Key to Nearctic Platyura - Males

(P. equalis V.D., P. fasciola Coq.; P. fascipennis Say, P. intermedia Sherman, P. lurida Coq., P. melasoma Loew, P. medica Loew, P. pullata Coq. are known from females only.)

1. Western (Calif., Wash., B.C., Idaho.) forms ----- 2.
 Eastern and Central forms (E. Canada, New England, N.J.,
 Wisc., S.D.) ----- 12.
 Southern forms (Carolinian) ----- 8.*
2. Thorax mainly black ----- 3.
 Thorax mainly yellow ----- 5.
3. Sc₂ present ----- 4.
 Sc₂ absent, thorax black ----- nigra + nigribarba
4. Mesonotum with confluent black stripes; scutellum yellow
 postnotum black; hind margins of abdominal segments
 yellow ----- setiger
 Thorax wholly black except humeral angles and at base of
 wings ----- nigrita + angustata + nigribarba

* I can not place P. apicalis Shaw apparently a southern

5. Wings hyaline ----- moesta
 Wings with a more or less distinct preapical spot of
 fascia ----- 6.
6. A black spot on proximal part of hind coxae and adjacent
 portion of pleura; thorax and abdomen reddish yellow;
 wing band feeble; length 8 mm. ----- notabilis
 Not so in all particulars ----- 7.
7. Fore basitarsus longer than its tibia ----- moerens
 Fore basitarsus $\frac{1}{2}$ shorter than its tibia --- scapularis
8. Wings with two dark bands and two dark spots -- elegans
 Wings with a more or less preapical spot or fascia -- 9.
9. Wing spot distinct; R_4 nearly perpendicular to R_5 -----
 ----- divaricata
 R_4 oblique ----- 10.
10. Fore basitarsus $\frac{1}{4}$ longer than its tibia ----- discoloria
 Fore basitarsus equal or shorter than its tibia ----- 11.
11. Mesonotum mainly yellow; anal vein complete - mendosa
 Mesonotum mainly yellow; anal vein incomplete - genualis
12. Fused portion of M not over $\frac{1}{2}$ length of the petiole of
 M; postnotum usually without bristles ----- 13.
 Fused portion of M subequal or longer than petiole;
 postnotum usually with bristles ----- 13.
13. Basitarsus of fore leg longer than tibia ----- 14.
 Basitarsus of fore leg shorter or subequal to tibia- 15.
14. Macrocera-type of terminalium plate 3, fig. 2. --- semirufa

- Terminalium plate 4, fig. 4. ----- inops
15. Fused portion of M not over $\frac{1}{2}$ as long as petiole
of M ----- 16
- Fused portion of M a little over $\frac{1}{2}$ as long as petiole
of M; length 4.5 mm. ----- pellita
- Fused portion of M $\frac{2}{3}$ as long as petiole of M; length
2 mm. ----- mimula
16. Hypopleurae with conspicuous bristles ----- elegans
Hypopleurae without conspicuous bristles ----- 17.
17. Abdomen with tufts of setae on intermediate segments
plate 3, fig. 17. ----- bella n. sp.
Abdomen with no tufts of setae ----- mendosa
18. Color mainly black; Sc ends in costa opposite base of
 R_3 ; Sc_2 lacking ----- melanosoma
Color mainly yellow or brown ----- 19.
19. Fore basitarsus longer than its tibia ----- 20.
Fore basitarsus subequal to its tibia; apices of
abdominal segments black ----- bidentata n. sp.
Fore basitarsus shorter than its tibia ----- 24.
20. Fused portion of M three times as long as petiole --
----- subterminalis
Fused portion of M subequal or shorter than petiole- 21.
21. R_4 distinctly oblique to R_5 ----- 22.
 R_4 nearly perpendicular to R_5 ----- 23.
22. Macroceras type terminalium plate 3, fig. 6. - semirufa
Terminalium not so ----- discoloria

23. With a subterminal dark band crosswing - fascipennis
fascipennis
 With only a cloud at the tip of M_5 - fascipennis squar
24. Terminalium of Macrocera-type ----- semirufa
 Terminalium not so ----- 23.
25. 30 ends proximal of M_5 ; a subterminal dark band on
 wing ----- genualis
 30 ends opposite base of M_5 ; a subterminal dark band
 on wing ----- mendica

P. angustata Van Duzee

1923. angustata, Van Duzee, Proc. Calif. Acad. Sci.
 17:34.

Recorded from: Mill Valley, Marin Co., Calif. April
 (Van Duzee)

"Hypopygium black. (The drawing shows only one
 of the claspers which ends in a curved slightly flattened
 spur). -- differing from scapularis in having a longer
 and more curved spur at tip of claspers." (Van Duzee).

The figure is a copy of Van Duzee's of the un-
 treated terminalium. Plate II, fig. 17.

P. apicalis Shaw.

1933. apicalis, Shaw, Canad. Ent. 67:229. Plate 9
 fig. 3.

Recorded from: Greenville Co., S.C. June (Shaw)

The terminalium apparently does not differ from
 that of P. inops. Perhaps this is but a southern color
 variety of P. inops.

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I do not reproduce the terminalium as it does not differ from Johannsen's figure of P. inops.

Platyura bella n. sp.

Male Total length 3.5 mm. Head yellow; tips of antennae and postocellar area greyish. Thorax yellow; mesonotum with acrostichal setae distinct from the dorso-centrals with a bare space between; meso and metapleura bare; first thoracic spiracle with a seta at either end. Wings hyaline; branches of M and Cu and the anal vein setose; R_4 nearer tip of R_1 than R_5 ; anal vein nearly reaching the margin; M branches proximal of the tip of R_1 ; Sc ending about half-way between humeral cross-vein and origin of R_2 . Legs yellow; tibial setae regularly arranged except at their bases; hind tibial spurs unequal. Abdomen somewhat fuscous; intermediate abdominal tergites with dense group of black setae in their caudo-ventral corners. Plate III, fig. 17. Terminalium plate III, fig. 18.

Holotype C.U. collection No. Poughkeepsie, N.Y.,
Aug. 2 (H.K. Townes coll.)

Paratypes in my collection. Poughkeepsie, Aug. 22,
July 15; Oneonta, N.Y., Aug. 17, July 20
(H.K. Townes coll.)

Terminalium. Ninth tergite reduced to a narrow bare transverse arch. Ninth sternite with a median membranous area. There is a lobe arising from the

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center edge of each sternite half. The coxites are apparently distinct from the sternum, densely setose within. Styles articulated at the base of the coxite, bipartate; the inner arm broad; the outer narrow, densely setose outwardly. Plate III fig. 18.

Platyura bidentata n.sp.

Male. Total length 4.5 mm. Head black, lighter at the posterior dorso-lateral corners. Antennal scape and base of flagellum yellow, tip of flagellum black. Thorax yellow. Anepisternites with short black setae above, remainder of mesothoracic pleura bare. Hypopleurites with a single black seta caudally. Legs yellow; tibial setae arranged in definite rows. Wings hyaline; branches of M and Cu bare, except base of Cu₂; R₄ nearer tip of R₁ than R₅; Sc ends slightly distad of R₅ origin; anal vein almost reaches the wing margin. Abdomen yellow with the posterior margins of the tergites brown. Terminalium plate III, fig. 10.

Holotype No. C.U. coll. Green Falls, Conn.
June 30 (M. Chapman coll.) near P. inops.

Terminalium is simple approaching the Macroceratype but with no separation of the coxite portions and the sternal portion of the zygosternum. Styles simple with two strong black teeth, one terminal and one subterminal.

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Platyura discoloria Mg.

1818 discoloria, Meigen, Syst. Besch. I:239.

1840 unicolor, Staeger, in Kroyer, Naturh. Tidsskr. 3:280.

1869 diluta, Loew, Berl. Ent. Zeitschr. 13:134.

Recorded from: D.C. (Loew); N.Y., N.C., Wisc., Vt.,
(Johannsen); Mass., June; Me., White Mts., N.H.,
(Johnson); Delaware Water Gap, N.J., May (N.J. List).

Terminalium. Tergum rounded distally, its edges slightly inturned making the tergum concave ventrally. Pygosternum cleft on the mid-ventral line. Styles bifurcate.

There are three specimens in the Johannsen collection (labelled P. diluta). One Johannsen considered abnormal. The figured specimen (#194) agrees with specimens in my collection except in terminalial structure. I believe they are varieties. The third specimen in the Johannsen collection from Raleigh, N.C. I believe is a distinct species.

P. discoloria discoloria

I have not seen the type, so tentively, I regard specimen # 194 of the Johannsen collection as the typical variety. I have also seen specimens from Ithaca, N.Y. and Sierra Blanca, Texas, July. Plate III, fig. 12.

P. discoloria var. a.

One defective species from Rock City, Cattaraugus Co.,

N.Y. July (C.U. coll.) differs only in form of the terminalium. Plate 5, fig. 7.

P. discoloria var. longiseta n. var.

Differs in form of terminalium. Dorsal style arm with very long setae. Plate III, fig. 19.

Holotype: C.U. coll.

Paratypes: In my collection.

Ithaca, N.Y., July (E.G.F.-C.U.coll.); Shokan, Mellwood, N.Y., June, July (H.K. Townes coll - E.G.F.); Westerly, R.I., July (Chapman coll. E.G.F.).

A specimen in the Johannsen collection from Scott's Run, Va., July under Platyura fascipennis sequax I believe is this variety.

Platyura divaricata Loew

1869. divaricata, Loew, Berl. Ent. Zeitschr. 13:134.

Recorded from: Georgia (Loew); Cedar Mt., N.C., Aug. (Shaw and Fownes).

I do not know this species.

Platyura elegans Coq.

1895. elegans, Coquillett, Proc. Acad. Nat. Sci. Phil. 307.

Recorded from: Georgetown, Fla., May; N.C.; Wisc; Common in New York. July (Joh.); Nantucket, Mass., Aug. (Johnson) Orange Mts. Shark River, N.J., July (N.J. List); Greenville Co., S.C. May-July, (Shaw and Fownes); N.H., July-Aug.; Mass., July-Aug. (Johnson); Westerly, R.I. July (M. Chapman coll. - E.G.F.); Spring Creek, Decatur Co,

Ca., July; Il de Montreal, July; (C.U.C. - L.G.F.)

Xygosternus bears a plate lobed caudally and apparently separated from the *xygosternum* proper by a suture. The styles are simple, deeply bifid; the two arms subequal and narrow. The dorsal arm is directed mesally; the ventral arm is directed down into the genital chamber. The anal segment is typical. Plate V, fig. 3.

Platyura equalis V.L.

1928. *equalis*, Van Duzee, Proc. Calif. Acad. Sci. 17:35.

Recorded from: Corvallis, Oregon, June.

Known from the female only.

Platyura fasciola Coq.

1894. *fasciola*, Coquillett, Ent. News. 126. (*Ceroptatus*)

Recorded from Washington.

Known from the female only.

Platyura fascipennis Say.

1824. *fascipennis*, Say., Long's Expedition. App. II.360.

Recorded from Montreal, Que. July; Little Valley, N.Y., June. (M.C. Van Duzee-N.Y. State List); Da Costa, N.J., Aug. (Dke. - N. J. List); Millwood, N.Y., June (Fownes coll. - L.G. F.); Franconia, N.H. (Johnson).

Described from the female. I have not seen the male.

Platyura fascipennis sequax Joh.

1909. var. sequax, Johannsen, Me. Agr. Exp. Sta.
Bull. 172:258. fig. 102.
Me.,
Recorded from: Capens, Orono, July (Joh.)

"This variety differs slightly from subterminalis
- in the form of the hypopygium." (Joh.)

It also differs but slightly from Platyura
discoloria var. longiseta, perhaps P. fascipennis
sequax is but another variety of P. discoloria. It
differs little except in terminalial structure. See
note under P. discoloria var. longiseta. Plate IV,
fig. 2.

Platyura genualis Joh.

1909. genualis, Johannsen, Me. Agr. Exp. Sta. Bull.
172:262, 263. fig. 100.

Recorded from: Pine Lake, Wisc.; Black Mt., N.C.p
Knoxville, Tenn. (Joh.); Black Rock Mt., Rabun Co.,
Ga. May; Common in New England June-July (Johnson).

The tergum is a distinct oblong plate; the anal
lobes arising from the membrane at its tip. Zygoster-
num notched $\frac{1}{3}$ the distance to its base, with a suture
from the bottom of the notch to the zygosternal base.
The styles are simple, each is a globular lobe pointed
at its distal end and with a group of stout setae.
A subterminal sinous narrow lobe projects mesally.
Plate IV fig. 6.

There is another form that differs only in having
the globular lobe truncate at its distal end. Plate
IV, fig. 10.

Platyura inops Coq.

1901. inops, Coquillett, Proc. U.S. Nat. Mus. Bull.
23:594.

Recorded from: Delaware water Gap, N.J., July (Coq.);
Brattleboro, Vt., July; Ithaca, N.Y., July (Joh.);
Greenville Co., S.C. June; Cedar Mt. N.C. (Shaw and
Townes.)

I have not seen the terminalium of this species
but it apparently does not differ from P. apicalis
Shaw. Perhaps the latter is but a southern color
form of this species. The figure is after Johannsen's.
Plate IV, fig. 4.

Platyura intermedia Sherman

1921. intermedia, Sherman, Proc. ent. Soc. B.C.
16:16.

Recorded from Savary Island, B.C. July.

Known from the female only.

Platyura lurida Coq.

1895. lurida, Coquillett, Canad. Ent. 199.

Recorded from: Washington.

Known from the female only.

Platyura melasoma Loew

1869. melasoma, Loew, Berl. Ent. Zeitschr. 13:135.

Recorded from: D.C. (Loew); Delaware water Gap, N.J.,
July (N. J. List). Breton woods, N.H. June; Hampton,
N.H., July; Auburndale, Mass. June. (Johnson); Little

Valley, Ithaca, N.Y. June-July (N.Y. List)

Known from the female only.

Platyura mendosa Loew.

1869. mendosa, Loew, Berl. ent. Zeitschr. 13:135.

Recorded from: D.C. (Loew); Knoxville, Tenn. (Joh.); Greenville Co., S.C., May. (Shaw and Townes); Widely distributed in New England, June-July; Clementon, N.J., May (N.J. List); St. Jean River, Caspe Pen., P.R., Aug. (E.G.F.); West River, N.S. July (Matheson coll. - E.G.F.)

Terminalium resembling P. nigricauda somewhat.

Ninth tergum oblong, narrow. Ninth zygosternum narrow in the middle with a concave membranous area above. The coxite portions of the zygosternum are produced caudally as lobe-like subforceps (= lobe-like forceps of Johannsen) which bear a brush of setae on their mesal aspects; they are non-articulate. The styles articulate at the bases of the coxite-lobes. The styles are bipartate; one arm is an elongate appendage with a subterminal group of short setae on the outer side; the other is a setose sclerotized lobe almost hidden within the genital chamber. Plate IV, fig. 1.

Platyura mimula Joh.

1909. mimula, Johannsen, Me. Agr. Exp. Sta. Bull:172:255.

Recorded from Polk Co., Me.; Hampton, N.H., June (Johannsen). The figures: Plate VI, figs. 10 and 11 are.

from the dried specimen in the Johannsen collection.

Platyura moerens Joh.

1909. moerens, Johannsen, Me. Agr. Exp. Sta. Bull.
172:262. figs. 84, 96.

Recorded from Friday Harbor, Wash. July; S. Wales,
N.Y. (M.C.V. - N.Y. State List).

Terminalium similar to P. fasciata Mg. Tergum
distinct elongate. Anal lobes arise from the mem-
brane at its tip. Zygosternum cleft to the base on
the mid-ventral line. Styles are deeply trifurcate
structures; the mesal arm short, curved, sometimes
hidden in the genital chamber. Plate IV, fig. 3.

Platyura moesta Joh.

1909. moesta, Johannsen, Me. Agr. Exp. Sta. Bull.
172:259. fig. 106.

Recorded from Longmire's Springs, Mt. Rainier, Wash-
ington. No specimens are available. The illustration
is a copy of Johannsen's. Plate IV, fig. 5.

Platyura nigra Cole

1919. nigra, Cole, in Cole and Lovett. P. Calif. Ac.
9:222. fig. 1, Plate 14 (whole insect)

Recorded from Forest Grove, Oregon. May.

I do not know this species.

Platyura nigribarba Van Duzee

1928. nigribarba, Van Duzee, Proc. Calif. Acad. Sci.
17:34, 35.

Recorded from Mill Valley, Marin Co., Calif. April.

I do not know this species.

"hypopygium, its appendages and their hairs black; claspers horn-like, stout, a little bent, with a hair at their middle on concave side."

Platyura nigrita Joh.

1909. nigrita, Johannsen, Me. Agr. Exp. Sta. Bull. 172:256. fig. 92.

Recorded from Friday Harbor, Washington.

Tergum distinct, its lateral corners produced into short lobes. Zygosternum entire on the mid-line but narrowed there. Styles simple, A in fig. 6, Plate III; in lateral aspect a basal branch shows which is invisible in ventral aspect. Plate III, figs. 5 and 6.

Platyura pellita Fisher

pellita -Ms.

Recorded from Ithaca, N.Y. Sept.; Cape Breton I., N.S. (E.G.F.); Troy, N.Y. (Townes coll. -E.G.F.)

Zygosternum divided on mid ventral line into two parts, a in fig. 7, Plate IV. Tergum lobed as in fig. 9, Plate IV. The lateral tergal lobes with short mesally directed setae on their ventral aspect, b in fig. 7, Plate IV; Styles simple, heavily sclerotized.

Plate IV, figs. 7, 8, and 9.

Platyura notabilis Will.

1894. notabilis, Williston, Kans. Univ. Quart. 2:59.

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recorded from: Washington.

I have not seen the terminalium of this species.

Platyura pullata Coq.

1904. pullata, Coquillet, Proc. Ent. Soc. Wash. 6:171.

recorded from Claremont, Calif.

Known from the female only.

Platyura scapularis Joh.

1909. scapularis, Johannsen, Me. Agr. Exp. Sta. Bull.
172:263, fig. 105.

Recorded from: Kendrick and Moscow, Idaho, Stanford
Univ. and Cazadero, Calif.; Friday Harbor, Wash.

Tergum distinct, elongate. Zygosternum cleft on
the mid-ventral line. Styles simple, narrowing apically,
with a group of setae on the mid-length mesally.

Plate V, fig. 1.

Platyura semirufa Mg.

1818. semirufa, Meigen, Syst. Besch. 1:237.

1909. taeniata, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:701.

1850. atricornis, Zetterstedt, Dipt. Scand. 9:3446.
(Ceroplatus)

1818. baumhaueri, Meigen, Syst. Besch. 1:235.

1840. brunnipennis, Staeger, in Kröjer, Naturh. Tijdschr.
3:277.

1874. concolor, Van der Wulp, Tijdschr. v. Ent. 17:126.

1818. fulvipes, Meigen, Syst. Besch. 1:235.

1818. erythrogaster, Meigen, Syst. Besch. 1:237.

1875. morio, Grzegorzek, Verh. Zool.-bot. Ges. Wien 25 :1.

1818. signata, Winnertz, Syst. Besch. 1:238.

1856. unicolor, Walker, Ins. Brit. Dipt. 3:67.

1856. vitripennis, Walker, Ins. Brit. Dipt. 3:66.

Synonymy according to Landrock in Lindner. Die Fliegen
Pal. Reg. Fasc. 8. 1927.

Recorded from: Europe; Dunnfield, Delaware Water
Gap, N.J., July.

There is a specimen from Chester, Mass., Aug.
in C.U. collection that I consider this species.

(labelled by Johannsen as Platyura near elegantula).

It differs in having the fore basitarsus longer than
its tibia. The terminalium structure is apparently
the same as that figured by Edwards for P. semirufa.
This is the species figured here Plate III, fig. 8.
Terminalium of the Macrocera-type. Styles with two
terminal teeth.

Platyura setiger Joh.

1909. setiger, Johannsen, Me. Agr. Exp. Sta. Bull.
172:252, 253. figs. 86, 103.

Recorded from: Dewatto, Wash.

Johannsen figures the lateral aspect of the
terminalium.

Ferguson large forming half the wall of the genital
chamber. Its ventral edge turned into the genital
chamber forming a lobe, S. of figs. 9 and 14, Plate III.
These lobes are bifurcate in lateral aspect. (Plate
III, fig. 13). The styles are simple narrow curved
appendages arising within the genital chamber (the

coxite portion of the zygosternum being produced).

Platyura subterminalis Say

1829. subterminalis, Say, Journ. Ac. Nat. Sc. Phila.
4:152.

Recorded from: Ithaca, N.Y.; Polk Co. Wis. (Joh.);
Me., July; Mass. June (Johnson); Greenville Co., S.C.,
May (Shaw and Townes); N.J. July, Aug., Sept. (N.Y.
List); common at Ithaca, N.Y., June-July (E.G.F.).

The terminalium is like P. nigricornis Fabr.
(= P. infuscata). Tergum distinct, elongate. Anal
lobes arise in the membrane at its tip. Zygosternum
with a suture on the mid-line. Styles bifurcate, the
outer arm a knife-like blade, the inner with a narrow
base and a cap-like distal portion. Plate V, fig. 5.

Platyura subterminalis nexilis Joh.

1909. subterminalis var. nexilis, Johannsen, Me. Agr.
Exp. Sta. Bull. 172:261. fig. 107.

Recorded from Polk Co., Wis.

The specimen in the Johannsen collection from
Ithaca, N.Y. labelled Platyura subterminalis var. nexilis?
has a terminalium like that of Platyura inops. Another
specimen is figured by Johannsen. Plate V, fig. 2 is
a copy of Johannsen's figure.

Platyura taeniata Will. see Platyura semirufa Meig.

Platyura unicolor Staeg. see Platyura discoloria Meig.

Platyura sp. A. (#138,67)

Recorded from: Elk Point, S.D., June (Severin coll.-
H.G.F.) Truro, N.Scotia, Aug. (Matheson coll.-C.U.C.)

These are both defective specimens. The Truro specimen is labelled P. fascipennis sequax in Johansen's handwriting but the terminalial structure is different. Plate III fig. 15. Plate III, fig. 16 is a South Dakota specimen of the same species at a slightly different angle.

Subfamily Sciophilinae

1863. Sciophilinae, Winnertz, Verh. Zool.-bot. Ges.
Wien. 13:707.

1863. Mycetophilinae, Winnertz, Verh. Zool.-bot. Ges.
Wien. 13:659.

Edwards united the Sciophilinae with Johannsen's first section of the Mycetophilinae; he considered the the arrangement of hairs on the wing membrane of greater value than the presence or absence of the small closed cell R_1 . He divided this new concept of the subfamily into four tribes, the Mycomyiini, Sciophilini, Gnoristini and Leiini.

This subfamily is distinguished from all others by the absence of any connection between the media and cubitus and by the irregular arrangement of the microtrichia on the wing membrane. The ocelli are remote from the eye margin except in Eudierana, the middle one is often more or less conspicuous, or absent in the Mycomyiini. Sc is usually elongate. Small cell R_1 sometimes present. Macrotrichia may be present on the wing membrane. Tibial setae irregularly arranged except in the Mycomyiini. Empodia present except in the Mycomyiini and in some Sciophilini. Postnotum bare except in most Sciophilini.

The four tribes may be separated by this key based on the diagnosis in Edward's paper.

1. Fine tibial setae arranged in regular longitudinal rows ----- Mycomyiini

Fine tibial setae irregularly arranged ----- 2.

2. Macrotrichia on the wing membrane (in cases where it is difficult to determine whether these are micro- or macrotrichia, the postnotum has a few long hairs) ----- Sciophilini

No macrotrichia on the wing membrane; postnotum bare ----- 3.

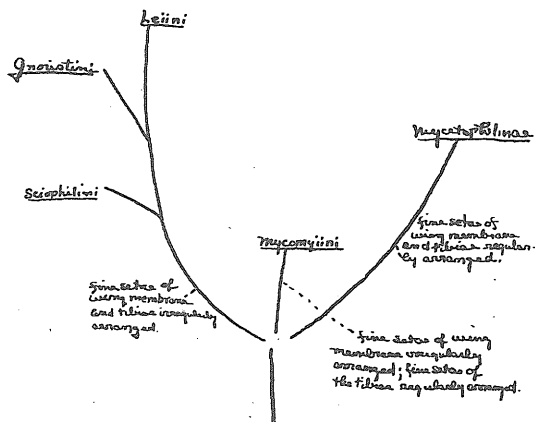
3. R_1 quite long, several times the length of r-m which is more or less oblique or vertical; fork of Media longer than its stem ----- Gnoristini

R_1 short, little if any longer than r-m which is long and nearly horizontal (except in Rondaniella where the Media fork is hardly longer than its stem) ----- Leini

Tribe Mycomyiini

This tribe includes but two genera, Mycomyia and Neocempheria. These are so distinct from others of the subfamily that I believe this tribe may merit separate subfamily rank. The ocelli are usually two instead of three; the tibial setae are in regular rows instead of irregularly arranged; the empodia are absent instead of present.

I would represent the relationships of these tribes and the Mycetophilinae as follows:



2. Macrotrichia on the wing membrane (in cases where it is difficult to determine whether these are micro- or macrotrichia, the postnotum has a few long hairs) ----- Sciophilini

No macrotrichia on the wing membrane; postnotum bare ----- 3.

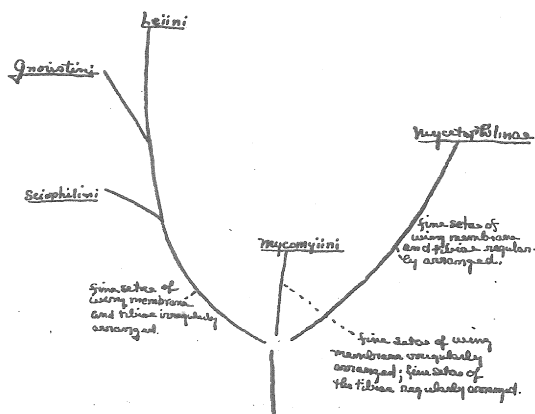
3. R_1 quite long, several times the length of r-m which is more or less oblique or vertical; fork of Media longer than its stem ----- Gnoristini

R_1 short, little if any longer than r-m which is long and nearly horizontal (except in Rondaniella where the Media fork is hardly longer than its stem) ----- Leini

Tribe Mycomyiini

This tribe includes but two genera, Mycomya and Neoempheria. These are so distinct from others of the subfamily that I believe this tribe may merit separate subfamily rank. The ocelli are usually two instead of three; the tibial setae are in regular rows instead of irregularly arranged; the empodia are absent instead of present.

I would represent the relationships of these tribes and the Mycetophilinae as follows:



Key to Nearctic Genera of Mycomyiini

Wings hyaline; costa ends at tip of R_5 --- Mycomyia

Wings banded; costa usually produced a short distance beyond the tip of R_5 ---- Neocempheria

Mycomyia Rond.

1856. Mycomya, Rondani, Dipt. Ital. Prodrusus 1:195.

1816. Sciophila, Meigen, Syst. Besch. 1:245.

1863. Sciophila, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:707.

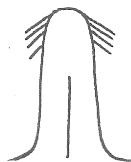
1913. Mycomyia Edwards, Trans. London Ent. Soc. 1913:335.

Head flattened in front, placed low upon the thorax; the compound eyes slightly emarginate above the antennae; lateral ocelli large, close together; median ocellus small or absent; palpi four jointed. Mesonotum arched above, the greatest height near its mid-point. Scutellum small with 2 or 4 marginal setae. Sternopleurites almost square. Postnotum steep, curved in lateral aspect, not angulated. Pleurotergites prominent. Anepisternites, sternopleurites, pteropleurites, pleurotergites, and postnotum bare. Membrane caudad of the halteres with a single prominent seta. Abdomen with seven visible segments. Legs long and slender; tibial and tarsal setae in regular rows. Wings hyaline; small cell R_1 almost invariably present; costa ends at tip of R_5 ; Cu forks proximad to distad of the base of R_5 .

The males may be divided into two groups, according to the presence or absence of spurs on their middle coxae. Correlated with this, there are two types of male terminal structure and usually the number of scutellar setae.

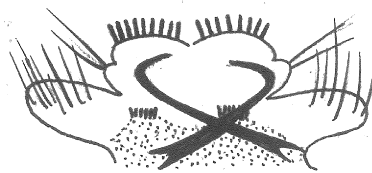
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In the spurred males the posterior margin of the tergum bears a median process ("Processus" of Landrock) whose tip bears lateral hairs or small spines making a T-shaped structure. There are usually only two prominent scutellar setae. Mycomyia hirticollis is illustrative of this type - the "T" type.



Median dorsal process of T.
Dorsal aspect.

In those males lacking spurs on the mesocoxae, the tergum has no central process or "T" but finger-like processes varying greatly in detail in different species but often provided with a pair of heavily sclerotized spines or a row of spines forming a "comb". There are usually four prominent scutellar setae. Mycomyia littoralis is illustrative of this type - the "finger-like" type.

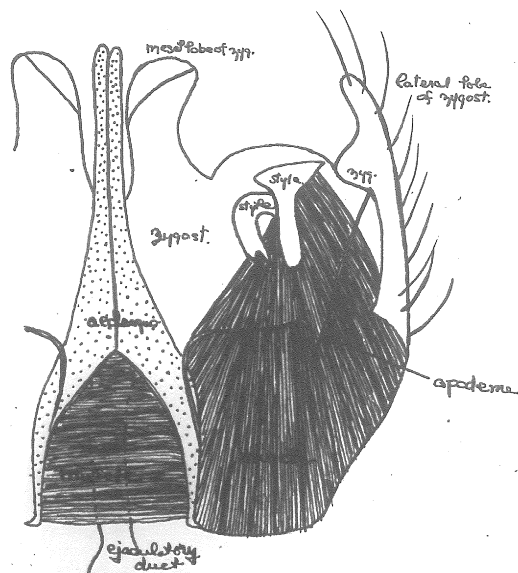


Mesal aspect of Tergum of the
"finger-like" type.

In both types there is retraction of the seventh abdominal segment and the terminalia are rotatable. (see chart page 22).

The zygosternum forms the ventral half of the wall

of the genital chamber, the tergum the dorsal half. The zygosternum is often deeply cleft on the mid-ventral line. The styles are simple or bifid. When bifid the tips are often close together, pincher-like. The tergum has lateral lobes in both the spurred and the non-spurred types.

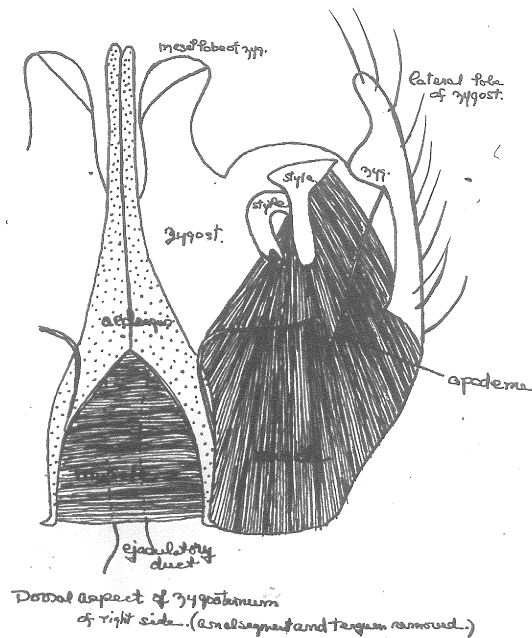


Dorsal aspect of zygosternum of right side... (aedeagus and tergum removed.)

The zygosternum in the spurred types may have lateral lobes (the "appendices superae" of Landrock). These are not appendages but projections of the zygosternal wall.

The zygosternum in the non-spurred types is variously modified. Two elongate sinuous, central lobes ("intermediate appendages" of Johannsen) arise from the base of the median ventral cleft in the zygosternum. (Mycomyia littoralis, Mycomyia obliqua.) These are never articulated. In other forms there are no sinuous lobes and the zygosternum is not deeply cleft; there

of the genital chamber, the tergum the dorsal half. The zygosternum is often deeply cleft on the mid-ventral line. The styles are simple or bifid. When bifid the tips are often close together, pincher-like. The tergum has lateral lobes in both the spurred and the non-spurred types.



The zygosternum in the spurred types may have lateral lobes (the "appendices superae" of Lanarock). These are not appendages but projections of the zygosternal wall.

The zygosternum in the non-spurred types is variously modified. Two elongate sinuous, central lobes ("intermediate appendages" of Johannsen) arise from the base of the median ventral cleft in the zygosternum. (Mycomyia littoralis, Mycomyia obliqua.) These are never articulated. In other forms there are no sinuous lobes and the zygosternum is not deeply cleft; there

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may be short lobes on either side the mid-line. The zygosternum may also have lateral lobes.

The following species belong to the spurred group:

<i>M. abbreviata</i>	<i>M. fulvitibia</i>	<i>M. maxima</i>
<i>M. ampla</i>	<i>M. fuscipalpis</i>	<i>M. nigrihirta</i>
<i>M. appendiculata</i>	<i>M. hamatus</i>	<i>M. parascopula</i>
<i>M. atus</i>	<i>M. hirticauda</i>	<i>M. polleni</i>
<i>M. autumnalis</i>	<i>M. hirticollis</i>	<i>M. pseudomaxima</i>
<i>M. bretonensis</i>	<i>M. humidus</i>	<i>M. sequax</i>
<i>M. calcarata</i>	<i>M. imitans</i>	<i>M. shermani</i>
<i>M. californica</i>	<i>M. intermedia</i>	<i>M. terminata</i>
<i>M. difficilis</i>	<i>M. magna</i>	<i>M. vulgaris</i>
<i>M. echinata</i>	<i>M. marginalis</i>	

M. imitans is the only species I have seen among the spurred group that does not have the characteristic terminalia. Its spurs are very short; its terminalium approaches the non-spurred type.

The following species belong to the non-spurred group:

<i>M. alternata</i>	<i>M. flavohirta</i>	<i>M. obliqua</i>
<i>M. armata</i>	<i>M. littoralis</i>	<i>M. ornata</i>
<i>M. brevivittata</i>	<i>M. magnifica</i>	<i>M. sigma</i>
<i>M. dentata</i>	<i>M. mutabilis</i>	<i>M. simplex</i>
<i>M. dorus</i>	<i>M. nigricauda</i> (?)	<i>M. tantilla</i>

The terminalia of all those seen conforms to the characteristic non-spurred type.

I can only give a key to Eastern Nearctic Males.

Key to Males of the Genus Mycomyia of the Atlantic States

Mycomyia nugatoria, M. onusta, M. unicolor, and M. incompta are known from the females only and are therefore omitted from this key.

- 1. Fork of Cu below or distad of the base of R₂ --- 2.
 Fork of Cu proximad of the base of R₂ -----18.
- 2. Spurs present on the mesothoracic coxae; usually two
 scutellar bristles ----- 3.
 Spurs absent; usually four scutellar bristles -- 7.
- 3. Fore basitarsus longer than its tibia ----- 5.
 Fore basitarsus shorter than its tibia ----- 4.
- 4. Abdomen fuscous black, the posterior margin of each
 segment yellowish; Sc ends in C; Cu forks dis-
 tad of r-m ----- appendiculata Loew
 Abdomen yellow with wide brown saddles on the ter-
 gites, posterior margins yellow; Sc ends in
 R; Cu forks under r-m. ----- pura n.sp.
- 5. Petiole of M longer than M₃ ----- sequax Joh.
 Petiole of M shorter than M₃ ----- 6.
- 6. Coxal spurs short ----- imitans Joh.
 Coxal spurs long, terminalium plate 8, fig. 1 ---
 ----- terminata var. dichaeta
- 7. Abdomen with two or three spots on each segment;
 petiole of M shorter than M₃ - biseriata Lw.
 Abdomen not marked as above; petiole of M equal,
 shorter than, or longer than M₃ ----- 8.
- 8. Terminalium as in Plate 8, fig. 18 - dentata Fisher

- 12
9. A dense "brush" of setae on the fore coxae ---- 10.
 No dense "brush" of setae on the fore coxae --- 11.
10. Terminalium as in Plate 9, figs. 1-4 - ornata Meig.
 Terminalium as in Plate 9, fig. 11 - magnifica n.sp.
11. Sc ends in R_1 ----- 12.
 Sc ends in C, or ends free ----- 13.
12. Thorax vittate; base of first abdominal segment
 dusky ----- littoralis Say
 Thorax not vittate; terminalium as in Plate 8,
 fig. 17 ----- alternata Fisher
13. Petiole of M shorter than M_3 ; abdomen yellow, pos-
 terior third of half of each tergite blackish,
 sixth and seventh tergites black; total length
 3 to 5 mm. ----- brevivittata Coq.
 Petiole of M longer or subequal to M_3 ----- 14.
14. Dorsum of the thorax fuscous black, with black pile;
 humeri yellowish; scutellum fuscous black ---
 ----- obtruncata Lw.
 Thorax yellow with dorsal markings ----- 15.
15. Dorsum of the thorax yellow with distinct black or
 reddish markings; Sc_2 usually at middle of
 cell R_1 ----- 16
 Dorsum of thorax with faint markings; Sc_2 before
 middle of cell R_1 ----- nigricauda Adams
16. Two strong marginal scutellar setae --- sigma Joh.
 Four strong marginal scutellar setae ----- 17.
17. Mesonotum with two oblique lines which meet at the
 scutellum, a median line, and two elongate
 spots over the wing bases ----- obliqua Say

Mesonotum with three confluent or subconfluent dusky stripes ----- tantilla Lw.

18. No spurs on mesothoracic coxae; 4 marginal scutellar setae ----- 19.

Spurs present on mesothoracic coxae; 2 or 4 marginal scutellar setae ----- 21.

19. Thorax dark, hind borders of abdominal segments black, bases yellow; total length less than 5 mm. ----- turitella Fisher

Thorax yellow ----- 20.

20. Bases of abdominal segments black; total length 5 mm. ----- flavohirta Coq.

Bases of abdominal segments yellow, apical half or less dark ----- obliqua Say

21. Spurs of mesothoracic coxae minute; posterior margins of tergites black, fore basitarsus longer than its tibia ----- imitans Joh.

Spurs of mesothoracic coxae long ----- 22.

22. Scutellum with four marginal setae ----- 25.

Scutellum with two marginal setae ----- 23.

23. Sc₂ ends at center of cell R₁; anterior and posterior margins of abdominal tergites usually yellow; total length 3.5 mm. ----- hirticollis Say

Sc₂ ends before the center of cell R₁; abdomen with posterior margins only yellow ----- 24.

24. Fore basitarsus shorter than its tibia - humidus Garr.

Fore basitarsus longer than its tibia - scopula Fisher

25. Length 6.5 mm.; thorax yellow, three stripes on mesonotum dark brown, middle stripe produced cephalad, laterals short, all three confluent posteriorly; hind coxae outwardly infuscated, head infuscated becoming darker near ocelli ----- 26.

- Not as above ----- 27.
- 26. Terminalium as in Plate 7, fig. 2 --- maxima Joh.
Terminalium as in Plate 9, figs. 13 and 16 -----
----- bretonensis n.sp.
- 27. Coxae fuscous ----- scopula Fisher
Coxae yellow ----- 28.
- 28. Pleura yellow, scutellum yellow, head infuscated -
----- sequax Joh.
Pleura blackish, scutellum blackish, head shiny
black ----- pseudomaxima Fisher

Mycomyia abbreviata Van Duzee

1928. abbreviata, Van Duzee, Proc. Calif. Acad.
Sci. 17:42.

Recorded from: Calif., March (Van Duzee).

This species belongs to the spurred group.

"Hypopygium and its appendages mostly black,
but with two yellow, projecting organs, seen on
right hand of figure."

No specimens are available. A copy of his
figure from a dry specimen appears below.



Mycomyia alternata Fisher

Ms. name.

Recorded from: McLean Reservation, McLean, N.Y.,
Aug.; Intervale Margaree, Cape Breton I., N.S.,
Aug. (E.G.P.)

This species belongs to the non-spurred group.

Terminalium yellow; ninth tergum with four
finger-like spines, two on each side. These spines
arise from two lobes within the tergal border. The
tergal border has two pairs of posteriorly directed
lobes, the mesal pair broad and truncate, the lateral
pair elongate, clubbed. The anal segment is typical.
The zygosternum is cleft on the mid-ventral line.
The posterior edge of the zygosternum has two pairs
of non-articulate lobes; the mesal pair low, sinuous;
the lateral pair elongate with a black tip. The
styles are narrow curved appendages with dark tips,
enlarged at their bases. Plate 8, fig. 17.

Mycomyia ampla Carr.

1924. ampla, Garrett, Ins. Insc. Menst. 12:64-65.

Recorded from: Alberta, B.C., July. (Garr.).

I do not know this species. This species be-
longs to the spurred group.

Mycomyia angulata Adams

1903. angulata, Adams, Kas. Univ. Science Bull.
2:22. (Sciophila)

Recorded: from: Manitou Park, Colo. Aug. (Adams)

Known from the female only.

Mycomyia appendiculata Loew.

1869. appendiculata, Loew, Berl. Ent. Zeit. 13:
139. (Sciophila).

Recorded from: N.Y. (Loew).

Terminalium "small, yellow, with slender lateral appendages black". Belongs to spurred group. I have not seen it.

Mycomyia armata Garr.

1924. armata, Garrett, Ins. Insc. Menst. 12:163.

Recorded from: Caulfields, B.C. (Garr.)

This belongs to the non-spurred group. The fore coxae are provided with a "brush" as in M. ornata Meig. The description conforms to M. ornata, and the description of the terminalium conforms roughly with the illustration of Edwards. Can they be synonymous? I have not seen specimens.

Mycomyia atus Garr.

1924. atus, Garrett, Ins. Insc. Menst. 12:159-160.

Recorded from: Vancouver and Savory I., B.C., March, April. (Garr.)

Belongs to the spurred group. I have not seen it.

Mycomyia autumnalis Garr.

1924. autumnalis, Garrett, Ins. Insc. Menst. 12:160.

Recorded from: Michel, B.C., Sept. (Garr.)

Belongs to the spurred group. I have not seen it.

Mycomyia biseriata Loew.

1869. biseriata, Loew, Berl. Ent. Zeit. 13:140
(Sciophila).

Recorded from: Red River, Canada (Loew); Me., Vt.,
June-July (Joh.)

I have not seen a male.

Mycomyia bifasciatus (Say) see Leptomorphus bifasciatus (Say)

Mycomyia bretonensis n.sp.

Male. Length 5 mm. Head dark brown above; mouthparts and bases of antennae yellow. Thorax yellow and brown. Mesonotum yellow with three prominent dark stripes, the median one divided by a narrow yellow line. Scutellum yellow with four strong marginal setae. Postnotum brown. Coxae yellow; hind coxae with a faint brown spot outwardly. Mesocoxae with long spurs which end in two teeth; fore basitarsus shorter than its tibia. Wings hyaline; Sc ends in C before the origin of R_4 ; Sc_2 almost over middle of small cell R_1 ; Cu forks proximal of r-m; stalk of M shorter than M_3 . Abdominal tergites brown with yellow bases and lateral margins; venter yellow. Terminalium as in Plate 9, figs. 13 and 16.

Holotype: C.U. coll. no. (alcoholic) Intervale
Margaree, Cape Breton Island, N.S., Aug. 31, 1936.
(bretonensis - of Breton)

Runs to M. mendax in Johannsen's key; differs
in the position of the Cu fork, lacks the coxal
"brushes," and differs in terminalial structure.

Terminalium. Tergum with setose lateral lobes;
the "T" broad almost a "V" in shape with the char-
acteristic short setae. Lobes of anal segment broad.
Zygosternum entire with lateral lobes, each ending
in a seta. Styles simple, curved, hook-like ap-
pendages. Plate 9, figs. 13 and 16.

Mycomyia brevivitta Coq.

1905. brevivitta, Coquillett, Journ. N.Y. Ent. Soc.
15:67. (Sciophila)

Recorded from: B.C. (Coq.); N.Y., Wisc., Ill., May-
Aug. (Joh.).

Belongs to the non-spurred group.

Terminalium "resembling that of M. levis Dzied."
Tergum with lateral lobes provided with rather strong
setae. Within the genital chamber the tergum has a
"median pair of slender palmate lobes, each with six"
finger-like spines which decrease in length outwardly,
Plate 8 fig. 13. Zygosternum entire ventrally, pro-
duced into a posteriorly projecting lobe on the mid-
line; on either side of this median lobe is another
lobe; the dorso-lateral hind angles of the zygosternum

are also produced into lobes. The styles are of two parts. See fig. 134 Johannsen 1910 for ventral aspect. See plate 8, figs. 2 and 13 for lateral dorsal aspects.

Mycomyia calcarata Coq.

1904. calcarata, Coquillett, Invertebrata Pacifica
1:19 (Sciophila)

Recorded from: Calif. (Coq.)

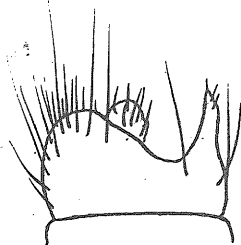
This belongs to the spurred group. I have not seen the terminalium.

Mycomyia californica Van Duzee

1928. californica, Van Duzee, Proc. Calif. Acad. Sci.
17:40. fig. 6.

Recorded from: Mill Valley, Marin Co., Calif., Febr.

This belongs to the spurred group. Van Duzee's illustration of the terminalium from a dried specimen is copied below. He says: "hypopygium large yellow, the drawing is partly a side view, the lower projection is yellow with three short hairs at the tip; but the position does not show the character very well."



Mycomyia caulfieldi Garrett see Mycomyia terminalis var.
caulfieldi Garr.

Mycomyia cranbrookii Garrett see Mycomyia terminalis var.
cranbrookii Garr.

Mycomyia curvata Fisher see Mycomyia humidus Garr.

Mycomyia dentata Fisher.

dentata, Fisher, Ms. name.

Recorded from: Shelburne, N.H. (E.G.P.)

This species belongs to the non-spurred group.

Terminalium. Tergum with two pair of lateral lobes, the outer pair long and robust, the inner pair short, small. Mesad of these lobes on either side of the mid-line are delicate "combs" of setae. Within the genital chamber are two stout curved seta arising from the tergum and two heavy "combs." Zygosternum cleft on the mid-ventral line, with sinuous lobes as in M. littoralis.

Mycomyia dichasta Fisher see Mycomyia terminalis var. var. dichasta.

Mycomyia difficilis Garr.

1924. difficilis, Garrett, Ins. Insc. Menst. 12:65,66.

Recorded from Cranbrook, B.C., April and May. (Garr.)

I do not know this species. It belongs to the spurred group.

Mycomyia durus Garr.

1924. durus, Garrett, Ins. Insc. Menst. 12:162, 163.

Recorded from: Vancouver, B.C. (Garr.)

This belongs to the non-spurred group. This has the fore coxal "brush" as in M. armata, M. tumida and

M. ornata.

I do not know this species.

Mycomyia echinata Garr.

1924. echinata, Garrett, Ins. Insc. Menst. 12:161,162.
Recorded from: Michel, B.C., Aug., Sept.; Vancouver,
B.C., Feb., May. (Garr.)

The following description is based on a metatype
from St. Mary's Lake, Kimberley, B.C., July:

Male. Length 5 mm. Head blackish-brown above,
greyish below the antennae; mouthparts and bases of
antennae yellow. Thorax dark brown. Mesonotum with
three confluent greyish pollenose stripes, the laterals
abbreviated in front leaving the humeral angles yellow
(not brown as in type description). Scutellum dark
brown with 2 prominent marginal setae. Prothorax
yellow. Legs yellow; tarsi infuscated, hind coxae
infuscated outwardly. Mesocoxae with long spurs.
Abdomen brown, venter yellow. Terminalium as in Plate
6, figs. 4 and 5. Wings hyaline; C reaches apex of
wing; Sc ends in R over middle of cell R₁ (not free
as in description); cell R₁ twice as long as wide;
stalk of M slightly longer than M₃; Cu forks just
proximal of base of r-m.

Terminalium. Tergum narrow with lateral lobes.
A quadrangular median lobe bears the "T". The anal
segment is typical. Pygosternum entire ventrally.

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styles of two parts, pincer-like. Plate 6, figs. 4.
and 5.

Mycomyia flavohirta Coq.

1901. flavohirta, Coquillett, Proc. U.S. Nat. Mus.
23: 596. (Sciophila).

Recorded from Franconia, N.H. (Coq.).

This belongs to the non-spurred group. I have
seen no genitalia of this species.

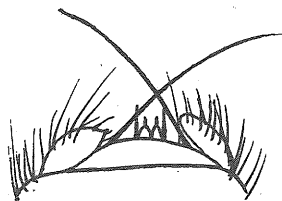
Mycomyia fulvitibia Van Duzee.

1928. fulvitibia, Van Duzee, Proc. Calif. Acad. Sci.
17:38, 39, fig. 4.

Recorded from Mill Valley, Marin Co., Calif., March
and April.

This belongs to the spurred group.

"Hypopygium reddish; two pair of straight median
appendages and a pair of long cruciate bristles are
the most striking characters." The figure below is
after Van Duzee's of an untreated specimen.



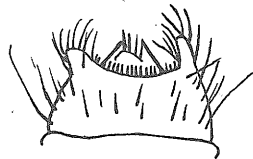
Mycomyia fuscipalpis Van Duzee

1928. fuscipalpis, Van Duzee, Proc. Calif. Acad. Sci.
17:40, 41 fig. 7.

Recorded from: Mill Valley, Marin Co., Calif., March.

This species belongs to the spurred group.

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- "hypopygium with a row of blunt spines between lateral flaps or claspers." The figure below is after Van Duzee's of the unprepared terminalium.



Mycomyia grisea (Walk.) see Polylepta grisea (Walk.)

Mycomyia hamatus Garr.

1924. hamatus, Garrett, Ins. Insc. Menst. 12:160, 161.

Recorded from: Michel, B.C.

This species belongs to the spurred group. I do not know it.

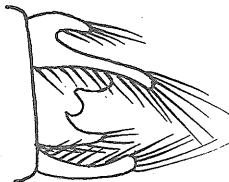
Mycomyia hirticauda Van Duzee

1928. hirticauda, Van Duzee, Proc. Calif. Acad. Sci. 17:39. fig. 3.

Recorded from: Mill Valley, Marin Co., Calif., March.

This species belongs to the spurred group.

"Hypopygium brown, its superior claspers long and black with long black hair at tip on inner surface." The figure below is from an unprepared terminalium after Van Duzee.



Mycomyia hirticollis Say

1824. hirticollis, Say, Long's Exp. St. Peter's River. Appl. 362. (Sciophila).

Recorded from: N. West Terr. (Say); White Mts., N.H. (Johnson); Nova Scotia; Gaspe Pen., Que. Aug.-Sept. (E.G.F.); Ithaca, N.Y. (E.G.F.); N.J. (Joh. coll.).

I have specimens which run here in Johannsen's key and agree with Say's description, they also agree with a specimen in Johannsen collection from N.J. labelled M. hirticollis. I have not seen the type. They belong to the spurred group.

Terminalium. Tergum with "T" slightly set back from the tergal edge within the genital chamber; lateral tergal lobes are dark in color, project dorsally, and are provided with numerous gently curved setae. Plate 7, fig. 6. Zygosternum entire with lateral lobes and mesal lobes on either side the mid-line. Styles nearly hidden within the genital chamber, of two parts, pincer-like. Plate 7, figs. 6 and 8.

Mycomyia humidus Garr.

1924. humidus, Garrett, Ins. Insc. Menst. 12:62,63.

curvata, Fisher, M.S. name.

Recorded from: Michel, B.C., Sept.; Yellowstone Park, Montana, Aug. (Garr.); Jasper, Alberta; Katahdin, Me., Aug. (E.G.F.).

Garrett regards curvata as a synonym of humidus.
This belongs to the spurred group.

Terminalium. Tergum with a "T" on the median line and lateral lobes; the latter are elongate, somewhat enlarged at the tips with numerous fine setae. Zygosternum entire; on either side the mid-line is a pointed lobe; lateral lobes absent. Styles of two parts, pincer-like, as in M. sequax. Plate 8, fig. 14.

Mycomyia imitans Joh.

1910. imitans, Johannsen, Me. Agr. Exp. Sta. Bull. 180:177, 178. figs. 132, 133.

Recorded from: Me., Mass., R.I., N.Y., Wisc., B.C., July-Sept. (Joh., Johnson); Cape Breton I., N.S. (E.G.F.).

Terminalium resembles that of pulchella Dzied. (Johannsen). The terminalium conforms to the non-spurred type, but imitans has short spurs. Tergum with two sets of lobes on its outer posterior margin, the mesal pair pointed, the lateral pair notched at the tip; the inner posterior margin of the tergum with a mesal heavily sclerotized pair of lobes and a lateral pair of lobes each with a strong seta at its tip, Plate 9, fig. 12. Anal segment large. Zygosternum deeply and broadly notched on the median ventral line; large lateral lobes at the dorso-posterior angles with a heavily sclerotized rim along

their ventral edges which run to the base of the styles then along the zygosternal edge to the median line where they are continued as sclerotized, hook-like, non-articulate lobes. Styles of two parts, pincer-like, very elongate. Plate 9, fig. 10.

Mycomyia incompta Joh.

1908. incompta, Johannsen, Me. Agr. Exp. Sta. Bull. 180:186.

Recorded from: Selkirk Mts., B.C., Aug.; Capens, Me., July; Ithaca, N.Y. (Joh.)

Known from the female only.

Mycomyia intermedia Fisher.

intermedia, Fisher, Ms. name.

Recorded from: Fair Oaks, Calif. (E.G.F.).

This species belongs to the spurred group.

Terminalium. Tergum consists of a basal and a distal sclerite. Within the genital chamber borne by the distal sclerite are a pair of mesal stout "combs" and a pair of lobes each bearing a stout bifurcate spine. Zygosternum entire, the posterior edge with two broad mesal lobes and two narrower lateral lobes. Each gourd-shaped style bears a long stout terminal seta. Plate 7, fig. 7.

Mycomyia littoralis (Say).

1824. littoralis, Say, Long's Exp. St. Peter's River. app. 361 (Sciophila).

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Recorded from: Lake Superior (Say); Me., N.H., Vt.,
Conn., Mass., N.Y., Wisc. (Joh., Johnson); N.J.,
(Smith); N.C. (Shaw and Townes). Cape Breton I.,
N.S. (E.G.F.).

This belongs to the non-spurred group.

Terminalium. Tergum with a pair of lateral lobes and a pair of mesal "combs" on its posterior edge, Plate 8 figs. 5 and 6. Within the genital chamber the tergum bears another pair of "combs" and two long, stout spines, which cross at their bases, Plate 8, fig. 6. Zygosternum deeply cleft on its mid-line; at the base of the cleft, the zygosternum bears a pair of sigmoid, very narrow, elongate lobes (as in M. obliqua and M. dentata). Zygosternum without lateral lobes. Styles bipartate (bipartate structure visible only in lateral aspect). The styles vary somewhat, Plate 8 figs. 4,7,11,12 (figures 4 and 11 are from Johannsen's specimens); there is also some variation in the structure of the tergum, some forms approaching the variety frequens.

littoralis var. frequens Joh.

1910 littoralis var. frequens, Johannsen, Me. Agr.
Exp. Sta. Bull. 180:171. fig. 144a.

The style differs in shape from the typical form, Plate 8, fig. 8. There are no lateral lobes on the posterior edge of the tergum.

Mycomyia longispina Van Duzee see Mycomyia terminata Garr.

Mycomyia magna Garrett

1924. magna, Garrett, Ins. Insc. Menst. 12:64.

Recorded from: Fernie, B.C. (Garr.)

This belongs to the spurred group.

Terminalium "somewhat similar to vulgaris" Garr.

I have not seen it.

Mycomyia magnifica n.sp.

Male. Length 7 mm. Head brown above, sides and below the antennae yellow; mouthparts and bases of antennae yellow. Thorax yellow; mesonotum with three, dark, distinct stripes, the central stripe divided by a fine yellow line. Scutellum with four large marginal setae. Legs yellow; fore coxae with an apical "brush" as in M. ornata; mesocoxae without spurs. Sc ends in C just before origin of R_4 ; Sc_2 slightly before middle of small cell R_1 ; petiole of M shorter than M_3 (20:25); Cu forks under base of R_5 . Abdomen yellow; posterior margins of tergites brown. Terminalium as in Plate 9, fig. 11.

Holotype: C.U. coll. no. (alcoholic) Port Hastings, Cape Breton Island, Nova Scotia. Aug. 29, 1936.

(magnificus - a - um = magnificent)

Terminalium dorsally as in Mycomyia ornata (No. 33). Ventrally as in Plate 9, fig. 11.

Mycomyia marginalis Joh.

1910. marginalis, Johannsen, Me. Agr. Exp. Sta. Bull. 180:177. fig. 135.

Recorded from: Selkirk Mts. B.C., July (Joh.)

This belongs to the spurred group.

Terminalium. Tergum with "T" or median "processus" and lateral lobes, Plate 6, fig. 12. Zygosternum entire; its posterior edge bears a short mesal pair of lobes and an elongate lateral pair.

Styles of two parts, pincer-like. Plate 7, fig. 4.

The elongate lateral lobes in M. maxima are broad and are tergal not zygosternal.

Mycomyia maxima Joh.

1910. maxima, Johannsen, Me. Agr. Exp. Sta. Bull. 180:179, 180.

Recorded from: N.Y., Me., N.H., Vt., Mass. (Joh.-Johnson).

Johnson states: Type locality, Nain, Labrador not Maine.

This belongs to the spurred group.

Terminalium similar to M. bicolor Dzied. (Johannsen). Tergum with an elongate "T" and lateral lobes which are broad at the tip with a weak brush of setae on their mesal aspects. The anal segment is enormously broad but of the three typical lobes. Zygosternum entire with a pair of small lobes on the posterior edge on either side the mid-line; no lateral

lobes are developed. Styles of two parts, pincer-like. Plate 7, fig. 2.

Mycomyia mendax Joh. see Mycomyia ornata Meig.

Mycomyia mutabilis Sherman.

1921. mutabilis, Sherman, Proc. Ent. Soc. B.C.
16:18.

Recorded from: Savory I., B.C., April

Belongs to the non-spurred group.

I do not know this species.

Mycomyia nigricauda

1903. nigricauda, Adams, Kas. Science Quart. 2:26.

Recorded from: Colorado City, Colo., July (Adams);
N.Y., July (N.Y.S. List); Cape Breton I., N.S.,
Sept. (E.G.F.).

I have seen specimens that I refer here with a question. The apices of the abdominal segments are brown and the dorsum of the mesonotum has 3 confluent stripes. It lacks coxal spurs on the mesocoxae.

Terminalium. Tergum unique, with lateral lobes that bear a proximal group of ordinary setae, then a group of broad setae, then a distal group of fine long curved setae. Mesad of these lateral lobes are short lobes with short setae on their inner aspects. At the base of the latter within the genital chamber a "comb" bearing lobe arises. Plate

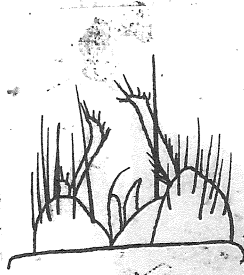
9, fig. 8. On either side the anal segment are lobes shaped as in Plate 9, fig. 9. Zygosternum notched but slightly on the mid ventral line.

Mycomyia nigrihirta Van Duzee

1928. nigrihirta, Van Duzee, Proc. Calif. Acad. sci. 17: 39, 40 fig. 5.

Recorded from Berkeley, Calif., May (Van Duzee)

The figure below is from the unprepared terminalium after Van Duzee. It belongs to the spurred group.



Mycomyia nugatoria Joh.

1910. nugatoria, Johannsen, Me. Agr. Exp. Sta. Bull. 180: 183, 184.

Recorded from: Milwaukee Co., Wisc.; (?) Black Mts. N.C. (Joh.) Known from the female only.

Mycomyia obliqua (Say)

1824. obliqua, Say, Long's Exped. St. Peter's River, App. 363. (Sciophila)

Recorded from: N.W. Terr. (Say); Me., N.H., July (Johnson); Montreal, N.Y., R.I., Mass., Wisc. July, Aug., (Joh.); S.C., June-Oct. (Shaw and Townes); Cape Breton I., N.S. (E.G.F.).

Belongs to the non-spurred group.

Terminalium resembles M. lucorum Winn.

(Johannsen). Tergum composed of a large basal and a small distal sclerite. Plate 8, fig. 9. The distal sclerite with a setose posterior margin. Within the genital chamber the tergum bears two long very stout setae which cross at their bases (as in Mycomyia littoralis littoralis, Plate 8, fig. 6). Pygosternum cleft on its mid-line at the base of the cleft a pair of narrow curved lobes originate as in Mycomyia littoralis and Mycomyia dentata. Styles of two parts; the ventral portion large, subovoid, setose; the dorso-mesal portion is narrow, bare. Plate 10, fig. 1; Plate 8, fig. 9.

Mycomyia obtruncata Loew.

1869. obtruncata, Loew, Berl. Ent. Zeit. 13:139.

Recorded from: D.C. (Loew).

I have not seen this species.

Mycomyia onusta Loew

1869. onusta, Loew, Berl. Ent. Zeit. 13:138 (Sciophila)

Recorded from: D.C. (Loew.); (?) Me., June, Aug.; Mass., July (Johnson).

Known from females only.

Mycomia ornata Meig.

1818. ornata, Meigen, Syst. Bechr. 1:138 (Sciophila)

1863. tumida, Winnertz, Verh. Zool.-bot. Ges. Wien.
13; 727. (Sciophila)

1910. mendax, Johannsen, Me. Agr. Exp. Sta. Bull
180:182, 183. figs. 141, 142.

Recorded: N.Y., Id., Calif., B.C. (Joh.); N.H., Vt.
June (Johnson); B.C., April (Shaw and Townes).

M. mendax I consider a synonym of M. ornata
after comparison of the type of M. mendax with
figures and descriptions of M. ornata. The fore
coxal "brushes" are very distinctive. Garrett's
M. durus and M. armata also possess these "brushes",
perhaps they are also synonyms of M. ornata.

Specimens taken at McLean, N.Y show two types
of terminalia. One is like that figured by Edwards,
1925 as Mycomyia ornata var. This specimen has the
fore tibia subequal to the fore basitarsus. The
other is like that figured by Dziedzieki 1915, as
Sciophila tumida Winn.; this specimen has the fore
basitarsus longer than its tibia. Edwards suggests
that M. tumida is a synonym of M. ornata. He says:
"The male hypopygium shows a certain amount of vari-
ation but most of those I have examined agree more
or less closely with Dziedzieki's figures of Mycomyia
tumida. For this reason I think it possible that
Dziedzieki has merely figured as M. ornata an ab-
normal or damaged specimen of the same species which
he has shown in a different position as M. tumida."

There are probably several varieties of this

species in America as Edwards suggest there are in Britain. Two distinct forms are shown in Plate 9. They belong to the non-spurred group.

Mycomyia oviducta Carr. see Boletina oviducta Carr.

Mycomyia parascopula Fisher.

parascopula, Fisher, Ms. name.

Recorded from: Beltsville, Md., Oct. (E.G.F.); S.C., June (Shaw and Townes). Belongs to the spurred group.

Terminalium. Tergum with a median "T" and large lateral lobes which bear a "brush" of setae on their mesal aspects (much as in M. scopula, Plate 8, fig. 3.). Zygosternum entire with small mesal lobes and enormous lateral lobes from its posterior edge. The latter have a subterminal mesally directed seta, a blade-like mesal edge. Plate 8, fig. 10. The styles are small, bipartate.

Mycomyia polleni Garr.

1924. polleni, Garrett, Ins. Insc. Menst. 12:65.

Recorded from Cranbrook. B.C., July.

I add from metatype specimens sent me the following notes:

Length 4.5 mm. Prothorax brownish-yellow. Mesonotum brownish yellow with 3 broad confluent grey-black stripes. Coxae yellow; bases of coxae es-

pecially hind pair dusky; mesocoxae with spurs.
Fore tibiae longer than fore basitarsi. R_3 rather strongly curved. Petiole of M shorter than M_3 (15:22); Cu forks proximad of base of R_3 by a distance greater than the length of the basal section of R_3 . Terminalium as in Plate 6, figs. 1 and 3.

Terminalium. Tergum, Plate 6, fig. 3, with a small median "T" and large setose lateral lobes. Zygosternum entire on mid-ventral line, with two mesal and two lateral lobes (Plate 6, fig. 1) with the bipartate styles between.

Mycomyia pseudomaxima Fisher.

pseudomaxima, Fisher, Ms. name.

Recorded from: Ithaca, N.Y., May. (E.G.F.)

This species belongs to the spurred group.

Terminalium superficially similar to M. maxima.

Tergum with a long median "T" and two large flap-like lateral lobes. Lobes of anal segment broad. Zygosternum entire, Plate 8, fig. 19, with a small lobe on either side of the mid-line and larger, round-tipped, lateral lobes. Styles bipartate, pincer-like.

Mycomyia pulchra (Joh.) see Leptomorphus pulcher (Joh.)

Mycomyia pura n.sp.

Male. Length 3 mm. Head brown; mouth parts

and bases of antennae yellow. Thorax yellow with three faint brown stripes which are obsolete cephalad. Scutellum with 2 strong marginal setae. Legs yellow; fore tibiae longer than their basitarsi; mesocoxae with medium-sized spurs. Abdominal tergites with anterior and posterior margins yellow, center brown; venter yellow. Sc ends in R at middle of small cell R_1 ; Sc2 absent, stalk of M longer than M_3 ; Cu forks under cross-vein r-m. Terminalium plate 9, figs. 14 and 15.

Holotype: C.U. coll. no. Port Hastings,
Cape Breton I., Nova Scotia. Aug. 30, 1936.
(purus - a - um - clean)

Runs to M. littoralis in Johannsen's key, differs in terminalial structure, number of scutellar setae, etc.

Terminalium. Tergum with a long narrow "T" and large, lateral, setose lobes, Plate 9, fig. 14. Zygosternum entire with very short mesal lobes and elongate, narrow, lateral lobes. Styles bipartate, pincer-like. Plate 9, fig. 15.

Mycomyia recurva Joh.

1910. recurva, Johannsen, Me. Agr. Exp. Sta. Bull.
180:185.

Recorded from: Wisc. (Joh.)

Both the typical form and var. chloratica are known from females only.

Mycomyia sequax Joh.

1910. sequax, Johannsen, Me. Agr. Exp. Sta. Bull.
180: 172. fig. 146, 103.

Recorded from: Ithaca, N.Y., July (Joh.), Me., June,
July (Johnson); Jasper, Alberta (E.G.F.).

This species, belongs to the spurred group.

Terminalium smaller than last visible abdominal
segment, resembles M. occultans Winn. as figured by
Dziedzieki (Johannsen). Tergum with a median "T" and
small lateral lobes (?). Zygosternum entire, Plate
9, fig. 7, with small mesal lobes but no lateral lobes.
Styles bipartate, pincer-like.

Mycomyia scopula Fisher.

scopula, Fisher, Ms. name.

Recorded from: Ithaca, N.Y., May (E.G.F.).

This species belongs to the spurred group.

Terminalium. Tergum similar to M. parascopula,
with a median, short "T" and large lateral lobes
with a "brush" on the mesal aspects of their tips,
Plate 9, fig. 3. Zygosternum entire, with its mesal
lobes short, bent, its lateral lobes, narrow, sinous,
Plate 9, fig. 9. The styles are bipartate, pincer-
like.

Mycomyia shermani Garr.

1924. shermani, Garrett, Ins. Insc. Menst. 12:66,67.

Recorded from: Michel, B.C. (Garr.)

Terminalium somewhat similar to M. maxima as figured by Johannsen, according to Garrett.

I do not know this species. It belongs to the spurred group.

Mycomyia sigma Joh.

1910. sigma, Johannsen, Me. Agr. Exp. Sta. Bull. 180.

Recorded from: N.C. (Joh.). N.Y. (E.G.P.)

This belongs to the non-spurred group.

Terminalium. Tergum with narrow elongate lobes on either side the mid-line, Plate 8, fig. 3. Zygosternum with a median suture, and with elongate ventral lobes, Plate 8, fig. 1. Styles hidden in life, bipartate.

Mycomyia simplex Coq.

1905. simplex, Coquillett, Journ. N.Y. Ent. Soc. 13:
67 (Sciophila).

Recorded from: B.C., July, Aug. (Coq.).

I have seen no male terminalia of this species.

Mycomyia subcaerulea (Coq.) see Leptomorphus subcaeruleus (Coq.)

Mycomyia tantilla Loew

1869. tantilla, Loew, Berl. Ent. Zeit. 13:140 (Sciophila)

Recorded from: D.C. (Loew); S.D., Wyo., Wisc., Sept.;

Nebr. (Joh.); Me., July (Johnson); N.C., July (Shaw and Townes).

This species belongs to the non-spurred group.

Terminalium resembling M. brunnea Dzied. (Johannsen). Tergum (= inferior sclerite of Johannsen) with a pair of mesal lobes and a pair of lateral lobes from its posterior edge, Plate 9, fig. 6. Within the genital chamber are a pair of tergal lobes. The anal segment lies on the floor of the genital chamber and is hidden. The zygosternum is deeply cleft on its mid-ventral line. The lateral portions of the zygosternum are produced posteriorly into round-tipped lobes, each of the latter bearing a subterminal dorsally directed seta. The styles are small, with a sclerotized hooked tip.

Mycoavia terminata Carr.

1924. terminata, Garrett, Ins. Insc. Menst. 12:60, 61.
1928. longispina, Van Duzee, Proc. Calif. Ac. Sci. 17:
41, 42. fig. 8.
1924. caulfieldi, Garrett, Ins. Insc. Menst. 12:62.
1924. cranbrookii, Garrett, Ins. Insc. Menst. 12:61, 62.
dichaeta, Fisher, Ms. name.

Garrett has written me that he considers M. longispina and M. dicheta as synonymous with his M. terminata.

M. caulfieldi and M. cranbrookii as described in Garrett's paper listed above are reversed according to figures sent me by Garrett.

M. caulfieldi and M. cranbrookii are but varieties of M. terminata. M. longispina is probably

synonymous with the typical terminata.

The typical terminata (metatype) is shown in figure 7, Plate 6; var. dichaeta is shown in figure 1, Plate 8. They belong to the spurred group.

Mycomyia tumida Winn. see Mycomyia ornata Mg.

Mycomyia turitella Fisher.

turitella, Fisher, Ms. name.

Recorded from: Monticello, Fla., March (E.G.F.)

This species belongs to the non-spurred group.

Terminalium. Tergum with median lobes which bear combs on their tips, Plate 8, fig. 15. Zygo-sternum entire with a lobe on the mid-line, a pair of lobes laterad of the mid-line, and a pair of lobes at the dorso-lateral angles of the posterior margin, Plate 8, fig. 16. Styles bipartate.

Mycomyia unicolor (Walk.)

1848. unicolor, Walker, List Dipt. Brit. Mus. 1:93.
(Leia)

Recorded from: Hudson's Bay Terr. (Walker)

Johannsen (Canad Ent. 58) placed this species in Mycomyia after examining the type.

Known from the female type only.

Mycomyia vulgaris Garr.

1924. vulgaris, Garrett, Ins. Insc. Menst. 12:63,64.

Recorded from Fernie, B.C., July.

The following notes are based on paratypes:

Length 5.5 mm. Wings 5.5 mm. C reaches wing apex. R_3 strongly curved; petiole of M shorter than M_3 (22:26); Cu forks proximad of the base of R_3 . Greyish black color except mouthparts, bases of antennae, prothorax, stigmatic areas, halteres, abdominal venter and lateral margins of intermediate segments. Coxae yellow; mesocoxae with spurs; fore basitarsi longer than fore tibiae (31:29). Terminalium as in Plate 6, fig. 2. J

Terminalium. Tergum with its mesal and outer walls somewhat separated, the mesal portion ending in two lobes, the outer in one. Tergum with elongate lateral lobes from the membrane at its ventral edges. Zygosternum entire on the mid-ventral line. Styles bifurcate distally with curved tips. Plate 6, fig. 2.

Necempheria O.S.

1878. Necempheria, Osten Sacken, Catl. Dipt. 9.
1863. Empheria, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:707
<1909. Mycomya, Johannsen, Genera Insectorum.
>1911. Neurocompsa, Enderlein, Stett. Ent. Zeit. 72: 158,
159, fig. 1.
>1911. Pleonezoneura, Enderlein, Stett. Ent. Zeit. 72: 156.

Johannsen considered this a subgenus of Mycomya but later as a separate genus. Enderlein separated Neurocompsa and Pleonezoneura from Necempheria.

Pleonazoneura was proposed for those species in which a spurious vein was developed in cell R₅; Neurocompsa was proposed for those species with a cross-vein from the spurious vein to R₅. There are Nearctic species referable to Pleonazoneura but the presence or absence of of this spurious vein does not seem to me to be of a generic value.

The genus Neoempheria agrees in most respects with the genus Mycomyia. It differs in having fasciate wings; C produced beyond the tip of R₅; R₅ not reaching the wing tip; a spurious vein usually present in cell R₅; eyes not or scarcely emarginate above the antennae; mesocoxae always lacking spurs; the antennae slightly compressed. The thoracic structure is similar to that of Mycomyia. The prothorax, mesonotum, and scutellum are setose; the remainder of the thorax is bare.

Terminalium rotatable. Eighth abdominal segment retracted, often with a prolongation that projects up over a portion of the ninth segment. Neoempheria and Mycomyia form such a natural group that I should expect their basal terminalial structure to be similar, but not only is it different from Mycomyia but also so different between species of Neoempheria, that I am unable to find any basic type for the genus, much less a similar basic type to the non-spurred Mycomyias.

Key to Nearctic Species (modified after Johannsen).

1. Media forks distad of small cell R₁; which is not

- more than three times as long as wide ----- 2.
- Media forks proximad of apex of cell R_1 , which is more than three times as long as wide; apex of cells R_5 and M_1 broadly clouded ----- 7.
2. Apex of wing clouded ----- 3.
 Apex of wing hyaline ----- 5.
3. Length 4 mm.; palpi dark brown, terminalium as in Plate 10 fig. 7 ----- macularis Joh.
 Length 5.5 mm. or more; palpi black ----- 4.
4. Length 5.5 mm.; apex of posterior wing angle widely cinereous; intermediate abdominal segments yellow each with two transverse black spots on the posterior margin. Females ----- didyma Loew
 Length 6 mm. or more; cinereous spot behind apex of Cu_2 ; intermediate abdominal segments yellow each with a black band along the posterior margin. Terminalium as in Plate 10 fig. 4. Males and females ----- digitalis Fisher
5. Spot which covers the r-m cross-vein extends nearly to the posterior wing margin; small cell R_1 over twice as long as wide; apex of subcosta evanescent ----- 6.
 Spot which covers the small cell and the cross-vein does not reach the base of the fork of Cu ; Sc_2 distad of the middle of cell R_1 ; Sc ends in C ----- indulgens Joh.
6. Sc_2 proximad of base of cell R_1 ; length 2.5 mm. ----- nepticula Loew.
 Sc_2 slightly distad of base of cell R_1 ; length 4.5 mm. ----- impatiens Joh.
7. The brown cloud covering R_4 produced across M ; r-m less than $\frac{2}{3}$ as long as R_3 base -- illustris Joh.
 The brown cloud covering R_4 not produced; r-m half as long as R_3 base; abdominal segments bi-maculate ----- halioptera Loew

Neoempheria balioptera Loew

1869. balioptera, Loew, Berl. Ent. Zeit. 13:136.

Recorded from: Ill. (Loew); N.Y. (Joh.); N.J. (N.J. List); Vt., R.I., Mass., Conn. May-July (Johnson).

The eighth segment has a long narrow caudal projection from the mid-line of its sternum. Since the eighth segment is often twisted with the rotation of the terminalium this projection may be dorsal in position. The terminalium is unique in the large size of the aedeagus which has two enormous lateral plates. The ninth tergum is a separate sclerite, narrow, trilobed, and inconspicuous. Zygosternum with dorsal and ventral style lobes, the dorsal elongate, heavily sclerotized, the ventral subovoid. Dorsally the zygosternum has a pair of unarticulated lobes. Plate 10, fig. 6.

Neoempheria bimaculata Loew see N. didyma Loew

Neoempheria didyma Loew.

1869. didyma, Loew, Berl. Ent. Zeit. 13: 136 .
(Empheria)

1866. bimaculata, Loew, Berl. Ent. Zeit. 10:6.
(Sciophila)

Recorded from: English River, Canada (Loew); N.J. (N.J. List); Me., N.H., Vt., Mass. June-July (Johnson).

Neoempheria digitalis Fisher.

digitalis, Fisher, Ms.

The eighth segment has a wide caudal projection

that superficially appears like the ninth tergum. The ninth tergum is notched on its mid-line. The zygosternum bears prominent bifurcate lobes, the dorsal arm an elongate lobe curved towards its mate from the opposite side, the ventral arm bearing five prominent setae which embrace the lobe from the eighth segment. The ventral portion of the zygosternum is quite membranous with lateral almost square shaped lobes (= styles ?). The aedeagus is prominent. Plate 10, fig. 4.

Neoempheria illustris Joh.

1910. illustris, Johannsen, Me. Agr. Exp. Sta. Bull. 180:163, 164.

Recorded from: Ithaca, N.Y. (Joh.); widely distributed in N.Y., Mass., R.I. (Johnson); Greenville Co., S.C., May (Shaw and Townes); Unadilla, Ga. June (C.U.C.-E.G.F.)

Ninth tergum deeply notched on its median line, laterally produced into large pointed lobes. Zygosternum narrow with dorsal and ventral style lobes, the ventral lobes elongate and setose, the dorsal lobes as figured by Johannsen (fig. 127). Plate 10, fig. 5.

Neoempheria impatiens Joh.

1910. impatiens, Johannsen, Me. Agr. Exp. Sta. Bull. 180:161, 162.

Recorded from: Kingston, R.I., Aug.; N.C., Tenn., July-Aug. (Joh.); Greenville Co., S.C. (Shaw and Townes); R.I., Conn., Mass. June-Sept. (Johnson); N.Y. (N.Y.S. List).

I have specimens collected by H. Townes which include males and females. These males I believe undoubtedly represent the male of this species which was originally described from the female only.

Male. Length 4.5 mm. Similar to the female. Fore basitarsus and tibia subequal. Brown of first abdominal segment covering almost entire dorsum, of second confined to the base, of third to the median line and wide posterior margin, fourth to the dorsum, fifth to a broad light basal mark. Terminalium as in fig. 8 and 9, Plate 10.

Allotype: C.U. coll. No. Milford Center, N.Y.
July 13, 1935. H.K. Townes coll.

Ninth tergum with elongate lateral lobes. Zygosternum narrow with large lateral setose lobes (= styles?). Zygosternum entire ventrally. Aedeagus prominent. Eighth abdominal segment not conspicuously produced into a lobe. Plate 10, fig. 5.

Neocempheria indulgens Joh.

1910. indulgens, Johannsen, Me. Agr. Exp. Sta. Bull.
180:162.

Recorded from: Montreal, Canada, July.; N.Y., N.C. (Joh.); Vt., Mass., June, Aug. (Johnson); Mo., May. (E.G.F.).

The ninth tergum with lateral lobes which has mesally directed setae apically. The zygosternum is narrow in the mid-ventral line laterally expanded

into lateral lobes. On either side the mid-line are indications of incomplete sutures separating the sternal and pleural portions of the zygosternum. The aedeagus is large. There apparently are no styles. Plate 10, fig. 7.

Neompheria kincaidii Coq. see Hadroneura kincaidii (Coq.)

Neompheria macularis Joh.

1910. macularis, Johannsen, Me. agr. Exp. Sta. Bull. 180: 159, 160.

Recorded from: Ithaca, N.Y.; Montreal, Canada (Joh.); widely spread in N.Y. (E.G.F., N.Y.S. List); Me., Vt., July (Johnson).

The terminalium is very similar to that of N. illustris. The lateral tergal lobes are not so pointed. The dorsal style lobes are much narrower; the ventral style lobes are rounded at the tip without pertuberances. Plate 10, fig. 2.

Neompheria nepticula Loew.

1869. nepticula, Loew, Berl. Ent. Zeit. 13:137.
(Empheria)

Recorded from: Georgia (Loew); N.J. (N.J. List); Mass. July-Aug. (Johnson); N.C. (Joh.)

I have not seen a male.

Neompheria pullata Coq. see Dziedziekia pullata Coq.

Tribe Sciophilini

This tribe was established by Edwards for those genera of the Sciophilini characterized as follows:

"Ocelli three. Fine tibial setae irregularly arranged. Empodia nearly present. Postnotum generally with hairs or bristles on the tip. Wings with macrotrichia on the membrane, often covering the wing (microtrichia may be absent). Sc nearly always long. R_1 several times as long as r-m, which is oblique. Humeral crossvein generally long and oblique. Seventh abdominal segment usually large and visible externally."

Key to Genera (modified after Edwards).

1. Two ocelli, contiguous to the eye margins; R_4 usually present ----- Eudiorana Lw.
Lateral ocelli remote from the eye margins ----- 2.
2. Base of Cu fork proximal of M fork; hind tibiae without a distinct apical comb ----- 3.
Base of Cu fork distal of M fork or Cu simple; postnotum hairy ----- 9.
3. Postnotum and pleurotergites with setae ----- 4.
Postnotum bare ----- 8.
4. M_1 complete or almost so ----- 5.
 M_1 faint or obviously defective at base; R_5 rather wavy; Sc_2 before middle of Sc_1 sometimes faint or absent; wings unmarked ----- 7.
5. Sc_2 before middle of Sc ----- Allocotocera Mik.

- Sc₂ well beyond middle of Sc ----- 6.
- 6. R₅ straight; C not produced beyond the tip of R₅; wings with dark markings ---- Leptomorphus Curt.
R₅ wavy; C distinctly produced beyond tip of R₅; wings unmarked ----- Polylepta Winn.
- 7. Costa not produced beyond tip of R₅; Sc₂ lacking --
----- Odontopoda Aldrich
Costa produced only slightly beyond tip of R₅; Sc₂ present ----- Neuratelia Rond.
- 8. Pleurotergites bare; Sc ending in C, body long and slender; macrotrichia on wing tip only -----
----- Paratina Mik.
Pleurotergites hairy; Sc ending in R₁; body stout----- Syntenna Winn.
- 9. Legs extremely long and slender, first segment of fore tarsi over twice as long as the tibiae; M fork broad, the branches curving widely apart at the base; Cu₂ wavy ----- Phthinia Winn.
Legs normal; M fork pointed at base or absent -- 10.
- 10. M₃ detached, a short free vein on the wing margin, Cu₁ also faint or detached at the base; Sc very short, not reaching C; anepisternites hairy subalar knob bare ----- Azana Walk.
M₃ complete ----- 11.
- 11. Sc₂ just above, before, or immediately beyond base of R₅ ----- 12.
Sc₂ well beyond base of R₅; anepisternites bare; macrotrichia reflexed or erect -- (Megalopelma End.)
- 12. Cu forked; anepisternite with small hairs; macrotrichia decumbent ----- Sciophila Mg.
Cu simple; anepisternite bare ----- 13.

13. Macrotrichia reflexed; R_4 usually present - Monoclonia
Mik.
Macrotrichia decumbent; R_4 usually absent - Acania
Winn.

Eudierana Lw.

1869. Eudierana, Loew, Berl. Ent. Zeit. 13:142.

Head with two ocelli, close to the eye margins. Postnotum slightly produced posteriorly as in Ceroplatinae. Prothorax, mesonotum, scutellum, postnotum, and pleurotergites setose; remainder of thorax bare. Setae of the postnotum becoming larger posteriorly ending in a row of very strong setae. Wing membrane with macrotrichia. C produced but a slight distance beyond R_5 ; R_4 usually present; Sc long ending in C; second anal strong. Legs very long; tibial setae irregularly arranged; spurs 1-2-2, very long.

Terminalium non-rotatable; the Macrocera-type, but the tergum much larger than typically.

Key to Nearctic Species

Abdomen reddish brown, venter yellow; female -- plexipus Carr.

Abdomen with the first two and the last segment black; the remainder maculate with black in the female; basal half to two thirds of the second to fifth segment yellow, the remainder black in the male -----
----- obumbrata Lw.

Eudierana (?) plexipus Carr.

1925. plexipus, Garrett, Sixty-one New Diptera p. 4.

Recorded from: B.C. (Carr.)

Known from the female only.

Eudicrana obumbrata Lw.

1869. obumbrata, Loew, Berl. Ent. Zeit. 13:141.

Recorded from: N.Y. (Loew); Me. (Joh.); N.H., Mass.,
June-July (Johnson).

Terminalium without rotation; simple Macroceratype. Styles simple, tapering to a point. The coxite-portion of the zygosternum elongate. Johannsen illustrated the ventral aspect; I illustrate the dorsal aspect in Plate 11, Fig. 1.

Allocotocera Mik.

1886. Allocotocera, Mik., Wien. Ent. Zeit. 5:102.

1885. Eurycera, Dziedzickia, Pam. Fizyogr. 5:16.

Head with three ocelli, the laterals remote from the eye margins. Pleurotergites and postnotum bare. Wings with macrotrichia; Sc long ending in C; C extends beyond R₅; R₄ absent; petiole of M long; petiole of Cu short so that Cu forks proximad of the distal end of the r-m cross-vein; anal vein stout but does not reach the wing margin. Tibial setae irregularly arranged.

This genus is known from the Nearctic region from the females of a single species.

Allocotocera flavescens Joh. see Allocotocera parvula (Coq.)

Allocotocera parvula (Coq.)

1901. parvula, Coquillett, Proc. U.S. Nat. Mus. 23:
597. (Leptomorphus).

1909. flavescens, Johannsen, Gen. Ins. Fasc. 93:72.
(Allocotocera).

Recorded from: N.J. (Coq.); Wisc. (Joh.); Me., Mass.,
Aug. (Johnson).

Known from the female only. Synonymy after Joh-
annsen 1911.

Leptomorphus Curt.

1831. Leptomorphus, Curtis, Brit. Inst. 365.

1843. Dionomus, Walker, List Dipt. Brit. Mus. 1:87.

Edwards (1925) united the genera Dionomus and Lepto-
morphus. The similarity of these two genera was originally
pointed out by Walker. The presence or absence of R_4 is
not constant in Leptomorphus and therefore cannot be used
to separate these two genera.

Head with three ocelli, the laterals remote from the
eye margins. Postnotum and pleurotergites setose. Post-
notum rounded behind in lateral aspect. Wings with macro-
trichia on the wing membrane; Sc long; R_4 present or absent;
Cu forks proximal of M fork; anal vein strong ending before
the wing margin. Tibial setae irregularly arranged; spurs
1-2-2. Abdomen with seven visible segments.

Terminalia non-rotatable. There are apparently two
types of terminalia. In L. bifasciatus, magnificus, and
subcaeruleus the tergum is very large extending far ventrally.
The zygosternum is greatly reduced. In L. ypsilon Joh. and
probably L. walkeri the tergum and zygosternum are more
normal in size. The dorso-posterior angles of the zygo-
sternum may be produced into lobes. In both types the styles

are simple although variously formed.

The first type of terminalia occurs in the old genus Diomonus; the second in the old concept of Leptomorphus. The great similarity of the genera in other respects makes me believe that the genera should remain united.

Key to Nearctic Species (modified after Shaw)

1. Cu forks distad of Sc₂, Sc₂ ends a distance subequal to r-m before the origin of R_s----- 2.
Cu forks proximad of Sc₂ which ends less than $\frac{1}{2}$ length of r-m before the origin of R_s or beyond R_s----- 3.
2. Mesonotum black except the lateral margins which may be light ----- hyalinus Coq.
Mesonotum yellow, a black Y-shaped spot and two smaller lateral spots ----- epsilon Joh.
3. Sc₂ at or before origin of R_s ----- 4.
Sc₂ beyond origin of R_s ----- 5.
4. R-m as long as the petiole of M; base of antennae dark, distal half light colored -- nebulosus Walk.
R-m approximately $\frac{1}{3}$ as long as the petiole of M; base of antennae light in color --- walkeri Curt.
5. Sc₂ almost at the origin of R_s; thorax reddish yellow with dark stripes - subcaeruleus var. magnificus
Sc₂ well beyond origin of R_s; thorax either striped with black or wholly dark ----- 6.
6. Mesonotum reddish yellow with two black stripes which join at the base of the scutellum - bifasciatus (Say)
Mesonotum black ----- subcaeruleus Coq.

Leptomorphus bifasciatus (Say)

- 1824. bifasciatus, Say, Long's Exp. App. 363 (Sciophila)
- 1909. bifasciatus (Say), Johannsen, Gen. Ins. Fasc. 93:45 (Diomonus)

Recorded from: North-West Terr. (Say); Me., N.H., Mass., Vt., July-Aug. (Johnson).

Terminalium with large tergum which extends far ventrally. Zygosternum much reduced but bearing simple styles. Wide "bridges" present which give off apodemes to the aedeagus. Zygosternum with a truncate non-articulate lobe. Styles truncate with a meso-distal mass of short setae and a narrow outer lobe. Plate 11, fig. 2.

Leptomorphus hyalinus Coq.

- 1901. hyalinus, Coquillett, Proc. U.S. Nat. Mus. 23:598.
- Recorded from: N.H. (Coq.); R.I., June (Shaw).

Known from the female only.

Leptomorphus magnificus Joh. see Leptomorphus subcaeruleus var. magnificus.

Leptomorphus nebulosus (Walk.)

- 1848. nebulosus, Walker, List. Dipt. Brit. Mus. 1:87 (Diomonus)

I do not know this species.

Leptomorphus parvula see Allocotocera parvula.

Leptomorphus pulcher (Joh.) see Leptomorphus subcaeruleus var. pulcher.

Leptomorphus subcaeruleus Coq.

1901. subcaeruleus; Coquillett, Proc. U.S. Nat. Mus.
23:595. (Diononus)

1910. pulcher, Johannsen, Me. Agr. Exp. Sta. Bull.
180:155 (Diononus)

1910. magnificus, Johannsen, Me. Agr. Exp. Sta. Bull.
180:155 (Diononus)

Recorded from: Pa.; Ottawa, Canada (Coq.); Ohio (Joh.);
common and wide spread in New England, June-Sept.

The synonymy above is based on comparisons of the types of pulcher and magnificus and a specimen of subcaeruleus in the Johannsen collection. The terminalia do not differ. Johannsen says: "hypopygium (of magnificus) resembling that of D. pulcher but the serrate lateral margin of the apex of the appendage marked "a" in figure 125 is much shorter." Johannsen's "a" is a "paramere"? I find no difference when the parameres are moved so as to be seen at similar angles.

Perhaps they should be considered varieties as their coloration differs:

L. subcaeruleus subcaeruleus.

L. subcaeruleus pulcher.

L. subcaeruleus magnificus.

Terminalia similar to L. bifasciatus. The styles and lateral lobe of the zygosternum differ. The latter is rounded at the tip rather than a fluted blade; the former is more deeply bifid, its lateral lobe wide.

Plate 11, fig. 6.

Leptomorphus walkeri Curtis

1831. walkeri, Curtis. Brit. Ent. 365.

Recorded from: Europe, N.J.

In Europe two forms exist:

Leptomorphus walkeri walkeri

Leptomorphus walkeri forcipata

Both forms have had their terminalia illustrated by K. Landrock. These figures are copied, Plate 11 figs. 4 and 5. I do not know whether both forms occur here.

Leptomorphus ypsilon Joh.

1911. ypsilon, Johannsen, Me. Agr. Exp. Sta. 196:265.

Recorded from: N.Y. (Joh.)

Hitherto known from the female only. I have a specimen which I believe represents the male of this species.

Terminalium. Tergum subquadrangular. Zygosternum deeply cleft on the mid-line, the styles are minute simple appendages. The postero-dorsal angles of the zygosternum are produced into lobes which bear a brush-like group of short setae on their mesal aspects apically. Plate 11, figs. 3 and 7.

Polylepta Winn.

1863. Polylepta, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:745.

Head with three ocelli, the laterals remote from the eye margins. Pleurotergites and postnotum setose. Postnotum

steep. Anepisternite with a suture dividing it into a large dorsal sclerite and a smaller ventral sclerite. Mesonotum highly arched posteriorly. Tibial setae irregularly arranged. Tibial spurs 1-2-2, those in pairs equal in length. Macrotrichia present on the wing membrane; C usually produced beyond tip of R₅; Sc ends free or in R₁ beyond cell R₁; R₄ usually present; R₅ wavy or strongly curved; Cu forks proximal of M fork. Abdomen with eight visible segments.

Terminalia non-rotatable. the type of terminalia structure varies from an almost macrocera-type in P. nigellus to the complicated type of P. obediens described below.

Edwards says of this genus: "the hypopygium is peculiar in that the apparent claspers are formed by the produced ends of the side pieces (coxites), the true claspers (styles) being rudimentary."

P. obediens has this type of terminalium; P. nigellus has not. Leptomorphus spp. also have this type.

Key to Nearctic species (Partly after Johannsen)

- 1. Sc. ends free; Sc₂ stands on small cell R₁ ----- 2.
- Sc ends in C ----- 3.

- 2. Cell R₁ about twice as long as wide; ocelli arranged in a flattened triangle; palpi yellow, Eastern----- fragilis Lw.

- Cell R₁ about 1½ times as long as wide; ocelli forming a rather high triangle; palpi brown, Western--- ----- modesta V.D.

- 3. Sc ends more than the length of r-m distad of small

cell R_1 ; Cu forks distad of R_4 ; Eastern -----
----- obediens Joh.

Sc ends opposite the distal end of small cell R_1 ;
Cu forks proximad of r-m; Western - nigellus Joh.

Empalia disjuncta Garr. may possibly belong here -- see
Synaphe disjuncta.

Polylepta fragilis Lw.

1869. fragilis, Loew, Berl. Ent. Zeit. 13:138.

Recorded from: Mass. (Lw.)

Known from the female only.

(?) Polylepta grisea, (Walk.)

1848. grisea, Walker. List. Dipt. Brit. Mus. 1:92.

Recorded from: Hudson's Bay; N.H.

This species can not be placed generically from
the description.

It may possibly be a Sciophila.

Polylepta leptogaster Winn. see Speolopta leptogaster

Polylepta modesta V.D.

1928. modesta, Van Duzee, Proc. Calif. Acad. Sci. 17:43.

Recorded from: Calif., March.

Known from the female only.

Polylepta nigellus Joh.

1910. nigellus, Johannsen, Me. Agr. Exp. Sta. Bull.
180:148-149. figs. 89, 121.

Recorded from: Wash., July (Joh.)

Terminalium. Pergum a suboval sclerite with a

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dense group of short terminal setae. Anal segment small, hidden by the tergum in dorsal aspect. Zygosternum deeply notched on its mid-ventral line. The styles are simple. The whole terminalium approaching the macrocera type. Plate 12, figs. 9 and 10.

Polylepta obediens Joh.

1910. obediens, Johannsen, Me. Agr. Exp. Sta. Bull. 180:147-148. figs. 88, 118.

Recorded from: Wisc., Mass., N.H. (Joh.); N.Y. (N.Y. State List); N.S. (E.G.F.).

Terminalium. Tergum distinct. Zygosternum with a ventral sclerite. Lateral sclerites of the zygosternum produced into 3 lobes; the ventral lobe membranous, short; the middle lobe pointed; the dorsal lobe longest, widest, with 5 prominent setae on its dorsal edge. Styles simple, irregularly shaped. Anal segment with a dense group of setae at the bases of the dorsal lamellae. Plate 12, figs. 7 and 8.

Polylepta tibialis Coq. see Synapha tibialis.

Neuratelia Rondani

1856. Neuratelia, Rondani, Dipt. Ital. Prodrum 1:195.

1863. Anaclinia, Winnertz, Verh. Zool.-bot. Ges. Wien. 15:770.

Head small with 3 ocelli in a straight line, the laterals remote from the eye margins. Palpi 4 jointed. Antennae 2+14 jointed. Thorax shaped similarly to that of Polylepta, highly arched. Postnotum and pleurotergites

setose. Macrotrichia on wing membrane; C produced only slightly beyond R₅; Sc long ending in C; Sc₂ before middle of Sc₁; R₅ wavy; M₁ faint or defective at its base. Tibial setae irregularly arranged.

The only terminalia I have seen are those of silvatica and nemoralis, Zygosternum entire. Parameres (?) prominent. Styles vary in structure being highly complex in nemoralis, approaching the mycetophilinae or of two parts only as in silvatica and probably also in scitula.

Key to Nearctic Species (partly after Johannsen.)

N. abrevena Garr. I can not place from the brief description alone.

- 1. Hind coxae black --- ----- 2.
- Hind coxae largely yellow ----- 3*

- 2. Coxae largely blackish, inner side and narrow apices of the fore coxae yellow; humeri, femora, tibiae, and halteres yellow; fore basitarsus longer than its tibia; Western ----- coxalis Coq.

Coxae and legs yellow, except the hind coxae which are black; halteres yellow; Western ---- obscura Garr.

- 3. Fore basitarsus nearly $\frac{1}{5}$ (or more) longer than its tibia ----- 4.

Fore basitarsus not over $\frac{1}{20}$ longer than its tibia - 6.

- 4. Thorax largely blackish; Western forms ----- 5.

Thorax largely yellowish; Eastern forms --- scitula Joh.

* N. grandis Garr. runs here. I can place it no further.

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5. Knob of halteres black; Western forms -- flexa V.D.
Halteres yellow; Western forms ----- silvatica Joh.
6. Abdominal segment with yellow posterior margins--
----- 7.
Abdomen wholly black; Western forms --- nemorialis Mg.
7. Thorax largely yellowish; fore basitarsus slightly
shorter than its tibia; Western forms - eminens Joh.
Thorax mainly dark brown; fore basitarsus slightly
longer than its tibia; Eastern forms - desidiosa Joh.

Neuratelia abbrevena Garr.

1925. abbrevena, Garrett, Seventy New Diptera p. 11.

Recorded from: B.C. (Garr.)

I do not know this species.

Neuratelia coxalis Coq.

1905. coxalis, Coquillett, Journ. N.Y. Ent. Soc. 13:
68 (Anoclinia)

Recorded from: B.C. (Coq.); Oreg. (Cole and Lovett)

I do not know this species.

Neuratelia desidiosa Joh.

1911. desidiosa, Johannsen, Me. Agr. Exp. Sta. Bull.
196: 263.

Recorded from: Mass. June.

Known from the female only.

Neuratelia eminens Joh.

1911. eminens, Johannsen, Me. Agr. Exp. Sta. Bull.
196:263, fig. 175.

Recorded from: Id. (Joh.)

Known from the female only.

Neuratelia flexa V.D.

1928. flexa, Van Duzee, Proc. Calif. Acad. Sci. 17:
44. fig. 11.

Recorded from: Calif. (V.D.)

Van Duzee says terminalium resembles silvatica
but has shorter styles. He figures the unprepared
terminalium. I have copied his figure below:



Neuratelia grandis Garr.

1925. grandis, Garrett, Sixty-one New Diptera p. 5.

Recorded from: B.C.

I do not know this species.

Neuratelia nemoralis Meig. (?)

1818. nemoralis, Meigen, Syst. Besch. 1:265, fig.
176 (Mycetophila)

Recorded from: Alaska (Coq.); B.C.; Calif. (Johannsen).
Europe.

Terminalium. Zygosternum entire ventrally with
a pair of heavily sclerotized ventral spines within
the genital chamber. The aedeagus consists of two
sclerotized rods (after treatment with caustic potash)

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which run dorsad along the floor of the genital chamber, then bend posteriorly. On either side of their bases arise two curved rods (= parameres?). The coxite portion of the zygosternum has a "bridge". The styles are complex consisting of five parts. Plate 12, fig. 11.

This terminalium does not agree very well with Landrock's figure of the European form. They may be distinct species.

Neuratelia obscura Garr.

1925. obscura, Garrett, Sixty-one New Diptera p. 5.

Recorded from: B.C., July (Garr.)

- "Similar to N. scitula"

Neuratelia scitula Joh.

1911. scitula, Johannsen, Me. Agr. Exp. Sta. Bull. 196:263, fig. 144.

Recorded from: Vt., July; N.J. (Joh.); Me., N.H.;

R.I., June-July (Johnson) S.C., May (Shaw and Townes).

The figure, Plate 12 fig. 13, is after Johannsen.

I have not seen the terminalium.

Neuratelia silvatica Joh.

1911. silvatica, Johannsen. Me. Agr. Exp. Sta. Bull. 196: 262, 263. figs. 143, 174.

Recorded from: Felton, St. Cruz Mts., Calif. May

(Johannsen); Greenville Co., S.C. (Shaw and Townes).

Terminalium. Tergum subquadrangular. Supra-anal lobes globular. Zygosternum entire with a very

slight notch on its median ventral line. Styles of two parts, a subovoid ventral lobe bearing stout terminal spines and a much smaller similar dorsal lobes. Dorsad of the styles at the postero-dorsal angles of the zygosternum are two stout spines. Parameres (?) prominent, curved. Plate 12, fig. 12.

Odontopoda Aldrich

1896. Odontopoda Report of State Geologist 21. 187.

1896. Proanaclinia Meunier, Monogr. Mycetophilidae, etc., 145.

This genus differs from Neuratelia only in lacking the subcostal cross-vein. Edwards and Williston regarded them as synonymous. Garrett thinks they are distinct. He says "the form of the hypopygium is so distinctive that it warrants generic separation from Neuratelia." I have seen no specimens.

Key to Nearctic Species

Species from Indiana with thorax and coxae yellow, front black ----- sayii Aldrich

Species from B.C. with coxae yellow except hind coxae which are somewhat black; dark black brown species----- distincta Garrett

Odontopoda sayii Aldrich

1896 sayii Aldrich. Report of State Geol. XXI. 187.

Recorded from Marengo Cave, Indiana.

The type is no longer in existence.

Odontopoda distincta Garrett.

1925. distincta, Garrett, Sixty-one New Diptera p. 4.

Recorded from B.C. June.

"hypopygium very small, almost entirely within the abdomen; all that is showing is two pairs of claw like spines."

Paratinia Mik.

1874. Paratinia. Mik., Verh. Zool.-bot. Ges. Wien 24:333.

Edwards says that "it does not seem to be very closely related to the other genera of the Sciophilini, but I include it here on account of the presence of macrotrichia on the apical half of the wing and the elongate abdomen with large seventh segment. It may perhaps be related to Pthinia, and in some respects appears intermediate between that genus and Speolepta."

Head with three ocelli, the laterals remote from the eye margins, the middle ocellus little smaller than the laterals. Palpi four-jointed, incurved. Antennae 2 + 14 jointed. Thorax highly arched; postnotum steep; scutellum without long marginal setae. Legs long; tibial setae delicate or absent, spurs long. Wings broad, membrane with macrotrichia at tip of wing; C extends beyond tip of R₅; Sc ends in C; Sc₂ proximad of origin of R₃; R₄ usually present; stem of M long; Cu forks proximad of M fork. Abdomen long and slender with seven visible segments.

Terminalia of the simple macrocera-type except perhaps in the European P. difficilis Dzied.

There is only one described Nearctic species.

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Partina recurva Joh.

1910 recurva, Johannsen, Me. Agr. Exp. Sta. Bull.
180: 144, 145. figs. 124, 87.

Recorded from: N.Y., Aug. (Joh.) S.C., Oct. (Shaw
and Townes). Vt. (Johnson).

Terminalium of simple Macrocera-type. Styles
simple, with a short subterminal hook-like projection.
"Bridge" rather wide. Plate 11, fig. 12.

Sytemna Winn.

1863. Sytemna, Winnertz, Verh. Zool.-bot. Ges. Wien 13:
767.

1894. Loewiella, Meunier, Bull. Soc. Ent. France 1894:111.

All the North American species formerly included here
lack macrotrichia on the wing membrane and are therefore
referable to the genus Dziedzielia with the possible exception
of S. separata Joh.

Sytemna separata Joh.

1911. separata, Johannsen, Me. Agr. Exp. Sta. Bull.
196:279. fig. 215.

Recorded from St. Johnsbury, Vt., June. (Joh.)

I have not seen this species.

Phthinia Winn.

1863. Phthinia, Winnertz, Verh. Zool.-bot. Ges. Wien
13:779.

Ocelli three, the laterals remote from the eye margins.
antennal joints elongate except the basal two. Thorax
highly arched; postnotum angulated behind in lateral aspect.

Postnotum and pleurotergites setose. Anepisternite divided by a ventral suture into two sclerites. Legs very long; the fore basitarsi over twice as long as the fore tibiae. Wings with macrotrichia on their membrane; C extends beyond R_5 ; Sc ends in C; stem of M very short; Cu fork with its branches widely divergent. Abdomen long and slender with its branches widely divergent. Abdomen long and slender with seven visible abdominal segments.

There are apparently two different types of terminalia in the Nearctic forms. One form (P. curta, humilis, thoracica) has a distinct and large tergum, the zygosternum is deeply cleft on the mid-ventral line; the posterior border of the zygosternum is produced beyond the base of the styles. The other form (P. tanypus, winnertzi) is a sub-macrocera type. The tergum is reduced and fused to the zygosternum; the zygosternum is not deeply cleft on the mid-ventral line; the posterior border of the zygosternum is not produced. In both forms the styles are simple although variously lobed distally.

There are two described Nearctic species.

Key to Nearctic species (modified after Johannsen)

Fore basitarsus over twice as long as its tibia; very slender and delicate species with weak tibial spurs ----- tanypus Lw.

Fore basitarsus shorter than its tibia; moderately slender species; Sc_2 slightly distad of middle of basal cell; Sc_1 ends about opposite the base of R_5 - curta Joh.

Pithinia curta Joh.

1911. curta, Johannsen. *Mem. Agr. Exp. Sta. Bull.*
196:291. fig. 192, 208.

Recorded from: N.Y., Me., June (Joh.); N.C., Aug. (C.G.F.)

Oregon, Febr. and Dec. (Cole and Lovett).

Edwards places this species in the genus Coloesia. Johannsen and Landrock place it in Phthinia. Edwards regards the retracted seventh segment in the male of more importance than the absence or presence of Seg. I believe it belongs in Phthinia because its postnotum has prominent hairs, vein Cu₂ is wavy; the legs are long; and I find seven visible segments although the seventh is much reduced.

Terminalium rotatable. The tergum is distinct. The zygosternum is deeply cleft on the mid-line and produced caudally beyond the styles which are simple but lobed (Plate 11, fig. 14). There is a short lobe from each edge of the ventral cleft of the zygosternum. (Plate 11, fig. 16). There is no "bridge."

Phthinia tanypus Lw.

1869. tanypus, Loew, Berl. Ent. Zeit 13:143.

Recorded from: N.Y. (Loew); Vt. (Johannsen); N.C., S.C. July-Sept. (Shaw and Townes); N.S., Aug.-Sept. (M.G.F.) N.H., Mass. (Johnson).

The terminalium of this form similar to that of P. winnertzi Mik. (illustrated by Landrock 1916.)

The tergum is reduced and fused to the zygosternum. Zygosternum entire. Styles simple but with two dorsal subbasal stout spines, a subdistal dorsal curved lobe, and a group of distal setae. (Plate 11 figs 10 and 11).

A "bridge" is present. The whole approaches the macrocera-type.

P. tanypus var. a.

Recorded from: Md., July (E.C.F.).

Styles differ from the typical species in having only one subbasal stout spine. The curved lobe is much longer. (Plate 11, fig. 8).

Azana Walker

1856. Azana, Walker, Insect. Brit. Diptera 3:26.

Ocelli three, the laterals remote from the eye margins. Proboscis very slightly produced. Anepisternites with small setae above. Postnotum with long setae. Wings with macro- and microtrichia on the membrane; C extends beyond the tip of R_5 ; r-m in the same straight line as R; M unbranched or with a faint indication of tip of M_3 present; Cu unbranched; base of M may be obsolete; no anals. (See Plate 12 fig. 1) Tibial setae irregularly arranged.

Azana isabella n.sp.

Male. Length 3 mm. Head dark brown. Antennae brown. Base of palpi brown, 3rd and 4th joints yellow. Thorax brown, darker on postnotum. Halteres with yellow stalk and brown knob. Legs yellow. Fore basitarsus shorter than its tibia (12:29) abdomen brown. Wings and Terminalium as in Plate 12 figs. 2 and 3.

Holotype: C.U. Collection No. slide.

Wycocomagh, Cape Breton I., N.S., Sept. 3, 1936.

Terminalium # E.C.F. 263 alcoholic.

Terminalium apparently non-rotatable. The seventh and eighth segments partially retracted but

visible. The eighth segment is produced caudally covering the base of the zygosternum. The tergum is apparently separated from the coxites by a suture. The coxites are also separated from the sternum. The latter is reduced laterally to a basal sclerotized ring. It is also much reduced ventrally. The coxites are large, provided with a "bridge" which bears a dense group of stout, dark, setae. The styles are simple with a "comb" of setae on their tips. (Plate 12, fig. 5.)

Azana sp.

Johannsen records a defective specimen from Maine.

Monoclonona Mik.

1886. Monoclonona, Mik., Wien Ent. Zeit 5:279.

1876. Staegeria, Van der Wulp, Tijdschr. v. Ent. 19, versl. 49

Head flattened in front; eyes pilose; ocelli three, the laterals remote from the eye margins. Thorax highly arched; its sclerites shaped much as in Sciophila. Mesonotum, scutellum and pleurotergites setose. Tibial setae irregularly arranged; spurs 1-2-2. Wing membrane with macrotrichia pointing towards the base of the wing; C produced beyond R_3 tip; Sc ends in C beyond the origin of R_3 ; R_4 present, Cu unbranched. Abdomen with seven visible segments, slightly constricted at the base, cylindrical in the male, depressed in the female.

Terminalium non-rotatable (M. elegantula only one

studied). The tergum is a distinct sclerite in M. elegantula; in M. furcata it is fused basally to the zygosternum. Styles of two parts, a large setose furcate lobe (A) and a mesally directed lobe (B). B arises from the base of A. All muscles are inserted on the base of A (M. elegantula only one studied).

Key to Species

- 1. Head brown; terminalium yellow; last abdominal segment yellow; Western forms -- simplex Car.
 Head black; terminalium brown; last abdominal segment dark, Eastern forms ----- 2.
- 2. Forks of style lobe A differing greatly in length ----- elegantula Joh.
 Forks of style lobe A subequal in length - furcata Joh.

Monoclonia elegantula Joh.

1910. elegantula, Johannsen, Me. Agr. Exp. Sta. Bull. 180:128, 129 figs. 84, 107.

Recorded from: N.Y., Aug. (Johannsen); N.S., Sept. (E.G.F.); R.I., Aug. (M. Chapman/coll. - E.G.F.). Me., Aug. (Johnson).

Tergum a distinct sclerite (Plate 11 fig. 15). Zygosternum cleft ventrally. "Bridge" present.

Styles simple with a basal lobe. (Plate 11 fig. 17)

The figures are from the type (#213 Joh. coll.).

Johannsen says that in M. elegantula the distances from the apex of Sc_1 to R_1 and from R_1 to $R_2 + 5$ are to each other as 2 to 1. I find some

forms in which it is 2.5 to 1 as in M. furcata but which agree with M. elegantula in terminalial structure.

Monoclona furcata Joh.

1910 furcata, Johannsen, Me. Agr. Exp. Sta. Bull. 180:187.

Recorded from: Orono, Me., May (Johannsen).

Terminalium very similar to M. elegantula.

Tergum not separated from the zygosternum except distally. On either side the tergum are small bifid lobes. Styles differ from M. elegantula as shown on Plate 11, fig. 13. Figures from type slide.

Monoclona simplex Garr.

1925. simplex, Garrett, Sixty-one New Diptera p. 9. (Monoclonna - by error).

Recorded from Caulfield's B.C., May. (Garr.)

"Hypopygium very similar to M. elegantula but the mid tooth is near the base and the basal arms are different."

Acnemia Winn.

1863. Acnemia, Winnertz, Verh. Zool. - bot. Ges. Wien. 13:798.

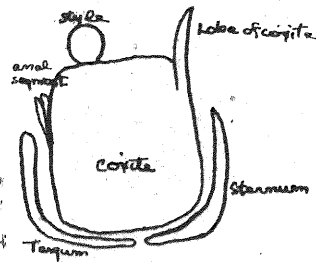
1865. Agraricobia, Philippi, Verh. Zool. - bot. Ges. Wien. 15:626.

Head flattened in front; ocelli three, the laterals remote from the eye margins. Thorax much as in Sciophila; prothorax, mesonotum, scutellum, postnotum, and pleurotergites setose; anepisternites, sternopleurites, and

pteropleurites bare. Wings with decumbent macrotrichia on the wing membrane; C extends beyond R_5 ; Sc is long; petiole of M short; Cu unbranched. Tibial setae irregularly arranged; spurs 1-2-2, those in pairs of unequal length. Seven visible abdominal segments.

Terminalium non-rotatable. Venter of the eighth segment produced posteriorly covering the base of the terminalium. Coxites, sternum, and tergum of nine distinct. Coxites with lobes (= dorso-mesal processes of the lateral sclerite of Johannsen) from its ventral edges. Styles of two parts.

The lateral aspect of terminalium may be diagrammed thus:



Key to Nearctic Species (after Johannsen)

1. Wings with brown crossband extending from apex of M_1 across the wing; a spot below Cu near apex. Total length 5 mm. western --- varipennis Coq.
 Wings without bands ----- 2.
2. Black; coxae and legs yellow; C produced $\frac{1}{3}$ of distance to M_1 ----- 3.
 Yellow; abdomen fasciate; C produced less than $\frac{1}{4}$ distance to M_1 ----- flaveola Coq.
3. Eastern forms; terminalium with ventral lobe of coxite serrate ----- psylla Loew.

Western forms; terminalium with ventral lobe of
coxite acute ----- psylla var. a of Joh.

Acnemia flaveola Coq.

1901. flaveola, Coquillett, Proc. U.S. Nat. Mus.
23:598.

Recorded from: N.J. (Coq.); R.I.; N.C., N.Y. (Joh.);
Mass., July (Johnson).

Hitherto known from the female only, I have a
male (Armonk, N.Y., Townes coll.) that I believe re-
presents this species. Specimen as described for
the female. Wing venation as figured by Johannsen.

Tergum, sternum and coxites separate. Zygo-
sternum with postero-ventral angles produced into
narrow hooked lobes. Styles of two parts. Plate
12 figs 4 and 6.

Acnemia psylla Loew

1869. psylla, Loew, Berl. Ent. Zeit. 13:148.

Recorded from: Md. (Loew); Ithaca, N.Y. (Johannsen);
Nantucket, Mass., Sept. (Johnson).

Terminalium. The lobes of the zygosternum arise
at the base of the coxites ventrally and are serrate
distally. The styles consist of a rounded setose
lobe which projects posteriorly and three plate-
like pieces that extend into the genital chamber one
above the other.

Johannsen's figure of the ventral aspect shows
the overlapping eighth segment. My figure (Plate 2,

fig. 3.) is of the dorsal aspect.

Acnemia psylla var. a of Johannsen.

Recorded from: Washington (Johannsen).

Lobes of coxites "acute at the apex."

There are no specimens available. The figure of the tip of the zygosternal lobe is after Johannsen. (Plate 12 fig. 2.)

Acnemia varipennis Coq.

1904. varipennis, Coquillett, Proc. Wash. Ent. Soc.
6:169.

Recorded from: Clairmont, Calif. (Coq.)

Known from the female only.

Megalopelma End. see Sciophila gabbana

Sciophila Mg.

1818. Sciophila, Meigen, Syst. Besch. 1:245.

1863. Lasiosoma, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:748.

(nec Sciophila Winnertz)

Head flattened in front; eyes emarginate near the antennae; ocelli subequal, almost in a line, laterals remote from the eye margins; palpi four-jointed. Mesonotum highly arched; postnotum rounded behind in lateral aspect. Thorax with long hairs; scutellum with numerous marginal setae; postnotum setose; pleura setose, except pteropleurites. Setae of anepisternites (absent in S. gabbana) and sternopleurites short. Macrotrichia present

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on the wing membrane; C extends beyond the tip of R_3 ; Sc ends in C usually beyond cell R_1 ; M. forks opposite or distad of the r-m cross-vein; Cu forks distad of the M fork; anal vein strong but incomplete. Abdomen with seven visible segments.

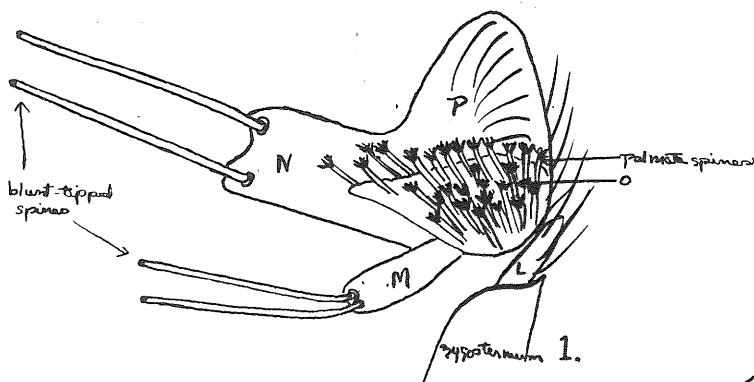
Terminalium rotatable. Eighth abdominal segment retracted. Tergum distinct and large. Aedeagus supported by processes from the dorsal edges and sometimes also from the mid-ventral portion of the zygosternum. Styles complex (except in S. galbana), the various parts are distal subdivisions of a single style. Styles with characteristic palmate spines and long blunt-tipped mesally directed spines. Zygosternum cleft ventrally on the mid-line.

The terms superior and inferior forceps or clasps used by both Johannsen and Garrett can not be used. There is only one set of articulated forceps, the styles. The superior forceps of Johannsen are lobes of the tergum in S. habilis, lobes of the dorsal border of the zygosternum in S. hebes, etc.

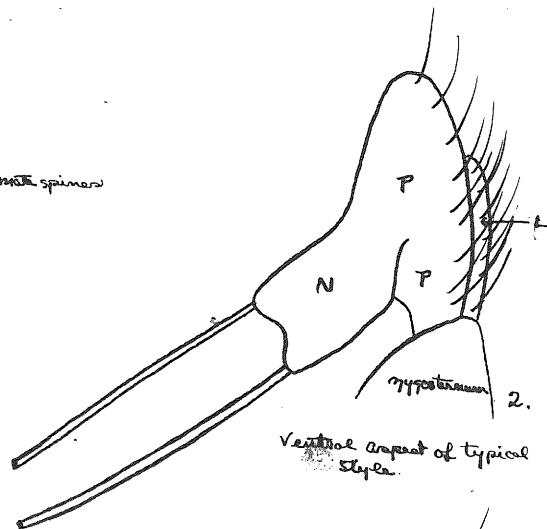
The superior clasps of Garrett are sometimes a portion of the dorsal border of the zygosternum and sometimes the latter and a portion of the aedeagus.

A system of lettering the parts of the styles, etc. seems necessary to describe adequately their differences in different species. Since Garrett already has used such a lettering, I have followed it as far as possible.

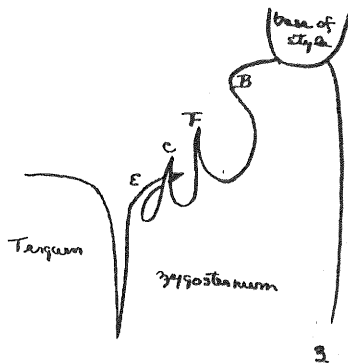
The figures below show the lettering used.



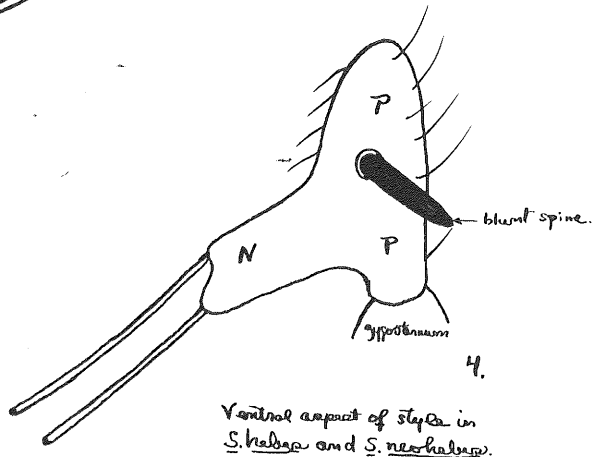
Dorsal aspect of typical right style



Ventral aspect of typical style



Process of dorsal edge of zygosternum



Ventral aspect of style in *S. halpa* and *S. nearhalpa*

An ordinary key to Nearctic species would include only those species in Johannsen's key and *S. dakota* n.sp. and *S. virginiana* n.sp. A key to Nearctic species based on the terminalium structure could include Garrett's species (based on his figure of their terminalia) therefore, I give it merely as an attempt to make Garrett's species determinable.

Key to Nearctic Males based on terminalial structure
 (S. nitida V.D., S. fasciata Say, S. quadratula L.W.,
S. similas Joh. omitted.)

1. Ninth tergum of male subdivided ----- 2.
 Ninth tergum of male simple ----- 3.
2. Ninth tergum with a terminal sclerite; styles simple
 with a group of strong terminal setae. Plate
 14, fig. 2. ----- galbana Joh.
 Ninth tergum as in Plate 13, fig. 6 --- habilis Joh.
3. Styles of novata-type as in text figure 1 and 2
 above ----- 4.
 Styles not so ----- 15.
4. Styles with P bearing a blunt spine, as in text
 fig. 4 above ----- 5.
 Styles with P without a blunt spine ----- 6.
5. Fore tibiae longer than its basitarsus; B.C. forms-
 ----- nechebes Garr.
 Fore tibiae subequal to its basitarsus; R.I. and
 Kans. forms ----- hebes Joh.
6. Ninth tergum narrows to a blunt point distally -- 7.
 Ninth tergum rounded distally (but slightly narrow-
 ed in S. setosa) ----- 8.
7. Ninth tergum with two strong terminal setae; N and
 M both with two terminal blunt-tipped setae as
 in text fig. 1. ----- agassis Garr.
 Ninth tergum setose, but with no distinctly stronger
 setae; N and M without the two characteristic
 setae ----- nugax Joh.
8. With 3 blunt-tipped spines on M, one may be short-
 er ----- 9.
 With 2 blunt-tipped spines on M ----- 11.

9. E, C, F (see text fig. 3) points ----- 10.
 E, C, F not points ----- bifida Garr.+longua Garr.
10. Thorax mainly yellow ----- incallida Joh.
 Thorax mainly dark ----- novata Joh.
11. Margin of ninth tergum with 8 to 10 slightly plumose
 setae ----- 13.
 Margin of ninth tergum with fewer slightly plumose
 setae ----- 12.
12. Thorax fuscous; pleura brownish; no plumose setae
 on the ninth tergum ----- severa Joh.
 Pleura blackish; tergum with two plumose setae on
 the ninth tergum - pallipes Say+ (?) grisea Walk.
 + hirta Mg.
13. Small, rounded, setose lobes from ventral edges of
 zygosternum as in Plate 14, fig. 5 -- impar Joh.
 Not so ----- 14.
14. Style lobe O very long ----- setosa Garr.
 Style lobe O normal - parvus Garr.+ fusca Garr.+ hirta Mg
15. Ninth tergum short, one half as long as the zygo-
 sternum ----- 16.
 Ninth tergum not so ----- 17.
16. Style lobe O elongate with 4 or 5 palmate spines on
 the tip ----- distincta Garr.
 Style lobe O much as in S. novata; M with 3 blunt-
 tipped setae; N subobsolete Plate 13, fig. 9. -
 ----- dakota n.sp.
17. Ninth tergum rounded at corners with two prominent
 setae ----- bicolor Garr.
 Ninth tergum narrows to a blunt or sharp point --18.

18. Ninth tergum narrows to a blunt point with no prominent setae ----- acuta Garr.

Ninth tergum narrows suddenly to a sharp point with two prominent setae, Plate 13, fig. 5 - virginiana n.sp.

Sciophila acuta, agassisi, bicolor, bifida Garr.

1925. acuta, agassisi, bicolor, bifida Garrett, Sixty-one New Diptera.

Recorded from: B.C. (Garr.)

I have seen figures by Garrett of these species.

Sciophila dakota n.sp.

Male. Length 3 mm. Head brownish yellow; ocellar spot and palpi black; antennae yellow. Thorax yellow; mesonotum dusky above. Abdomen brown, the intermediate segments with indistinct yellow bases and apices. Wings with macrotrichia; C extends about $\frac{1}{2}$ the distance beyond the tip of R_3 to the tip of $M_1 + 2$; Sc ends in C more than the length of small cell R_1 beyond the distal end of cell R_1 ; Sc_2 over cell R_1 ; cell R_1 almost square; r-m short subequal to the basal section of R_3 ; stalk of M short; M forking under the origin of R_4 ; Cu detached at its base, a short free vein at the wing margin; Cu_2 strong. Legs yellow. Terminalium as in Plate 13 fig. 9.

Holotype: C.U. coll. No. Elk Point, S.D.

June 20, 1924, Severin coll.

Paratype: My coll. Yankton S.D. June 23,

1925, Severin coll.

Distinguishable from other species by the incomplete Cu_1 ;

Terminalium. Ninth tergum short with numerous setae on its distal edge. Styles not of the typical or novata-type since N is subobsolete or absent. M with three terminal blunt-tipped setae, O is reduced. Plate 13, fig. 9.

Sciophila distincta Garr.

1925. distincta, Garrett, Sixty-one New Diptera p. 10
Recorded from: B.C., April - Oct. (Garr.)

I have seen a figure of the terminalium by Garrett.

Sciophila fasciata Say.

1823. fasciata, Say, Jour. Ac. Phil. 3:26.
Recorded from: Pa., Md. (Say); N. Mex. (Osten Sacken);
Vt. (Johnson).

I have not seen this species.

Sciophila fusca Garr.

1925. fusca, Garrett, Sixty-one New Diptera p. 10-11.
Recorded from: B.C., April-Oct. (Garr.)

I have seen a figure of the terminalium by Garrett. I have also seen females but no males.

Sciophila galbana Joh.

1910. glabana, Johannsen, Me. Agr. Exp. Sta. Bull.
180: 136, 137. figs. 110, 122.
1911. galbana, Johannsen, Me. Agr. Exp. Sta. Bull.
196:321.

Recorded from: N.Y., Wisc. (Joh.)

This is the only available species I have seen that lacks anepisternal setae. It differs also in the position of Sc₂ farther beyond the base of R_s; in other Sciophila, Sc is just before, above or immediately beyond the base of R_s. These characteristics agree with Enderlein's genus Megalopelma. The terminalial structure differs strongly.

Terminalium. Tergum with a distal sclerite provided with strong setae. Zygosternum with its postero-dorsal angle produced into lobes bearing a terminal seta. Styles simple, subglobular, with a terminal group of stout, short setae. Plate 14, 2 and 3.

Sciophila galbana var. germana of Joh.

Recorded from: Wisc., July (Joh.); Mass., June (Johnson).

Terminalium indistinguishable from the typical form.

Sciophila galbana var. socia of Joh.

Recorded from: Mass., Vt., June (Joh.); N.Y., June-July (N.Y. State List).

Terminalium indistinguishable from the typical form.

Sciophila grisea (Walk.) see Polylepta grisea Walk.

Sciophila habilis Joh.

1910. habilis, Johannsen, Me. Agr. Exp. Sta. Bull.
180: 138-139. fig. 109.

Recorded from: N.Y. (Joh.); S.C., April (Shaw and Townes).

Terminalium. Tergum subdivided into two sclerites, the basal one again subdivided by a line of slight sclerotization. The distal sclerite with three lobes, Plate 13 fig. 6. Styles typical. Plate 13, fig. 3.

Sciophila hebes Joh.

1910. hebes, Johannsen, Me. Agr. Exp. Sta. Bull.
180: 139, 140. fig. 113.

Recorded from: K.I., Kans. (Joh.)

Terminalium. Tergum subovoid. Zygosternum with "broadened spoon-shaped" lobes on its dorsal edge, Plate 13, fig. 8. Styles complex. P with an outer blunt spine as in text fig. 4 above. M with two long blunt-tipped setae and several smaller setae. Plate 13, fig. 7.

Sciophila hirta Meig.

1818. hirta, Meigen, Syst. Besch. 1:251.

1863. hirta, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:745 (Lasiósoma)

Recorded from: Greenland (Lundb.); Ore. (Cole and Lovett); Europe.

The figures Plate 13 fig. 2 are after Edwards (1913)

Sciophila impar Joh.

1910. impar, Johannsen. Me. Agr. Exp. Sta. Bull.
180:140-141. fig. 116.

Recorded from Wyo., Wash., Sept. (Joh.)

Terminalium. Tergum rounded distally with 8 to 10 long curved sparsely pubescent setae. Styles as in S. novata; lobe M is wider and more prominent.

Plate 14, fig. 5.

Sciophila incallida Joh.

1910. incallida, Johannsen, Me. Agr. Exp. Sta. Bull.
180:139.

Recorded from: N.Y. (Joh.); N.H., Mass., Conn., May-June (Johnson).

I believe this species may possibly be a light-colored variety of S. novata. The terminalia are identical except in the number of palmate spines.

Sciophila longua, nechebes Garr.

1925. longua, nechebes, Garrett. Sixty-one New
Diptera.

Recorded from: B.C.

I have seen drawings of the terminalia by Garrett.

Sciophila nitida V.D.

1928. nitida, Van Duzee, Proc. Calif. Ac. Sci. 17:
37, 38.

Recorded from: Calif., July.

I do not know this species.

Sciophila novata Joh.

1910. novata, Johannsen, Me. Agr. Exp. Sta. Bull.
180:140. figs. 117, 119.

Recorded from: N.Y., May (Joh.), Oct.

Terminalium. Ninth tergum rounded distally with two long slightly pubescent setae. Styles typical. σ bears three terminal setae. Palmate spine on 0 in a dense basal group and a more widely spaced distal group. Plate 14, fig. 1.

Sciophila nugax Joh.

1910. nugax, Johannsen, Me. Agr. Exp. Sta. Bull.
180:137, 138. fig. 115.

Recorded from: N.Y., Wisc., Aug.

Terminalium. Ninth tergum narrows to a blunt point distally, setose, but with no distinctly stronger setae. Styles not of the typical type, subglobular. Plate 13, fig. 11 and 12.

Sciophila pallipes Say.

1824. pallipes, Say, Long's Exp. St. Peter's River.

Recorded from: Northwest Terr. (Say); N.H., Mo., N.Y. (Joh.)

Terminalium. Tergum narrow, distally narrowing where its edges are turned inwards. Zygosternum cleft on median ventral line. Styles similar to S. novata. Plate 13, fig. 10.

Sciophila parvus Carr.

1925. parvus, Garrett, Sixty-one Diptera p. 10.

Recorded from: B.C., May to Oct.

I have seen drawings of the terminalium of this species by Garrett.

Sciophila quadratula Lw.

1869. quadratula, Loew, Berl. Ent. Zeit. 13:141.
(Lasiosoma)

Recorded from: Me. (Loew); N.H. (Johnson).

Known from the female only.

Sciophila setosa Garr.

1925. setosa, Garrett, Sixty-one New Diptera p. 11.

Recorded from: B.C., June.

I have seen a drawing of the terminalium of this species by Garrett.

Sciophila severa Joh.

1910. severa, Johannsen, Me. Agr. Exp. Sta. Bull. 180: 141, 142. fig. 112.

Recorded from: N.Y., July (Joh.)

Terminalium. Ferguson subovoid, distal margin very slightly emarginate, setose. Zygosternum cleft on the mid-ventral line. Styles similar to S. novata. Plate 15, fig. 13.

Sciophila similis Joh.

1910. similis, Johannsen, Me. Agr. Exp. Sta. Bull. 180:141, 142.

Recorded from: Rigaud, Canada, June. (Joh.)

Known from the female only.

Sciophila virginiana n.sp.

Male. Length about 4 mm. Head black; palpi and bases of the antennae yellow. Thorax brown. Legs yellow; fore tibiae slightly longer than their fore basitarsi (43:40). Wing over 2.75 times as long as the fore tibiae. C extends $\frac{1}{2}$ of distance from tip of R_5 to M_{1+2} ; Sc ends in C distad of cell R_1 ; Sc_2 over origin of R_5 ; cell R_1 nearly square; r-m longer than the basal section of R_5 ; stalk of M very short, subequal to the length of the basal section of R_5 ; Cu forks far distad of M fork, distad of tip of Sc. Abdomen brown. Terminalium as in Plate 13, fig. 5.

Holotype: C.U. coll. Virginia near Plummeis I., April 30. H.L. Viereek coll.

This species runs to severa and pallipes in Johannsen's key.

Terminalium. Tergum narrowing suddenly to a short point on either side of which are two prominent setae. Zygosternum cleft ventrally. Styles of the novata-type; M. and N with two blunt-tipped, terminal setae. Plate 13, fig. 5.

Tribe Gnoristini

This tribe includes those genera of the subfamily, Sciophilinae, characterized by Edwards as follows:

"Ocelli three. Fine tibial setae irregularly arranged. Empodia present. Postnotum bare. Wings without macrotrichia on the wing membrane. Sc always long. R₁ several times as long as r-m, which is more or less oblique or vertical. Median fork always much longer than its stem. Humeral cross-vein short and nearly vertical. Seventh abdominal segment, (usually) small and retracted, invisible externally."

This tribe contains seven Nearctic genera separable as follows: (modified after Edwards).

- 1. Proboscis greatly elongate ----- Gnoriste Meig.
 Proboscis normal, or but slightly elongate, the elongation equal to the height of the head -- 2.
- 2. Cu forks far beyond the base of the M fork; R_s straight to gently curved; Sc₂ present or absent; pleurotergites bare ----- Coelosia Winn.
 Cu forks before, under, or just beyond M fork --- 3.
- 3. Sc ending free or in R ----- 4.
 Sc ending in C (in Synapha tibialis may end free)-6.
- 4. Sc ending free; Sc₂ far before the base of R_s; seventh abdominal segment broad, clearly visible; pleurotergites bare ----- Speolepta Edw.
 Sc ending in R; seventh abdominal segment narrow, usually entirely retracted at least in the male ----- 5.
- 5. The anterior wing veins often greatly thickened; proboscis equal to the height of the head; pleuro-

tergites bare ----- Hadroneura Lund.

The anterior wing veins not greatly thickened; proboscis normal; R_2 usually gently arched; petiole of Cu usually short; pleurotergites setose ----- Dziedzicka Joh.

6. Sc_2 present far before the middle of Sc ; Cu forks under the M fork; seventh segment small and retracted; pleurotergites bare ----- Synapsa *Meig.

Sc_2 absent or if present, near the middle of Sc ; R_2 absent; Sc_2 present or absent; Sc bare; pleurotergites setose or bare ----- Boletina *Staeg.

Speolepta Edw.

< 1863. Polylepta, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:745.

1924. Speolepta, Edwards, Trans. Ent. Soc. London 1924. 566-567.

Edwards erected this genus for P. leptogaster Winn. which he characterizes as follows:

"Differs from Polylepta Winn. as follows: -- Body still more slender and elongate. Postnotum and pleurotergites bare. Middle tibiae of male simple, without a swelling at the base. Wings without macrotrichia on membrane; Sc abbreviated ending free; Sc_2 before base of R_2 ; cubital fork rather shorter and more widely open; the lower branch rather more curved."

This genus includes but a single Nearctic species, Speolepta leptogaster.

Speolepta leptogaster (Winn.)

1863. leptogaster, Winnertz, Verh. Zool.-bot. Ges. 13:745.

* See page for a defective species of an apparently new genus near apolyphthisa.

Recorded from: Europe; White Mts., N.H., and Ind.

I have not seen a male of this species.

Coelosia Winn.

1863. Coelosia, Winnertz, Verh. Zool.-bot. Ges. 13:796.

1856. Boletina, Rondani, Dipt. Ital. Prodomus 1:194.
(nec Boletina Staeg.)

Head with ocelli remote from the eye margins. Antennae elongate. Thorax high; mesonotum rounded above; sternopleurites very elongate, large; pleurotergites elongate; postnotum almost vertical in lateral aspect. Meso and metathoracic pleura bare. Scutellum with two marginal setae. Wings hyaline; C extends beyond tip of R₅; Sc long ending in C; R₁ long; stalk of M short; Cu forks distad of M. Abdomen with six visible segments.

Terminalium rotatable. Tergum distinct; zygosternum notched posteriorly on its mid-line, or with a suture to its base along the mid-line. The styles are single but with a variable number of distal flexibly attached lobes.

C. modesta is unique in having a bifurcate sclerotized piece uniting the tergum with the anal segment. (Plate 17, fig. 10).

Key to Nearctic Species (modified after Johannsen).

- 1. Thorax yellow, not vittate; abdomen of male with narrow dorsal, ventral, and lateral longitudinal stripes. Abdomen of the female brown ----- flava Staeg.
- Thorax dark, or else with dark stripes ----- 2.
- 2. Thorax dark, not vittate ----- 3.
- Thorax yellowish with distinct vittae ----- 5.

3. C produced beyond tip of R_s $\frac{1}{2}$ the distance to M_{1+2} , or beyond ----- 4.

C but slightly produced ----- see Boletina nacta.

4. R_s straight; C extends beyond tip of R_s $\frac{1}{2}$ the distance to M_{1+2} ; M fork nearer r-m than Cu fork ----- peeten n.sp.

R_s bowed forwards towards its apex; C extends beyond R_s more than $\frac{1}{2}$ the distance to tip of M_{1+2} ; M fork nearly half way between r-m and Cu fork ----- pygophora Coq.

5. Abdominal segments with yellow posterior margins in the female, or with lateral spots in the male ----- flavicauda Winn.

Abdomen unicolored ----- 6.

6. C produced scarcely half way from R_s to M_1 ; wings hyaline ----- gracilis Joh.

C produced fully half way from R_s to M_1 ; wings more or less cinereous ----- 7.

7. Sc ends in C about opposite middle of r-m; veins margined with cinereous (female) - lepida Joh.

Sc ends noticeably distad of the middle of r-m; apex of wing more or less cinereous - modesta Joh.

All these species are Western with the possible exception of C. flava Staeg. I have not seen an Eastern individual.

Coelosia curta see Prithinia curta and note under that species.

Coelosia flava Staeg.

1840. flava, Staeger, Kroyer's Tidsskr. Ent. 237. (Boletina)

Recorded from: Europe; said to occur in U.S.

I have never seen this species. The figure

(Plate 17, fig. 11) is copied from Lundstroem.

Coelosia flavicauda Winn.

1863. Flavicauda, Winnertz, Verh. zool.-bot. Ges.
Wien. 13:798.

Recorded from: Calif. (Winn.); Hood River, Ore.,
Oct. (Cole and Lovett).

I have never seen this species; there are no
figures of its terminalia.

Coelosia gracilis Joh.

1911. gracilis, Johannsen, Me. Agr. Exp. Sta. Bull.
196:294. fig. 210.

Recorded from: Calif. and Colo.

I have never seen a terminalium of this form.

Coelosia lepida Joh.

1911. lepida, Johannsen, Me. Agr. Exp. Sta. Bull.
196:294. figs. 103, 211.

Recorded from Calif.

The terminalium approaches the macrocera-type
in certain respects but differs mainly in the com-
plex styles. Sygosternum entire, an apodeme in-
ternally on the mid-ventral line. "Sriage" present.
Tergum a distinct sclerite, bifid distally. The
styles are complex see Plate 17, figs. 13 and 9.

Coelosia modesta Joh.

1911. modesta, Johannsen, Me. Agr. Exp. Sta. Bull.
196:294-295. figs. 104, 212.

Recorded from: Calif.

The terminalium of this species is unique. The anal segment consists of the typical parts, two supra-anal lobes and a single sub-anal lobe. The supra-anal lobes have long setae on their mesal aspects. Laterad of these supra-anal lobes is a sclerotized, bifurcate, sclerite which unites these lobes with the tergum. See Plate 17, fig. 10. Styles as in Plate 17, fig. 7.

Coelosia pecten n.sp.

Male. Total length 3.5 to 4 mm. Head deep brown; base of antennae and mouthparts yellow. Thorax brown, darker above on the mesonotum. Legs and halteres yellow. Fore basitarsus shorter than its tibia (30:44). Wings hyaline. C produced less than half the distance between tips of R_2 and M_{1+2} . Sc ends before base of R_2 by a distance greater than the basal section of R_2 about over the middle of the r-m cross-vein. R_2 bowed but slightly forward at its apex, similar to C. lepida. M forks nearer base of R_2 than the Cu fork. Abdomen brown. Terminalium as in Plate 17 fig. 8.

Holotype: C.U. coll. No. Jasper, Alberta, Aug. 15.

Paratypes: In my coll. Jasper, Alberta, Aug. 15.

(Pecten = comb - from comb-like ribbing on style lobe).

Runs to C. pygophora in Johannsen's key.

Terminalium. Tergum distinct. Zygosternum cleft posteriorly on the mid-ventral line, the cleft followed by a suture that runs to the base of the zygosternum. The styles are single, truncate appendages with their ventral edges turned mesad, subapically with two pad-like lobes on their mesal aspect. Plate 17, fig. 8.

Hadroneura Lund.

1907. Hadroneura, Lundstroem, Acta. Soc. Fauna, Flora Fenn. 29.

Ocelli three. Proboscis produced snout-like, its length equal to the height of the head. Wings with C extending a short distance beyond R_3 ; Sc long ending in R; R_4+5 present; stalk of M short; Cu forks proximal of the base of r-m. Abdomen with eight visible segments.

There is only one described Nearctic species.

Hadroneura kinardi (Coq.)

1900. kinardi, Coquillett, Proc. Wash. Ac. Sci. 2:391. (Necempheria)

Recorded from: Alaska, July.

Known from the female only.

Dziedziękia Joh.

1909. Dziedziękia, Johannsen, Genera Insectorum Fasc. 93:44.

1885. Hertwigia, Dziedzięki, Pamiętnik Fizyograf 5:3.

< 1863. Syntenna, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:767.

Edwards in his generic revision placed Dziedzickia in the tribe Gnoristini of the Sciophilinae referring all species of Sytemna having no macrotrichia on the wing membrane to Dziedzickia. Sytemna he placed in the tribe Sciophilini. Loewiella he considered to be synonymous with Sytemna because of the possession of macrotrichia. A specimen from Alberta runs to Loewiella in Johannsen's key, but since it lacks macrotrichia on the wing membrane it should be placed in the Gnoristini.

Head round with three ocelli; antennae long or short. Anepisternites, sternopleurites and pteropleurites bare. Sternopleurites large; pleurotergites wide and setose rather than elongate as in Coelosia. Postnotum bare, rounded, not vertical as in Coelosia. Legs with tibial setae irregularly arranged. Epodia present, large. Wings usually ^{Ryadina} (dark brown in fuscipennis); setulae irregularly arranged; Sc ends in R; base of Cu fork proximal, under, or just beyond fork of M; 1st Anal stout, incomplete.

The seventh abdominal segment is small, partially retracted; the eighth is also often partially retracted. There are two types of terminalia represented:

- D. pullata type
- D. longicornis type

D. pullata type approaches the "macrocera-type".

D. longicornis type is the "cup-type" with complex to simple styles. Tergum and zygosternum often with

accessory lobes. There is no rotation of the terminalia.

I am unable to place the Western species in a key because of lack of material

Key to Eastern Nearctic species - (modified after Johanna (undescribed species in Loew collection not included)

- 1. Antennae long, third joint over twice as long as broad ----- 2.
Antennae rather short, third joint but little longer than broad. ----- 3.
- 2. Cu forks distad of r-m ----- longicornis var. rejecta (Joh.)
Cu forks proximal of r-m ----- longicornis (Coq.)
- 3. Posterior margins of abdominal segments light --- 4.
Posterior margins of abdominal segments dark ----- polyzona (Loew)
- 4. Anal vein extends at least one fourth of its length distad of the fork of the cubitus ----- 5.
Anal vein extends scarcely beyond fork of cubitus; prothoracic basitarsus approximately $\frac{7}{8}$ as long as tibia ----- separata (Joh.)
- 5. Abdomen brown ----- vittata (Coq.)
Abdomen fasciate with yellow -- vittata var. fasciata (Joh.)

Dziedziekia alberta n.sp.

Male; Total length 5 mm. Head deep brown, flagellum and mouthparts lighter brown. Thorax brown. Halteres yellow. Wings hyaline; C produced slightly beyond tip of Rs; Sc ends on small cell R₁; small cell

R₁ Y-shaped; R₅ arched; stalk of M and r-m cross-vein subequal (11:12). Legs yellow. Abdomen brown. Terminalium roughly similar to D. glava Edwards, as in Plate 17, fig. 23.

Holotype: C.U. coll. (alcoholic) No. Jasper, Alberta. Aug. 15, 1934.

This species resembles the genus Loewiella in wing venation. Edwards regards Loewiella as a synonym of Syntenna. Syntenna he places in the Sciophiliini because of the presence of macrotrichia on the wing membrane. This species lacks macrotrichia; it belongs to the Gnoristini. I place it in the genus Dziedziakia as the only difference from the typical forms of that genus is the shortness of the small cell R₁;

Dziedziakia columbiana Sherman.

1921. columbiana, Sherman, Proc. Ent. Soc. B.C. 16:17.

Recorded from B.C., May.

I do not know this species.

Dziedziakia fuscipennis (Coq.)

1905. fuscipennis, Coquillett, Journ. N.Y. Ent. Soc. 13:67 (Sciophila)

Recorded from: B.C.

Known from the female only.

Dziedziakia immaculata Cole

1919. immaculata, Cole, Proc. Calif. Acad. Sci. 9:

222, 233. fig. 2, plate 14.

Recorded from: Oregon, May.

Cole says that this species runs in Johannsen's key to Dziedziakia sp. 3 but believes it is probably different as the two are from different localities, the latter being from New Hampshire.

I have not seen it.

Dziedziakia johannseni Sherman

1921. johannseni, Sherman, Proc. Ent. Soc. B.C. 16:17.

Recorded from: Savory Island, B.C., April.

Known from the female only.

Dziedziakia longicornis (Coq.)

1901. longicornis, Coquillett, Proc. U.S. Nat. Mus. 23:597 (Docosia)

1911. rejecta, Johannsen, Me. Agr. Exp. Sta. Bull. 198:296. figs. 105, 213 (Syntenna)

Recorded from: N.H. (Coq.); Mass. (Joh.).

The terminalium of D. rejecta (type) is identical with D. longicornis (specimen in Joh. coll.) These specimens differ in the position of the Cu fork. There is apparently a color difference also. The D. rejecta type is in Boston but one wing and the terminalium are in the Johannsen collection.

I have a specimen from Cape Breton I., N.S. that is intermediate. The head is black, mesonotum yellow with two large oval spots above the wings as in S. rejecta but the cubitus forks proximal of the

r-m crossvein and the abdominal fascia are a deep brown, almost black. Johannsen's Massachusetts specimen of S. longicornis has two small oval spots over the bases of the wings, the median vitta being absent.

Terminalium. Tergum with lateral lobes. Zygosternum entire, its inflexed dorsal edges supporting the aedeagus. The styles consists of two parts, a heavily sclerotized bifurcate piece, and a membranous lobe with a group of close-set setae subapically. Plate 17, fig. 6, 20, 22.

Dziedziakia occidentalis Sherman.

1921. occidentalis, Sherman, Proc. Ent. Soc. B.C. 17:
17, 18.

Recorded from: Savory Island, B.C., April.

I do not know this species.

Dziedziakia oregona Cole.

1919. oregona, Cole, Proc. Calif. Acad. Sci. 9:223.
Plate 14, fig. 3.

Recorded from: Forest Grove, Oregon, Febr.

I do not know this species.

Dziedziakia polyzona (Loew)

1869. polyzona, Loew, Berl. Ent. Zeit. 13:142
(Syntenna)

Recorded from: Me., R.I., N.Y., N.J., S.C. April-
August.

Terminalium. Tergum with lateral lobes. These

lobes are heavily sclerotized and bear a distal "comb" of setae. Zygosternum entire. Styles are simple, heavily sclerotized, hooked apically. Plate 17, fig. 16.

Dziedziokia pullata (Coq.)

1901. pullata, Coquillett, Invertebrata Pacifica 1:
19 (Neocemneria)

Recorded from: Calif. (Coq.)

Terminalium. Tergum with a pair of "combs" distally. Zygosternum approaches the macrocera type but the mesal aspects of the coxite portions of the zygosternum are entirely closed by a portion of the zygosternal wall which is not restricted to a narrow "bridge" as in Macrocera, Bolitophila etc. The styles are simple. Plate 17, fig. 14.

Dziedziokia rejecta see Dziedziokia longicornis

Dziedziokia rutila Sherman.

1921. rutila, Sherman, Proc. Ent. Soc. B.C. 16:17.

Recorded from Vancouver, B.C., Nov.

I do not know this species.

Dziedziokia separata

This species may possibly belong here, but see Systemna separata.

Dziedziokia vernalis Sherman

1921. vernalis, Sherman, Proc. Ent. Soc. B.C. 16:16-17.

Recorded from: Vancouver, B.C., May.

Known from the female only.

Dziedzikia vittata (Coq.)

1901. vittata, Coquillett, Proc. U.S. Nat. Mus. 23:
597. (Docosia)

Recorded from: N.H. (Coq.) Wash. (?) (Joh.), Me., N.H.
(Johnson).

I have not seen the typical species but since
D. vittata fasciata is referable to Dziedzikia I refer
the typical form to this genus also.

Dziedzikia vittata fasciata (Joh.)

1911. vittata var. fasciata, Johannsen, Me. Agr. Exp.
Sta. Bull. 196:297, fig. 106.

Recorded from: Eastport, Me.

Terminalium. Tergum without lobes, subquadrangular.
Zygoternum entire. Styles bipartate, the outer portion
globular, the inner bearing a mesally directed "comb".
Plate 17, figs. 18 and 19.

Gnoriste Mg.

1818. Gnoriste, Meigen, Syst. Besch. 1:243.

Head round; three ocelli in a row, the laterals remote
remote from the eye margins. Mouthparts produced into a
rigid beak with the palpi borne near the tip of the beak
rather than sub-basally as in Asindulum and Eugnoriste.
Stemopleurites large, as in Dziedzikia; postnotum ver-
tical behind; scutellum with numerous marginal setae;

meso- and metapleura bare. Tibial setae irregularly arranged; empodia present. Wing venation as in Boletina; C extends beyond tip of R_5 ; Sc long; Sc_2 present; R_6 bowed forward before its apex; Cu forks proximal of M fork; anal vein stout, incomplete.

Seventh abdominal segment small and retracted, the eighth small and partially retracted. Terminalium rotatable. Tergum with lateral lobes. Zygosternum cleft on the mid-ventral line or with a median suture. Styles simple, often with a furcate tip or sometimes with a basal, mesally directed lobe. Aedeagus tubular. Anal segment typical.

Key to Nearctic Species (modified after Johannsen).

1. Proboscis over .7 length of the insect to tip of abdomen; cubitus forks proximal of the proximal end of the crossvein, somewhat variable; costa distinctly produced beyond the tip of R_5 ; subcosta ends at or proximal of the base of R_5 .
N.Y.; Calif. Plate 17 figs. 2 and 3 - megarrhinia
O.S.

Proboscis less than $\frac{5}{8}$ of the length of the insect -2.

2. Proboscis over half the length of the insect; fore basitarsus and its tibia subequal in length --
----- groenlandica Lundb.

Proboscis less than $\frac{1}{2}$ as long as the insect; fore basitarsus shorter than its tibia ----- 3.

3. Cubitus forks nearly under the base of R_5 ; the subcostal crossvein distad of the middle of the subcosta ----- apicalis Meigen

Cubitus forks slightly proximal of the base of R_5 ; the subcostal crossvein indistinct, proximal of the middle of the subcosta -----4.

4. Lateral lobe of styles entire ----- macroides Curran

Lateral lobe of styles irregularly forked Plate 17,
fig. 1. ----- macra Joh.

Gnoriste apicalis Meig.

1818. apicalis, Meigen, Syst. Besch. 1:243.

Recorded from: Europe. Said to occur also in Alaska
and Colorado.

I do not know this species. The figure is after
Landrock's Plate 14, fig. 4.

Gnoriste groenlandica Lund.

1898. groenlandica, Lundbeck, Dipt. Groenl. I,
Vidensk. Meddel. nat. Foren. 1. Kbhvn.

Recorded from: Greenland.

I do not know this species.

Gnoriste macroides Curran.

1927. macroides, Curran, Canad. Ent. 59:79, 80.

Recorded from: Ontario and Quebec, June.

"similar to G. macra Joh. but the lateral lobe
of the forceps is entire instead of being inequally
forked."

Gnoriste macra Joh.

1911. macra, Johannsen, Me. Agr. Exp. Sta. Bull.
196:257.

Recorded from: Wisc., May (Joh.); N.H., June (Johnson).

Terminalium: Tergum distinct distally only,
with small lateral lobes. Plate 17, fig. 4. Zygo-
sternum entire, but with a less sclerotized area

along its mid-line ventrally. Styles broad, bifurcate distally, the ventral fork itself bifurcate. Styles with a basal, mesally directed lobe. Plate 17, fig. 1.

Gnoriste megarrhinia O.S.

1877. megarrhinia, Osten Sacken, Bull. U.S. Geol. Survey Terr. 3:193.

Recorded from: Calif. (Osten Sacken). Mass., N.Y., May, June (Joh.) Me., N.H., Vt., July (Johnson); N.J. (N.J. State List).

Tergum not a distinct sclerite, separated from the zygosternum only by less sclerotized areas. Tergum with lateral lobes, Plate 17, fig. 5. Zygosternum with a mid-ventral suture. Styles simple Plate 17, figs. 2 and 3.

Synapha Meig.

1816. Synapha, Meigen, Syst. Besch. 1:227.

1863. Empalia, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:763.

The genus Synapha was founded by Meigen for a species with an oval cell in the middle of the wing, Empalia paradoxa Edw.; this is an abnormality and clearly not characteristic of the genus Synapha Meig. (= Empalia Winn.).

"The chief difference from Boletina is the position of Sc₂ well before the middle of Sc; the hypopygium is also of a rather different type, though agreeing in having a very large ninth tergite. The presence of R₁ is not

diagnostic."

The Nearctic species of Synapha seem to me to be apparently very close to Dziedziękia, perhaps the two genera should be united. Synapha lacks pleurotergal hairs.

The seventh and eighth abdominal segments are small and retracted. The terminalium is described under the only species of which I have seen males, S. bicolor n.sp.

Key to Nearctic Species

1. Petiole of M shorter than r-m; hind femora with a dark brown apical spot; B.C. -- disjuncta Carr.

Petiole of M longer than r-m; front tibiae with a deep groove before the apex on the anterior side ----- 2.

2. Fore tibial groove short; a tympanal-like structure on the extensor surface of the middle tibiae--
----- bicolor n.sp.

Fore tibial groove long; no tympanum like structure on the extensor surface of the middle tibiae--
----- tibialis (Coq.)

Synapha bicolor n.sp.

Male - Total length 4 mm. Head black, bases of antennae and mouthparts yellow. Mesonotum black with yellow humeral angles; anepisternites, sternopleurites, pteropleurites and hypopleurites brownish yellow; hind femora with brown tips; the fore tibia with a short groove before the apex on the anterior side; the middle tibiae with an oval membranous area resembling the tympanum of the fore tibia of Gryllidae and Tettigoniidae, the

Synapha disjuncta Garr.

1925. disjuncta, Garrett, Seventy New Diptera p. 11.
(Eupalia).

Recorded from Marysville, B.C., August.

I do not know this species.

Synapha tibialis Coq.

1901. tibialis, Coquillett, Proc. U.S. Nat. Mus. 23:
596 (Polylepta).

Recorded from: N.H. (Coq.); N.Y. (N.Y. State List);
N.J. (N.J. State List).

Known from females only.

Boletina Staeg.

1840. Boletina, Staeger, Kroy. Nat. Tidsk. 3:233.

1856. Fungina, Rondani, Dipt. Ital Prodrum 1:194.

1861. Agaromya, Rondani, Dipt. Ital. Prodrum 4, Corr. p. 12

1904. Palaeoboletina, Meunier, Mon. Mycetoph. p. 150.

1904. Palaeoanaclina, Meunier, Mon. Mycetoph. p. 143.

Edwards treats Euryceras as a synonym of Allocotocera,
Johannsen as a synonym of Boletina.

Head flattened in front; ocelli three, the laterals remote from the eye margins. Thoracic pleural sclerites shaped as in Dziedziekia and Synapha. Postnotum with its hind edge in lateral aspect oblique rather than vertical as in Coelosia. Wings hyaline, elongate. C extends beyond the tip of R_3 ; Sc ends in C; Sc_2 present or absent; R_4 absent; M forks under or distad of base of R_3 ; Cu forks under or proximad of fork of M. Anal vein stout, incomplete.

Abdomen usually with seven visible segments.

The eighth abdominal segment is retracted, sometimes the seventh segment may also be partially retracted. Terminalia rotatable. The anal segment (median ventral lobes of Joh.) is closely incorporated with the ninth tergite; the supra-anal lobes may be highly modified by the presence of "combs" of short setae. (B. sedula and B. longicornis apparently lack anal "combs".) Tergum usually quite elongate. Zygosternum entire or cleft distally on the mid-line, but usually with a suture or less sclerotized area along its mid-line. Styles simple.

The terminalia may be grouped as follows according to similarity of structure:

<u>longicornis</u>	<u>cineta</u>	<u>imitator</u>	<u>gracilis</u>	<u>obscura</u>
	sp. c	<u>noteseens</u>	<u>nata</u>	<u>hopkinsii</u>
			<u>sedula</u>	<u>groenlandica</u>
			(<u>artica</u>	<u>melancholius</u>
			? of	<u>tricineta</u>
			Hubs.	<u>delicata</u>
			nec.	<u>sciarina</u>
			Lunds)	(<u>artica</u> ? of Lunds.
				nec. Hubs.)
				<u>profectus</u>
				sp. A

Key to Nearctic Species (modified after Johannsen).
(I can not place B. subatra n.n. or Garrett's species in this key.)

1. Sc₂ usually present ----- 2.
- Sc₂ usually absent ----- 20.

2. Halteres black; Sc ends in C opposite base of R₅:
Sc₂ slightly proximad of proximal end of cross-vein ----- abdominalis Adams

- Halteres mainly yellowish; thorax usually dark, or with dark vittae; if not then the petiole of M but little longer than r-m ----- 3.
3. Fork of Cu proximal of proximal end of r-m ----- 4.
Fork of Cu opposite or distad of proximal end of r-m ----- 6.
4. Sc ends in C distad of base of R_3 ; coxae black ----- obscura Joh.
Sc ends in C opposite or proximal of base of R_3 ; coxae yellow ----- 5.
5. Fore basitarsus less than $\frac{2}{3}$ as long as tibia; pleura yellow ----- eincta Joh.
Fore basitarsus at least $\frac{2}{3}$ as long as tibia; pleura black ----- melancholica Joh.
6. Thorax partly yellow, usually with black thoracic stripes ----- 7.
Thorax black; usually with yellow tibial spurs, shorter tarsi, and dusky palpi ----- 12.
7. Spurs brown, fore tarsi nearly or quite twice tibia; fore basitarsus over .8 as long as tibia; palpi usually yellow ----- 8.
Not so ----- sp. C
8. C but slightly produced beyond R_3 ; Sc_2 near middle of Sc_1 ----- 9.
C produced at least $\frac{1}{4}$ of distance from R_3 to M -10.
9. Cu forks proximal of the distal end of r-m; petiole of media less than 4 times as long as basal section of R_3 ----- imitator Joh.
Cu forks nearly under fork of M; petiole of M six times as long as basal section of R_3 - gracilis Joh.

10. Sc₂ near middle of Sc₁; antennae nearly as long as the body in the male ----- longicornis Joh.
 Sc₂ distad of middle of Sc₁ ----- 11.
11. Sc ends in C opposite base of R₂; abdomen of female with yellow fasciae ----- notescens Joh.
 Sc ends distad of base of R₂; abdomen of female uniformly fuscous ----- notescens varieties
- 12.* Sc ends over base of R₂; petiole of M shorter than r-m; part of third joint of antenna yellow; posterior coxae dark; abdomen of female fasciate ----- groenlandica Staeg.
 With other combination of characters ----- 13.
13. C produced at least $\frac{1}{2}$ of distance from R₂ to M₁- 14.
 C but slightly produced ----- 18.
14. Sc₁ ends in C distad of base of R₂----- 15.
 Sc₁ ends in C opposite or proximal of base of R₂;
 Sc₂ distad of middle of Sc₁ ----- 16.
15. Coxae mostly black ----- hopkinsii Coq. + atra Cole
 Coxae yellow; Sc₂ distad of middle of Sc₁ - sobria Joh.
16. Coxae wholly grayish; claws in both sexes with a basal tooth. Greenland ----- arctica Holm.
 Coxae in large part yellow; one claw of each foot of male modified ----- 17.
17. Abdomen black; palpi dark; fore tarsi about 1.75 times as long as the tibia. See plate 16 figs. 1, 2, 4, 9 ----- sciarina Staeg. + profectus n.sp.
 Not so; see plate 16 fig. 13, 22.- tridacta Lw. sp. A.

*B. atra Van Duzee probably will run to here.

18. Fore tarsus over twice, the basitarsus over .8 as long as the tibia ----- 19.
Fore tarsus less than 1.7, the metatarsus less than .75 as long as the tibia, female -- obesula Joh.
19. Spurs dark, Plate 16. fig. 7. ----- gracilis Joh.
Spurs pale, Plate 16 figs 12, 17. ----- delicata Joh.
20. Sc ends distad of base of R_5 ; C noticeably produced; Cu forks under or proximal of proximal end of r-m ----- obscura Joh. + hopkinsii Coq. (?)
Sc ends at or proximal of base of R_5 ; C but slightly produced ----- 21.
21. Fore tarsi not over twice, hind tarsi not as long as the tibia ----- 22.
Fore tarsi over twice, hind tarsi longer than the corresponding tibiae - naeta Joh. + crassicauda V.D.
22. Sc ends nearly opposite base of R_5 - inops Coq. + inops var. a of Joh.
Sc ends proximal of the middle of r-m --- sedula Joh.

Boletina abdominalis Adams.

1903. abdominalis, Adams. Kans. Univ. Sci. Bull. 2:24.

Recorded from Mo., April.

I do not know this species.

Boletina anticus Garr.

1924. anticus, Garrett, Ins. Insc. Menst. 12:165-166.

Recorded from: Michel, B.C., Sept.

Similar to B. longicornis according to Garrett.

Boletina antomus Garr.

1924. antomus Garrett, Ins. Insc. Menst. 12:166.

Recorded from: B.C. Sept., April.

Similar to anticus according to Garrett.

B. arctica Holmgren

1872. arctica, Holmgren. *Oefv. Vetensk. Akad. Forh.* 1872:107.

Recorded from: Greenland, Europe.

One form of terminalium has been illustrated by Lundstroem, another by Rubsaamen. They do not appear similar and must represent different species. I give a copy of Lundstroem's figure here as Rubsaamen's figure is available to North American students in the copy of it in Johannsen's monograph. Rubsaamen's identification was with a question.

B. astacus Garr.

1924. astacus, Garrett, *Ins. Insc. Mens.* 12:165.

Recorded from: Caulfields, B.C.

I do not know this species.

B. atra Cole.

1921. atra, Cole, *Proc. Calif. Acad. Sci.* (4) 11:219-220. fig. 7.

Recorded from: Oregon.

"-- Lateral claspers of the genitalia with two small curved apical spines and a larger yellow pre-apical spine."

Boletina atra V.D. see Boletina subatra n.n.

Boletina beringensis Coq.

1898. beringensis, Coquillett, Dipt. of Commander
Isl. 342 (Neoglaphynoptera)

Recorded from: Bering Island, July-Aug.

Coquillett later (Proc. U. S. Nat. Mus. 23:599)
referred this species to Boletina.

Known from the female only.

Boletina cineta Joh.

1911. cineta, Johannsen, Me. Agr. Exp. Sta. Bull.
196:270-271. figs. 147, 180.

Recorded from: Vt. July; N.Y., July (Joh.); N.H.
(Johnson).

I have not seen a male. Johannsen illustrates
the ventral aspect which is copied on plate 16, fig. 16.

Boletina crassicauda Van Duzee

1928. crassicauda, Van Duzee, Proc. Calif. Acad. Sci.
17:44-45.

Recorded from: Unalaska, Alaska, Sept.

I have not seen this species.

Boletina delicata Joh.

1911. delicata, Johannsen, Me. Agr. Exp. Sta. Bull.
196:276. figs. 158, 188.

Recorded from Taekson Lake, Wyo., Sept.

Tergum separate from zygosternum distally, basally
the sutures separating them are subobsolete. Zygosternum
with a suture on its mid-ventral line, followed
by a distal cleft in the hind margin. Styles simple
but bipartate, the outer lobe globular, setose, with

about eight stout setae on its dorsal aspect; the inner lobe narrow, curved. The supra-anal lobes have about 8 delicate combs. Plate 16 figs. 12 and 17.

Boletina differens Carr.

1924. differens, Garrett, Ins. Insc. Mens. 12:168.

Recorded from: Fernie, B.C., July.

"-- allied to the nacta group and shermani, the position of the fork of Cu is apt to throw it in the genus Phthinia, but I would consider it a true Boletina.

Boletina flava See Coslosia flava

Boletina gracilis Joh.

1911. gracilis, Johannsen, Mo. Agr. Exp. Sta. Bull. 196:271, 272, fig. 151, 183.

Recorded from: Calif., Aug; Wyo., Sept. (Joh.).

Terminalium. Tergum closely united with lateral portions of the zygosternum. Dorsal portion of the zygosternum is extended caudally beyond the styles so that these are articulated upon its dorsal surface, rather than upon its hind border. The style is not bipartate but has a pronged tip.

This terminalium is similar to that of B. sedula and B. nacta. It differs only in the structure of the tip of the style (Plate 16, fig. 7) and from B. nacta in the absence of "combs" on the anal segment.

Boletina groenlandica Staeg.

1845. groenlandica, Staeger, Naturh. Tidsskr. n. ser.
1:356.
1840. basalis, Staeger, in Krøjer, Naturh. Tidsskr.
3:234.
1838. trivittata, Zetterstedt, Ins. Vapp. 862 (Leia
trivittata in part)

Recorded from: Greenland (Staeg.); Me; N.H.; Mass
(Johnson); N.J. (N.J. State List.) Alberta, July (C.
U. coll. - E.G.F.).

Terminalium like that of B. hopkinsii, obscura
and tricincta except in the arrangement of "combs"
on the anal segment. Perhaps they should all be
considered but varieties of one species.

I have seen a specimen identified by Edwards
(Shaw coll.) Plate 15, fig. 4 and 8.

Boletina hopkinsii (Coq.)

1895. hopkinsii, Coquillett, Canad. Ent. 27:200.
(Mycetophila)

Recorded from: Morgantown, W.Va.; Hampton, N.H. (?)

Terminalium as in B. groenlandica except in the
arrangement of "combs" of setae on the supra-anal
lobes. See Plate 15 fig. 5.

This species was later placed in Leia by Co-
quillett (1901) and in Boletina by Johannsen (1911).

Boletina imitator Joh.

1911. imitator, Johannsen, Me. Agr. Exp. Sta. Bull.
196:271, figs. 150, 182.

Recorded from: Mt. Ranier, Wash., Aug. (Joh.)

Terminalium similar to B. notescens. Tergum and zygosternum closely united laterally. Zygosternum entire. Styles of two parts, the mesal part forked distally, the outer simple, longer proportionately than in B. notescens. The supra-anal lobes have the whole of their dorsal aspects covered with a stiff mass of setae and with a subapical "comb" of setae.

Boletina inops Coq.

1900 inops, Coquillett, Proc. Wash. Acad. Sci. 2:391.

Recorded from: Alaska (Coq.); Oregon, Nov. and Jan. (Cole).

I have seen no terminalia.

Boletina inops var. a. of Joh.

Recorded from Idaho (Joh.)

Known from the female only.

Boletina jucunda Garr.

1924. jucunda, Garrett, Ins. Insc. Mens. 12:167-168.

Recorded from: B.C. (Garr.)

This is similar to B. obscura according to Garrett.

Boletina longicornis Joh.

1911. longicornis, Johannsen, Me. Agr. Exp. Sta. Bull. 196:272, figs. 152, 184.

Recorded from: Idaho, April (Joh.).

Terminalium. Tergum a distinct, small, sub-quadrangular plate. Pygosternum entire ventrally. There is a wide "bridge" across the genital chamber, the whole terminalium approaching a macrocera-type. The styles are simple with a basal pseudo-joint and a tiny narrow flexible lobe subapically. Plate 16, fig. 23.

Terminalium similar to B. sahbergi as figured by Lundstroem (1912).

Boletina magna Carr.

1925. magna, Garrett, Sixty-one New Diptera p. 5, 6.

Recorded from: B.C. July (Carr.)

I do not know this species.

Boletina melancholica Joh.

1911. melancholica, Johannsen, Me. Agr. Exp. Sta. Bull. 196:271. figs. 181, 148.

Recorded from: Wyo., Sept. (Joh.)

Terminalium very similar to B. groenlandica, hopkinsii and obscura but the styles are somewhat different in shape, Plate 15 fig. 3. The arrangement of the "combs" on the supra-anal lobes differs, Plate 15, fig. 3.

The terminalium is somewhat similar to the European B. borealis.

Boletina montanus Carr.

1924. montanus, Garrett, Ins. Insc. Mens. 12:163, 164.

Recorded: B.C., July (Carr.)

"Belonging to the imitator, notescens group.

Boletina naeta Joh.

1911. naeta, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
277, 278. figs. 155, 192.

Recorded from: Wyo. (Joh.)

Terminalium similar to B. gracilis except the supra-anal lobes bear a "comb", the tip^{of the} styles differ as shown in Plate 16, fig. 6, and the entire terminalium is smaller.

Boletina notescens Joh.

1911. notescens, Johannsen, Me. Agr. Exp. Sta. Bull. 196:272, 273, figs. 153, 185.

Recorded from: Ithaca, N.Y., June; Mass. (Joh.); Ga., May (C.U. coll. -E.C.F.) Me., N.H., Mass. (Johnson)

Terminalium similar to B. imitator. Supra-anal lobes have a "comb" all around its edge. Styles are similar to B. imitator but the two parts are nearly subequal. Plate 15 fig. 1.

This species may be synonymous with B. lundbecki.

B. notescens var. a from Mass. and var. b from Wash. are known from females only.

B. obesula Joh.

1911. obesula, Johannsen. Me. Agr. Exp. Sta. Bull. 196:276. fig. 189.

Recorded from: Alaska, July-Aug. (Joh.) Pribilof Islands, June (Mallico).

Known from females only.

B. obscura Joh.

1911. obscura, Johannsen, Me. Agr. Exp. Sta. Bull. 196:270. figs. 146, 179.

Recorded from: N.Y., N.H., Mass., N.J. April-May (Joh.); N.I., April; Quebec, June (C.U.C.-E.C.F.)

Terminalium similar to B. hopkinsii and B. groenlandica except in the arrangement of setae on the supranal lobes. Plate 15 fig. 6.

Boletina oviducta Garr.

1924. oviducta, Garrett, Ins. Insc. Menst. 12:164 (Mycomya)

1924. oviducta, Garrett, Seventy-New Diptera p. 10 (Boletina)

Recorded from: B.C. (Sept.)

Known from the female only.

Boletina parvula see Allocoptocera parvula

Boletina profectus n. sp.

Male. Total length 3 mm. Head, thorax, and abdomen black; bases of antennae, legs except tarsi, most of trochanters, and halteres yellow; palpi dusky; mesonotum with three stripes and its lateral edges pollenose bearing black setae. Wings hyaline; C extends slightly less than half the distance beyond tip of R₅

to tip of M_1+2 ; Sc ends over base of R_3 ; Sc_2 beyond middle of basal cell; stalk of M slightly longer than $r-m$; Cu forks under base of $r-m$. Terminalium as in plate 16, fig. 9.

Holotype: C.U.C. No. West Ridge, McLean Res. McLean, N.Y., Aug. 17.

Paratypes: C.U.C. No. The Hook, McLean Res. McLean, N.Y., Aug. 19.

My coll. Big Intervale Margaree Cape Breton I., N.S. Aug. 30.

Near B. nigricans and B. tricincta, differing mainly interterminal structure.

(profectus - us = increase - from increase in number of spines on styles)

Terminalium of groenlandica-type. Anal segment with scattered dark hairs instead of a comb. Styles as in Plate 16, fig. 9.

Boletina punctus Garr.

1925. punctus Garr., Sixty-one New Diptera p. 5.

Recorded from: Creston, B.C., July (Garr.)

I do not know this species.

Boletina sciarina Staeg.

1840. sciarina, Staegerin Krojer, Naturh. Tidskr. 3:256.

1848. concolor, Walker, List. Dipt. Brit. Mus. 1: 102. (Mycetophila)

1838. obscurilla, Zetterstedt, Ins. Lappon. Dipt.
866. (Mycetopmila)

Recorded from: Europe, Greenland, N.H., Me., N.Y.,
Calif.?, Wyo? (Joh.)

The species in the Johannsen collection referred
here does not agree with the terminalial structure as
illustrated by Dziedzięk. See Boletina sp. #501.
There is a specimen in the C.U. coll. that does (E.G.F.
#150) from McLean, N.Y., Aug.

Boletina sedula Joh.

1911. sedula, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
277. fig. 191.

Recorded from: Mt. Ranier, Wash., Aug.

Terminalium similar to B. gracilis and B. nacta.
The style tips differ as shown in Plate 16, fig. 8.
There are no "combs" on the supra-anal lobes. Plate
15, fig. 6.

Boletina shermani Garr.

1924. shermani, Garrett, Ins. Insc. Mens. 12:166-167.

Recorded from: B.C., April, May. (Garr.)

"Belongs to the nacta group."

Boletina sobria Joh.

1911. sobria, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
274. fig. 186.

Recd Recorded from: Mt. Ranier, Wash., Aug. (Joh.)

Known from the female only.

Boletina subatra n.n. for atra. V.P.

1928. atra, Van Duzee, Proc. Calif. Aca. Sci. (4)
17:45.

Recorded from: Alaska, May, July.

The name atra is preoccupied by B. atra Cole.

This species keys out near B. groenlandica in
Johannsen's key according to the description. I have
not seen it.

Boletina trincineta Loew.

1869. trincineta, Loew, Berl. Ent. Zeit. 15:143.

Recorded from: Md., Wisc. (Loew); N.J. (N.J. State
List); E.C., Me., Mass., R.I., N.Y., July-Sept. (Joh.);
S.C., April (Shaw and Townes) N.H., Vt. (Johnson).

The terminalia agree with those of B. melancholica.
There are two forms of styles on specimens in the
Johannsen collection. I do not know which form is
typical. Plate 16, figs. 13 and 19.; Plate 15 fig. 7.
The style resembles that of B. nitida Gry. as figured
by Lundstroem (1911); the other that of B. nigrofusca
Dz. as figured by Landrock (1927).

Boletina unusa Garr.

1924. unusus, Garrett, Ins. Insc. Mens. 12:168, 169.

Recorded from: Ithaca, N.Y.

Terminalium intermediate between obscura and
imitator according to Garrett. "The position of the
forks of Cu would tend to place it in the genus

Phthinia but I would consider it a true Boletina."

Cu forks distad of the M fork.

Boletina sp. (#501 Joh. coll.)

There is a specimen in the Johannsen collection labelled "B. sciarina ?". The style of this form is illustrated on Plate 16, fig. 14. It is a distinct form from B. sciarina as illustrated by Dziedzicki, Plate 16 fig. 1, 2, 4.

Boletina sp.

I have seen a specimen taken by F.R. Shaw that is near #501 and sciarina. Its style is illustrated on Plate 16 fig. 18.

Boletina sp. (A)

A Nova Scotian specimen has the groenlandica-type of terminalium. The styles differ as shown Plate 16 fig. 22. The supra-anal lobes have scattered dark hairs instead of a "comb." It is near B. tricincta in Johannsen's key.

Boletina sp. (E.G.F. #152 C.U. Coll.)

A defective specimen from McLean, N.Y. Ninth tergum of typical Boletina type. Supra-anal lobes with a dense group of setae but with no comb. Zygosternum approaches the macrocera type, deeply cleft on the mid-ventral line, "bridge" present which sends a

mesal branch for the support of the aedeagus. Styles simple, setose at base and with a terminal group of short closely spaced setae. Plate 16, fig. 10.

Genus ?

I have a defective specimen perhaps belonging to a new genus close to Apolephthisa Grzeg. and Palaeoempalia.

Sc ends in C; Sc₂ present near middle of Sc; R₄ present; cell R₁ very long; M stalk long; Cu arcuate at base with

a spur;



pleurotergites bare; ninth

tergum

of male without a terminal

row of spines. Terminalium Plate 16, figs. 20 and 21.

Tergum elongate. Zygosternum entire ventrally. Styles simple, bifurcate.

Specimen in C.U. Coll. Cazadero, Calif. April 12-14, 1918. Lot 542. J.C. Bradley coll.

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Tribe Leiini

This tribe was established by Edwards (1924) for those genera of the Sciophilinae characterized by:

"Ocelli three, the laterals sometimes close to the eye margins. Fine tibial setae irregularly arranged. Empodia present. Postnotum bare. Wings without macrotrichia on the wing membrane. Sc long or short. R_1 short, usually little if any longer than r-m which is long and nearly horizontal; in Rondaniella R_1 is rather long, but the median fork is hardly longer than its stem. Seventh abdominal segment small and retracted.

He considers this tribe as occupying "an intermediate position between the Sciophilinae and the Mycetophilinae."

The recent Nearctic genera may be separated by this key modified after Edwards:

Key to Nearctic Genera of Leiini (modified after Edwards)

1. Sc distinctly ending in the costa (faint apically in some species of Leia); tibial cristles long and strong ----- 2.
- Sc short, ending free or in M ----- 3.
2. R_1 over twice as long as r-m, which is rather oblique; M_1 often detached at base; Scg absent - Rondaniella Joh.
- R_1 very short, shorter than r-m which is long and horizontally placed ----- Leia Mg.
3. Palpi minute, composed of a single rounded segment, female wingless; in the male Cu_1 arises from M ----- (Phyxia Joh. of Sciarinae)
- Palpi well developed; female with normal wings; Cu_1 not arising from M ----- 4.

4. Lateral ocelli touching the eye-margins; R_1 rather long; stem of median fork short; pleurotergites hairy; no hind tibial comb ----- Docosia Winn.

Lateral ocelli remote from the eye margins; R_1 shorter ----- 5.

5. Pleurotergites bare --- Tetrogoneura Winn. + (Extrepes-thoneura End
Pleurotergites hairy ----- Megophthalmidia Dz.

Rondaniella Joh.

1909. Rondaniella, Johannsen, Genera Insectorum. Fasc. 93:66.

1863. Leia, Winnertz (nec. Rondani), Verh. Zool.-bot. Ges.-Wien. 13:792.

Members of this genus resemble the genus Leia in coloration. In Rondaniella the lateral ocelli are closer to the median ocellus than to the eye margin. Wings elongate-oval, the r-m crossvein nearly oblique; base of M and Cu detached from their stems; petiole of M as long or longer than the cell M_1 ; veins Sc, R, r-m, and basal section of M with long setae.

Terminalium non-rotatable. Zygosternum entire ventrally. Tergum small, united with the zygosternum basally. Dorsal edges of the zygosternum reflexed into the genital chamber. Styles complex, of two parts, the dorsal subdivided.

Rondaniella abbreviata Lw.

1869. abbreviata, Loew, Berl. Ent. Zeit. 13:147. (Leia)

Recorded from: Middle States (Loew); Me., N.Y., Wisc.,

B.C. (Joh.); N.H., Mass., May-Oct. (Johnson);
Minn., June (E.G.F.).

Terminalium. Ninth tergum minute united basally with the zygosternum. Zygosternum entire ventrally with 3 blunt spine-like projections on either side the mid-line. A portion of the zygosternum inflexed into the genital chamber, Plate 19, fig. 3. and the edge formed at the angle of inflexion with a row of prominent setae. Styles complex, a sinuous ventral lobe and a complex dorsal lobe.

Rondaniella sororecula Lw.

1869. sororecula, Loew, Berl. Ent. Zeit. 13:147.
(Leia)

Recorded from: N.Y. (Loew); N.J. (N.Y. State List);
Me., Vt., N.H., Mass. June-Oct. (Johnson).

I have seen no terminalia.

Leia Mg.

1818. Leia, Meigen, Syst. Besch. 1:258.

1856. Lejomya, Rondani, Ital. Prodr. 1:195.

1856. Lejosoma, Rondani, Ital. Prodr. 1 corr.

1863. Glaphyroptera, Winnertz, Verh. Zool.-bot. Ges. 13:781

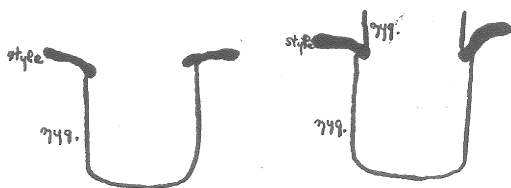
1878. Neoglaphyroptera, Osten Sacken, Catl. Dipt. N.A. 10.

These are bright yellow and black species with wing markings resembling Rondaniella. They differ in having the lateral ocelli closer to the eye margins, the r-m

crossvein more oblique, the petiole of M shorter, cell M_1 and Cu_1 closed at their bases, no long setae on the anterior veins.

Ocelli usually three, the laterals close to the eye margins. Mesonotum flattened above. Postnotum oblique in lateral aspect. Pleurotergites prominently projecting, setose. Wings hyaline or fasciate. Sc long, Sc_2 present; r-m oblique, appearing like the base of R_3 ; M forks proximad of base of R_3 ; Cu forks proximad of base of r-m. Anal vein strong, incomplete. Abdomen with seven visible segments.

Terminalia rotatable. Eighth abdominal segment retracted in the male. The structure of the terminalium varies greatly within the genus. The tergum may be distinct or united to the zygosternum. The styles may consist of one or two parts. They may be borne, as in other genera upon the posterior edge of the zygosternum or on the outer side of the zygosternum as shown below.



Usual type

Type in some spp. of Leia

Diagrammatic longitudinal section of terminalia.

Often there is a more or less distinct and separate ventral plate (? ninth sternum entirely or partially.)

Key to recent Nearctic males of Leia (modified after
Johannsen)

(L. shermani, nigricornis, lineola, cuneola are known from
the females only.)

1. Thorax largely black, not vittate ----- 2.
Thorax largely yellow or vittate dorsally ----- 5.
2. Fore part of thorax yellow ----- varia Walk.
Fore part of thorax black except sometimes the
humeri ----- 3.
3. Halteres yellow ----- 4.
Halteres with a blackish knob ----- ventralis Say
4. Costa produced ----- melaena Lw.
Costa not produced ----- nigra Joh.
5. Mesonotum with three or four distinct dark brown
vittae ----- 6.
Mesonotum spotless, or with black spots at base of
wing or with indistinct reddish vittae ----- 7.
6. A brown cloud near apex of wing distad of the pre-
apical fascia ----- winthemii Leh.
No such cloud; hind coxae and femora yellow - striata
Will.
7. Without black spots at the base of wing ----- 8.
With black spots at the base of wing ----- 11.
8. Wings unmarked ----- 9.
Wings fasciate ----- 10.

9. Thorax yellow; fore basitarsus as long as the tibia ----- hyalina Coq.
 Thorax with three reddish brown vittae; fore basitarsus shorter than tibia - plebeja Joh.
10. Wings with a brown spot at base of crossvein - ----- oblectabilis Lw.
 Wings without a brown spot at base of crossvein ----- 15.
11. Wings unmarked; pleura and metanotum with some yellow ----- cineta Coq.
 Wings usually with a preapical fascia ----- 12.
12. Middle ocellus wanting ----- decora Lw.
 Middle ocellus present ----- 13.
13. Wing with a distinct brown cloud at the proximal end of the crossvein; lateral thoracic spots large ----- opima Lw.
 Wing without a distinct cloud at the proximal end of the crossvein ----- 14.
14. Thoracic spot at base of wing produced over the pleurotergites; abdominal fascia usually emarginate, sometimes divided ----- bivittata Say
 Thoracic spot at base of wing punctiform - sublunata Lw.
15. Ocelli close together ----- cephala Garr.
 Ocelli separate ----- 16.
16. Preapical fascia extends up and along the costa; brown species ----- hemiata Garr.
 Preapical fascia not as above; yellow species - dryas Joh.

Leia bivittata Say

1829. bivittata, Say, Tr. Acad. Nat. Sci. Phil. 6:152.

1911. cineta, Coq., Johannsen, Me. Bull. 196:288.

Recorded from: Ind. (Say) Conn; A.I.; N.C., Wis., Ill., Kas., Minn., Iowa; Mich., N.Y. (Joh.). N.H. (Johnson) May-Aug.

Terminalium. Tergum fused to zygosternum laterally. Zygosternum cleft far basally on the mid-ventral line with a distinct oblong sclerite in the cleft. Dorsad of the styles the zygosternum bears minute mesally directed lobes. The styles are narrow, simple appendages with a recurved tip. Plate 18, figs. 1, 2, and 3.

I believe that Johannsen's Louisiana specimen labelled L. cineta belongs here (see discussion under L. cineta beyond).

Leia cephalo Garr.

1925. cephalo, Garrett, Seventy New Diptera p. 11.

Recorded from: B.C., July-Aug. (Garr.)

"Ocelli close together on top of vertex "would indicate that this species is wrongly placed generically. I have not seen it.

Leia cineta Coq.

1895. cineta, Coquillett, Proc. Acad. Nat. Sc. Phil. 308 (Neoglaphyoptera)

(nec cineta Coq., Johansen)

Recorded from: Fla. (Coq.)

The male specimen in the Johannsen collection from Louisiana, I believe, is but a variety of L. bivittata. The terminalium is identical with those of specimens of L. bivittata. I have a specimen of L. brevittata from Ithaca, N.Y. that lacks the typical preapical wing fascia. The abdominal markings of L. bivittata vary from lateral spots to broad transverse fasciae, which may or may not be emarginate.

Leia cuneola Adams

1903. cuneola, Adams, Kansas Univ. Sci. Bull. 2:25.
(Neoglaphyoptera)

Recorded from: Colo. (Adams); Ida. (Joh.), July-Aug.

Known from the female only.

Leia decora Lw.

1869. decora, Loew, Berl. Ent. Zeit. 13:144 (Glaphy-
roptera)

Recorded from: Georgia (Loew); N.Y. (Joh.); S.C. (Shaw and Townes) June-Sept.

Terminalium - Tergum small but distinct. Zygo-
sternum with a broad V-shaped cleft on the mid-ventral
line; a sclerite arises at the base of the cleft,
Plate 18, fig. 11. The styles are of two parts only,
Plate 18, fig. 16., and appear to be borne on the
outside of the zygosternal wall. Plate 18, fig. 8.

Leia dryas Joh.

1911. dryas, Johannsen, Me. Agr. Exp. Sta. 196:287, 288.

Recorded from: Wisc. (Joh.)

Terminalium. Tergum small; anal lobes prominent. Zygosternum with a cleft on either side the mid-line leaving a median point. Styles, Plate 18, fig. 4, almost foot-shaped borne on the outside of the zygosternal wall.

Leia hemiata Carr.

1925. hemiata, Garrett, Sixty-one New Diptera p. 11.

Recorded from: B.C., June-July (Garr.)

I have not seen this species.

Leia hopkinsii Coq. see Boletina hopkinsii (Coq.)

Leia hyalina Coq.

1905. hyalina, Coquillett, Jour. N.Y. Ent. Soc.
13:68. (Lajomya)

Recorded from: N.Mex. (Coq.); ? R.I., July, M. Chapman coll. (E.G.F.)

I have seen a female from Rhode Island that may possibly belong here. I have seen no males.

Leia lineola Adams

1903. lineola, Adams, Kans. Univ. Sci. Bull. 2:25
(Neoglaphyoptera)

Recorded from: Calif. (Adams)

Known from the female only.

Leia melaena Lw.

1869. melaena, Loew, Berl. Ent. Zeit. 13:144.

Recorded from: N.Y. (Loew); R.I. (Joh.); Me., N.H., Mass., R.I; (Johnson), July-Sept.

Terminalium. Tergum large, quadrangular, united basally with the zygosternum cleft deeply on the mid-ventral line; on either side the cleft are two short posteriorly projecting lobes; within the genital chamber on either side the mid-ventral cleft is a lobe bearing a basal group of close set setae and a stouter, distal set. The styles are complex, a large outer lobe, a narrow inner lobe with a terminal "comb" and a club-like ventral lobe perhaps a part of the outer lobe. Plate 18 figs. 10 and 12.

Leia nigra Joh.

1911. nigra, Johannsen, Me. Agr. Exp. Sta. Bull. 196:281, 282.

Recorded from: Wash., Montana.

Terminalium. Tergum fused with the zygosternum. Zygosternum deeply cleft on the mid-ventral line. Styles of two parts, the dorsal part bearing "combs." Plate 18, fig. 13.

Leia nigra var. a of Joh.

Recorded from: Wyo.

Known from the female only.

Leia nigricornis V.D.

1928. nigricornis, Van Duzee, Proc. Calif. Acad. Sci. 17:46.

Recorded from: Alaska (V.D.)

Known from the female only.

Leia oblectabilis Lw.

1869. oblectabilis, Loew, Berl. Ent. Zeit. 13:146
(Glaphyroptera)

Recorded from: Middle States (Loew), N.C., Wisc.,
Ohio, N.Y., July-Sept. (Joh.) Me. N.H. (Johnson)

Terminalium. Tergum fused to zygosternum. The latero-ventral edges of the zygosternum are produced into lobes. The median ventral line with three lobes as in Plate 18, fig. 6a. Styles simple, somewhat foot-shaped borne on the outside of the zygosternal wall. Plate 18, figs. 6 and 7.

Leia oblectabilis var. a of Joh.

Recorded from: Wash. (Joh.)

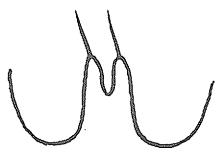
Known from the female only.

Leia opima Lw.

1869. opima, Loew, Berlin. Ent. Zeit. 13:145 (Glaphyroptera)

Recorded from: Conn. (Loew); Me., N.H., Mass., R.I.,
N.J., N.C., Wisc., Wyo. (Joh.) Vt. (Johnson) June-
Sept.

Terminalium. Tergum composed of two minute lobes



each bearing a terminal setae.
The styles are simple with a fringed dorsal projection, Plate 18, fig. 14 borne on the outside of the zygosternal wall.

Zygosternum entire ventrally.

Leia shermani Garr.

1925. shermani, Garrett, Sixty-one New Diptera.

Recorded from: B.C. (Garr.)

Known from the female only.

Leia striata Will.

1893. striata, Williston, Kans. Univ. Quart. 2:60
(Neoglaphyoptera)

Recorded from: Wash. (Will.)

I have not seen the typical form.

Leia striata var. a of Joh.

Recorded from: Calif., Wyo., N.C. (Joh.)

Terminalium. Tergum minute. The styles are similar to those of L. oblectabilis differing as shown, Plate 18, fig. 5. The zygosternal lobes are absent in this species.

Leia sublunata Lw.

1869. sublunata, Loew, Berl. Ent. Zeit. 13:145 (Gla-
phyoptera)

Recorded from: N.Y. (Loew); N.J., Pa., N.C., B.C.

(Joh.); Me., N.H., Mass., N.I., Conn., June-July

(Johnson)

Terminalium. Tergum separated from the zygo-
sternum by sutures. Styles of two parts; the dorsal
portion small with two long setae, the ventral por-
tion elongate, bifurcate, Plate 18, fig. 9.

Leia trifasciata Walk. see Leia winthemii Leh.

Leia unicolor Walk. see Myeomyia unicolor (Walk.)

Leia varia Walk.

1848. varia, Walker, List. Dipt., Brit. Mus. 1:93.

Recorded from: Canada (Walk.); Wisc., Wyo. (Joh.)

I have seen no terminalia.

Leia ventralis Say.

1824. ventralis, Say, Long's Exp. St. Peter's River,
App. p. 364. (Leia)

Recorded from: North West Terr. (Say); Me., Vt.,

July (Joh.); N.H., May-Sept. (Johnson), Ore. (Cole).

I have not seen the terminalia.

Leia winthemii Leh.

1822. winthemii, Lehmann, Ins. Spec. nonnullae in
agro Hamb. captae, p. 39.

1824. maulipennis, Say, Long's Exp. St. Peter's
River, App. p. 365 (Mycetophila)

1848. trifasciata, Walker, List Dipt. Brit. Mus.
1:93.

Terminalium. Tergum large, quadrangular.

Zygo-sternum deeply cleft on mid-ventral line.

Styles of two parts, a small dorsal lobe, bearing

terminal setae, and a heavily sclerotized hook-like ventral piece. Plate 18, fig. 15.

Docosia Winn.

1863. Docosia, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:802.

Black or black and yellow species. Ocelli three, the laterals close to the eye margins. Thorax short, highly arched. Anepisternites bare; pleurotergites hairy. Wing broad; C prolonged beyond R_3 ; Sc short ending in R_1 or free; r-m crossvein longitudinal in position; R_1 long; base of R_2 crossvein like; petiole of M short; Cu forks under or proximal of M fork. Legs robust, the middle and hind tibiae with fairly strong setae.

Terminalia apparently non-rotatable. The seventh abdominal segment is almost entirely retracted; the eighth is entirely retracted. The ninth tergum is distinct. The zygosternum is entire on the mid-ventral line. Without a "bridge". The anal segment is very characteristic. It has two ventral lobes that are provided with a "brush" of setae on their tips; these setae are in definite rows giving the appearance of dark bands. The aedeagus is small. The styles are simple, sometimes bipartate distally. The zygosternum may be produced into a lobe at its postero-dorsal angles. There may be "combs" on either side the mid-ventral line.

Key to Nearctic species (modified after Johannsen)

I can not place Garrett's species nor D. dialata V.D.; D. defecta V.D. is placed from the original description.

1. Abdomen reddish yellow; thorax shining black ---- 2.
Abdomen black ----- 3.
2. Two short peg-like spines anterior to hind tibial spurs ----- paradichroa Fisher
No so ----- dichroa Lw.
3. Sc vein wholly lacking ----- defecta V.D.
Sc vein present ----- 4.
4. Sc end in R_1 ----- 5.
Sc ends free, its basal section strong, apically much attenuated; legs mainly dark brown ---
----- nitida Joh.
5. Median and cubitus fork about opposite the base of the radial sector; third antennal joint only slightly longer than broad ----- obscura Coq.
Media and cubitus fork noticeably proximal of the base of the radial sector; third antennal joint about twice as long as wide ----- nigella Joh.

Docosia acus, affinis, apicula Garr.

1925. acus, affinis, apicula, Garrett, Seventy New Diptera. --

Recorded from: B.C.

I do not know these three species.

Docosia defecta V.D.

1928. defecta, Van. Duzee, Proc. Calif. Acad. Sci. 17:46.

Recorded from: Calif., Febr.

Known from the female type only.

D. dialata, V. D.

1928. dialata, Van Duzee, Proc. Calif. Acad. Sci.
17:46-47.

Recorded from: Calif. March-April.

I have not seen this species.

D. dichroa Loew

1869. dichroa, Loew, Berl. Ent. Zeit. 13:148.

1903. mutor, Adams, Science Bull. Kans. Univ. 2:24
(Syntenna)

Recorded from: D.C. (Loew); N.J., Mo., Kas., Wisc.,
Mich., N.Y. (Joh.); Me., Vt., Mass., R.I. May-June
(Johnson).

Terminalium. Tergum large. Posterior edge of
zygosternum with a row of very stout setae on either
side of the midline; laterad of these are short lobes.
The posterior dorsal angles are produced into long,
narrow, sinuous lobes, Plate 19 fig. 6. (= terminal
appendage of the lateral sclerite of Johannsen).
Styles bipartate, the ventral portion with terminal
spines the dorsal portion bare.

Docosia longicornis Coq. see Dziedziekia longicornis (Coq.)

Docosia nebulosus Garr.

1925. nebulosus, Garrett, Seventy New Diptera.

Recorded from: B.C. (Garr.)

Known from the female only.

Docosia nigella Joh.

1911. nigella, Johannsen, Me. Agr. Exp. Sta. Bull. 196:300.

Recorded from: Alaska, July-Aug. (Joh.)

Terminalium. Tergum large. Zygosternum entire with a comb-like group of setae on either side the mid ventral line. There are no lobes from the zygo-sternal edge. Plate 19, fig. 10. Styles simple, short and blunt with short, stout spines on their meso-ventral aspects. Plate 19, figs. 9 and 10.

Docosia nigrata Garr.

1925. nigrata, Garrett, Seventy New Diptera p. 13.

Recorded from: B.C.

Known from the female only.

Docosia nitida Joh.

1911. nitida, Johannsen, Me. Agr. Ex. Sta. Bull. 196:300-301. fig. 220, 110.

Recorded from: S.D.

Terminalium. Tergum small. Zygosternum with minute lobes at the postero-dorsal angles. The styles simple, broad with a rounded tip. Plate 19, fig. 8.

Docosia obscura Coq.

1901. obscura, Coquillett, Proc. U.S. Nat. Mus. 23:597.

Recorded from: N.H. (Coq.), Calif. (?) (Joh.).

I have seen no terminalium.

Docosia paradichroa Fisher.

paradichroa, Fisher, Ms. name.

Terminalium. Tergum large. Zygosternum entire with small "combs" on either side the mid line and with lobes at the posterio-dorsal angles. These are blunt and blade-like. Styles simple, blade-like with a terminal notch, Plate 19, fig. 4.

Docosia setosa, similis, vierecki Garr.

1925. setosa, similis, vierecki, Garrett, Seventy New Diptera.

Recorded from: B.C. (Garr.)

I do not know these three species.

Docosia vittata Coq. see Dziedziakia vittata (Coq.)

Tetragoneura Winn.

- 1846. Tetragoneura, Winnertz, Stett. Ent. Zeit. 9:17.
- 1911. Ectrepesthoneura, Enderlein, Stett. Ent. Zeit. 72.
- 1885. Parastemma, Grzegorzek, Berl. Ent. Zeit. 29:199.
- ? 1904. Sciarella, Meunier, Mon. Mycetoph. p. 78, pl. 7, fig. 15.
- ? 1904. Heeriella, Meunier, Mon. Mycetoph. p. 75, pl. 7, fig. 4.
- ? 1920. Neoparastemma, Abreu, Mem. Ac. Barcelona 16 (series 3):48.

Ectrepesthoneura and Tetragoneura are treated as separate genera by Edwards. They have been separated on the position of the forking of Cu but forms exist, according

to Garrett, which show all intergrades, therefore I have treated them as synonyms. (see Garrett 1925.)

Head with three ocelli, the laterals remote from the eye margins. Antennal segments elongate. Thoracic sclerites shaped somewhat as in Bolitophila, sternopleurite not so elongate. Anepisternites, pteropleurites, and pleurotergites bare. Tibial setae irregularly arranged; no hind tibial comb. Wings hyaline; C produced beyond R_3 ; Sc long or short ending free or in R_1 ; R_4 present or absent; r-m almost longitudinal in position; Cu forks at base of wing to opposite r-m cross-vein; Cu_1 may be detached at its base.

Seventh and eighth abdominal segments retracted, the seventh sometimes only partially. Terminalium non-rotatable. Zygosternum divided on the mid-ventral line. Styles simple, flattened appendages. Zygosternum with ventral and sometimes dorsal lobes.

The western species I can not separate fully.

Key to Nearctic species (modified after Johannsen).

1. Sc ends free; thorax and abdomen shining black - nitida
 Sc ends in R_1 ----- 2.
2. Cu forks near its base; Cu_1 not detached ----- bicolor
Cu forks farther distad or if near its base, Cu_1 is detached ----- 3.
3. Cu_1 detached -- quintana Cole + robur Garr + similas Garr
+ maroeda Sherman + atra Sherman
 Cu_1 attached to Cu_2 ----- 4.

4. Cu forks opposite r-m --- pimpla Coq. + fallax Sherman

Cu forks proximal of proximal end of r-m -----
----- arcuata Sherman + fallax Sherman + longicauda
V.D.

Tetragoneura arcuata, atra Sherman.

1921. arcuata, atra, Sherman, Proc. Ent. Soc. B.C.
16:19-21.

Recorded from: B.C., May-June (Sherman).

I do not know these two species.

Tetragoneura bicolor Coq.

1901. bicolor, Coquillett, Proc. U.S. Nat. Mus. 23:595.

Recorded from: N.H. (Coq.); Mass., June (Johnson);
N.Y. July (N.Y. State List).

Known from the female only.

Tetragoneura fallax Sherman.

1921. fallax, Sherman, Proc. Ent. Soc. B.C. 16:20.

Recorded from: B.C. April, May, Dec. (Sherman).

I do not know this species.

Tetragoneura longicauda Van Duzee

1925. longicauda, Van Duzee, Proc. Calif. Ac. Sci.
17:36-37.

Recorded from: Calif. (V.D.)

The figure, Plate 20, fig. 2 is after Van Duzee's
of the unprepared terminalium.

Tetragoneura marceada Sherman

1921. marceada, Sherman, Proc. Ent. Soc. B.C. 16:20.

Recorded from: B.C., April-May (Sherman).

I do not know this species.

Tetragoneura nitida Adams

1903. nitida[?], Adams, Kans. Univ. Science Bul. 2:23.

Recorded from: Mo. (Adams); N.C. (Joh.)

Zygosternum cleft on mid-ventral line with lobes on either side the cleft. Styles simple flattened appendages with a mesal and a long dorsal projection. Plate 20, fig. 1.

Tetragoneura pimpla Coq.

1901. pimpla, Coquillett, Proc. U.S. Nat. Mus. 23:595.

Recorded from: Pa. (Coq.); Ore., Febr. (Cole); N.Y. (N.Y. State List); S.C., Oct. (Shaw and Townes)

Terminalium. Tergum divided on its midline. Zygosternum cleft on its midline on either side the cleft is a heavily sclerotized hook. Styles simple. Plate 20 figs. 3,4 and 5, with two heavily sclerotized hooks distally. Zygosternum with large square flattened lobes at its postero-dorsal angles.

Tetragoneura quintana Cole

1921. quintana Cole, in Cole and Lovett. Proc. Calif. Acaa. Sci. 11 (4):218.

Recorded from: Oregon, March.

I do not know this species.

Tetragoneura robur and similas Garr.

1925. robur, similas Garrett. Sixty-one New Diptera
p. 8-9.

Recorded from: B.C.

I do not know either of these species.

Megophthalmidia Dz.

1889. Megophthalmidia Dziedzicki , Horae Soc. Ent. Ross.
23:525.

? 1901. Rutrophora, Schmuse, Zeitschr. f. Hym. u. Dipt. p. 149

? 1920. Neoparastemma, Abreu, Mem. Ac. Barcelona 16 (Series
3):48.

Antennae fairly short; ocelli three, the laterals remote from the eye margins. Thorax bare except the prothorax, mesonotum, pleurotergites, and scutellum; the latter has four prominent and several shorter setae. Sclerites apparently similar in shape to those of Decosia. Tibial setae irregularly arranged, the middle and hind setae with strong bristles. Vein C produced beyond R₃; R₁ short; r-m longitudinal.

The only available terminalium is a caustic potash preparation, therefore I do not know whether the terminalium is rotatable.

There is only one described Nearctic species.

Megophthalmidia occidentalis Joh.

1909. occidentalis, Johannsen, Genera Insectorum
Fasc. 93:89. Pl. 7, fig. 5.

Recorded from: Wash. July-Aug.

Terminalium. Tergum with two lobes. Zygosternum deeply cleft on the mid-ventral line. Styles bipartate. "Bridge" incomplete. The lateral walls of the zygosternum are produced posteriorly so that the styles appear to be borne within the genital chamber.

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Subfamily Mycetophilinae

1868. Mycetophilinae, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:659.

Edwards in 1924 separated those genera in which the microtrichia of the wing membrane were irregularly arranged from this subfamily and placed them in the Scio-philinae, thus leaving only Series II of Johannsen in this subfamily. The subfamily may now be characterized as follows: -

Two or three ocelli, the laterals touching the eye margins. No macrotrichia on the wing membrane; microtrichia in definite lines. Sc short. Fine tibial setae in regular rows.

This subfamily includes the most specialized forms in the entire family. The development of strong tibial bristles, the presence of both anepisternal and pteropleural bristles, the reduction in size of the pleurotergites and pteropleurites, the retraction of the head so as to fit closely under the anterior end of the thorax reach their highest culmination in some genera of this subfamily.

The Mycetophilinae may be divided into two tribes, one of these tribes may be subdivided as indicated below:

1. Anepisternal and pteropleural bristles absent; hind coxae with a fairly strong bristle at the base; empodia absent or rudimentary; hind tibial comb usually indefinite or absent, tibial bristles short - Tribe Exechini

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Anepisternal bristles present; hind coxae usually without basal bristles, empodia and hind tibial comb nearly always distinct ----- Tribe Mycetophilini - 2.

2. Pteropleural bristles absent ---- Phronia group.

Pteropleural bristles present; tibial bristles long and strong ----- Mycetophila group.

Tribe Exechini

The genera of this tribe may be separated as follows:

(Partly after Edwards and partly after Johannsen).

1. C produced well beyond tip of R₅; basal setae of hind coxae absent ----- Anatella Winn.

C ending at R₅; basal setae of hind coxae present (except sometimes in Exechia). ----- 2.

2. Base of Cu forks distad of M fork, M forks proximal of end of basal cell R --- Exechia Winn.

Base of Cu forks below or proximal of M fork -- 3.

3. 1st anal strong and distinct ending abruptly. Cu branches acute at base, Cu₂ beyond its middle suddenly diverging from the upper branch ----
----- Rhymosia Winn.

1st anal short and weak or absent ----- 4.

4. Anal fold very long and distinct, reaching nearly to the middle of the fork of Cu; intermediate antennal joints annular or torus like, tibiae enlarged at ends; wings sometimes with markings, ----- Brachypeza Winn.

anal fold shorter and less distinct - Allodia Winn.

A table of generic characters is given below:

Genus	anepisternal setae	pterosternal setae	Callitax	Relation of M ₃ to C ₁	Empurges beyond M ₃	Empurges in relation to M ₃ fork	trichoseae	size of pleural sclerite	Miscellaneous
<u>Ezechini</u>									
<u>Anatella</u>	absent	absent	forked	strongly divergent	Yes	distal	weak	large	
<u>Ezechia</u>	"	"	"	divergent	No	"	"	"	
<u>Rhymosia</u>	"	"	"	"	"	proximal	"	"	1 st anal strong x
<u>Brachytrypa</u>	"	"	"	"	"	"	moderate	"	anal fold vein-like.
<u>Allodia</u>	"†	"	"	"	"	"	weak	"	
<u>Myetosphidini</u>									
<u>Dynatosoma</u>	present	"	"	more or less divergent	"	"	strong	moderate	
<u>Condyba</u>	"	"	"	convergent to divergent	"	proximal, cubital distal.	weak	large	Several palpal segment enlarged
<u>Trichonta</u>	"	"	"	divergent	"	proximal or below	"	"	anal fold of wing with macrotrichia.
<u>Plenosia</u>	"	"	"	divergent	Yes or no	distal	"	"	
<u>Myetosphila</u>	"	present	"	"	No	proximal, below or slightly distal	strong	generally large	
<u>Zygonia</u>	"	"	simple	slightly divergent	"	"	"	large	Two ventral setae on middle tibia; macrotrichia distal.
<u>Epicypta</u>	"	"	forked	parallel	Yes	below	"	small	
<u>Scaptoria</u>	"	"	simple	"	No	"	"	"	branches of R cross dist to under empurges in wing.
<u>Dalopsis</u>	"	"	forked	"	"	proximal	"	"	Two strong pterosternal setae; 2 anal fork strong macrotrichia on pterosternum.

† Allodia crummenaueri has fine hairs on empurges in wing.
 * Allodia delongi is forked distal of M₃ fork.
 x Rhymosia differs 1st anal only moderately strong.

Anatella Winn.

1863. Anatella Winnertz, Verh. zool.-bot. Ges. Wien.
13:854.

Head round, flattened in front. Ocelli three, the laterals close to, the eye margins. Palpi 4 jointed. Thorax arched above. Postnotum somewhat swollen. Anepisternites and pteropleurites bare. Pleurotergites with a few setae; hypopleurites with one seta. Wings hyaline; C extends beyond R_3 ; Sc short, Cu forks before or just beyond M fork. Anal fold with a vein-like thickening. Anals indistinct. Abdomen with six visible segments in the male, seven in the female.

This genus is closely related to Exechia and Allodia. The produced costa will distinguish it.

The terminalial structure is identical in structure to that of Allodia and Exechia. The styles are complex consisting of a superior and inferior portion (A and B) and a small membranous lobe (C) which is reflexed into the genital chamber and not noticeable until the forceps are dissected off the zygosternum. Another small lobe (D) may be present. The zygosternum is entire, although shallowly notched on either side the mid-line. The tergum is subquadrangular to bilobed. The anal segment has two prominent setose lobes. The aedeagus is supported by wide apodemes from the dorsal edges of the zygosternum.

Key to Nearctic species

1. Sc nearly half as long as cell R_1 ; Cu forks near the base of the wing ----- difficilis Garr.

Sc not nearly half as long as cell R_1 ; Cu forks
distad of fork of M ----- 2.

2. Superior portion of styles with a bifurcate branch
Plate 20, figs. 8 and 9. ----- incisurata Edw.

Superior portion of styles without a branch --- 3.

3. Superior portion of styles with a dense group of
short spines at the apex; inferior portion
roughly foot shaped with a stout terminal spine,
Plate 20, figs. 11-13. ----- ciliata Winn.

Superior portion of styles elongate, club-shaped;
inferior elongate, narrow, tapering to a point,
Plate 20, figs. 6 and 7. ----- silvestris Joh.

Anatella ciliata Winn.

1863. ciliata, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:856.

Recorded from: Europe (Winn.); N.Y., Nov. (taken in
pitcher plant leaves by F.R. Shaw); Mo., May. (E.G.F.).

The middle femora in the male is strongly cil-
iate beneath.

Terminalium. Zygosternum entire with two tiny
lobes on either side the mid-line, Plate 20, fig. 12.
Styles complex; lobe A elongate with a dense group of
short spines at the apex; lobe B roughly foot-shaped
with a stout terminal spine; C small, membranous,
ribbed; D narrow, rather elongate. Tergum subquad-
rangular. Plate 20, figs. 11-13.

Anatella difficilis Garr.

1925. difficilis, Garrett, Sixty one New Diptera p. 5.

Recorded from: B.C. Sept.

"It does not fit nicely into any genera, having the legs of one, the Sc of another and the hypopygium of a third."

Anatella incisurata Edw.

1925. incisurata, Edwards, Trans. Ent. Soc. London.
1924:589. fig. 43, 45.

Recorded from: England (Edw.); N.S., Aug. 31. (K.G.F.).

Edwards says that this may possibly be the same as A. flavicauda Winn., but believes it is better to treat it as a different species as "the description is not very close, particularly in regard to the short outer spur of the middle tibiae."

The palpi and prothoracic lobes are light in the Nearctic form.

The terminalium of the Nearctic form agrees well with Edwards' figures except that the tip of the superior lobe of the style (A) is slightly different in dorsal aspect. It agrees so closely in other respects that I believe it represents the same species.

Terminalium. Zygosternum broadly but shallowly notched ventrally. Styles complex; the superior lobe, A, bears a bifurcate branch near its base; the inferior lobe, B, is simple bearing a dense group of very short setae on its tip; C is membranous and rather large for the genus. The tergum is deeply divided into two lobes. Plate 20 figs. 8-10.

Anatella silvestris Joh.

1909. silvestris, Johannsen. Genera Insectorum
Fasc. 93:91.

Recorded from: N.Y., March and Aug. (Joh.);

Terminalium. Zygosternum entire but notched on either side the mid ventral line, Plates 20, fig. 7. The styles are complex; superior portion (A) wide, setose; inferior portion (B) narrow, pointed, and obtusely angled dorsally before their tips. The tergum is deeply divided into two lobes. Plate 20, figs. 6 and 7.

Exechia Winn.

1863. Exechia, Winnertz. Verh. Zool.-bot. Ges. Wien
13:879.

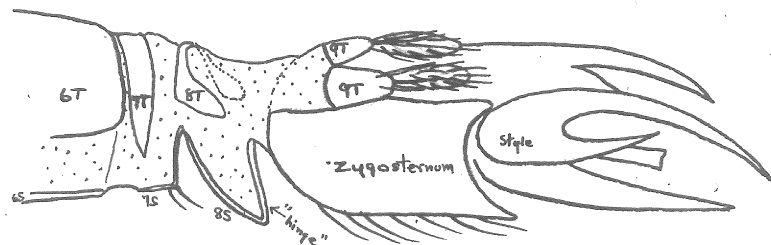
1866. Paraxechia, Becker, Insekten von Jan Mayen p. 62.

1888. Brachydierania, Skuse, Proc. Linn. Soc. N.S. Wales
5: 1215.

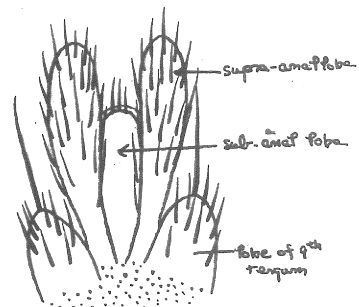
Head round, flattened in front. Ocellis small, the laterals close to the eye margins. Palpi four segmented. Mesonotum highly arched; scutellum semicircular with two marginal setae; postnotum steep. Anepisternites elongate, bare; sternopleurites subquadrangular, bare; pteropleurites elongate, bare, reaching coxal base below; pleurotergites setose; hypopleurites with caudal seta. Hind coxae usually with a basal seta. Fine tibial setae regularly arranged; empodia absent or rudimentary. Wings hyaline; microtrichia on the wing membrane in definite rows. Sc short, ending free or in R_1 ; C ends at tip of R_3 ; Cu forks distad

of M fork; M forks proximal of the distal end of cell R_1 . Abdomen with six visible abdominal segments in the male, seven in the female.

Terminalia non-rotatable. Seventh and eighth segments retracted in life. The eighth sternum forming a V in lateral aspect ("hinge" of Muir).



Ninth tergum consisting of two separate lobes. The anal segment has two elongate setose supra-anal lobes and a broader almost bare subanal lobe. The zygo-



sternum is notched or cleft far basally on the mid-ventral line. The styles are complex, consisting of large inferior (B) and superior (A) lobes, a membranous mesally projecting lobe (C) and a small variable lobe (D). The penis is supported by a ventral arm on either side of which are membranous cushions (E. absurda) or plates (E. nugatoria).

The following key to Nearctic species is modified from Johannsen's. Males only are included. Van Duzee species are placed from descriptions only. I can not

place E. plebeja (Walk.), E. unicolor, V.D. and E. bicincta Staeg. in the key. In all cases the terminal structure should be the final criterion for specific determinations. The key is presented merely as an aid.

Key to Nearctic species of Erechia (modified after Johannsen).

1. Curvature of R_2 conspicuous (4.5 % or over) --- 2.
 Curvature of R_2 not conspicuous ----- 15.
2. Fore basitarsus equal or longer than its tibia- 3.
 Fore basitarsus shorter than its tibia; Plate 21, fig. 3 and Plate 22, fig. 4. -- nexa Joh. + sp. A.?
3. Curvature of R_2 moderate (4.5 %), fork of Cu noticeably distad of base of R_2 (more than the length of the stem of M) ----- 4.
 Curvature of R_2 conspicuous (7.5 % or over) --- 7.
4. Fore basitarsus and tibia almost of equal length- 5.
 Fore basitarsus over 1.15 the tibia in length; Plate 21, fig. 2. ----- perspicua Joh.
5. Cu forks opposite the proximal end of the r-m cross-vein; styles forked ----- brevipetiolata V.D.
 Cu forks considerably beyond the distal end of the r-m cross-vein ----- 6.
6. Styles long ----- aequalis V.D.
 Styles short and broad; Plate 22, figs. 6 and 10 --
 ----- lata n.sp.
7. Abdomen practically unicolored ----- 8.
 Abdomen with intermediate segments bicolored -- 9.

8. Abdomen almost wholly brown ----- 10.
 Abdomen light, yellow basally, reddish brown distally; Plate 24, fig. 12. --- clepsydra Fisher
9. Hind margins of abdominal segments yellow ----- 11/
 Yellow margins of abdominal segments confined to the anterior margin, Plate 21, fig. 10. - nugax Joh.
10. Coxae yellow ----- 12.
 Coxae with a brownish cast, tibiae yellow; Plate 30, figs. 14, 15 and 18. --- aviculata Shaw.
11. With extreme tip of coxae brown, fore and middle tibia brown, posterior tibia yellow - umbrosa V.D.
 Not so ----- sp. A?
12. Eastern forms; fore basitarsus 1.10 to 1.15 times longer than its tibia ----- 13.
 Fore basitarsus 1.32 to 1.35 times longer than its tibia ----- 14.
13. Ventral sclerite of terminalium forked, Plate 22, fig. 14. ----- bifurcata Fisher
 Ventral sclerite of terminalium pointed, Plate 21, fig. 1. ----- umbratica Aldrich
14. Sectors of radius as 61 to 66, terminalium as figured Plate 22, fig. 5. ----- stolo n.sp.
 Sectors of radius as 60 to 77 ----- angustata V.D.
 Sectors of radius as 60 to 100 ----- umbrosa V.D.
15. Hind margins of abdominal segments yellow ----- 16.
 Abdomen unicolorous, black or yellow or hind margins of abdominal segments dark, or with a narrowly broken, yellow band on the second abdominal segment ----- 20.

16. Fore metatarsus over 1.25 tibia in length ----- 17.
 Fore metatarsus 1.15 or less tibia in length -- 18.
17. Abdomen black with yellow triangles, Western form
 ----- noctivagus V.D.
 Abdomen yellow with brown triangles, Eastern form.
 Plate 24, fig. 6. ----- abrupta Joh.
18. Mesonotum vittate ----- 19.
 Mesonotum not vittate, mesonotum and pleura largely
 black, scutellum black; fore basitarsus 1.19
 tibia in length ----- borealis V.D.
19. Mesonotal stripes, pleura, and scutellum pale brown;
 fore basitarsus 1.06 tibia in length. Plate
 24, fig. 4. ----- canalicula Joh.
 Thorax fuscous; fore basitarsus 1.15 longer than the
 tibia, Plate 23, fig. 1. ----- ovata Fisher
20. Narrowly broken, yellow band on second abdominal seg-
 ment, Cu forks far distad of distal end of r-m.
 Western form ----- unicincta V.D.
 Not so ----- 21.
21. Supra-anal lobes rounded at their tips with long
 setae, Plate 22, figs. 11 and 12 -- shawi Fisher
 Not so ----- 22.
22. Yellow species, darker markings on thorax and abdomen
 pale brown ----- 23.
 Thoracic and abdominal markings dark brown ---- 24.
23. Superior style lobe bifurcate, a curved branch on
 its inner side, Plate 24, fig. 1. - satiata Joh.
 Eighth sternum large, quadrangular. Plate 24, fig.
 9. ----- quadrata Joh.
24. Fore metatarsus about $\frac{1}{8}$ longer than the tibia - 25.

- Fore metatarsus not more than 1.2 longer and some-
times shorter than tibia ----- 30.
25. Thorax and abdomen with considerable yellow --- 26.
Thorax and abdomen largely dark ----- 29.
26. Smaller species, 3 mm. in length; superior style
lobe (A) forked. Plates 24, fig. 1. - satiata Joh.
Larger species, over 4 mm. in length ----- 27.
27. Superior (A) and inferior (B) lobes of style both
forked, Plate 24, figs. 7 and 13. - nugatoria Joh.
Not so ----- 28.
28. Terminalium as in Plate 24, fig. 8. ---- nativa Joh.
Terminalium as in Plate 23, figs. 6 and 7 - ?lundstro-
emi Edw.
29. Terminalium as in Plate 22, fig. 8. ----- palmata Joh.
Terminalium as in Plate 23, figs. 7 and 12 - fusca Meig.
30. Terminalium as in Plate 22, fig. 7. ---- contaminata Winn
Not so ----- 31.
31. Posterior edges of zygosternum with bent setae. Plate
24, fig. 2. ----- cincinnati Joh.
Posterior edges of zygosternum without bent setae - 32.
32. Styles slender at least apically ----- 35.*
Styles with at least one lobe over $\frac{1}{3}$ as broad as
long ----- 33.
33. Fore basitarsus about .9 as long as the tibia; Cu
forks slightly distad of base of R_3 ; Plate 24,
fig. 5. ----- assidua Joh.

* E. aequalis probably runs to here. I can not place it
further.

- Cu forks noticeably distad of base of R_2 ----- 34.
34. Thorax yellow with brown dorsum; Plate 21, fig. 6.
----- auxiliaria Joh.
- Thorax dark; Plate 21, fig. 13. ----- bellula Joh.
35. Postero-ventral angles of zygosternum with 1 to 3
strong setae, or a blunt process ----- 36.
- Postero-ventral angles of zygosternum without sev-
eral conspicuously strong setae or spines - 37.
36. A single blunt spine or process on each postero-
ventral angle, see Plate 22, fig. 3, Plate 21,
figs. 14 and 15 - bella Joh. + analis Adams + obtusa
n. sp.
- One or more setae at the angle; see Plate 23, figs.
9-11, 13-14, Plate 24, fig. 11; Plate 27, fig. 8
-- captiva Joh. + absoluta Joh. + capillata Joh.
+ repanda Joh.
37. One lobe of styles curved on apical third and con-
spicuously longer than the others, Plate 21,
fig. 12; dark brown species ----- obsidiana Joh.
- One lobe of styles less than $\frac{1}{2}$ the longer in length;
see Plate 21, figs. 7, 8 and 11, Plate 22, figs.
1, 2, 9 and 13. -- absurda Joh. + frigida (Sch.)
+ pollex Shaw

Xiechia abrupta Joh.

1912. abrupta, Johannsen, Me. Agr. Exp. Sta. Bull.
200:68-69. fig. 35, 163.

Recorded from: Ithaca, N.Y. (Joh.)

Terminalium. Zygosternum only slightly notched
on mid-ventral line. Styles large; lobe A broad
basally, tapering to a point, setose; lobe B narrower,
setose, equal in length to lobe A; lobe C very prom-
inent; lobe D elongate, narrow.

Exechia absoluta Joh.

1912. absoluta, Johannsen, Me. Agr. Exp. Sta. Bull.
200:72. figs. 51, 176.

Recorded from: Que., Me., N.Y., S.D., Conn., N.J. (Joh.)

Terminalium resembles that of Exechia capillata Joh. Cleft on mid-ventral line of zygosternum contains a narrow setose sclerite. On either side the cleft each postero-ventral angle of the zygosternum is raised as a papilla bearing a strong seta. Styles complex; lobe A bifurcate at tip; lobe B elongate, pointed; lobe C membranous, projecting mesad; lobe D elongate, with a terminal group of setae. Plate 20, figs. 11 and 15.

E. concinna ? Winn. as figured by Lundstroem (1909) resembles this species.

Exechia absurda Joh.

1912. absurda, Johannsen, Me. Agr. Exp. Sta. Bull.
200:74. fig 56, 181.

Recorded from: N.Y., Me., Nov. (Joh.)

Terminalium. Zygosternum cleft ventrally almost to its base. Styles complex; lobe A elongate, setose; lobe B elongate, curved towards A apically; lobe C membranous, projecting mesad; lobe D small, with a single terminal seta. The penis is supported by arms from the dorsal edge of the zygosternum and ventrally by a bifurcate projection from the base of

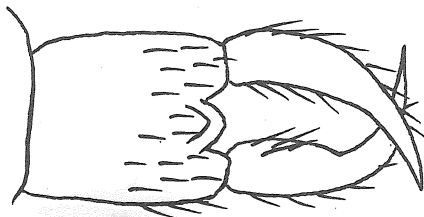
the mid-ventral zygosternal notch. On either side of this structure is a membranous cushion-like structure. Plate 22, figs. 9 and 13.

Exechia aequalis V.D.

1928. aequalis, Van Duzee, Proc. Calif. Ac. Sci. 17:54, fig. 21.

Recorded from: Calif., Febr. and March (V.D.)

The figure below is from the unprepared terminalium after Van Duzee.



Exechia analis (Adams)

1907. analis Adams. Wash. Carnegie Inst. Pub. 67: 37. Mycetophila.

Recorded from: Indiana (Adams); N.J. (N.J. State List)

"Hypopygium resembling that of E. attrita. The longer process very similar --, but the postero-ventral angles of the hypopygial sclerite are produced almost as far as the tips of the articulated processes in the form of slender, blunt almost spine-like lobes in E. analis."

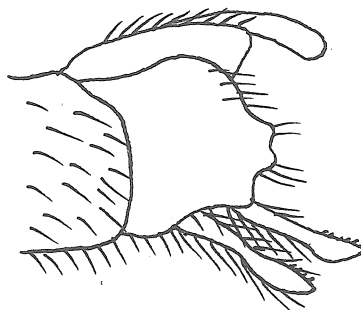
Exechia analis Coq. see Mycetophila analis (Coq.)

Exechia angustata Van Duzee

1928. angustata Van Duzee

Recorded from: Calif., Febr. and March.

The figure below is from the unprepared terminalium after Van Duzee.



Exechia assidua Joh.

1912. assidua, Johannsen, Me. Agr. Exp. Sta. Bull. 200:71. figs. 46, 171.

Recorded from: Wash., July (Joh.).

Terminalium. Tergum quadrangular instead of bilobed as typical of the genus. The styles are highly complex; lobe C is ribbed and apparently subdivided. Plate 20, fig. 5.

Exechia attrita Joh.

1912. attrita, Johannsen, Me. Agr. Exp. Sta. Bull. 200:73. figs. 54, 179.

Recorded from: Wis., Me., R.I., N.Y., N.J. (Joh.); N.H. (Johnson) April and Nov.

Terminalium. Eygosternum cleft far basally on the mid-ventral line; on either side this cleft, within the genital chamber, are membranous pads.

styles complex; lobe A broad, unequally bifid distally; lobe B elongate truncate; lobe C small, membranous; lobe D a curved blade. Plate 21, figs. 7, 8, and 11.

Exechia auxiliaria Joh.

1912. auxiliaria, Johannsen. Me. Agr. Exp. Sta. Bull. 200:71. figs. 47, 172.

Recorded from: Wisc., Aug.; N.Y. (Joh.); S.C., April (Shaw and Townes).

Terminalium. Zygosternum deeply cleft with a sclerite in the cleft. Supra-anal lobes elongate. Styles apparently of two parts only; a small outer setose lobe and a broad inner lobe with a few stout, short spines on its edge.

Plate 21, fig. 6.

Exechia aviculata, Shaw

1935. aviculata, Shaw, Psyche 42:89. fig. 3.

1912. rustica var. a., Johannsen, Me. Agr. Exp. Stat. 200:62, figs. 29.

Recorded from: N.Y. (Shaw, Joh.)

This species has a terminalium identical with #564 of the Johannsen collection labelled Phronia rustica var. a. These are two specimens on the pin #564. The upper specimen lacks anepisternal setae and is therefore referable to Exechia. This specimen agrees in wing structure with Exechia aviculata. The lower specimen differs in the position

of Cu fork and has anepisternal setae. Both lack terminalia. The prepared terminalium I refer to the upper specimen as the wing and leg are from that specimen and since that terminalium is from an Exechia.

Winnertz's species rustica is a Phronia and not an Exechia; see Phronia exigua Zett (= rustica Winn.) Johannsen's specimens with the exception noted above are; therefore I have recognized Shaw's name.

Terminalium. Zygosternum cleft on mid-ventral line about half-way to its base. Aedeagus tubular. Zygosternum with lobes at its dorso-posterior angles, Plate 30, fig. 14. Styles complex; lobe A heavily sclerotized, roughly foot-shaped; lobe B elongate with a terminal "brush" of setae; lobe C membranous with a few scattered setae on its edge; lobe D with a subapical group of setae. Plate 30, figs. 15 and 18.

Exechia bella Joh.

1912. bella, Johannsen, Me. Agr. Exp. Sta. Bull. 200:72. figs. 49, 174.

Recorded from: Wisc., N.Y. (Joh.)

Terminalium. Zygosternum cleft one half the distance to its base. Its postero-ventral angles with a strong but truncate seta, Plate 21, fig. 14. A membranous plate within the genital chamber on

either side the mid-ventral zygosternal cleft. Parameres(?) bifurcate. Styles complex; lobes A and B tapering strongly beyond their mid length, slightly curved; lobe C and D are difficult to make out. Plate 21, figs. 14 and 15.

Exechia bellula Joh.

1912. bellula, Johannsen, Me. Agr. Exp. Sta. Bull. 200:71, 72. figs. 48, 173.

Recorded from: Me., Nov. (Joh.)

Terminalium very small. Zygosternum cleft deeply on mid-ventral line with a narrow sclerite in the cleft. Styles complex; lobe A large plate-like with two stout setae, Plate 21, fig. 13, lobe B small, setose; lobe C elongate with two unequal subterminal setae, lobe D small with a single terminal seta.

Exechia bicincta Staeg.

1840. bicincta, Staeger, in Kröjer, Naturh-Tidsskr. 3:263 (Mycetophila)

1852. interrupta, Zetterstedt, Dipt. Scand. 11:4240. (Mycetophila)

1911. serpentina, Lundstroem, Ann. Mus. Hung. 9: 407-408, Plate 13, fig. 9, 10, 11, 12.

(nec bicincta Lundst., nec interrupta Lundst.)

Recorded from: Europe; Greenland.

This is the species figured by Lundstroem as serpentina and by Dziedzieki as interrupta. This

of Cu fork and has anepisternal setae. Both lack terminalia. The prepared terminalium I refer to the upper specimen as the wing and leg are from that specimen and since that terminalium is from an Exechia.

Winnertz's species rustica is a Phronia and not an Exechia; see Phronia exigua Zett (= rustica Winn.) Johannsen's specimens with the exception noted above are; therefore I have recognized Shaw's name.

Terminalium. Zygosternum cleft on mid-ventral line about half-way to its base. Aedeagus tubular. Zygosternum with lobes at its dorso-posterior angles, Plate 30, fig. 14. Styles complex; lobe A heavily sclerotized, roughly foot-shaped; lobe B elongate with a terminal "brush" of setae; lobe C membranous with a few scattered setae on its edge; lobe D with a subapical group of setae. Plate 30, figs. 15 and 18.

Exechia bella Joh.

1912. bella, Johannsen, Me. Agr. Exp. Sta. Bull. 200:72. figs. 49, 174.

Recorded from: Wisc., N.Y. (Joh.)

Terminalium. Zygosternum cleft one half the distance to its base. Its postero-ventral angles with a strong but truncate seta, Plate 21, fig. 14. A membranous plate within the genital chamber on

either side the mid-ventral zygosternal cleft. Parameres(?) bifurcate. Styles complex; lobes A and B tapering strongly beyond their mid length, slightly curved; lobe C and D are difficult to make out. Plate 21, figs. 14 and 15.

Exechia bellula Joh.

1912. bellula, Johannsen, Me. Agr. Exp. Sta. Bull. 200:71, 72. figs. 48, 173.

Recorded from: Me., Nov. (Joh.)

Terminalium very small. Zygosternum cleft deeply on mid-ventral line with a narrow sclerite in the cleft. Styles complex; lobe A large plate-like with two stout setae, Plate 21, fig. 13, lobe B small, setose; lobe C elongate with two unequal subterminal setae, lobe D small with a single terminal seta.

Exechia bicincta Staeg.

1840. bicincta, Staeger, in Kröjer, Naturh-Tidsskr. 3:263 (Mycetophila)

1852. interrupta, Zetterstedt, Dipt. Scand. 11:4240. (Mycetophila)

1911. serpentina, Lundstroem, Ann. Mus. Hung. 9: 407-408, Plate 13, fig. 9,10,11,12.

(nec bicincta Lundst., nec interrupta Lundst.)

Recorded from: Europe; Greenland.

This is the species figured by Lundstroem as serpentina and by Dziedziaki as interrupta. This

is not that figured by Johannsen after Lundstroem (interrupta of Lundstroem), the latter is E. lundstroemi Landrock. Plate 23, fig. 8 and 16 are after Dziedzieki.

Exechia bifurcata Fisher

1934. bifurcata, Fisher, *Canad. Ent.* 66:277, fig. 3.

Recorded from: Ithaca, N.Y., Nov.

Terminalium. Zygo sternum deeply cleft on mid-ventral line with a bifurcate sclerite in it. Styles complex; lobe A subglobular with a narrow, curved ventrally directed branch; lobe B is narrow at base, widening distally then tapering to a small tip, Plate 22, fig. 14.

Terminalium resembles E. indecisa Walk. as figured by Landrock.

Exechia borealis V.D.

1928. borealis, Van Duzee, *Proc. Calif. Acad. Sci.* 17:55.

Recorded from: Alaska, May (V.D.)

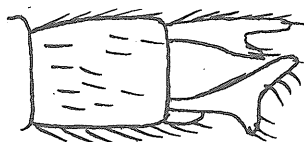
I do not know this species.

Exechia brevipetiolata V.D.

1928. brevipetiolata, Van Duzee, *Proc. Calif. Acad. Sci.* 17:55. fig. 23.

Recorded from: Calif. May.

The figure below is from the unprepared terminalium after Van Duzee.



Exechia canalicula Joh.

1912. canalicula, Johannsen, Me. Agr. Exp. Sta. Bull.
200:69. figs. 63, 164.

Recorded from: N.C., N.J., July (Joh.)

Terminalium. Tergum subdivided into two quadrate lobes. Supra-anal lobes narrow. Styles complex; lobe A with a mesal branch which bears an apical "comb;" lobe B, large, subtriangular; lobe C large, ribbed
Plate 24, fig. 4.

Exechia capillata Joh.

1912. capillata, Johannsen, Me. Agr. Exp. Sta. Bull.
200:73 figs. 52, 177.

Recorded from: R.I., N.Y., Wyo. Calif. May, Febr.,
Sept. (Joh.)

Terminalium. Zygosternum notched on mid-ventral line. Each postero-ventral angle of the zygosternum produced into a blunt lobe bearing a group of terminal setae. Styles complex; lobe A large, terminating with a dorsal lobe and a ventral group of setae, Plate 23, fig. 10, 11; lobe B is curved, narrow, lobe C is small, membranous; lobe D is small, curved. Plate 23, fig. 9.

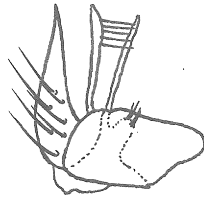
Exechia captiva Joh.

1912. captiva, Johannsen. Me. Agr. Exp. Sta. Bull.
200:72. figs. 50, 175.

Recorded from: Vt., N.H., Mass., N.J., June, Sept.
(Joh.); N.C. (E.G.F.)

Terminalium. Zygosternum deeply cleft ventrally. Styles complex; lobe A elongate, setose; lobe B narrow, elongate; lobe C membranous with an elongate branch bearing a group of subapical setae; lobe D

270
globular, small, with a terminal group of setae:



The ventro-lateral border of zygosternum with numerous fine setae mesally with a membranous area bearing a sclerotized U-shaped thickening in it:

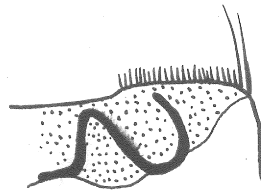


Plate 27, fig. 8.

Exechia casta Joh. see Exechia frigida (Boh.)

Exechia clepsydra Fisher

clepsydra, Fisher, Ms. name.

Recorded from: Moravia, N.Y., Nov. (E.G.F.)

Terminalium. Zygosternum slightly notched on the mid-ventral line with a bifurcate sclerite at its base. Style lobe A, broad, setose; lobe B elongate, clubbed; lobe C large, membranous; lobe D broad.

Plate 24, fig. 12.

Exechia cincinnata, Joh.

1912. cincinnata, Johannsen, Me. Agr. Exp. Sta. Bull.
200:69. fig. 37, 185.

Recorded from: Me., Vt., Mass., N.Y. (Joh.); N.H.
(Johnson); Oreg. (Cole); Calif. (Van Duzee).

Terminalium. Zygosternum deeply cleft ventrally.
Hind edge of zygosternum with curved setae, its ven-
tral angle with a stout seta. Styles complex; lobe
A setose, somewhat foot-shaped distally; lobe B nar-
row, curved; lobe C elongate, membranous; lobe D
small with terminal setae. Plate 20 figs. 2 and 3.

Exechia contaminata Winn.

1863. contaminata, Winnertz, Verh. Zool.-bot. Ges.
Wien. 13:891.

1909. dorsalis Lundstroem, Acta Soc. Fauna et Fl.
Fennica 32 No. 2:43 figs 73, 74 and 120.

(nec contaminata Lundstroem)

Recorded from : Europe; N.Y., May (E.G.F.)

One specimen of this European species was taken
near Ithaca, N.Y.

Terminalium. Zygosternum deeply cleft on the
mid-ventral line. Aedeagus with a heavily sclero-
tized bifid tip showing in the cleft. Styles complex;
superior style lobe (A) with a large setose sub-bifid
tip somewhat as in E. nugatoria and a curved narrow
lobe; inferior style lobe (B) with a narrow, elongate,
setose lobe and a short, blunt, mesal lobe. Plate 22,
fig. 7.

Exechia frigida (Boh.)

1865. frigida, Bohemann, Ofv. Vet. Akad. Forh.
p. 576. (Mycetophila)
1886. concolor, Bescher, Ins. Jan. Mayen. p. 63.
pl. 5. fig. 3, 3a-c. (Paraxechia)
1912. casta, Johannsen, Me. Agr. Exp. Sta. Bull.
200:74. figs. 57, 182 (Exechia)
- ? 1896. fungorum, Lundbeck, Diptera Groenlandica 1:
236.

(nec fungorum DeGeer)

Recorded from: Europe; Greenland (Lund); Pribilof
Isl. (Mallock); Wyo., Sept. (Joh.); N.Y. (N.Y.
State List).

The terminalium of this species is very similar
to pollex Shaw. Styles complex; lobe A setose, bi-
furcate apically; lobe B elongate; lobe C membranous;
lobe D elongate. Plate 22, fig. 2.

Exechia fungorum (DeGeer) see Mycetophila fungorum (DeGeer).

Exechia fusca Mg.

1804. fusca, Meigen, Kluss. 1:91 (Mycetophila)
--- fungorum auct. nec DeGeer.
1830. guttiventris, Meigen, Syst. Besch. 6:301
(Mycetophila)
1818. lateralis, Meigen, Syst. Besch. 1:266.
(Mycetophila)
- ? 1830. seriata, Meigen, Syst. Besch. 6:302.
(Mycetophila)

Recorded from: Europe, Greenland (Lundb.)

This is the form figured by Johannsen as E. fungo-
rum after Lundstroem. Dziedzicki has also figured

it as Exechia fungorum. Plate 23, figs. 7 and 12 are copies of Dziedzicki's figures.

Exechia interrupta Lund. see Exechia lundstroemi Land.

Exechia interrupta of Joh. see Exechia lundstroemi Land.

Exechia interrupta Zett. see Exechia bicincta Staeg.

Exechia lata n. sp.

Male. Length 3 mm. Head dark brown, bases of antennae and mouth parts yellow. Thorax a light brown, almost yellow; mesonotum dark above. Scutellum with 2 marginal setae. Pleurotergites with 2 to 3 long and 3 to 4 smaller setae; hypopleurites with 3 setae on their caudal borders. Abdomen light greyish brown becoming dark brown posteriorly; venter yellow; spots on sides of tergites 3 and 4 yellow, that of 4 with a very irregular border, Legs yellow, wings hyaline; curvature of R_2 moderate; stalk of M shorter than r-m; Cu forks farther distad of the base of R_3 than the length of the r-m cross-vein. Fore basitarsus almost 1.1 longer than its tibia. Terminalium as in plate 22, figs. 6 and 10.

Holotype: C.U. coll. no. Frizzleton,
Cape Breton I., N.S., Aug. 30. 1956.

(latus-a-um broad, from the broad style lobe).

Terminalium: Tergum composed of two lobes.

Supra-anal lobes elongate. Styles somewhat similar to E. bellula. Styles with a broad flat lobe with two setae on the mesal angle; ventrad of this an elongate lobe, a smaller broad lobe with two fairly stout terminal setae and several smaller setae, and a lateral subglobular setose lobe. Zygosternum slightly cleft ventrally with a small, setose subtriangular sclerite in the notch. Plate 22, figs. 6 and 10.

Erechia lundstroemi Land.

1923. lundstroemi, Landrock, Wien. Ent. Zeit. 170.

1909. interrupta, Lundstroem, Acta Soc. pro Fauna et Fl. Fenn. 32 No. 2:46 figs. 96 and 97.

(nec interrupta Zetterstedt).

Recorded from: Europe, Greenland (Lundb.); N.Y., April and Aug. (C.U.C. - E.G.F.)

I have specimens that run here in Lidner's key and that agree in terminalial structure with Lundstroem's figure. This is the interrupta of Johannsen.

Terminalium. Zygosternum widely cleft on mid-ventral line to one half its length. Postero-ventral angles of zygosternum with a stout spine, Plate 23, fig. 6. Styles complex; lobe A broad at base, tapering apically; lobe B narrow, curved; lobe C elongate, membranous; lobe D small with a terminal seta. Plate 23, fig. 5.

Exechia nativa Joh.

1912. nativa, Johannsen, Me. Agr. Exp. Sta. Bull. 200:70. figs. 42, 169.

Recorded from: Me., Oct.; N.Y.; Nov.; Vt. (?) (Joh.)

Terminalium. Supra-anal lobes broad. Zygosternum cleft on the midventral line. Posteroventral angles of the zygosternum slightly produced. Styles complex; lobe A large, setose with a mesal branch. This branch is connected basally with the complexly united lobes B, C, and D.

Plate 24, fig. 8.

Exechia nexa Joh.

1912. nexa, Johannsen, Me. Agr. Exp. Sta. Bull. 200:68. figs. 34 and 162.

Recorded from: N.Y. (Joh.); Mass. (Johnson).

Terminalium. Zygosternum notched on mid-ventral line, with a setose sclerite in the notch which has a bifurcate heavy sclerotized tip. Plate 21, fig. 9. Styles complex; lobe A somewhat foot-shaped; lobe B elongate, setose; lobe C membranous globular; lobe D very short, setose at tip. Plate 21, fig. 3.

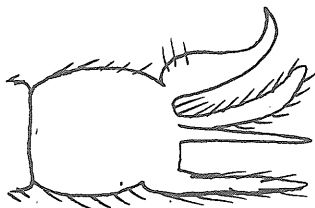
Exechia noctivagus V.D.

1928. noctivagus, Van Duzee, Proc. Calif. ac. Sci. 17:54, 55. fig. 22.

Recorded from: Calif., Febr. and April (V.D.)

The figure below is after Van Duzee's of the

unprepared terminalium.



Exechia nugatoria Joh.

1912. nugatoria, Johannsen, Me. Agr. Exp. Sta. Bull. 200:70. figs. 41 and 168.

Recorded from: R.I.; N.Y.; Wisc. May-Nov. (Joh.)

Terminalium. Zygosternum deeply cleft on mid-ventral line. Styles complex; lobe A bifurcate; lobe B bifurcate; lobe C membranous; lobe D small, narrow. Plate 24, fig. 7 and 13. The penis is supported dorsally by arms from the dorsal edges of the zygosternum, ventrally by two lateral tenpin shaped plates, fig. 13, and a central bifurcate sclerotized rod arising at the base of the mid-ventral zygosternal notch.

Terminalium resembles E. nigroscutellata Lundstr.

Exechia nugax Joh.

1913. nugax, Johannsen, Me. Agr. Exp. Sta. Bull. 200:68. figs. 33, 161.

Recorded from: Que., Oct.; N.Y., April (Joh.)

Terminalium. Zygosternum is cleft far basally on mid-ventral line with a pointed sclerite in the cleft. Styles complex; lobe A globular at base with

473
a branched lobe, Plate 21, fig. 10; lobe B setose, elongate; lobe C membranous with an uneven edge; lobe D curved.

Exechia obediens Joh.

1912. obediens, Johannsen, Me. Agr. Exp. Sta. Bull. 200:73. figs. 53 and 178.

Recorded from: Calif., Feb., March (Joh.); Oreg. (Cole).

Terminalium very similar to that of E. frigida and E. pollex except that style lobe A is longer and truncate at the tip with no indication of a bifid tip. Plate 21, fig. 12.

Exechia obtusa n. sp.

Male. Total length 3.5 mm. Head dark brown above; mouthparts and bases of antennae yellow. Thorax brown; prothorax, and humeral angles, edges of mesonotum and above the wing bases yellow. Abdomen brown, venter yellow; tergites with lateral yellow triangles that almost meet above on 3 and 4. Legs yellow; bases of hind femora brown below. Fore basitarsus and tibia subequal in length. Halteres yellow. Curvature of R_2 not conspicuous. A-m cross-vein long; base of R_2 short, less than length of M stalk. Terminalium plate 22, fig. 3.

Holotype: C.U. Coll. No. Port Hastings,
Cape Breton I., Nova Scotia. Aug. 30, 1936.

(obtusus-a-um -- blunt)

Terminalium with the ventro-posterior angles produced into small lobes which bear a blunt stout spine. Style lobe B narrow bent as a hook distally and directed into the genital chamber. Style lobe A elongate, broad, tapering suddenly distally to a curved point. Supra-anal lobes sinuous distally. Plate 22, fig. 3.

Exechia ovata Fisher.

1934. ovata, Fisher, Canad. Ent. 66:278. fig. 2.
Recorded from: Ithaca, N.Y., Nov. (E.G.F.)

Terminalium. Tergum subquadrangular. Zygo-sternum roundly notched on the mid-ventral line with a heavily sclerotized bifurcate structure arising from its base, Plate 25, fig. 2. Styles complex; lobe A small with a mesal projection; lobe B large, subovate with many fine setae on its mesal aspect; lobe C membranous, "ribbed"; lobe D somewhat membranous, hook-shaped. Plate 25, fig. 1.

Exechia palmata Joh.

1912. palmata, Johannsen, Me. Agr. Exp. Sta. Bull. 200:71 figs. 44 and 170.

Recorded from: Wyo., Sept; B.C., July; Wash., Aug. (Joh.); S.C., March (Shaw and Townes).

Terminalium. Zygo-sternum cleft ventrally on the mid-line. On either side the cleft, within the genital chamber are membranous pad-like structures.

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Styles complex; lobe A large, setose with a hook-like mesal projection; lobe B elongate, truncate with a row of stout terminal setae; lobe C membranous; lobe D small. Plate 22, fig. 8.

Exechia perspicua Joh.

1912. perspicua, Johannsen, Me. Agr. Exp. Sta. Bull. 200:67. figs. 31 and 159.

Recorded from: Wyo., Sept.; Me., Oct. (Joh.).

Terminalium. Zygo sternum roundly notched on mid-ventral line; on either side the notch within the genital chamber are two membranous pad-like structures. Styles complex; lobe A of two parts, one part bifurcate apically, the other ending in a stout spine; lobe B elongate, setose; lobe C enormous, membranous, "ribbed" on its edge; lobe D curved. Plate 21, fig. 2.

Exechia plebeja (Walk.)

1848. plebeja, Walker. List of Dipt. 1:100 (Mycetophila).

Recorded from: Hudson's Bay (Walk.)

Johannsen (1926) referred this species to Exechia after seeing the type. I do not know it.

Exechia pollex Shaw.

1935. pollex, Shaw, Psyche 42:89, fig. 4.

Recorded from: Ithaca, N.Y. (Shaw)

This species has a terminalium similar to E. frigida

Shaw writes that specimens I sent him (I refer them to E. frigida) differs from E. pollex in that "the hairs on the inner clasper (D) about $\frac{1}{2}$ way up clasper are more numerous and heavier. (E. pollex) has about three hairs one of which seems to be longer and thicker than the others." Plate 23, fig. 1.

Exechia quadrata Joh.

1912. quadrata, Johannsen, Me. Agr. Exp. Sta. Bull. 200:69. figs. 38 and 166.

Recorded from: N.Y., Aug.; N.J., Aug.-Sept; Wisc., Aug. (Joh.).

This species may be E. pallida Stann. See Lundstrom's figures (1909).

The large quadrate ventral plate is not a part of the ninth segment but of the eighth. The zygosternum is roundly notched on the mid-ventral line with a heavily sclerotized bifurcate structure arising from its base. Styles complex; lobe A is large, subvoid, setose; lobe B is broad, truncate with stout blunt setae on its tip; lobe C is small; lobe D small with a terminal seta. Plate 24, fig. 9.

Exechia repanda Joh.

1912. repanda, Johannsen, Me. Agr. Exp. Sta. Bull. 200:73. figs. 53 and 180.

Recorded from: N.Y., Aug.; Mass., Sept. (Joh.).

This species differs little from E. capillata

Styles complex; lobe A large, setose with a hook-like mesal projection; lobe B elongate, truncate with a row of stout terminal setae; lobe C membranous; lobe D small. Plate 22, fig. 8.

Exechia perspicua Joh.

1912. perspicua, Johannsen, Me. Agr. Exp. Sta. Bull. 200:67. figs. 31 and 159.

Recorded from: Wyo., Sept.; Me., Oct. (Joh.).

Terminalium. Zygosternum roundly notched on mid-ventral line; on either side the notch within the genital chamber are two membranous pad-like structures. Styles complex; lobe A of two parts, one part bifurcate apically, the other ending in a stout spine; lobe B elongate, setose; lobe C enormous, membranous, "ribbed" on its edge; lobe D curved. Plate 21, fig. 2.

Exechia plebeja (Walk.)

1848. plebeja, Walker. List of Dipt. 1:100 (Mycetophila).

Recorded from: Hudson's Bay (Walk.)

Johannsen (1926) referred this species to Exechia after seeing the type. I do not know it.

Exechia pollex Shaw.

1935. pollex, Shaw, Psyche 42:89, fig. 4.

Recorded from: Ithaca, N.Y. (Shaw)

This species has a terminalium similar to E.frigida.

Shaw writes that specimens I sent him (I refer them to E. frigida) differs from E. pollex in that "the hairs on the inner clasper (D) about $\frac{1}{2}$ way up clasper are more numerous and heavier. (E. pollex) has about three hairs one of which seems to be longer and thicker than the others." Plate 22, fig. 1.

Exechia quadrata Joh.

1912. quadrata, Johannsen, Me. Agr. Exp. Sta. Bull. 200:69. figs. 38 and 166.

Recorded from: N.Y., Aug.; N.J., Aug.-Sept; Wisc., Aug. (Joh.).

This species may be E. pallida Stann. See Lundstrom's figures (1909).

The large quadrate ventral plate is not a part of the ninth segment but of the eighth. The zygosternum is roundly notched on the mid-ventral line with a heavily sclerotized bifurcate structure arising from its base. Styles complex; lobe A is large, subovoid, setose; lobe B is broad, truncate with stout blunt setae on its tip; lobe C is small; lobe D small with a terminal seta. Plate 24, fig. 9.

Exechia repanda Joh.

1912. repanda, Johannsen, Me. Agr. Exp. Sta. Bull. 200:73. figs. 53 and 180.

Recorded from: N.Y., Aug.; Mass., Sept. (Joh.)

This species differs little from E. capillata

in terminalial structure. Lobe A of the styles lacks the bunch of setae. Plate 23, figs. 13-15.

Exechia satiata Joh.

1912. satiata, Johannsen, Me. Agr. Exp. Sta. Bull. 200:69,70. figs. 39,40 and 167.

Recorded from: Ithaca, N.Y., July (Joh.).

Terminalium. Zygosternum narrowly notched on the mid-ventral line. The postero-ventral angles have a stout seta. There are membranous pad-like structures on either side the ventral notch within the genital chamber. Styles complex; lobe A bifurcate distally, lobe B bare; lobe C small, membranous; lobe D not distinct. Plate 24, fig. 1.

Exechia shawi Fisher

1934. shawi, Fisher, Canad. Ent. 66:276. fig. 2.

Recorded from: N.H., July; N.S., Aug. (E.G.F.)

Terminalium. The anal segment is unique; the supra-anal lobes are greatly elongated with expanded disk-like tips fringed with a row of long setae. Zygosternum notched ventrally with a stout seta at each postero-ventral angle. Styles complex; lobe A elongate, curved; lobe B elongate; lobe C membranous; lobe D apparently bifurcate far basally Plate 22, fig. 12, 11.

Erechia stolo n. sp.

Male. Length 5 mm. Head dark; base of antennae and palpi yellow. Thorax brown except prothorax and mesonotum. Mesonotum with 3 brown stripes. Abdomen a greyish brown, apices of 2nd, 3rd and 4th tergites and lateral margins of 1st, 2nd and most of lateral margins of 3rd tergites yellow; fifth and sixth greyish brown. Halteres yellow. Legs yellow, hind femora with faint brown spots below basally. Foretibia shorter than fore basi-tarsus (20-27). Wings with curvature of R₅ conspicuous. Terminalium unique, Plate 22, fig. 5.

Holotype: C.U. coll. No. Six Mile Creek, Ithaca, N.Y. Nov. 11.

Paratype: my coll. Lick Brook, Ithaca, N.Y. Oct. 10.

(stolo - onis n. a branch)

A specimen from Big Intervale Margaree, Cape Breton I., N.S. Sept. 1 agrees exactly in terminalial structure and in coloration except the mesonotal stripes are confluent and the hind femoral spot is lacking.

The fore tibiae is shorter than fore basitarsus (14-20).

Terminalium. Zygosternum deeply cleft on the mid-line ventrally, with a heavily sclerotized, elongate plate in the cleft. Styles complex; lobe B

an elongate, truncate lobe; mesally directed lobe (C?) arising from its base with a flat plate like mesal region; a darker caudally directed sinuous lobe (D?); style lobe A subglobular with a short mesally directed lobe. Dorsal hind angles of the zygosternum with wide dark lobes projecting into the genital chamber. Plate 22, fig. 5.

Exechia umbratica (Aldrich)

1896. umbratica, Aldrich, Ann. Rept. Dept. Geol. Ind. 21:186. (Mycetophila)

Recorded from: Ind., July (Aldrich); Ithaca, N.Y. (Joh.); S.C., Oct. (Shaw and Townes); Oregon, Nov. (Cole).

Terminalium. With a pointed sclerite in the mid-ventral zygosternal cleft. Styles complex; lobe A bent mesally; lobe B bifurcate apically; lobe C small; lobe D apparently bifurcate far basally.

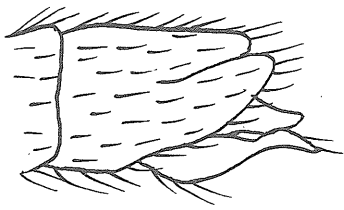
Plate 21, fig. 1.

Exechia umbrosa V.D.

1928. umbrosa, Van Duzee, Proc. Calif. Acad. Sci. 17:56. fig. 26.

Recorded from: Calif., Febr. and March.

The figure below is from the unprepared terminalium after Van Duzee.

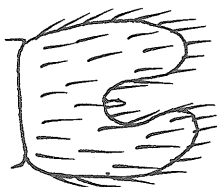


Erechia unicolor V.D.

1928. unicolor, Van Duzee, Proc. Calif. Acad. Sci.
17:57, 58. fig. 27.

Recorded from: Calif., Febr. (V.D.)

The figure below is from the unprepared terminalium after Van Duzee.



Erechia unicolor V.D.

1928. unicolor, Van Duzee, Proc. Calif. Acad.
Sci. 17:53.

Recorded from: Alaska, July (V.D.)

I do not know this species.

Erechia sp. A.

Recorded from: Big Intervale Margaree, Cape Breton
I., Nova Scotia, Aug. 30.

This form has a very distinctive terminalium. It lacks the fore-legs. The curvature of R_3 is conspicuous.

Zygosternum deeply cleft on the mid-line with a heavily sclerotized plate somewhat as in E. umbratica. Styles consist of a large inferior portion with strong distal setae and a curved dorsal lobe and a superior portion which consists of a small

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globular setose portion and a membranous mesal lobe. The dorsal hind angles of the zygosternum are produced into long lobes. Plate 22, fig. 4.

Exechia sp. B.

Argus Brook, McLean Res., N.Y. Aug. 25.

A slightly defective specimen with the terminalium somewhat as in E. ovata. Zygosternum cleft ventrally with a heavily sclerotized pronged sclerite in the cleft as in E. ovata. Inferior portion of style oval with a distal group of very short setae on its mesal aspect. Superior portion with a membranous ribbed lobe (C) projecting mesally, a setose lateral lobe with a mesally directed dark branch. Ventrad of lobe C is a bifurcate lobe and then a flat lobe fringed with fine setae posteriorly. Plate 23, fig. 4. Tergum and anal segment as in Plate 23, fig. 3.

Rhymosia Winn.

1863. Rhymosia, Winnertz, Verh. Zool.-bot. Ges. Wien 13:
810.

(end. Rhymosia Winnertz, Verrall.)

Head oval; front broad; ocelli three, median one small to absent. Compound eyes almost round. Palpi 4-jointed. Thorax as in Exechia and Allodia, highly arched, mesonotum with short hair, long setae on the edges and

sometimes also with dorso-centrals. Scutellum setose. Anepisternites, sternopleurites, pteropleurites, and postnotum bare; pleurotergites and hypopleurites setose. Basal hind coxal seta present. Wings hyaline; C ends at R_3 before the wing tip; Sc short ending free or in R_1 ; r-m longer than the basal section of R_3 ; R_4 always absent; M stalk short; Cu forks proximal of M fork; anal fold vein-like; 1st anal strong, not reaching wing margin; 2nd anal fine, long, incomplete. Abdomen with 6 visible segments in the male, seven in the female.

Terminalia non-rotatable. Seventh and eighth abdominal segments reduced and retracted in life. The terminalial structure is very similar to that of Exechia. The ninth tergum and anal segment are similar. The zygosternum is rounded notched ventrally often with a heavily sclerotized structure on its mid-ventral edge - "processus". The styles are complex consisting of superior and inferior lobes (A,B) and a median lobes C and D. A is prominent, often lobed. B is usually relatively simple. C is always large and present; although it is not often illustrated in the figures, I have always found it present; it is hidden within the genital chamber. D is small. All these lobes arise from a basal sclerotization which has two muscle groups inserted on it (? - extensor and flexor).

Key to Nearctic species (partly after Johannsen)

(Van Duzee's and Sherman's species are placed from descriptions only.)

- 1. Cu forking under the distal end of r-m cross-vein; anal vein ends distad of the fork of Cu ----- seminigra Sherman
Not so ----- 2.
- 2. Cu forks at the proximal end of the r-m cross-vein; anal vein ends distad of the fork of the Cu - 3.
Cu forks proximad of the proximal end of the cross-vein ----- 6.
- 3. Thorax black, covered with coarse white pollen; styles shining black; Californian -- spinicauda V.D.
Not so ----- 4.
- 4. Four scutellar bristles, abdominal segments three and four with lateral yellow triangles; British Columbian ----- bravicornis Sherman
Two scutellar bristles, abdominal segments two through five with wide basal fasciae ----- 5.
- 5. Fore basitarsus subequal to tibia; thoracic dorsum subfuscous; British Columbian --- faceta Sherman
Fore basitarsus slightly longer than the tibia; thoracic dorsum brownish with indistinct darker brown vittae; British Columbian - pectinata Sherman
- 6. Third and fourth tarsal joints of the male with a series of curved spines below, fore basitarsus 1.6 times the tibia in length; anal vein produced beyond the fork of the cubitus; terminalium small. New York ----- serripes Joh.
Tarsal joints without curved spines in the male - 7.
- 7. 1st anal vein ends at or proximad of the base of the fork of Cu ----- 8.

- 1st anal vein ends distad of the base of fork of the
fork of the cubitus ----- 10.
8. Two basal setae on hind coxae; Wisc., N.H. - akeleyi Joh
One basal setae on hind coxae ----- 9.
9. Fore tarsi about 3.5 times fore tibia in length in the
male; four scutellar setae; Vt., N.H., Mass., --
----- domestica Meig.
Fore tarsi about 3 times fore tibiae in length in the
male; two scutellar setae; Calif., Id. - diffissa Joh
10. Abdomen black, second to fifth segments with a broad
yellow band at the base, which is of nearly equal
width on both sides and dorsum of the abdomen; head
and thorax brown; Californian ---- parvicauda V.D.
Not as above ----- 11.
11. Halteres with knob dark brown, petiole whitish; R_5
bent backwards so as to meet the tip of C a
little before the apex of the wing; abdomen yellow;
first five segments with a black, triangular
saddle above, sixth segment yellow. Californian
----- plumosa V. D.
Not so ----- 12.
12. Petiole of media shorter than the crossvein ----- 14.
Petiole of media and cross-vein subequal in length - 13.
13. Terminalium as in Plate 26, fig. 4; Wyo, Texas, Calif.
----- imitator Joh.
Terminalium as in Plate 26, fig. 8 except style lobe
B. N.Y. ----- domestica Var.
14. Terminalium with styles in Plate 26, fig. 3 - oristata
Staeg.
Terminalium with styles not so ----- 15.

15. Terminalium of male much longer than the last visible abdominal segment ----- 17.
- Terminalium of male shorter or equal to the last visible abdominal segment ----- 16.
16. Terminalium shorter than last visible abdominal segment; head and thorax largely yellowish; Conn. ----- filipes Loew
- Terminalium equal to the last abdominal segment; head fuscous above; thorax yellow and brown ----- labes n.sp.
17. Head yellow; thorax yellow with reddish brown vittae; abdominal tergites with triangular brown saddles; a black spot on hind femora at the basal fourth ----- prolixa Sherman
- Not so ----- 18.
18. Style lobe C a knife-like blade (Plate 26, fig. 1). head fuscous; thorax fuscous; mesonotum with three sometimes wholly confluent fuscous stripes; abdomen yellow, the first segment; the larger part of the last segment; the dorsum of each intermediate segment; the tip of the large terminalium, and sometimes an interrupted longitudinal ventral line fuscous; usually two posterior basal hind coxal setae; N.Y. ----- inflata Joh.
- Not so ----- 19.
19. Terminalium as in Plate 26, fig. 6; posterior margins of intermediate abdominal tergites brown ----- triangularis Shaw
- Terminalium as in Plate 23 figs. 7 and 8 posterior margins of intermediate abdominal tergites yellow ----- domestica Meig.

Rhymosia akeleyi Joh.

1911. akeleyi, Johannsen, Me. Agr. Exp. Sta. Bull. 196:312, figs. 124, 235.

Recorded from: Wisc., N.H., July (Joh.)

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Zygosternum with a median sclerotized, quadrangular plate on its posterior margin ("processus").

Tergum subdivided into two globular portions. Styles:

A - ribbed distally, with a inner lobe which is also ribbed distally.

B - elongate, setose.

C - large, ribbed

D - elongate, setose.

Plate 26, fig. 9.

Rhymosia

Rhymosia brevicornis Sherman

1921. brevicornis, Sherman, Proc. B.C. Ent. Soc.
16:19.

Recorded from: B.C., April (Sherman)

"hypopygium yellow, large, being twice the length of segment six."

Rhymosia captiosa Joh. see Rhymosia domestica Meig.

Rhymosia diffissa Joh.

1911. diffissa, Johannsen, Me. Agr. Exp. Sta. Bull.
196:313, 314, figs. 126, 237.

Recorded from: Calif; Id., July. (Joh.)

Zygosternum entire; "processus" four pronged.

Styles complex:

A - with 2 "combs".

B - triangular.

C - membranous, ribbed on its mesal margin.

D - elongate, setose.

Plate 27, figs. 2 and 3.

Rhymosia domestica Meig.

- 1830. domestica, Meigen, Syst. Besch. 6 :
303. (Mycetophila).
- 1911. captiosa, Johannsen, Me. Agr. Exp. Sta. Bull.
196:313. figs. 125, 236.

Recorded from: Vt., N.H., Mass., June-July (Joh.);
N.Y. (E.C.F.); Europe.

The type of captiosa agrees with the figures and descriptions of R. domestica Meig.

Ninth tergum subquadrangular. Styles complex:

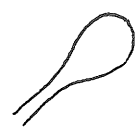
- A - large setose lobe with mesal branches
- B - heavily sclerotized curved lobe
- C - large, twisted, membranous
- D - small, elongate

Plate 26, figs. 7 and 8.

Rhymosia domestica var. a.

Recorded from: Waterville, N.Y.

This variety differs from the typical form only in the shape of style lobe B which is rounded at the tip.



Rhymosia faceta Sherman

- 1921. faceta, Sherman, Proc. Ent. Soc. B. C. 16:18.

Recorded from Vancouver, B.C., Febr. (Sherman).

I have not seen this species.

Rhymosia imitator Joh.

1911. imitator, Johannsen, Me. Agr. Exp. Sta. Bull. 196: 312. figs. 123, 234.

Recorded from Wyo., Sept.; Texas, June; Cal., Nov.
(Joh.).

No "processus" on mid-line of zygosternum; zygosternum notched on its mid-line. Styles complex:

A - small, setose, cushion-like.

B - large, curved in lateral aspect.

C - elongate, tapering towards the tip, without ribbing. as in R. inflator.

D - curved, hook-like.

Plate 26 figs. 4 and 5.

Rhymosia inflata Joh.

1911. inflata, Johannsen, Me. Agr. Exp. Sta. Bull. 196: 311, 312 figs. 122, 233.

Recorded from: Ithaca, N.Y. Oct.-Nov.

Ninth tergum divided. Anal lobes extremely elongate. Zygosternum entire. Styles complex:

A - setose

B - setose

C - elongate, without ribbing, wide and flattened.

D - narrow, curved.

Plate 26, fig. 1.

Rhymosia labes n.sp.

Male. Total length 5.5 mm. Head dark brown

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above; sides and below the antennae, mouthparts, and bases of antennae yellow. Thorax yellow; mesonotum dark above; anepisternites slightly brown; scutellum brown above with a median yellow line; postnotum brown. Legs yellow, brown caudal spots on middle and hind coxae. Fore metatarsus longer than fore tibia (22-20). Wings hyaline with a brownish tinge. Petiole of M about $\frac{1}{4}$ shorter than r-m; Cu forks slightly proximad of base of r-m; 1st anal reaches distad of fork of Cu. Abdominal tergites brown with yellow lateral and posterior margins. Venter yellow. Terminalium as in Plate 27, figs. 4 and 5. ♀

Holotype: C.U. Coll. No. Frizzleton,
Cape Breton I., N.S. Aug. 30.

(labes - is - spot - from spots on coxae).

Runs to A. filipes in Johannsen's key. Differs as indicated in my key above.

Ninth tergum quadrangular. "Processus" a long sclerotized hook-like structure.

Styles complex:

A - setose, short

B - setose, short

C - membranous, ribbed

D - narrow, with about 4 setae.

Plate 27, figs. 4 and 5.

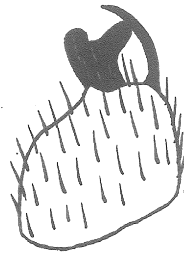
Rhymosia parvicauda V.D.

1928. parvicauda, Van Duzee, Proc. Calif. Acad. Sci. 17: 48. fig. 13.

Recorded from: Calif., Febr.-March. (V.D.).

The figure is after
of an unprepared termin-

Van Duzee's
alium.



Rhymosia pectinata Sherman

1921. pectinata, Sherman, Proc. Ent. Soc. B.C. 16:19.

Recorded from: B.C., April (Sherman).

No mention is made of the terminalium.

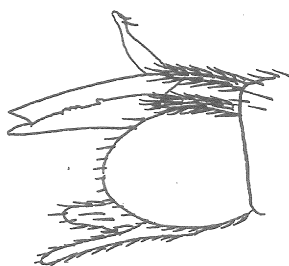
Rhymosia plebeja Walker see Mycetophila plebeja (Walker).

Rhymosia plumosa Van Duzee

1928. plumosa, Van Duzee, Proc. Calif. Acad. Sci. 17: 49. fig. 14-16.

Recorded from: Calif., Febr. - April. (V.D.)

These figures are
from unprepared terminalia
after Van Duzee.



"clasper"



"side view
clasper"

Rhymosia prolixa Sherman

1921. prolixa, Sherman, Proc. Ent. Soc. B.C. 16:
18.

Recorded from: B.C., July.

I do not know this species.

Rhymosia seminigra Sherman.

1921. seminigra, Sherman, Proc. Ent. Soc. B.C.
16:18.

Recorded from B.C. March, April, Oct. (Sherman).

I do not know this species.

Rhymosia serricea Say see Mycetophila serricea (Say).

Rhymosia serripes Joh.

1911. serripes, Johannsen, Me. Agr. Exp. Sta. Bull.
196:311. figs. 121, 232.

Recorded from: Ithaca, N.Y., Aug. (Joh.).

Zygoternum entire ventrally, no "processus."

Tergum divided. Styles complex:

A - setose, elongate with a mesal short
hook at about its mid-length.

B - setose, elongate.

C - membranous, bipartate

D - truncate with coarse ribbing at tip.

Plate 27, fig. 1.

Rhymosia spinicauda V.D.

1928. spinicauda, Van Duzee, Proc. Calif. Acad. Sci.
17:47, 48. fig. 12.

Recorded from: Calif., March.

This figure is after Van Duzee's
from a dried specimen.



Rhymosia triangularis Shaw.

1935. triangularis, Shaw. Psyche 42:89. fig. 5.

Recorded from: N.Y. (Shaw);

Zygosternum slightly notched on mid-ventral posterior margin. "Processus" absent. Tergum subtriangular. Styles complex:

A - small, low, setose.

B - large, subtriangular, setose.

C - elongate as in R. imitator, and R. inflata; without ribbing.

D - curved.

Plate 26, fig. 6.

Brachypeza Winn.

1863. Brachypeza, Winnertz, Verh. Zool. - bot. Ges. Wien. 13:806.

Head round, flattened above. Antennae with flagellar joints wide and closely sessile. Palpi 4-jointed, the second wide, the third wider distally, the fourth the longest. Three ocelli, the laterals close to the eye margins. Mesonotum highly arched. Pleurotergites and hypopleurites with strong setae. Tibial setae strong, those of the middle sometimes and those of the hind legs always longer than the diameter of the tibiae. Femora and tibiae robust. Wings hyaline or with fascia. C ends at tip of R₅; Sc short; ending in R₁; stalk of M short; Cu forks far proximad of base of r-m; anal fold strong and vein like. Abdomen compressed, with 6 visible segments in the male and 7 in the female.

Terminalium non-rotatable. Tergum bipartate distally as in some species of Erechia. Anal segment with 4 lobes. Zygosternum widely and deeply cleft on the mid-ventral line, with a median "processus" in the cleft. Styles complex, trilobed (A, B and C). C membranous, bent down into the genital chamber. Penis small supported by apodemes from the zygosternal wall and possibly also by the median ventral process.

Key to Nearctic Species

1. Wings spotted ----- bisignata divergens Winn.
Wings unspotted ----- 2.
2. Petiole of M half as long as M_3 --- brevitibia V.D.
Petiole of M much less than half as long as M_3 - 3.
3. Females; abdominal tip brown ----- sp. A.
Males; abdominal tip black ----- meramecensis n.sp.

Brachepeza bisignata Winn.

1863. bisignata, Verh. Zool.-bot. Ges. Wien.
13:807.

Recorded from: Europe.

The typical form has not been recorded from the Nearctic region.

Brachepeza bisignata var. divergens Joh.

1911. bisignata var. divergens, Johannsen. Me. Agr.
Exp. Sta. Bull. 196:309. figs. 120, 229.

Recorded from: Me., Nov.; Vt.; N.H., June, July.
(Johannsen); Vt. June 11-Nov. 2; Mass., Aug. (John-
son); N.Y., June-Aug. (N.Y. List).

Zygosternum cleft on the mid-ventral line with
a bifurcate "processus" in the cleft, its two tips
very heavily sclerotized. Styles complex; lobe A
directed mesally, tapering, very heavily ^{sclerotized} at the tip,
the anterior portion setose at its tip. On either
side the mid-ventral "processus" within the genital
chamber are two large membranous lobes, apparently
formed by an enlarged fold in the mesal aspect of the
zygosternal wall.

The sternum of the eighth segment is large,
prominent, covering the base of the terminalium
ventrally.

Plate 27, figs. 12-14.

Brachypeza brevitibia V.D.

1928. brevitibia, Van Duzee, Proc. Calif. Acad.
Sci. 17:47.

Recorded from: Calif., June.

Known from the female only.

Brachypeza meramecensis n. sp.

Male. Length .5 mm. Head dark brown above; a
ring around the compound eyes, the head below the
antennae, the mouth-parts and bases of antennae
yellow. Palpi with the last joint longer than the

other joints together. Thorax a light brown. Mesonotum with a light median stripe and two darker lateral stripes. Scutellum yellow. Postnotum and caudal portion of pleurotergites dark brown. Pleurotergites and hypopleurites with small setae. Legs yellow, dark spots on tips of meso and metacoxae, on trochanters of prothoracic legs, on bases of middle and hind femora below, and on tips of hind femora. Wings hyaline; Sc ending free; M forks just beyond the origin of R_2 , Cu forks proximal of M fork. Anal fold not so prominently darkened as in B. bisignata divergens. Abdomen brown, tergites 2, 3, 4 with large prominent lateral spots; 5 and 6 black. Terminalium plate 27, figs. 11 and 15.

Holotype: C.U. Coll. No. Meramee State Park, Mo., May 11.

Terminalium notched on the mid-line with a complicatedly lobed "processus" in the notch, Plate 27, fig. 11. Tergum composed of two lobes. Anal segment with 4 setose lobes. Styles complex; A and B setose, elongate, subequal; C membranous ribbed with a narrow basal lobe. Plate 27, figs. 11 and 15.

Eighth segment not produced so as to cover any of the terminalial base.

Brachypez sp. A.

Recorded from: Meramee State Park, Mo. May 11.

I have some females that may be B. merameecensis.
The apical abdominal segments are brown not black.
The flagellar base is swollen.

Allodia Winn.

1863. Allodia, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:626.
1863. Brachycampa, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:833.
? 1890. Synpiasta, Skuse, Proc. Linn. Soc. N.S. Wales 5:629.
? 1896. Brevicornu, Marshall, Trans. New Zeal. Instit. 28:
306. 1895.

Head round, flattened in front. Ocelli three, laterals close to the eye margins, median small to absent. Palpi 4 jointed. Antennae 2 14 jointed. Antennal flagellum of female may be much thickened at the base. Thorax shaped as in Axechia. Thoracic pleura bare except propleura, pleurotergites, ^{and} hypopleurites. (In A. crassicornis there are fine hairs on the anepisternites). Scutellum with 2 to 3 stout marginal setae. Legs thin. Tibial setae delicate. Claws with or without teeth. Wings hyaline. C ends at tip of R_2 ; Sc short ending free or in R; Cu forks proximal of M fork (A. delita slightly distad), distad or proximal of base of r-m; first anal delicate, incomplete or absent. Abdomen with six visible segments in the male, seven in the female.

Terminalia non-rotatable. Epigosternum cleft on the mid-ventral line. Styles as in Phymosia and Axechia.

and B are generally elongate, setose. C is more membranous lobe projecting into the genital chamber always ribbed distally. C often has basal lobes. D is variously formed, often of several distinct parts, sometimes very heavily sclerotized. Tergum small, subquadrangular.

The color is highly variable. There apparently are two color forms to many species; a darker winter form and a light summer form.

Key to species (modified after Johannsen)
(Allodia unicolor and subelata I can not place)

1. Hind coxae with black streak at the apex; under side of hind femora each with a brown mark -- 2.
Not so marked ----- 3.
2. Inferior portion of styles with long hair at their tips ----- hirticauda V.D.
Inferior portion of styles bare for a short distance at the tip; anepisternites with fine hairs ---
----- crassicornis Stann. and varieties
3. Fore metatarsus equal or longer than the tibia and at least $\frac{1}{4}$ of its length longer than the coxa - 4.
Fore metatarsus shorter than the tibia and not longer than the coxa ----- 7.
- 4/ Four scutellar bristles; 2 hind coxal setae; fore metatarsus nearly twice as long as the fore coxa ----- bulbosa Joh.
Two scutellar bristles, or otherwise different --- 5.
5. Pleura fuscous; anal vein moderately strong; length 4.5 mm.; terminalium plate 27, figs. 2 and 3; western species ----- see Rhymosia diffisa

With other characters ----- 6.

- 6. Two propleural setae; hind tibiae without bristles on the inner side - actuaria Joh.+ ornaticollis Mg. and varieties + truncata Edw. + lugens Wied. + anglofennica Edw.

Four or five propleural setae; hind tibiae with small bristles on the inner side, at least near the tip ----- sp. # 112 (= ? veralli Edw.)

- 7. Scutellum with four strong marginal setae ----- 8.

Scutellum with two strong marginal setae ----- 9.

- 8. Cu forks proximal of the proximal end of the r-m crossvein, terminalia as figured -- elata Joh.+ bella Joh. + dentica Guthrie+ beata Joh.

Cu forks distad of proximal end of crossvein, female ----- sp. # 8 of Joh.

- 9. Cu forks under or distad of base of r-m crossvein; thorax mainly brown or fuscous --- delita Joh.

Cu forks at least slightly proximal of proximal end of r-m crossvein; or if directly under, then thorax largely yellow ----- 10.

- 10. Dusky species; fore metatarsus less than .8 as long as tibia -- sp. 11 of Joh+ cineta V.D.+ sp. # 107.

Yellowish species, terminalia as figured -----
----- beata Joh. + callida Joh.

Allodia anglofennica Edwards.

1921. anglofennica Edwards, Scott. Nat. 122.

lugens Lundst. (nec Wied.)

Recorded from: Europe (Edwards); Cape Breton I.,

N.S., Sept. (E.G.F.)

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This differs from ornaticollis in the form of the styles. Lobe A is broad. C and B also differ slightly as shown in Plate 25 fig. 4 and 5.

I believe this should be considered but a variety of A. ornaticollis.

Allodia actuararia Joh.

1911. actuararia, Johannsen, Me. Agr. Exp. Sta. Bull. 196:317 figs. 130,240.

Recorded from: N.Y. aug.; Mass. (Joh.)

Terminalium. Zygosternum not deeply notched ventrally, with a heavily sclerotized lobe projection from its posterior margin. Style lobes A and B prominent, setose, subtriangular; lobe B has a distal and a subbasal ventral stout seta; lobe C is very large and prominently ribbed; lobe D is bifurcate at the tip, one arm ending in a comb of blunt setae. Plate 25, fig. 29.

Allodia beata Joh.

1911. beata, Johannsen, Me. Agr. Exp. Sta. Bull. 196:319. fig. 154.

Recorded from: New York. Widely distributed. May-Aug.

Terminalium. Zygosternum deeply and widely cleft on the mid-ventral line. Style lobe A elongate, club-shaped; B narrow, curved towards A distally, tapering to a point; C with a small rounded ribbed portion and an "elbowed" lobe ventrad of this; lobe D small,

elongate, curved with a basal knob-like projection.
Plate 25, figs. 27 and 28.

Styles somewhat as in A. kingi Edw. and A. fuscipennis Staeg., but distinct.

Allodia bella Joh.

1911. bella, Johannsen, Me. Agr. Exp. Sta. Bull.
196:318,319. fig. 133.

Recorded from: B.C. Aug.; Calif. (?) Feb. (Joh.).

Terminalium. Style lobe A elongate, setose, club-shaped; B bare, tapering suddenly beyond its middle to a point. At its base another lobe projects mesally; this tapers suddenly near the base to a long curved point. C is ribbed and large; D is broad ending in two short blunt ends. Plate 25, figs. 22 and 23.

Allodia bulbosa Joh.

1911. bulbosa, Johannsen. Me. Agr. Exp. Sta. Bull.
196:316,317. figs. 129,239.

Recorded from: N.H., N.Y., June; N.Y. (Joh.); N.H. (Johnson).

The styles apparently consist of but 3 parts. A subglobular lobe A, a curved lobe B, and a mesally directed lobe (C or D?), which is elongate (somewhat as in M. fungorum). Plate 25, fig. 17.

Allodia cincta V.D.

1928. cincta, Van Duzee, Proc. Calif. Acad. Sci. 17:50.

? 1911 sp. No. 11., Johannsen. Me. Agr. Exp. Sta.
Bull. 196:320.

Recorded from: Calif. (Van Duzee); Wash. (July) ?
(Johannsen - sp. #11)

Known from the females only.

Allodia crassicornis Stan.

1831. crassicornis Stannius. Obsev. de Mycetophila
22.
1840. punctipes, Staeger, in Kröyer, Naturh. Tids-
skr. 3:258 (Mycetophila)
1855. canescens Zetterstedt, Dipt. Scand. 12:4834.
(Cordyla)
1856. sobria, Walker, Ins. Brit. Dipt. 3:19.
(Mycetophila)
1852. spinicoxa Zetterstedt, Dipt. Scand. 11:4223-
4224.
- ? 1863. obscura, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:826.

Synonymy after Landrock and Edwards. Landrock
regards A. obscura as a distinct species, Edwards
as a variety. The terminalia differ according to
Dziedziwickia's figures.

A. crassicornis crassicornis

Recorded from: Europe, Pa., Md. (Loew), N.Y., May,
July, Sept. (N.Y.S. List). N.J., Me., N.H., Vt.,
Mass. (Johnson).

I have not seen the terminalium of the typical
subspecies.

The figures are copies of Dziedziwicki's figures.

Plate 25, figs. 21-22.

Allodia crassicornis var. a of Johannsen.

Recorded from: N.Y. May-July (Joh.); Me.; N.H.;

Vt. June-July; Mass., Aug. (Johnson).

Styles with lobe A narrow, elongate, tapering; lobe B broad; lobe C membranous, ribbed with a long curved basal lobe that is narrower than in the figures of the typical species; lobe C mesally with a group of short, finger-like lobes. Plate 23, figs. 30.

Allodia crassicornis var. b of Johannsen.

Recorded from: Vt., June and July. (Joh.).

Known from the female only.

Allodia crassicornis var. c of Johannsen.

Recorded from: N.Y. (Joh.)

Terminalium differs in lacking the finger like lobes on style lobe C. Plate 25, fig. 31.

Allodia crassicornis var. d of Johannsen.

Recorded from: Wyo., Sept. (Joh.)

Known from the female only.

Allodia callida Joh.

1911. callida, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
319. fig. 135.

Recorded from: Wash., Aug.; Wyo., Sept. (Joh.); N.S.

(?) E.G.F.

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The type terminalium is so poorly preserved that I have copied Johannsen's figure of it. Plate 23, fig. 17

Allodia delita Joh.

1911. delita, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
320. fig. 136.

Recorded from: Wash., July, Calif. (Joh.)

Terminalium with style lobe A elongate, tapering; B broad truncate, shorter than A; C membranous, ribbed, with a basal subovoid lobe; D widening at the tip, truncate. Plate 25, figs. 12, 13 and 24.

Allodia delita var. a of Johannsen

Recorded from: Wisc. (Joh.)

"This may possibly be a distinct species."

The terminalium differs according to Johannsen. I have not seen it.

Allodia dentica Guthrie

1917. dentica, Guthrie, Ann. ent. Soc. Amer. 10:315,
316. Plate XXVII.

Recorded from: Calif., Oct., Dec. (Guthrie)

Superior lobe of style "terminating in broad chitinized process which terminates in a row of blune teeth." Lobe C and D if present, are not shown in Guthrie's figures which are copied here. Plate 28, fig. 15, 16, and 18.

Allodia ? despecta Walk. see Phronia despecta (Walk.)

Allodia elata Johannsen

1911. elata, Johannsen. Me. Agr. Exp. Sta. Bull.
196:318. fig. 132.

Recorded from: Mass., May; Hampton, N.H. (Joh.);
 Alberta; Aug. (E.G.F.); N.S., Sept. (E.G.F.); Mass.
 July; Vt. April-July (Johnson); Gaspé Pen., Que.
 Aug. (E.G.F.). Styles with lobe A broad, setose,
 elongate; lobe B but slightly shorter than lobe A,
 setose, tapering, elongate; lobe C membranous, rib-
 bed with two basal short lobes; D bipartate. Plate
 25, figs. 19 and 20.

Allodia elata var. a.

Recorded from: Mass., July. (Joh.).

Known from the female only. May be a distinct
 species.

Allodia elata var. b.

Recorded from: Vt., June. (Joh.)

Known from female only. May be a distinct species.

Allodia hirticauda V.D.

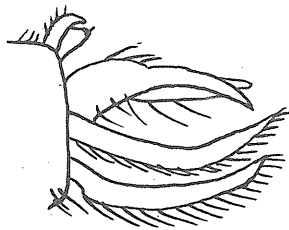
1928. hirticauda, Van Duzee, Proc. Calif. Acad. Sci.
17:50,51. fig. 17.

Recorded from: Calif., March, May.

"This is colored like Allodia crassicornis Stan-
 nius, but differs in having the lower claspers with
 long hair at their tips, in crassicornis these claspers
 are bare for a short distance at the tip."

He figures the unprepared terminalium. I have

copied his figure here.



The description differs little from A. crassicornis, perhaps this species is but another variety.

I have not seen it.

Allodia lugens Weid.

1817. lugens Weidemann. Zool. Mag. 1:68. (Mycetophila)

? 1818. analis Meigen. Syst. Besch. 1:269. (Mycetophila)

(nec lugens Lundst.)

Recorded from: Europe; N.S., Sept. (E.G.F.).

This form differs but slightly from ornaticollis in the form of its styles. Plate 25, fig. 3.

Allodia ? nubila (Say) see Mycetophila nubila Say.

Allodia ? obscura Walk. nec. Winn. see Mycetophila obscura Walk.

Allodia ornaticollis (Meig.)

1818. ornaticollis, Meigen, Syst. Besch. 1:269.
(Mycetophila)

1858. longicornis Van der Wulp, Tijdschr. v. Ent.
2:178. (Mycetophila)

1852. nigricollis, Zetterstedt, Dipt. Scand. 11:4218.

1911. falcata, Johannsen. Me. Agr. Exp. S. A. Bull.
196:317. fig. 131.

(nec nigricollis Edwards or Lundstrom)

Recorded from: Europe (Meigen); N.J.; N.Y., Sept. (Johannsen); N.S., Aug-Sept. (E.G.F.); Wisc., Aug. (Joh. det. - C.U.C.).

Although I have not seen the type of A. ornatcollis, I have no doubt that A. falcata is a synonym of A. ornatcollis.

Styles with A sub-boot shaped; B flattened, of two parts, one large subtriangular, the other smaller with a subvoid tip. C is membranous, large and ribbed with a small basal projection bearing setae. Zygosternum deeply cleft on the mid-line. Plate 25, figs. 1 and 16. There may be some variation in the form of lobe A particularly.

This was the commonest species on Cape Breton Island in late August and early September. In the material collected there, there are several varieties, with intergrading forms. Some of these have been given distinct name in Europe. See Allodia truncata Edwards, Allodia lugens Wied., and Allodia anglofenica Edwards. I believe these may be but varieties of Allodia ornatcollis but for the present I apply the European names to them.

Johannsen recognized two forms - the typical falcata and var. a. These differ in color and slightly in the form of the styles. Compare figs. 16 of typical falcata (= ornatcollis) with figs. 14 and 15, Plate 25.

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There is another variety (var. #105) that differs in the form style lobe A. Plate 25, figs. 6, 10, and 11.

Allodia (?) plebeja (Walk.) see Erechia plebeja (Walk.)

Allodia (?) sericea (Say) see Mycetophila sericea Say

Allodia subelata Malloch

1923. subelata, Malloch, N. Amer. Fauna. 46:178.
plate AIII, fig. 9.

Recorded from: Pribilof Islands. June. (Malloch).

Closely allied to A. elata Joh. The figures are copied from Malloch. I do not know this species.

Plate 25, figs. 19 and 20.

Allodia truncata Edw.

1921. truncata Edwards. Scott. Nat. 123.

Recorded from: Europe (Edwards); Nova Scotia, Sept. 3. (E.G.F.). Ithaca, N.Y., Nov. and May. (E.G.F.);

This belongs to the A. ornatcollis group. It differs in the form of the styles. Lobe A is small subvoid rather than boot-shaped. Plate 25 figs. 7 and 8.

I believe this should be considered but a variety of A. ornatcollis.

Allodia unicolor (Lundb.)

1898. unicolor, Lundbeck, Vidensk. Meddel. p. 260.
(Brachycampta)

Recorded from Greenland.

I do not know this species.

Allodia sp. 4,8,11. of Johannsen

Johannsen records two Wyoming specimens and one Washington female. The latter may be cinata Van Duzee. One Wyoming specimen is a male.

Allodia sp. #53

Recorded from: Slide Mt., N.Y., Aug. (Townes coll.)

A defective specimen, styles unique. Plate 25, figs. 21 and 25.

Allodia sp. #107

Recorded from: N.S., Sept. (E.G.F.)

This species may be a variety of A. proxima Staeg. Plate 25, fig. 26.

Allodia sp. 112

Recorded from: Coy Glen, N.Y., May. (E.G.F.)

This species probably is A. verralli Edwards. Plate 25, fig. 18.

"Phronia group."

The "Phronia group" includes those individuals of the Mycetophilini possessing anepisternal and lacking pteropleural bristles in the adult and possessing ambulacral setae in the larvae. It includes four genera, Dynatosoma, Cordyla, Trichonta, and Phronia.

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Key to genera of "Phronia group" (partly after Edwards).

1. Tibial bristles long and strong ---- Dynatosoma Winn.
Tibial bristles small, at most a little longer than
the diameter of the tibia ----- 2.
2. Second segment of palpi greatly enlarged; antennae very
short; ocelli two; basal setae of hind coxae want-
ing, slight break in the r-m cross-vein - Cordyla
Winn.
Second segment of palpi not enlarged ----- 3.
3. Sc long ending in R; Cu forks below or before M fork
----- Trichonta Winn.
Sc ending free; Cu forks distad of M fork; M forks
distad of cell R -- Phronia Winn. (+ Telamophilus)
Becker

Dynatosoma Winnertz

1863. Dynatosoma, Winnertz, Verh. Zool.-bot. Ges. Wien.
15:947.

1917. Johannsenia (emend.), Guthrie, Ann. Ent. Soc. Am.
10:316. Pl. 26.

Johannsenia differs according to the original de-
scription in the length of Sc and in the number of scu-
tellar bristles, but an examination of a female sent to
Johannsen shows 8 scutellar bristles (Guthrie states there
are four) and Sc is half as long as basal cell R (Guthrie
states it is short). Its thoracic structure is identical.
It possesses anepisternal and lacks pteropleural bristles.
Therefore, I agree with Edwards that this is a synonym of
Dynatosoma.

Front broad, pilose; ocelli two or three; the laterals
contiguous to the eye margins; the middle one, when present,

minute. Prothorax broad with numerous setae. Mesonotum highly arched, pilose without definite rows of setae except on the margins. Anepisternites subquadrangular, setose dorsally and ventrally, pilose anteriorly. Pteropleurites broad bare. Pleurotergites setose. Hypopleurites with small setae posteriorly. Scutellum with eight strong, two or three ranges on the extensor surface of the middle and hind tibiae. Hind coxae without a basal seta. Wings often fasciate. C ends at tip of R₁; Sc nearly half as long as basal cell R (short in D. errans and johannseni); M forks nearly under base of R₅; Cu forks proximal or distad of base of R. Anal stout, incomplete.

Terminalia large, non-rotatable. The seventh and eighth abdominal segments are retracted. Tergum subquadrangular. Zygosternum entire ventrally. Styles complex; inferior portion (B) simple, setose; dorsal portion (A) complex.

Key to Nearctic Species

- 1. Western forms ----- 7.
- Eastern forms ----- 2.
- 2. Hind tibiae with 2 ranges of strong setae; wings hyaline or fasciate ----- 3.
- Hind tibiae with 3 ranges of strong setae; wings fasciate ----- 5.
- 3. Wings spotted, females ----- errans Garr.
- Wings hyaline; Cu forks proximal of base of R₅ --- 4.

- 4. Thorax black ----- thoracica Coq.
 Thorax fulvous ----- placida Joh.
- 5. Thorax largely and abdomen fuscous -- bifasciata (Walk.)
 Thorax largely yellow ----- 6.
- 6. Sc long; inferior style lobe (B) cuboid with no distinct group of setae ----- fulvida Coq.
 Sc short; inferior style lobe (B) flat with a terminal group of setae ----- johannseni n.sp.
- 7. Apical third of the wing almost entirely darkened, hyaline spot on it small or hazy -- huliphila Garr.
 Apical patch on wing margin with a large hyaline spot within it ----- 8.
- 8. Terminalium as in Plate 28, figs. 13, 14 and 17 ---
 ----- aurei Guthrie
 Terminalium not so ----- 9.
- 9. Antennal tip black, scape and basal 2 or 3 flagellar segments yellow ----- montanus Garr.
 Antennal tip infuscated; scape and basal half of flagellar segment yellow; terminalium plate 28, fig. 7. ----- fulvida Coq.

Dynatosoma aurei (Guthrie)

1917. aurei, Guthrie, Ann. Ent. Soc. Am. 10:316.
 pl. 26 figs. 2b, B, 4, 5, and 6. (Johannsenia)

Recorded from: Calif.

Terminalium. Tergum subquadrangular. Anal segment typical. Styles of two portions, the inferior subglobular, setose; the superior lobed. Plate 28, figs. 13, 14 and 17 are copies of Guthrie's figures.

Dynatosoma bifasciata (Walk.)

1848. bifasciata, Walker, List. Dipt. 1:96.
(Mycetophila)

1912. nigrina, Johannsen, Me. Agr. Exp. Sta. Bull.
200:75. figs. 58, 183 (Dynatosoma)

Recorded from: Hudson's Bay (Walk.); Mass. (Joh.);
S.D. (Severin coll. - E.G.F.); Oreg. (Cole); N.Y.
(N.Y. State List).

Style lobe B setose with a narrow, caudal lobe with delicate terminal setae. Lobe A globular with a dorsal lobe (C) that suggests those of Rhynchosia and a narrow caudally projecting lobe with a truncate tip. Lobe D is bifid. Plate 28 figs. 10 and 11.

Dynatosoma errans Garr.

1925. errans, Garr. Seventy New Diptera p. 11.

Recorded from: Ithaca, N.Y., June-July (Garr.)

Known from the female only. The Sc vein is short.

Dynatosoma fulvida Coq.

1895. fulvida, Coquillett, Canad. Ent. 27:201.

Recorded from: Wash. (Coq.); Me., N.Y. (Joh.); Calif.

(C.U.C.); S.C. (Shaw and Townes); Mass., N.H. (Johnson.)

Style lobe B broad, subcuboidal; Lobe A large; lobe C rounded distally, lobe D a narrow hooked lobe. Plate 28 fig. 7.

Dynatosoma huliphila Garr.

1925. huliphila, Garrett, Seventy New Diptera p. 12.

Recorded from: B.C. (Garr.)

Dynatosoma huliphila var. grandis, var. a, and var. b of Garrett.

I do not know this species.

Dynatosoma johannseni n.sp.

Male. Total length 6 mm. Head black above; mouthparts yellow; scape and basal joints of the flagellum yellow. Mesonotum yellow becoming brown behind (in paratype mesonotum brown except at humeral angles); scutellum dark brown with a yellow streak along its midline and with 6 to 8 large marginal setae. Pleura and postnotum dark; setae yellow. Narrow posterior margins of abdominal segments yellow. Legs yellow; tips of middle femora black; tarsi infuscated. Middle and hind tibiae with three ranges of setae on the extensor surface. Wings with a spot at the crossvein, a preapical band and a dusky apical cloud. Sc not one half the length of cell R; stem of M shorter than the r-m crossvein. Cu forks distad of the M fork. 1st anal stout, incomplete. Terminalium, plate 28 fig. 8. Somewhat similar to D. bifasciata (= nigrina).

Female. Color as in male; brown of mesonotum extends anteriorly as two vittae. Three setae on flexor surface of middle and hind tibiae.

Holotype: C.U. Coll. no.
N.Y. (Alexander coll.)

Gloversville,

Paratype: my coll.

Spearfish, S.D.,

July (Severin coll.)

Allotype: my coll.

Custer, S.D.

July (Severin coll.)

Terminalium somewhat as in D. fulvida. B is truncate with a group of setae on the meso-ventral angle. D is hooked. Plate 28, fig. 8.

Dynatosoma montanus Garr.

1925. montanus, Garrett, Seventy New Diptera p. 11,12.

Recorded from: B.C.

Garrett's description of this species fits D. fulvida Coq. except in antennal color.

Dynatosoma nigrina Joh. see Dynatosoma bifasciata Walk.

Dynatosoma placida Joh.

1912. placida, Johannsen, Me. Agr. Exp. Sta. Bull. 200:76-77. fig. 215 (wing)

Recorded from: Ont. (Joh.); N.Y. (N.Y. State List); N.H. (Johnson).

Style lobe B densely setose; A is setose; C is elongate similar to that lobe in D. bifasciata but wider with a terminal and a subterminal stout seta. Plate 28, fig. 12.

Dynatosoma pinquius Lw. see Mycetophila pinquius Lw.

Dynatosoma scalaris Lw. see Mycetophila scalaris Lw.

Dynatosoma thoracica Coq.

1901. thoracica, Coquillett. Proc. U.S. Nat. Mus.
23:598.

Recorded from: Ill.; N.H. (Coq.).

I do not know this species.

Cordyla Mg.

1803. Cordyla, Meigen, Illiger's Magazine 2:262.

1804. Cordyla, Meigen, Klass. 1:93.

1800. Polyxena, Meigen, Nov. Class. Mouches. 16 (no type)

1834. Pachypalpus, Macquart, Suites a Buffon 1:144.

? 1856. Piotepalpus, Rondani, Dipt. Ital. Prodrum 1:196.

? 1896. Brevicornu, Marshall, Trans. New Zealand Instit.
28:305.

Head broad; flattened above on the front. Ocelli two, close to the eye margins. Antennae short; flagellar joints disc-like, broader than long, 10 to 13 in the male, 9-10 in the female. Palpi unique, first joint small, second joint greatly swollen in the male, less so in the female, third and fourth joints long, cylindrical. Prothorax, mesonotum, anepisternites, pleurotergites, scutellum, and hypopleurites setose. Hind coxae with a longitudinal row of setae, the strong basal, hind coxal seta absent. Tibiae short, thickened at their tips; tibial setulae in regular rows; lateral setae of middle and hind tibiae short and delicate. wing membrane with microtrichia

regularly arranged. Sc short; C ends at tip of R₅; stalk of M longer than the r-m cross-vein; tip of M₃ may be subobsolete; branches of Cu diverging; anal fold thickened, vein like; 1st and 2nd anals distinct, incomplete.

Seventh and eighth abdominal segments retracted in the males. Terminalia non-rotatable. Terminalium small and inconspicuous; similar to other Mycetophilinae genera. Tergum small; supra-anal lobes prominent; zygosternum deeply notched on the mid-ventral posterior edge; styles complex consisting of a superior lobe (A) and a inferior lobe (B) and two mesal lobes (C and D). A is setose; B is often somewhat boot-shaped, bare; C is small, never membranous or ribbed as in Allodia; D is small.

No new species, except those described by Garrett, have been added since Johannsen published his key to this genus. I can not place Garrett's species; for a key to other Nearctic species see Johannsen (1911).

Cordyla confera Garrett.

1925. confera, Garrett, Seventy-one New Diptera.
Granbrook, B.C. p. 14.

Recorded from: Granbrook, B.C., May. (Garrett)

I do not know this species.

Cordyla manca Joh.

1911. manca, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
307. fig. 115, 224.

Recorded from: Ithaca, N.Y. (Joh.)

Style lobes more or less fused together:

A - setose, an elongate plate with the outer edges bent mesally.

B - as in Johannsen's figure.

C and D - two small lobes projecting somewhat into the genital chamber.

Plate 28, fig. 9.

Cordyla neglecta Joh.

1911. neglecta, Johannsen, Me. Agr. Exp. Sta. Bull. 196:308.

Recorded from: Felton, Calif., May and possibly Los Angeles, Calif. (Joh.)

The terminalium of this form differs little from C. volueris; style lobe B is shorter and subequal to C.

Cordyla parva Garr.

1925. parva, Garrett, Seventy New Diptera, Cranbrook, B.C. p. 14.

Recorded from: Cranbrook, B.C., July. (Garrett).

I do not know this species.

Cordyla recens Joh.

1911. recens, Johannsen, Me. Agr. Exp. Sta. Bull. 196:307. figs. 118, 227.

Recorded from: Ithaca and Caroline, N.Y. (Joh.); Colden, N.Y., Aug. (N.Y.S. List).

This terminalium is the same type as C. volueris but B is broader at the tip, less

boot shaped; A is pointed; C is pointed; D is bifid with its ventral arm the longer. The dorsal arm with a distal comb-like structure.

Plate 28, figs. 1, 2, and 3.

Cordyla scita Joh.

1911. scita, Johannsen, Me. Agr. Exp. Sta. Bull. 196:307 figs. 116, 225.

Recorded from: Friday Harbor, Wash., July (Joh.)

The anal segment in Johannsen's figure appears to be a portion of the styles. Styles complex:

A - broad with a mesal sclerotized edge.

B - somewhat boot-shaped with a long pointed toe and a small heel.

C - small

D - small

Anal segment with enormous supra-anal lobes.

Plate 28, figs. 4 and 5.

Cordyla scutellata, verio G₂rr.

1925. scutellata, verio Garrett, Seventy New Diptera, Cranbrook, B.C. p. 14.

Recorded from: B.C., (Garrett).

I do not know these two species.

Cordyla volueris, Johannsen

1909. volueris, Johannsen, Genera Insectorum. Fasc. 93:101 pl. 7, fig. 20.

Recorded from: Ithaca, N.Y., Sept. (Joh.); Me.,

July (Johnson).

Styles complex:

- A - relatively large, setose, more or less rounded at the tip.
- B - somewhat boot shaped, with less toe than scita.
- C - is pointed with the tip bent over.
- D - is blunt.

Plate 28, fig. 6.

Cordyla spp. 6 and 7 of Johannsen are known from females only.

Trichonta Winn.

1863. Trichonta, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:847.

Head flattened in front. Ocelli three, the laterals close to the eye margin, the middle one small. Palpi 4 jointed, incurved. Thorax highly arched. Anepisternites, pleurotergites, and hypopleurites with setae; sternopleurites, pteropleurites, and postnotum bare. Wings hyaline; Sc long normally ending in R at or beyond the middle; C ends at tip of R₂; Cu forks under or proximad of base of M fork; anal lobe with a distinct group of macrotrichia on the wing membrane; microtrichia of wing membrane regularly arranged. Basal setae of hind coxae frequently absent; tibial setae regularly arranged; tibial bristles delicate. Abdomen in the male with six visible segments, in the female with seven.

Seventh and eighth abdominal segments retracted in

the male. Terminalia non-rotatable. The zygosternum is entire on the mid-ventral line, i.e. not deeply cleft or divided. The tergum is quadrangular. The anal segment consists of the two usual prominent supra-anal lobes and the single inconspicuous sub-anal lobe. The styles are complex consisting of a large more or less globular setose lobe (A), a mesally directed lobe (B) which is bare except at its edge where it bears prominent elongate setae, and a membranous lobe (C) bearing "combs" of short setae.

Key to Nearctic Species (modified after Johannsen)

1. Length 6 mm; thoracic stripes subobsolete -----
----- perspicua V.Wulp
- Length less than 5 mm. ----- 2.
2. Cu forks noticeably proximal of the proximal end of the crossvein; species over 3 mm. in length - 3.
Cu forks at or distal of the proximal end of the cross-vein ----- 4.
3. Fore basitarsus less than .8 of the tibia in length; abdomen dark brown, hind margins of segments broadly yellow; female ----- cineta Joh.
Fore basitarsus over .8 of the tibia in length; abdomen yellow, each segment with a large sub-triangular spot; male ----- triangularis Joh.
4. Species over 3 mm. in length ----- 5.
Species 3 mm. or less in length ----- 9.
5. Cu forks at the proximal end of the cross-vein; abdomen dark brown ----- vulgaris Loew

- Cu forks distad of the proximal end of the cross-
vein ----- 6.
6. Thorax brown, humeri yellow ----- 7.
- Thorax yellowish, with three vittae sometimes sub-
coalescent ----- 8.
7. Hind femora with a brown streak below; terminalium
plate 29, fig. 2 and 3 ----- obesa Winn.
- Hind femora with no brown streak below; terminalia
plate 29, figs. 9 and 11 ----- sp. #208 + #206.
8. Abdomen brown, segments yellowish at base - foeda Loew
- Abdomen largely brown, apical margin and large pos-
terior lateral triangles, yellow; hind tarsi
longer than tibia; Cu₂ somewhat sinuate - bellula
Joh.
9. Species 3 mm. in length, Calif., Plate 29, fig. 4.
----- fusciventris V.D.
- Species less than 3 mm. in length ----- 10.
10. Cu forks under the proximal end of the crossvein;
terminalium plate 29, fig. 6. ---- diffissa Joh.
- Cu forks only slightly proximad of the fork of media;
terminalium plate 29, fig. 10 ----- patens Joh.

Trichonta bellula Joh.

1911. bellula, Johannsen, Me. Agr. Exp. Sta. Bull.
196:304. fig. 112.

Recorded from: Vt., July (Joh.); N.H., June; Cape

Breton I., N.S., Aug. (E.G.F.)

Terminalium resembles that of Trichonta brevi-
cauda Lundstr.; the styles are also superficially like
those of Phronia similis. Style lobe A large; lobe
B arises at dorso-mesal corners of A; lobe C is closely

fused to A and bears two "combs." Plate 29, figs.
12 and 13.

Trichonta cineta Joh.

1911. cineta, Johannsen, Me. Agr. Exp. Sta. Bull.
196:303.

Recorded from: Me. (Joh.).

Known from female only.

Trichonta diffisa Joh.

1911. diffisa, Johannsen, Me. Agr. Exp. Sta. Bull.
196:305, fig. 113.

Recorded from: N.Y., Mass., Aug. (Joh.)

Style lobe A broad in ventral aspect; lobe B
arising at its postero-dorsal corner, B is elongate;
lobe C is membranous with several rows of "combs".
Plate 29, figs. 6 and 7.

Trichonta foeda Loew.

1869. foeda, Loew, Berl. Ent. Zeit. 13:150.

Recorded from: Middle States (Loew).

Known from the female only.

Trichonta fusciventris V.D.

1928. fusciventris, Van Duzee, Proc. Calif. Ac. Sci.
17:43, fig. 10.

Recorded from: Calif., March. (V.D.)

Van Duzee gives a figure of the unprepared ter-
minalium which I copy here, Plate 29, fig. 4.

Trichonta obesa Winn.

1863. obesa, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:854.

Recorded from: Europe; Greenland.

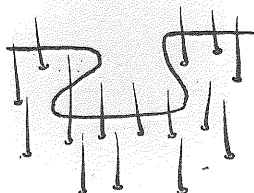
The male is described by Mik. (1880). The figures, Plate 29, figs. 2, 3, and 5 are copies of his figures.

Trichonta patens Joh.

1911. patens, Johannsen, Me. Agr. Exp. Sta. Bull. 196:
305. figs. 114, 223.

Recorded from: N.Y., May-Aug. (Joh.)

Terminalium. The median ventral margin of the zygosternum has a shallow, broad notch:



The styles are complex; lobe A is broad, setose; lobe B is apparently subdivided; lobe C has an elongate lobe. There is an additional ventral lobe that may be a portion of lobe A. Plate 29, fig. 10.

Trichonta perspicua Van der Wulp

1881. perspicua, Van der Wulp, Tijdschr. v. Ent.
24:142.

Recorded from: Quebec (V.d.W.); N.J. (N.J. State List); Me., Vt., June-July (Johnson).

I have seen no terminalia of this species.

Trichonta triangularis Joh.

1911. triangularis, Johannsen, Me. Agr. Exp. Sta. Bull.
196:393. fig. 111, 221.

Recorded from: N.Y., Aug. (Joh.)

Terminalium. Style lobe A broad with an outer "comb"; lobe B very long resembling its form in Rhymosia and in Mycetophila fungorum superficially; lobe C with two "combs". Plate 29, fig. 8.

Trichonta vulgaris Loew.

1869. vulgaris, Loew, Berl. Ent. Zeit. 13:149.

Recorded from: Md., D.C. (Loew); N.Y. (C.U.C.)

Terminalium plate 29, fig. 1. Style lobe A small, subdivided; lobe B globular with numerous stout setae; lobe C with a single comb.

Trichonta sp. # 206.

Recorded from: Milford, N.Y. June, H.K. Townes coll.

This may possibly be synonymous with T. fusca of Europe, therefore I refrain from naming it. Plate 29, fig. 11.

Trichonta sp. # 208.

Recorded from: D.C., Nov.

This is a distinct but defective specimen. Plate 29, fig. 9.

Phronia Winn.

1863. Phronia Winnertz. Verh. Zool.-bot. Ges. Wien. 13: 857. 1863.

? 1889. Macrobrachius Dziedzicki. Horae Soc. Ent. Ross. 23: 526.

1908. Telmaphilus Becker. Mitt. Zool. Mus. Berl. 4: 67.

Edwards considers Macrobrachius an aberrant Phronia and Telmaphilus as inseparable from Phronia.

Head with 3 ocelli, the laterals contiguous to the eye margins. Thoracic sclerites shaped as in Allodia. Anepisternites with a row of setae above, pleurotergites setose. Tibial setae regularly arranged, tibial bristles delicate. Wings hyaline or with clouds. Microtrichia regularly arranged (sometimes not very obviously so). C extends beyond tip of R₅, Cu forks distad of M-fork, A₁ incomplete. Abdomen with 6 visible segments in the male, seven in the female.

This genus is closely allied to Trichonta.

The 7th and 8th abdominal segments are small and retracted. Terminalium non-rotatable. Lygosternum entire on the mid-ventral line. Tergum small, often subdivided on its mid-line. Anal segment typical. Styles consist of inferior and superior portions. The inferior is simple, often notched, curved etc. (B) The superior is complex consisting of ^avariably formed base (A), a dorsally directed lobe (C), and sometimes a small lobe from A directed inwardly (D).

Key to Nearctic species (partly after Johannsen)

Phronia depecta Walk. omitted. Van Duzee's species and P. exigua Zett. are placed from description only.

- 1. Sc ends free beyond middle of basal cell R; usually
near two dusky clouds visible upon the wing, some-
times very faint ----- 2.
- Sc short, rarely half as long as basal cell R, usually
ending free; wings hyaline ----- 3.
- 2. R_s strongly bowed; Western ----- tenebrosa Coq.
- R_s not strongly bowed; Eastern; Plate 27, figs. 9
and 10. ----- nebulosa (Joh.)
- 3. C produced about $\frac{1}{3}$ of distance from R_s to M₁; Mass;
Plate 30, figs. 16 and 17. ----- producta Joh.
- C produced less than $\frac{1}{3}$ distance from R_s to M₁ -- 4.
- 4. Fore tarsal joints 2-4 not distinctly swollen be-
neath ----- 5.
- Fore tarsal joints 2-4 distinctly swollen beneath
and broader than the metatarsus, apex of the
latter enlarged; females ----- 10.
- 5. Hind coxae and usually middle coxae also fuscous;
Plate 30, figs. 12 and 13 -----
insula Joh. + california n.n. + fuseiventris V.D.
- All coxae yellowish ----- 6.
- 6. Western and middle western species ----- 7.
- Eastern species; males ----- 9.
- 7. Males ----- 8.
- Females - flabellata V.D. + venusta Joh. + incerta(?) Adams
- 8. Brown thorax; Plate 30, figs. 8-10. -----
----- venusta Joh. + flabellata V.D.

Thorax yellow with brown vittae ----- incerta Adams

- 9. Styles of terminalium longer than the zygosternum.
Plate 30, figs. 7 and 11. ----- difficilis Joh.

Styles shorter than the zygosternum, Plate 30, figs.
1-6; Plate 27, figs. 6 and 7. - similis Joh.+ exigua
Zett.

- 10. Western species; base of abdomen fuscous -- sp. of Joh.
Eastern species ----- 11.

- 11. Hind coxae yellow ---- difficilis Joh.+ similis Joh.
Hind coxae fuscous ----- insula Joh.

Phronia californica n.n. for basalis V.D. nec Winn.

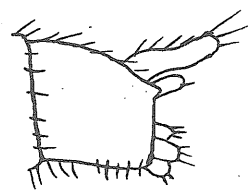
1928. basalis, Van Duzee, Proc. Calif. Acad. Sci.
17:51, fig. 18.

(nec basalis Winn.)

Recorded from: Calif., Febr., March.

The specific name basalis of Van Duzee is pre-occupied by basalis Winn.

The figure below is after Van Duzee's of the unprepared terminalium.



Phronia despecta (Walker)

1848. despecta, Walker, List of Dipt. 1:101.
(Mycetophila)

Recorded from: Hudson's Bay.

Placed in Phronia by Johannsen after examination of the type.

Phronia difficilis Joh.

1912. difficilis, Johannsen, Me. Agr. Exp. Sta. Bull. 200:61,62. figs. 27,155.

Recorded from: Ithaca, N.Y., May (Joh.); common in N.Y., May-July (E.G.F.); Mo., May (E.G.F.)

Inferior style lobe (B) elongate, broad, furcate distally; the tips of the fork with close-set groups of hairs. Superior style lobe (A) low, (C) ovoid with strong terminal setae; (D) elongate, narrow with two terminal setae. Plate 30, fig. 12.

Phronia difficilis var.

I have taken a specimen at Meramec State Park, Mo. that differs but slightly from the typical form. D is slightly wider. The large lobe (B) has a sub-terminal group of setae on its dorsal edge. I believe this is but a variety. Plate 30, fig. 7.

Phronia exiqua Lett.

1852. exiqua, Letterstedt, Dipt. Scand. 11:4246, 4366. (Mycetophila)

1863. rustica, Winnertz, Verh. Zool. bot. Ges. Wien. 23:875.

1863. longipes, Winnertz, Verh. Zool. bot. Ges. Wien.
13:875.

(nec rustica var. a #554 Johannsen coll. - upper
specimen)

See note under Exechia aviculata Shaw.

Recorded from: Greenland.

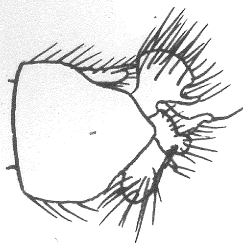
The figures, Plate 27, figs. 6 and 7 are after
Dziedzicki.

Phronia flabellata V.D.

1928. flabellata, Van Duzee, Proc. Calif. Acad. Sci.
17:51,52. fig. 19.

Recorded from: Calif., March.

The figure is from Van Duzee's of the unprepared
terminalium.

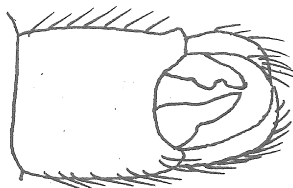


Phronia fusciventris V.D.

1928. fusciventris, Van Duzee, Proc. Calif. Acad.
Sci. 17:52,53. fig. 20.

Recorded from Calif., March.

The figure is from Van Duzee's of the unpre-
pared terminalium.



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Phronia incerta Adams

1907. incerta, Adams, Wash. Carnegie Inst. 67:37.
(Mycetophila)

Recorded from Indiana, wyo?, S.C.?

"The hypopygium which is pale yellow resembles that of P. venusta in the form of the terminal lobes but differs in having upon the inner side of each lobe near the tip a patch of short, stout setae projecting dorsad." (Johannsen)

Phronia insula Joh.

1912. insula, Johannsen. Me. Agr. Exp. Sta. Bull.
200:60,61. fig. 25,153.

Recorded from: R.I., N.Y. (Joh.); Greenville Co., S.C.,
July (Shaw and Townes).

The inferior style lobe (B) is large, ovoid. The superior is complex, apparently the usual lobes are divided. Plate 30, figs. 12 and 13. On either side the midpoint of the posterior zygosternal margin are membranous structures shown by stippled area in fig. 13.

Phronia nebulosa (Joh.)

1912. nebulosa, Johannsen, Me. Agr. Exp. Sta. Bull.
200:64. figs. 30,153. (Telemaphilus).

Recorded from: N.Y., N.H. April-Aug. (Joh., Johnson);
? Oregon, March (Cole and Lovett).

Cole's specimen has black coxae, brown femora

37A
and tibiae, blackish-brown tarsi.

I have specimens in which the wing color is very faint.

Supra-anal lobes with a long terminal seta.
Ninth tergum not divided but notched on its mid-line.
Styles complex. The inferior (B) broad, flattened with a notch in its distal margin. The superior portion with lobe C ovoid with long hairs; D narrow curved, A a tripartate tip the ventral and mesal portions with comb-like structures, the dorsal with a group of fine setae.

Plate 27, figs. 9 and 10.

Phronia (?) obscura (Walk.) see Mycetophila obscura. May belong here.

Phronia producta Joh.

1912. producta, Johannsen, Me. Agr. Exp. Sta. Bull. 200:60. figs. 24,152.

Recorded from: Mass., Aug. (Joh.)

Tergum quadrangular. Styles complex:

B - subvoid, setose.

A - elongate with two strong terminal seta.

C - small with one strong terminal seta.

D - with an irregularly rounded tip.

Plate 30, figs. 16 and 17.

Phronia rustica Winn. see Phronia exigua Zett.

Phronia similis Joh.

1912. similis, Johannsen. Me. Agr. Exp. Sta. Bull.
200:62. figs. 23, 156.

Recorded from: Ithaca, N.Y.

In the Johannsen collection are specimens #566, the type, and #573, labelled co-type. This "co-type" differs from the type in terminalial structure. See Plate 30 figs. 1-6. The type resembles Phronia taczanowskyi Dzd. interterminalial structure. Plate 30 figs. 1-3.

The "co-type" is Phronia sp. #573 of this paper.

Phronia tenebrosa Coq.

1904. tenebrosa, Coquillett. Proc. Ent. Soc. Wash.
6:170. (Phronia).

Recorded from: San Mateo Co., Calif. (Coq.)

Johannsen placed this species in the genus Tele-
maphilus.

Known from the female only.

Phronia venusta Joh.

1912. venusta, Johannsen, Me. Agr. Exp. Sta. Bull.
200:61. figs. 26, 154.

Recorded from: Vollmer, Ida., Sept.; C.D. (Joh.);

Albany, N.Y. (N.Y.S. List).

Fergua quadrangular. Styles complex:

A - club-shaped, setose.

B - large, setose

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C - ovoid with long marginal setae

D - with close-set spines.

Plate 30, figs. 8-10.

Within the genital chamber ventrad of the aedeagus are two oval membranous structures with a brush of fine setae. Plate 30 fig. 10. These may be corresponding structures to those in P. insula; I know of no other examples.

Phronia sp. #573 of Johannsen collection.

Recorded from: Ithaca, N.Y.

This is the "co-type" specimen of P. similis Joh. that differs from P. similis type in the form of its styles. Plate 30 figs. 4-6.

Key to the genera of the "Mycetophila group."
(partly after Edwards).

- 1. Cu simple ----- 2.
- Cu forked ----- 3.

- 2. Pleurotergites and pteropleurites large; M₃ and Cu slightly divergent; middle tibiae with ventral bristles; R₅ nearly straight - Zygomysia Winn.
- Pleurotergites and pteropleurites small; M₃ and Cu parallel; middle tibiae without ventral bristles; R₁ and R₅ often rather closely approximated; C hardly produced beyond tip of R₅; R₅ strongly arched ----- Sceptonia Winn.

- 3. Cu₁ parallel with M₃ throughout, but slightly divergent from Cu₂; pleurotergites and pteropleurites small, head usually fitting very closely into front of thorax ----- 4.
- Cu₁ slightly divergent from M₃ apically, but parallel with or slightly convergent towards Cu₂; pleurotergites and pteropleurites generally quite large; costa ending at tip of R₅ ----- Mycetophila Mg.

- 4. C produced distinctly beyond tip of R₅; pronotal lobes separate from propleura and with distinct long bristles, base of Cu fork hardly, if at all, before r-m ----- Epicrypta Winn.
- C ends at R₅; pronotal lobes only indistinctly separated from the propleura and without long bristles; base of Cu fork well before r-m, second abdominal segment with ventral bristles - Delopsis Skuse

Mycetophila Meigen

1803. Mycetophila Meigen, Illiger's Mag. 2:267.

1800. Fungivora Meigen, Nouv. Class. 16 (no type).

1856. Mycetina Rondani. Dipt. Ital. Prodomus 1:198. (8).

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1861. Mycozetasa condani. Dipt. Ital. Prodomus 4:12.
1863. Mycothera Winnertz, Verh. Zool.-bot. Ges. Wein
13:913.
1891. Opistholoba Mik, Wein. Ent. Zeit. 10:87.
? 1911. Plastocephala Enderlein Stett. Ent. Zeit. 72:175.

Lundstrom pointed out that the presence of a median ocellus in Mycothera was not constant even within the species. It also may occur in several species included in the genus Mycetophila. M. dimidiata Staeg., the genotype of Mycothera, shows no other structural differences from Mycetophila, according to Edwards (1913). Opistholoba was included here by Edwards (1925) since it differs only in terminalial structure and is similar in venation and chaetotaxy.

Head flattened above; ocelli two or three, the laterals close to the eye margin; palpi normal. Thorax with strong setae. Prothorax with strong setae; usually 3 to 4 prominent propleural setae. Mesonotum with setae over the entire surface, not in definite lines. Pleural sclerites large; anepisternites, pteropleurites and pleurotergites setose. Anepisternites usually with 3 to 4 prominent setae; pteropleurites usually with 2 to 6. Scutellum usually with 4 prominent marginal setae. Postnotum bare. Legs stout; tibial setulae in regular rows; tibiae with strong setae, those of the hind legs longer than the greatest diameter of the tibiae. Wings hyaline or fasciate. C ends at the tip of R_5 . Sc short, ending

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free. Cu forks proximad, below, or distad of the base of R_5 , its branches usually parallel apically. Abdomen with six visible abdominal segments in the male, seven in the female.

Abdominal segments seven and eight retracted under the sixth segment. Male terminalia non-rotatable. Terminalium of the cup-type. Tergum narrow, sometimes practically divided on the mid-line. Anal segments with large supra-anal lobes (especially large in M. exstincta). Aedeagus supported by arms from the dorsal edges of the zygosternum. Styles consist of two parts, a dorsal and a ventral lobe which are cleft so far basally as to appear as separate styles. The ventral style (B) is usually setose. The dorsal style (A C) may have a dorsal branch projecting into the genital chamber as in M. fungorum. In M. lassata and M. pectita the dorsal style lobe is subdivided into lobe A (bearing the stout blunt setae), lobe C which is subdivided distally, and lobe D.

The key below to Nearctic forms is modified after Johannsen; like that key, it is merely a guide; the terminalial structure should in all cases be used in the final specific determination. (M. discoidea, ichneumonea, laeta, obscura, nubila and sericea have not been included. Guthrie's and Van Duzee's species are placed from descriptions only.)

1. Cu forks as far distad of the cross-vein as the length of the cell Cu_1 ----- 2.

Cu forks proximad, under, or but slightly distad
of the fork of M ----- 3.

2. Thorax black; wings hyaline, each with a brown
fascia which fills apex of cell R₁ and crosses
R_s ----- analis(Coq.)

Thorax brownish or yellowish; terminalium plate
35, fig. 13. ----- paula (Lw.)

3. Three ranges of setae on the extensor surface of the
hind tibia, and with two or more setae on the
flexor surface of the middle tibia ----- 4.

Two ranges of setae on extensor surface of each
hind tibia ----- 9.

4. Wing without a distinct cloud, though the petiole of
media itself may be darkened ----- 5.

Wing with distinct spots or a cloud ----- 6.

5. Thorax subopaque, humeri and posterior lateral angles
yellow; female ----- extincta Lw.

Thorax shining black; terminalium plate 32, figs.
14 and 17 ----- jucunda Joh.

6. Wing with a single spot which covers the cross-vein-7.

Wing with preapical cloud or fascia in addition to
the central spot ----- 8.

7. With two setae on flexor surface of middle tibiae;
terminalium plate 35 figs. 10 and 11 - perita Joh.

With three setae on flexor surface of middle tibiae;
terminalium plate 32, figs. 4 and 5 - extincta Lw.

8. Scutellum largely yellow; robust species; cubital cell
broad, branches of Cu slightly divergent - procera
Lw.

Scutellum largely yellow; robust species; cubital cell
moderate, branches of Cu subparallel apically,
wings with about four spots; one on each M and
Cu; terminalium plate 35, figs. 5 and 8 - fastosa
Joh.

9. With no setae on flexor surface of middle tibiae-10.
 With one or more setae on flexor surface of middle
 tibiae ----- 19.
10. Wing immaculate; last joint of palpus spatulate -11.
 Wing with spot or spots ----- 12.
11. Terminalium plate 31, figs. 6 and 8 - fungorum var.
fungorum
 Terminalium plate 31, figs. 7 and 10 -----
 ----- fungorum var. obscura n. var.
12. With but a central wing spot ----- 13.
 With two or more wing spots ----- 16.
13. With not more than 4 fine setae near apex of hind
 tibia on inner side ----- 14.
 With 5 or more fine setae on inner side of hind
 tibia apically ----- 15.
14. Thorax dark brown; terminalium plate 32, figs. 2
 and 3 ----- falcata Joh.
 Thorax light brown; terminalium plate 34, fig. 14 -
 ----- labes n.sp.
15. Thorax yellow; apically half of inner side of hind
 tibia ciliate; terminalium plate 31, figs. 2
 and 3 ----- mutica Lw.
 Thorax reddish brown, brown dorsum and pleura ---
 ----- mutica var. a
16. Wings grayish with two brown spots and two spots
 that are more hyaline, one of these between the
 brown spots, the other beyond the preapical
 spot ----- fusca V.O.
 Wings with a central and a preapical spot ----- 17.
17. Western forms ----- 18.

Eastern form; branches of Cu slightly divergent;
terminalium plate 32, figs. 15 and 16 - lenis Joh.

- 18. Terminalium plate 34, figs. 17-19; length 4 mm. --
----- maculosa Guthrie
- Terminalium not as above; length 3 mm. - parvimaiculata
----- V.D.
- 19. With but one seta on the flexor surface of middle
tibia ----- 20.
- With two or more setae on flexor surface of middle
tibia ----- 27.
- 20. Wing without a distinct spot ----- 21.
- Wing with one or more spots ----- 22.
- 21. Cu₁ detached at its base, strongly bowed posteriorly
at its distal end so as to almost meet Cu₂ at
the margin ----- nocua n.sp.
- Cu₁ normal; Eastern Canadian form ----- cirrata n.sp.
- 22. Wing with but one central spot ----- mitis (Joh.)
- Wing with more than a central spot ----- 23.
- 23. Wing with a discal spot and a preapical cloud which
does not pass the media ----- 24.
- The apex of the wing more or less clouded or other
spots present ----- 25.
- 24. Terminalium plate 35 fig. 2, Plate 32 fig. 10. ----
----- impellans(Joh.)
- Terminalium not so (?) ----- monochaeta Lw.
- 25. apex of wing brown, on oval spot below R₅ - fenestrata
----- Coq.
- Wing cloud with no oval hyaline spot, apex of wing
not distinctly clouded ----- 26.

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26. a spot on cell M_2 distinctly separated from the
preapical spot ----- quatuornatata Lw.
No spot on cell M_2 ----- fenestrata var. praenubila
27. wing without distinct spots, mesonotum polished black,
branches of Cu diverging, Cu forks under the
cross-vein ----- vittrea Coq.
wing with one or more spots ----- 28.
28. wing with only one spot which covers the cross-
vein ----- 29.
wing with two or more spots or clouds ----- 32.
29. Thorax and abdomen blackish ----- 30.
Thorax shining brown, lateral margins and a spot on
center of scutellum yellow ----- 31.
30. Terminalium plate 33 figs. 3 and 6 --- bipunctata Lw.
Terminalium plate 35, fig. 1 ----- parabola n.sp.
31. Cu forks under base of stalk of media; terminalium
plate 31, figs. 4 and 5. ----- inculta Lw.
Cu forks under or but slightly distad of M fork;
plate 33, figs. 1,2,4, and 5 -- ? sordida Van d. Wulp
- 32.* Abdomen yellowish, intermediate segments each with a
large blackish spot on each side leaving a
median yellow stripe; sometimes largely black
with only a narrow median vitta; thorax with three
confluent stripes; scutellum yellow ----- 33.
Abdomen not marked thus ----- 34.

* M. alberta Curran runs this far. I can not place it
further. It is known only from the female.

33. Superior forceps of hypopygium rather broad and short, with a blunt black spine ----- scalaris Lw.

Superior forceps somewhat elongate - scalaris var. a

34. Terminalium when seen from the side, subtriangular, folded under the abdomen, nearly reaching the middle of the fourth abdominal segment. Plate 36, figs. 8,9,10 ----- caudata (Staeg.)

Terminalium not so ----- 35.

35. Middle tibiae each with 3 or 4 setae on flexor surface ----- 36.

Middle tibiae each with 1 or 2 setae on the flexor surface, rarely with an additional smaller one above ----- 37.

36. Fore tarsi slightly swollen below; joints 2,3, and 4 wider than 1 ----- 37.

Fore tarsi robust, but not swollen below ----- 39.

37. Ochraceous, shining, thorax with subconfluent dusky stripes; abdominal segments with wide yellow posterior margins ----- pinguis Lw.

Dusky species, humeri yellow ----- 38.

38. Incisures of abdomen yellow; terminalium plate 32, fig. 13 ----- foecunda* Joh.

Abdomen wholly dark; terminalium plate 35 figs. 16 and 17 ----- imitator * Joh.

39. Preapical wing cloud arises at the costal margin proximad of the tip of R₁ ----- 40.

Preapical wing cloud does not cover tip of vein R₁ ----- 45.

* M. contigua runs to foecunda (Joh.1926) in Johannsen's key.

* M. parva runs to imitator (Joh.1926) in Johannsen's key.

- 40. Preapical wing cloud reaches apex of R_5 ----- 41*
 Preapical wing cloud does not reach apex of R_5 ;
 length 2.5 mm. ----- polita Lw.

- 41. Length 5 mm.; terminalium plate 33, figs. 7 and 11 -
 ----- perlonga Joh.
 Length 3 mm. to 3.5 mm ----- 42.

- 42. Cu forking distinctly beyond the fork of media, its
 petiole being longer than its anterior branch;
 fore tibia longer than its basitarsus -----
 ----- singularis V.B.

- Not with the above combination of characters --- 43.

- 43. Cu forks proximad of the proximal end of the r-m
 cross-vein ----- paradoxa (Joh.)
 Cu forks distad or under the base of the r-m cross
 vein ----- 44.

- 44. Cu forks under the base of the r-m cross-vein; ter-
 minialium plate 35, figs. 4 and 6 ---- recta Joh.
 Cu forks distad of the base of the r-m cross-vein;
 terminalium plate 35, figs. 15 and 17 - imitator Joh.

- 45. Hind margins of the abdominal segments broadly and
 distinctly yellow ----- 46.
 Hind margins of abdominal segments not broadly and
 distinctly yellow, but sometimes narrowly so - 47.

- 46. Length 3 mm., terminalium plate 35, figs. 15 and 16 -
 ----- fallax Lw.
 Length 6 mm.; terminalium plate 34, figs. 15 and 16 -
 ----- ingens n.sp.

* M. propinqua runs near perlonga and imitator in Jo-
hannsen's key (Johannsen 1926).

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47. Superior style lobes with a row of dark blunt spines and a longer curved one, plate 33 figs. 8, 9, 12, and 12a ----- 48.
- Superior style lobes with only one blunt spine or without any, never as above ----- 49.
48. Terminalium plate 33, figs. 12, 12a ---- pectita Joh.
Terminalium plate 33, figs. 8 and 9 --- lassata Joh.
49. Cu forks distad of M fork ----- 50.
Cu forks proximad or under the M fork ----- 53.
50. Preapical wing cloud does not reach posterior wing margin --- alata Guthrie + pectoralis V.O. + singularis V.D.
Preapical wing cloud reaches posterior wing margin ----- 51.
51. Head and thorax black, except propleura and humeral angles; terminalium plate 34, figs. 12 and 13 ----- intima n.sp.
Not as above ----- 52.
52. Head and thorax brown; dorso-caudad of eyes, prothorax, lateral edges of mesonotum, scutellum, and postnotum yellow; terminalium plate 32, figs. 6 and 8 ----- cippus n.sp.
Head and thorax yellow; 3 subconfluent mesonotal stripes, hind margins of anepisternites, and pleurotergites brown; terminalium plate 32, figs. 7 and 9 ----- spinosa n.sp.
53. A cloud behind Cu₂; terminalium plate 34, figs. 5, 6 and 7 ----- permata Guthrie
No spot behind Cu₂ ----- 54.
54. Head, thorax, and abdomen black with a narrow anterior margin on the mesonotum yellow ----- mira n.sp.

- Not as above ----- 55.
- 55. Terminalium with no spines on the styles - ovata V.D.
Terminalium with spine or spines on styles ----- 56.
- 56. Terminalium plate 31, figs. 17-20 -----
-- lenta Joh. + lenta var. distincta n. var.
Terminalium not so (?) ----- clavata V.D.
- 57. Species 4.5 mm. long; preapical fascia extends to Cu₁,
apical wing cloud present; coxae and femora each
with a brownish spot; inner side of hind tibiae
each ciliate to near the middle; terminalium
plate 34, figs. 1 and 2 ----- fatua Joh.
Smaller species ----- 58.
- 58. Cu forks slightly proximad of the proximal end of the
cross-vein; thorax and abdomen dull brown; ter-
minalium plate 35, fig. 12 ----- edura Joh.
Cu forks under or distad of the fork of the media-59.
- 59. Wings grayish with two brown spots and two spots which
are more hyaline, one of these between the brown
spots, the other beyond the preapical spot - fusca
V.D.
Wings not so ----- 60.
- 60. Preapical wing cloud diffuse, longitudinal in position,
covers apices of veins R₁ and R₅ ----- 61.
Preapical wing cloud transverse in position, at least
at the proximal end ----- 62.
- 61. Cu forks under M fork; terminalium plate 36, fig. 21 -
----- fenestrata var. exusta (Joh.)
Cu forks slightly proximad of M fork; terminalium
plate 35, fig. 6 ----- recta Joh.
- 62. Preapical wing cloud reaches M₂ ----- 63.

- Preapical wing cloud does not reach M_2 ----- 68.
- 63. Thorax reddish or yellow with brown vittae; preapical wing cloud reaches hind margin ----- 64.
- Thorax dark brown ----- 65.
- 64. Central wing spot large; cloud behind Cu_2 ; preapical cloud joins cloud on border of wing posteriorly. Western ----- jugata Joh.
- Wings not so ----- spinger V.D. + singularis V.D.
- 65. Wing cloud reaches hind margin; scutellum dark brown; terminalium plate 35, figs. 16 and 17 - imitator Joh.
- Wing cloud passes vein M_{1+2} ----- 66.
- 66. Scutellum with yellow center ----- 67.
- Scutellum black ----- sp. 40 of Joh.
- 67. Terminalium plate 35, fig. 9. ----- extenta Joh.
- Terminalium different (?) -- clavata V.D. bispina V.D.
- 68. Middle and hind coxae brown outwardly; proximal end of preapical cloud covers R_1 ; apex of wing with paler cloud; terminalium plate 32, figs. 11 and 12 ----- edentula Joh.
- Middle of hind coxae yellow; preapical wing cloud smaller; apex of wing not clouded; posterior angles of thorax yellow ----- 69.
- 69. Scutellum yellow; sides darker ----- trichonota Staeg.
- Scutellum black ----- 70.
- 70. Fore tarsi swollen; preapical wing cloud oblique; terminalium plate 34, figs. 4, 5, and 8 ----- trichonta var. a

Fore tarsi not swollen; wing cloud broader; terminalium plate 36, figs. 12 and 15 -- socia Joh.

M. alata Guthrie

1917. alata, Guthrie, Ann. Amer. Ent. Soc. 10:315.
Plate XXVI figs. 2a, A, 1, 2, 3.

Recorded from: Calif. Dec.

Plate 34, figs. 9-11 are copies of Guthrie's figures. I do not know this species.

M. alberta Curran.

1927. alberta, Curran, Canad. Ent. 59:80.

Recorded from: Alta. May.

Known from the female only. I have not seen it.

Mycetophila analis (Coq.)

1901. analis, Coquillett, Proc. U.S. Nat. Mus. 23:
598. (Exechia)

1909. analis (Coq.) Johannsen. Genera Insectorum
Fasc. 93 (Mycothera)

Recorded from: N.J., July.

I have not seen this species.

M. anomala Joh. see Delopsis anomala (Joh.)

M. bifasciata Walk. see Dynatosoma bifasciata (Walk.)

M. bispina V. Duzee

1928. bispina, Van Duzee, Proc. Calif. Acad. Sci.
17:58. fig. 28.

Recorded from: Calif. March-May.

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Van Duzee's figure from an untreated terminalia is copied here.



Mycetophila bipunctata Loew

1869. bipunctata, Loew, Berl. Ent. Zeit. 13:152.

Recorded from: Wisc. (Loew); Me. Nov. (Joh.); N.Y. N.J., Wyo. (Joh.); N.H. (Johnson); S.C., N.C.; (Shaw and Townes). June-Sept.

Zygosternum entire. Style bipartate, dorsal portion with a dorso-caudad hook, ventral portion with a long lateral seta and two shorter setae. Plate 33 figs. 3 and 6.

Mycetophila caudata (Staeg).

1840. caudata, Staeger, in Kröjer, Naturh. Tidsskr. 3:243(6). (Opistholoba)

1909. ocellata, Johannsen, Genera Insectorum, Fasc. 93:126. (Opistholoba)

Recorded from: Ithaca, N.Y. May, Aug. (Joh.); N.H.

This species is unique in its terminalial structure. There are six visible abdominal segments dorsally. Ventrally the large lobes of the terminalium project cephalad as far as the middle of the fifth segment. The zygosternum is small, entire. The styles consist of two portions, a bipartate median portion and a simple external portion; they are

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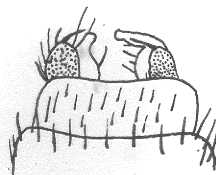
narrow elongate rod-like pieces. The anal segment is unique. The subanal lobes is setose but small. The supra-anal lobes are probably the enormous enveloping lobes. The tergum is distinct. Plate 36 figs. 8-10.

M. clavata Van Duzee

1928. clavata, Van Duzee, Proc. Calif. Acad. Sci. 17:58,59. fig. 29.

Recorded from: Calif. March-Febr.

The figure below is after Van Duzee's illustration of the untreated hypopygium:



Mycetophila cippus n.sp.

Male. Length 2.5 mm. Head brown. Antenna brown, scape and base of flagellum yellow; palpi yellow. Thoracic pleura brown; mesonotum a deeper brown except humeral angles and lateral margins which are yellow; scutellum yellowish; lateral areas of postnotum yellowish. Abdomen brown; venter of first, second and third segments yellow. Two delicate ventral bristles on hind margins of second and third segments. Wings hyaline with a large spot on the

r-m crossvein and the base of M; preapical fascia begins just at the tip of R_1 ; reaches tip of R_5 in cell R_1 extends posteriorly but does not reach M_{1+2} ; stalk of M shorter than r-m; Cu forks distad of M fork. Middle tibia with 3 setae on the flexor surface. The proximal one shorter, 3 setae on outer surface, 4 and a smaller one on the extensor surface. Hind tibiae with 2 ranges of setae on the extensor surface.

Abdomen in two paratypes has yellow posterior margins on the anterior tergites.

Holotype: C.U. Collection No. Coy Glen, Ithaca, N.Y. May 25, 1935.

Paratypes. In my collection. Wycocomagh, Cape Breton I., N.S., Sept. 3; Coy Glen, Ithaca, N.Y., May 25; Beaver Dam Brook, Cockeysville, Md. July 22.

(cippus a sharp stake, from stout setae on terminalium)

Zygosternum entire with strong setae on either side the mid-line. Styles bipartate. Dorsal style lobe subquadrangular, ciliate. Ventral style lobe with a dark mesal lobe and a setose ventral area with several short spines and one long seta. Plate 32, figs. 6 and 8.

Mycetophila cirrata n.sp.

Length 2.8 mm. Color brown except palpi and legs.

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Thorax somewhat approaches Delopsis in the shape of its sclerites. Mesonotum and scutellum flat above; postnotum with its hind surface almost vertical. Pronotum with strong setae; anepisternites and sternopleurites subquadrangular. Middle tibiae with one stout seta on the flexor, one range of stout setae on the extensor, 2 stout setae apically on the external, and two small setae apically on the internal surfaces. Hind femora with dark tips; hind tibia with two ranges of stout setae on the extensor surface, a single seta apically on the internal surface. Wings hyaline. C ends at tip of R_3 ; r-m cross-vein shorter than basal portion of stalk of M subequal to basal portion of R_3 ; Cu forks under r-m. Abdomen without long ventral setae. Terminalium plate 32, fig. 1.

Holotype: C.U. Coll. No. Frizzleton,
Cape Breton I., N.S., Aug. 30, 1936.

(cirratus -a -ua = having hair curled).

This species runs to M. dolosa in Johannsen's key, runs near M. unicolor var. posticalis in Lindner's European key.

Zygosternum entire. Styles of two parts; ventral portion with long curled setae, unique in appearance; dorsal portion subtriangular. Plate 32, fig. 1.

Mycetophila contigua Walk.

1848. contigua, Walker, List of Dipt. I. 96.

Recorded from: N.S. (Walk.); N.J. (N.J.State List).

There is a slide in the Johannsen collection labelled "Myc. contigua ?" of the terminalium of a specimen in the Meatee collection; this terminalium does not differ from that of M. trichonota var. a of the Johannsen collection. The former is from Md. or D.C.

Mycetophila despecta Walk. see Phronia despecta (Walk.)

Mycetophila discoidea Say

1829. discoidea, Say, Journ. Acad. Sci. Phil. VI:153.

Recorded from: Indiana (Say); Vt., Mass. July-Aug., Conn. Oct. (Johnson).

I do not know this species.

Mycetophila edentula Joh.

1912. edentula, Johannsen, Me. Agr. Exp. Sta. Bull. 200:105. figs. 93, 211.

Recorded from: B.C. July; N.H. Oct. (Joh.)

Terminalium somewhat similar to that of M.

zetterstedtii Lundst.

Gyosternum notched on mid-ventral line. Styles of two parts. Ventral portion of style with a sub-basal mesally directed seta, setose distally, under high power with two wide peg-like setae. Dorsal

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portion of style with a truncate caudal lobe and a small dorsal lobe. Plate 32, figs. 11 and 12.

Mycetophila edura Joh.

1912. edura, Johannsen, Me. Agr. Exp. Sta. Bull. 200:103,104 figs. 88, 207.

Recorded from: N.Y., wisc. (Joh.); N.S. Aug-Sept. (E.G.F.).

Zygosternum notched ventrally. Styles of two parts. Ventral portion of styles setose, subglobular with a mesal basal setae. Dorsal portion with a notch on distal ventral angle and a basal lobe directed anteriorly. Plate 35, fig. 12.

Mycetophila exstincta Loew

1869. exstincta, Loew, Berl. Ent. Zeit. 13:152.

Recorded from: Middle States (Loew). Mass. June-Aug. (Joh.)

Zygosternum slightly notched ventrally. Styles of two parts; ventral portion subglobular, setose; dorsal portion bifurcate distally, the basal anteriorly directed lobe very small. supra-anal lobes elongate, notched subapically, with long setae. Plate 32, figs. 4 and 5.

Mycetophila extenta Joh.

1912. extenta, Johannsen, Me. Agr. Exp. Sta. Bull. 200:105. figs. 92, 210.

Recorded from: N.Y. April (Joh.); N.S. Aug-Sept.

(E.G.F.); Minn., June (E.G.F.).

Zygosternum entire. Styles of two parts; ventral portion of style setose ventrally, bare and concave dorsally with a border of stout blunt spines; dorsal portion with a rounded distal end, its basal dorsally directed lobe large, wide basally, narrowing suddenly distally. Plate 35, fig. 9.

I have seen one specimen showing a rotation of the terminalium. It is the only example I have seen in the genus showing other than a normal orientation.

Mycetophila exusta Joh. see *Mycetophila fenestrata* var. *exusta*.

Mycetophila falcata Joh.

1912. *falcata*, Johannsen, Me. Agr. Exp. Sta. Bull. 200:93. figs. 73, 197.

Recorded from: N.Y., Id. (Joh.); N.C., May (Shaw and Townes). Oregon, May (Cole); N.S. Aug.-Sept. (E.G.F.)

Zygosternum entire, with but a slight notch in the hind border. Styles of two parts; ventral portion of style small, subglobular with a stout mesally directed seta; dorsal portion of style setose basally, dorsally produced into a narrow lobe, with no distal lobe. Plate 32, figs. 2 and 3.

Mycetophila fallax Loew.

1869. *fallax*, Loew, Berl. Ent. Zeit. 15:156.

Recorded from: Middle States (Loew), Cal., March ?

(Joh.); N.Y. (E.G.F.).

I have specimens which I refer here. Zygo-
sternum entire. Styles consist of two parts; ven-
tral part setose with a distal more heavily sclero-
tized knob-like lobe and with a basal, mesally direct-
ed, heavy seta in dorsal aspect. Dorsal part with a
truncate distal lobe and a rather short basal, dor-
sally directed lobe. Plate 35, figs. 15 and 18.

Mycetophila fastosa Joh.

1912. fastosa, Johannsen, Me. Agr. Exp. Sta. Bull. 200:91,92. figs. 71, 196.

Recorded from: N.Y.; N.J. (Joh.) Me., N.H., Vt.,
April-July; Mass., Conn., Mar.-Sept. (Johnson);
Iowa, Febr. (Dodds coll. - E.G.F.);

Zygo-sternum entire on mid-ventral line. Styles
of two parts. The ventral portion is broad, short,
and setose. The dorsal portion is subglobular with-
out a distal lobe; the dorsally directed lobe is
subdivided into two narrow lobes each bearing a
terminal seta. Plate 35, figs. 5 and 8.

Mycetophila fatua Joh.

1912. fatua, Johannsen, Me. Agr. Exp. Sta. Bull. 200:
103, figs. 87, 206.

Recorded from: Idaho (Joh.); Oregon, Febr. (Cole)

Zygo-sternum entire. Styles of two parts.
Ventral part subtriangular in ventral aspect with a

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stout mesal seta, in dorsal aspect concave with a group of setae near its center. Dorsal part of style rounded ventrally, setose; dorsally with two unequal lobes, having one and two terminal setae respectively. Plate 34 figs. 1 and 2.

Mycetophila fenestrata Coq.

1905. fenestrata, Coquillett, Inv. Pacifica 1:19.
Recorded from: Calif. (Coq.); N.Y., Id. (Joh.); Oregon, Febr.-Dec. (Cole); N.S. Sept.; S.D. (Severin coll.-E.G.F.).

Ventral portion of style subglobular. Dorsal portion consists of a bifurcate distal lobe and a narrow dorsally directed basal lobe. Plate 36, figs. 17-20.

Mycetophila fenestrata var. praenubila

1912. fenestrata var. praenubila Johannsen, Me. Agr. Exp. Sta. Bull. 200:83.

Recorded from: Wash.; Wisc.; Alabama; N.Y., N.J., April. (Joh.).

The terminalium of this variety is identical with that of M. fenestrata fenestrata.

Mycetophila fenestrata var. exusta

1912. exusta, Johannsen, Me. Agr. Exp. Sta. Bull. 200:104 figs. 89 and 208.

Recorded from: Calif., May, Nov.; Id., Sept.; Mass., June (Joh.); N.S. Aug.-Sept. (E.G.F.); N.Y., May,

Sept. (E.C.F.)

M. exusta, I believe, is but a variety of M. fenestrata. There are slight variations in the form of the terminalia as shown in the figures, Plate 36, figs. 16 and 21, and they differ but slightly from the typical form.

Mycetophila foecunda Joh.

1912. foecunda, Johannsen, Me. Agr. Exp. Sta. Bull. 200:99. figs. 81, 200.

Recorded from: N.Y., Nov.; Me; Id. (Joh.)

The tergum is large forming the dorsal half of the genital chamber wall. Supra-anal lobes large. Styles of two parts which diverge and then converge at their tips. The ventral part with short terminal setae and one strong and several shorter setae basally. The dorsal lobe with small terminal setae. Zygosternum entire. Plate 32, fig. 13.

Mycetophila fungorum Deg.

1776. fungorum, Degeer, Mem. pour serv. a l'hist. d. Ins. 6:361. pl. 22 f. 1-13. (Tipula)
(Edwards. Ent. Mag. 52)

? 1803. agarici, Meigen, Illiger's Mag. 2:263.

1805. striata, Fabricius, Syst. Antl. p. 58.

1817. eunctans, Wiedemann, Zool. Mag. 1:68(11).

1818. semicineta, Meigen, Syst. Besch. 1:264(9).

1826. rufa, Macquart, Recueil Soc. Sc. Agric. Lille p. 94 (12).

1830. trivialis, Meigen, Syst. Besch. 6:301(41).

1838. unicolor, Meigen, Syst. Besch. 6:301 (41)

1852. punctata, Zetterstedt, Dipt. Scand. 11:
4200(21).

1852. grisea, Zetterstedt, Dipt. Scand. 11:4208(26).

Recorded from: Europe. Widely distributed in N. Am. recorded from N.J., Me. Vt., Mass., R.I., Ore. Wyo., Id., Ala., Tex., Tenn., N.C., S.C., Wisc., S.D., Alberta, and N.S., probably occurring in the entire country.

There is much variation in the form of the styles, color, and size of this species. The dark form I consider a distinct variety.

M. fungorum fungorum

This is the common New York form. There is considerable variation in its size. The terminalia of the small and large forms are the same.

Zygosternum entire. Styles of two parts; ventral part with two sinuous spines, a long and short spine, and 2 long setae; dorsal part with a group of short spines, then a group of long setae. The dorsally directed lobe is narrow. Plate 31, figs. 6 and 8.

M. fungorum var. obscura n. var.

This is a darker form. I have seen specimens from Missouri, South Dakota, British Columbia, and California that have the head, thorax, and abdomen

except narrow posterior margins on tergites a deep brown. The styles differ as shown in the figures, Plate 31, figs. 7 and 10. There are eastern dark females in the collection but no eastern males.

Holotype: C.U. Coll. No. Custer, S.D.,
July 19. (Severin coll.)

Paratypes: In my collection from Custer, S.D.
and Meramec State Park, Mo. May 7.

Mycetophila fusca Van Duzee.

1928. fusca, Van Duzee, Proc. Calif. Acad. Sci. 17:
60, 61. fig. 32.

Recorded from: Calif., March-April.

Van Duzee's figures the terminalium of a dried
specimen. It is copied here.



Mycetophila hopkinsii Coq. see Boletina hopkinsii (Coq.)

Mycetophila ichneumonea Say

1823. ichneumonea, Say, Journ. Ac. Sc. Phil. 3:16.

Recorded from: Penn. (Say); N.H.; Mass., May and
June (Johnson); N. Mex. (Skinner).

Described from the female.

Mycetophila imitator Joh.

1912. imitator, Johannsen, Me. Agr. Exp. St. 200:
99, 100 figs. 91 and 201.

Recorded from: N.Y., Me. Nov., March (Joh.); S.C.
March-May (Shaw and Townes).

Zygosternum entire. Styles with the two portions closely united. Ventral portion subtriangular with a dorso-mesal sclerotized ridge beneath which the subglobular dorsal lobe apparently arises. Plate 35, figs. 16 and 17.

Mycetophila impellans (Joh.)

1912. impellans, Johannsen, Me. Agr. Exp. Sta. Bull.
200:83,84. (Mycothera).

Recorded from: N.Y.; N.J., Mass., Penn; Wash. (Joh.);
N.H., Me., Vt. July-Aug.; (Johnson); N.S., Aug.-Sept.
(E.G.F.); May-Sept.

The terminalium of M. impellans is quite similar to that of M. edentula apparently differing in the absence of the two minute peg-like spines on the ventral portion of the style. There are also forms with strong setae on the ventral portion of the style that I consider but variations. Plate 32, fig. 10; Plate 35 fig. 2. type Plate 35, figs. 3 and 7 (variety from Cape Breton I., N.S.)

The terminalium is similar to that of M. vittipes Lett. as figured by Lundstroem (1906).

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Mycetophila incerta see Phronia incerta (Adams)

Mycetophila inculta Loew

1869. inculta, Loew, Berl. Ent. Zeit. 13:153.
Recorded from: Middle States (Loew); Ill., May;
N.Y., May-Aug.; R.I.; Wis. (Joh.); S.C. May-Sept.
(Shaw and Townes). Iowa, March. (E.G.F.-Barker
coll.); Ark. May (E.G.F.).

Zygosternum entire. Styles somewhat similar
to those of *M. fungorum*. Ventral portion of the
styles with a mesal directed basal seta and two
distal stout spines. Dorsal portion of style with
a strong terminal seta on the tip of the dorsally
directed lobe and a smaller subterminal one. There
is a slight variation in the position of the stout
spines on the ventral style lobe in the Iowa speci-
mens. Plate 31, figs. 4 and 5.

M. ingens n.sp.

Male. Length 6 mm. Head yellow; last segment
of palpus dusky. Prothorax yellow; propleural with
5 stout ventral setae. Mesonotum whitish-yellow with
three subconfluent dark stripes behind. Pleura
yellow; dorsal edge of anepisternites, dorsal half

of pteropleurites, posterior surface of pleurotergites and hypopleurites brown. Center and hind edge of scutellum yellowish. Postnotum greyish. Abdominal tergites brown except hind margins and median stripe on second and third, and an anterior spot on fourth segment yellow. Middle tibiae with three setae on the flexor surface, the basal one smaller, (a small additional distal one on one leg of type - absent in paratypes). Posterior tibiae with two ranges of setae on the extensor surface. Wings hyaline with a spot on r-m which covers the base of R_3 , and of the M fork. Preapical fascia begins beyond R_1 reaches tip of R_3 , reaches posteriorly to below Cu_2 , interrupted on cell M_2 .

Spot behind base of Cu_2 . Terminalium plate 34, fig. 15 and 16.

Female. 6 mm. Head darker anteriorly. Pleura brown with a round yellow spot covering dorsal part of sternopleurites and ventral part of pteropleurites. Abdomen brown with yellow venter and posterior margins to tergites. Middle tibiae with 3 setae on the flexor surface. Preapical wing fascia deeper in color, stops at $M_1 + 2$; No cloud behind Cu_2 .

The thoracic color of the paratypes approaches that of the allotype.

Holotype: C.U. coll. No. Chester, -
Mass. Aug. 7.

Allotype: C.U. coll. No. Chester,
Mass. Aug. 7.

Paratypes: My collection. Chester, Mass. Aug. 7.
Pratt's Falls, Apulia, N.Y. Aug. 1
Runs to M. fallax in Johannsen's key; runs near

to M. fulvithorax Strobl. in Landrock's.

(ingens -tis < large)

Zygosternum entire ventrally. Styles of two parts; dorsal portion truncate distally, dorso-mesally with a line of short setae; ventral portion with a crescent-shaped distal lobe, its dorsally directed lobe short with two terminal setae. Plate 34, figs. 15 and 16.

Mycetophila intima n.sp.

Male. Length 3 mm. Head black; base of antennae and mouth parts yellow. Thorax black; propleura, humeral angles, center of scutellum, and halteres yellow. Abdomen black. Wings hyaline with a central spot over r-m and base of R_3 ; small preapical spot not reaching M_{1+2} . Stalk of M shorter than the r-m cross-vein. Cu forks distad of the form of M. Legs yellow; tips of hind and middle femora dark; middle tibiae with 3 setae on the flexor surface; posterior tibiae with two ranges of setae. Terminalium Plate 34, figs. 12 and 13.

Holotype: C.U. collection No. Cape
Bon Ami, Gaspe Peninsula, P. que. Aug. 19.

(intima -a -um = beloved)

Runs near lenta in Johannsen's key; runs to M.
tiefl Strobl. in Landrocks key.

Zygosternum entire ventrally. Ventral portion
of style subtriangular in ventral aspect. Dorsal
portion with a rounded setose distal lobe, and two
heavily sclerotized dorsal lobes. Plate 34, figs.
12 and 13.

Mycetophila jucunda Joh.

1912. jucunda, Johannsen, Me. Agr. Exp. Sta. Bull.
200: 90. figs. 96, 104.

Recorded from: Ithaca, N.Y. Aug.

Zygosternum with a wide V-notch ventrally. Styles
of two parts; ventral portion subtriangular with long
seta; dorsal portion with a round tipped distal lobe
and a rounded dorsally directed lobe bearing two
strong setae which are hidden in lateral aspect. Plate
32, figs. 14 and 17.

Mycetophila jugata Joh.

1912. jugata, Johannsen, Me. Agr. Exp. Sta. Bull.
200: 104 fig. 90, 209.

Recorded from: Felton, Calif.

Zygosternum entire. Styles with the ventral
portion broad with two lobes at its dorso-caudal

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angles, dorsal portion pointed bluntly distally with little development of the dorsally projecting lobe. Plate 31 figs. 14 and 16.

Mycetophila labes n.sp.

Male. Length 3 mm. Head brown, antennae brown with the tips somewhat greyish. Thorax light brown, pleurotergites brown. Wings hyaline with a faint brown spot on r-m crossvein. Legs yellow with two ranges of setae on the extensor surface of the hind tibiae; inner side of hind tibiae apically with about 6 fine setae; no setae on flexor surface of the middle tibiae. Stalk of M subequal to r-m crossvein. Fork of Cu under fork of M. Abdomen brown with posterior margins of tergites yellow. Terminalium plate 34, fig. 14.

Holotype - C.U. collection No. Mt.

Lemon, S. Catalina Mts., Ariz. July 27. 8,000 ft.

(Labes ~ a spot)

This species runs near mutica and falcata in Johannsen's key; runs to M. lineola Meig. in Landrock's European key.

Terminalium similar to that of fungorum, lenis, falcata etc. The ventral portion of the style setose; the dorsal portion produced into an elongate dorsal arm with a subbasal lobe at whose base is a stout curved seta. Terminalium plate 34, fig. 14.

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Mycetophila laeta Walk.

1848. laeta, Walker, List of Dipt. 1:97.

Recorded from: Nova Scotia.

I do not know this species.

Mycetophila lassata Joh.

1912. lassata, Johannsen, Me. Agr. Exp. Sta. Bull.
200:101. figs. 204, 85.

Recorded from: Calif., May. (Joh.); Oregon, March
(Cole). N.S., Sept. (E.G.F.); N.Y. May (E.G.F.).

Zygosternum entire ventrally. Ventral portion of style setose, simple. Dorsal portion of style lobed. Lobe A setose with a single sinuous long spine and a row or comb of short spines. C consists of two parts a dorsal rounded lobe bearing two terminal setae and a ventral lobe bearing two mesal and one outer projection. D is distinct and bifurcate distally. Plate 33 figs. 8 and 9.

Mycetophila lenis Joh.

1912. lenis, Johannsen, Me. Agr. Exp. Sta. Bull.
200:94. figs. 76, 198.

Recorded from: Eastport, Maine, July (Joh.)

Zygosternum entire ventrally. Styles much as in M. fungorum. Ventral portion bilobed distally; dorsal portion setose at base with the dorsally directed arm with five inferior setae. Plate 32, figs. 15 and 16.

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Mycetophila lenta Joh.

1912: lenta, Johannsen, Me. Agr. Exp. Sta. Bull.
200:102. figs. 86, 205.

Recorded from: Me. N.C.; Wisc., (Joh.); Ore., (Cole
and Lovett), N.C. (L.G.F.) Oct., March, Aug.-Sept.

Lygosternum entire ventrally with a sclerotized
tri-pointed plate on the mid-line. Styles with ven-
tral portion bifid distally, the dorsal branch having
a black short spine. Dorsal portion of style with
a distal lobe and a rounded dorsally directed lobe
bearing three setae. Plate 31, figs. 17 and 18.

Mycetophila lenta var. distincta n. var.

Male. Length 2.5 mm. Head brown, mouth parts and
base of antennae yellow. Prothorax yellow. Meso-
notum with center deep brown, humeral angles, wide
lateral margins, and anterior margin yellow. Sterno-
pleurites yellow; anepisternites with a band of
yellow across their cephalo-ventral corner; ventral
portion of pleurotergites yellow. Abdomen brown
with yellow posterior margins to tergites and venter
yellow. Wings hyaline with a central wing spot and
a preapical spot beyond the tip of R_1 , extending to
tip of R_3 , reaching posteriorly behind R_3 , but not
reaching M_1 $_2$. Cu forks just before or under M fork.
Legs yellow, tips of hind femora and a spot on tip

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of the middle femora ventrally dark. Middle tibiae with 3 or 4 setae on the flexor surface, 3 on the outer surface, 1 between the outer and the extensor rows, 2 to 3 small ones apically on the inner surface. ^{hind femora with two pairs of setae on the extensor surface.} 2 fine setae apically on the inner aspect.

Terminalium plate 31, figs. 19 and 20.

Holotype: C.U. coll. No. Frizzleton,
Cape Breton I., Nova Scotia. Aug. 30.

Mycetophila maculosa Guthrie

1917. maculosa, Guthrie, Ann. Amer. Ent. Soc. 10:
314. figs. 1a, A, 1, 2, 3, 4. pl. XXV.

Recorded from: California Redwood Park, Oct.

The figures plate 34, figs. 17-19 are after
Guthrie.

Mycetophila mira n.sp.

Male. Length 3.5 mm. Head black; palpi yellow; scape and basal half of first flagellar joint yellow. Thorax black except a narrow anterior margin on the mesonotum which is dusky yellow. Halteres yellow. Abdomen black. Wings hyaline with a brown spot over base of R_5 , r-m, base of M and a preapical fascia arising beyond tip of R_1 reaching tip of R_5 and extending obliquely caudad but not reaching M_{1+2} . Cu forks under fork of M. Legs yellow except tip end of middle femora and $\frac{1}{3}$ of tip of hind femora. Fore tibiae with two short setae on the extensor surface.

Middle tibiae with 3 setae on the flexor surface, 2 on the outer surface, one seta between the outer and the extensor range, 2 on inner surface. Hind tibiae with 2 ranges of setae on the extensor surface and 2 to 3 fine setae on the inner side apically.

Terminalium plate 34, fig. 17,18 and 19.

Holotype: In C.U. collection No.

Oneonta, New York. Aug. 24. (H.K.Townes collector).

Paratype: In my collection. Milford

Center, N.Y., July 13. (H.K. Townes collector).

(mirus -a -um = wonderful)

This species runs near M. lenta in Johannsen's key; it runs near M. lamellata Lundst. in Landrock's European key.

The terminalium is somewhat similar to that of M. mitis. The ventral portion of the style differs as shown in the figures.

Mycetophila mitis (Joh.)

1912. mitis, Johannsen, Me. Agr. Exp. Sta. Bull. 200:82. figs. 64,189.

Recorded from: Wis., July. (Joh.); Iowa, March (E.G.F. - Bruhn coll.); N.S., Aug. (E.G.F.); Mo., May (E.G.F.); N.Y., May (E.G.F.).

Lygosternum entire ventrally. Dorsal portion of style subtriangular the dorsal edge is turned mesally and bearing a row of short spines. The dorsal portion

has a elongate round-tipped dorsally projecting lobe with 3 or 4 strong setae. Plate 31, figs. 12 and 13.

Mycetophila monochaeta Lw.

1869. monochaeta Loew, Berl. Ent. Zeit. XIII;158.

Recorded from: D.C. (Loew); Ore. Jan., April. (Cole)
S.C. Feb.-June (Shaw and Fownes) Conn. (Johnson).

I do not know this species.

Mycetophila mutica Lw.

1869. mutica, Loew, Berl. Ent. Zeit. XIII:152.

Recorded from: Middle States (Loew); N.C.; N.Y.; B.C.;
Wash.; Wisc.; Wyo. (Joh.); Calif. Febr. (Guthrie).
Iowa Sept. (Horn coll. - E.G.F.); N.S. Aug.-Sept.
(E.G.F.); Alberta, Aug. (E.G.F.); Ore., March (Cole).

Zygosternum entire. Ventral portion of style rounded, setose; with 3 blunt spines, dorsal portion similar to M. fungorum with two long and one short subterminal setae. Plate 31, figs. 2 and 3.

I have a specimen with setae all along the under surface of the dorsally directed lobe.

Mycetophila mutica var. a of Johannsen.

Recorded from Wash. (Joh.); Ore., March (Cole and Lovett).

Differs in the form of the ventral portion of the style which has only one terminal curved seta.

Mycetophila nigra see Sceptonia nigra Mg. and Sceptonia subnigra n.n.

Mycetophila nocua n.sp.

Male. Length 2.5 mm. Head black; palpi and base of antennae yellow. Thorax black; prothorax, humeral angles and ventral portion of sternopleurites brownish. Halteres yellow. Legs yellow except tips of hind femora. With one seta on the flexor surface of the middle tibia, 2 on the external, a row on the extensor, one on the internal. Hind tibiae with two ranges of setae on the extensor surface. Wings hyaline with no wing spots. Cu_1 detached at its base, at its tip strongly bent towards tip of Cu_2 . Stalk of M longer than r-m. Cu forks just before base of M fork. Abdomen black. Terminalium plate 33, figs. 10 and 14.

Holotype: C.U. collection No. Ithaca, N.Y.
June 6. H.K. Townes coll.

Paratype: My collection Ithaca, N.Y.
May. H.K. Townes coll.

Runs to M. dolosa in Johannsen's key; runs near M. unicolor var. posticalis Lundst. in Landrock's European key.

Zygosternum with a slight notch on the mid-ventral line. Ventral portion of the styles with a distal row of setae much as in Mycetophila sordida (?) and

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with a less definite row of spines basally in ventral aspect. Dorsal portion of styles with a short dorsally directed lobe bearing 3 setae. Plate 33, figs. 10 and 14.

Mycetophila nubila Say

1829. nubila Say. Journal Ac. Sc. Phil. 6:153.

Recorded from: Indiana.

I do not know this species.

Mycetophila obscura Walk.

1848. obscura Walker. List of Dipt. I:101.

Recorded from: Hudson's Bay (Walker); Mass., May-June (Johnson).

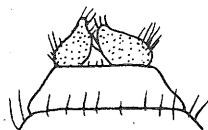
I do not know this species. It may be a Phronia (Johannsen 1926).

Mycetophila ovata V.D.

1928. ovata Van Duzee. Proc. Calif. Acad. Sci. 17: 59,60. fig. 31.

Recorded from: California, April and Febr. (Van Duzee)

Van Duzee's figure copied below is from a dried specimen.



Mycetophila parabola n.sp.

Male. Length 2.5 mm. Head black; antennal bases and mouth parts yellow. Thorax deep brown; humeral angles yellow. Abdomen black. Wings hyaline with a rather faint central spot on r-m. Stalk of M and r-m subequal. Cu forks just a little beyond or under the fork of M. Branches of Cu not converging at the tip. Legs yellow except tips of hind femora. Middle tibiae with two setae on the flexor surface, 2 on the external, a range on the extensor, 1 seta distally between the extensor range and the external setae, two on the inner surface. Hind tibiae with two ranges of setae on the extensor surface, one to three fine seta apically on the internal surface. Terminalium plate, 35 fig. 1.

Holotype: C.U. coll. No. Canajoharie,
N.Y. Aug. 13 (H.K. Townes coll.)

Paratypes: In my collection N. Fairhaven,
N.Y. Sept. 1. Big Intervale Margaree, Cape Breton
Island, Nova Scotia Sept. 1.

(parabola = the comparing of things together)

Runs to M. bipunctata in Johannsen's key. Runs near to M. pumila Winn. in Landrock's key. M. parabola has 3 propleural setae; M. pumila has 2, the brown of the tip of the hind femora is less extended and with no indication of a yellowish cloud at tip of R₅ in M. parabola. The terminalium apparently

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differ somewhat.

Ventral portion of style bifid, the ventral branch rounded setose, the dorsal with a single terminal seta. The dorsal portion of the style with two distal setose lobes and a dorsally directed lobe, rounded at the tip and bearing 3 setae. Plate 35, fig. 1.

Mycetophila paradoxa (Joh.)

1912. paradoxa Johannsen. Me. Agr. Exp. Sta. Bull. 200:82. figs. 63, 188. (Mycothera)

Recorded from: Ithaca, N.Y.

Described from the female.

Mycetophila parva Walk.

1848. parva Walker List of Dipt. I:97.

Recorded from: Albany River, Hudson's Bay.

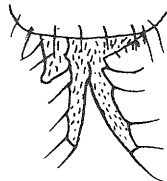
I do not know this species.

Mycetophila parvimaculata V.D.

1928. parvimaculata Van Duzee. Proc. Calif. Acad. Sci. 17:59. fig. 30.

Recorded from: Calif., March.

Van Duzee's illustration from a dried specimen is copied below:



Mycetophila paula (Loew)

1869. paula Loew. Berl. Ent. Zeitschr. 13:151
(Mycothera)

1904. trifasciata Coquillett. Invert. Pacifica I:18.

Recorded from: Middle States (Loew); Calif. (Coq.);
B.C.; N.Y., Aug. Oct.; N.J. (Joh.); N.H. June; Mass.,
Aug. (Johnson); N.S., Aug.-Sept. (E.G.F.)

Zygosternum with a shallow V-notch ventrally.

Ventral portion of the styles with a prominent stout
distal spine, a mesal spine, and a mesal lobe. Dorsal
portion of style lobe setose outwardly with a row of
longer setae on the distal edge and a caudal pro-
longation. Plate 35, fig. 13.

Mycetophila pectoralis V.D.

1928. pectoralis Van Duzee. Proc. Calif. Acad. Sci.
17:62.

Recorded from: Calif. June.

" -- claspers short, rounded posteriorly with
a black, spine-like appendage on the inner side;
which is straight to near its end where it is abrupt-
ly bent."

Mycetophila pectita Joh.

1912. pectita Johannsen. Me. Agr. Sta. Bull. 200:
101 figs. 84, 203.

Recorded from: B.C.; Wash. (Joh.) N.S. Aug.-Sept.
(E.G.F.); Alberta, Aug. (E.G.F.)

Terminalium similar to that of M. lassata;

The dorsally directed lobe of C is more elongate, the mesally directed lobe of C is simple. D is rounded at the tip, not bifid, A has a longer row of blunt spines. Plate 33, figs. 12 and 12a.

Mycetophila perlonga Joh.

1912. perlonga Johannsen. Me. Agr. Exp. Sta. Bull. 200:100. figs. 83, 202.

Recorded from: N.Y., Aug. (Joh.); Me.; N.H.; June-Aug.; Mass. Aug. (Johnson); N.S., Sept. (E.G.F.).

Zygosternum cleft ventrally on the mid line in a U. Ventral portion of the styles with a distal and a mesal projecting lobe which bear heavy setae. The tip of the dorsal portion is rounded in Johannsen's specimen and in an Ithaca specimen, in a Nova Scotia specimen, it varies slightly being produced into a point at the ventro-caudal angle. Plate 33, figs. 7 and 11.

Mycetophila permata Guthrie.

1917. permata Guthrie. Ann. Amer. Ent. Soc. 10:314, 315. Plate XXV figs. 1b, 3, 5, 6, 7, 8.

Recorded from: Calif., Oct.

The figures are copies of Guthrie's figures. Plate 34, figs. 6 and 7.

Mycetophila perita Joh.

1912. perita Johannsen Me. Agr. Exp. Sta. Bull. 200: 90. figs. 70, 195.

Recorded from: Wis., June; Calif., Nov.; N.Y., July.
(Joh.); S.C., June (Shaw and Townes); Oregon, May
(Cole).

Tergum large quadrangular. Supra-anal lobe very
elongate tapering apically. Lygosternum entire.
Ventral portion of style setose, ventrally bearing
a mesally directed bifurcate lobe. Dorsal portion
of style trifurcate each branch with a terminal
seta. Plate 35, figs. 10 and 11.

Mycetophila pinquis Loew

1869. pinquis Loew. Berlin Ent. Zeit. 13:153.

Recorded from: Maine (Loew); Wis., July (Joh.).

Known from the female only.

Mycetophila plebeja Walk. see Erechia plebeja (Walk.)

Mycetophila polita Loew.

1869. polita Loew. Berl. Ent. Zeitschr. 13:158.

Recorded from: N.Y. (Loew).

I have only seen a female.

Mycetophila procera Loew.

1869. procera Berl. Ent. Zeitschr. 13:159.

Recorded from: N.Y. (Loew).

I do not know this species.

Mycetophila propinqua Walk.

1848. propinqua, Walker, List of Brit. Dipt. 1:96.

Recorded from: N.S. (Walk.); N.Y. ? (Joh.)

I do not know this species.

Mycetophila punctata Mg. see Mycetophila fungorum Deg.

Mycetophila quatuornotata Loew

1869. quatuornotata Loew. Berl. Ent. Zeitschr. 13:
157.

Recorded from: Md. (Loew); N.J., June (Joh.); N.S.
Sept. (E.G.F.); Mo., May (E.G.F.)

Described from the female.

I have male specimens which I refer here with a question from J. Cooke State Park, Missouri and Nova Scotia, the Missouri specimen has darker wing spots than Johannsen's female; the Nova Scotia specimen has not. Johannsen's female has a small seta below the seta on the flexor surface of the middle tibia which these specimens lack. They agree in other respects.

Zygosternum entire. Ventral portion of style setose curved so as to appear as two lobes in dorsal aspect. Dorsal portion of style with two mesal setae, a terminal group of small setae and a tiny ventrally directed subterminal lobe. Plate 36, figs. 22 and 23.

Mycetophila recta Joh.

1912. recta Johannsen. Me. Agr. Exp. Sta. Bull.
200:82,83. figs. 65, 190.

Recorded from: N.Y. (Joh.); N.S. Aug. (E.G.F.)

Johannsen says the middle tibiae each with a single setae on the flexor surface but the type shows 2 large and 1 small and the type slide shows the sockets. The female in the Johannsen collection has no seta on the flexor surface.

Nova Scotian specimens in my collection have the whole wing tip rather heavily clouded especially the anterior longitudinal portion. The terminalia are identical with that of the type.

Zygosternum divided on the mid-ventral line. Ventral portion of style with 3 broad setae. Dorsal portion with a short basal dorsally directed lobe, distal lobe setose with two blunt short apical ventral spines. Aedeagus with four broad lobe-like projections. Plate 35, figs. 4 and 6.

Mycetophila scalaris Loew.

1869. scalaris Loew Berl. Ent. Zeitschr. 13:154.

Recorded from: Middle States (Loew); widely distributed both East and West.

Zygosternum entire, median line with a finger-like projection. Ventral portion of style setose with a stout short seta and a long mesally directed spine. Dorsal portion with a rounded dorsally directed lobe bearing 3 or 4 setae, the distal lobe longer ventrally than dorsally. There is some

variation as shown in the figures Plate 36, figs. 1-3, and 6.

Mycetophila scalaris var. a Joh. differs in having the median finger like projection wider, the ventral lobe without the stout spine, the dorsally directed lobe is narrower, elongate rather than round. The distal lobe is narrow, bifid at the tip. Plate 36 figs. 4 and 5.

Mycetophila sericea Say

1824. sericea, Say, Long's Exped. App. 365.

Recorded from: N.W. Terr. (Say)

I do not know this species. It may not belong to this genus.

Mycetophila sigmoides Loew.

1869. sigmoides, Loew, Berlin. Ent. Zeitschr. XIII. 156.

Recorded from: Middle States (Loew); N.H. April (Johnson).

I do not know this species.

Mycetophila singularis V.D.

1928. singularis, Van Duzee, Proc. Calif. Acad. Sci. 17:62,63.

Recorded from: Calif. June.

" -- hypopygium yellow, claspers oval with a curved black spine on the inner side which nearly reaches their tips."

Mycetophila socia Joh.

1912. socia, Johannsen, Me. Agr. Exp. Sta. Bull.
200:106 figs. 95, 212.

Recorded from: N.Y., Aug. (Joh.); Me., July (Johnson)

Zygosternum entire. Ventral portion of style with a distal row of rather prominent setae. Dorsal portion of style with a more or less truncate distal lobe and rounded dorsally directed lobe with a row of setae on its caudal edge. Plate 36, figs. 12. and 15.

Mycetophila sordida Van der Wulp ?

1874. sordida, Van der Wulp, Tijdschr. v. Ent.
17:125, pl. 8, fig. 8.

Recorded from: Europe; N.Y., N.S. (E.G.F.)

There are specimens that run to sordida in Landrock's key and agree in terminalial structure as figured by Lundstroem (1909). They differ somewhat in coloration.

Terminalium somewhat similar to M. perlonga. Zygosternum entire ventrally. Ventral portion of style with a row of distal setae and a row of mesal setae, the two separated by a gap. Dorsal portion of style somewhat as in M. perlonga, see figures. There is a slight variation in the form of the styles. Compare Plate 33, figs. 4 and 5 with figs. 1 and 2.

Mycetophila spiniger Van Duzee

1928. spiniger, Van Duzee, Proc. Calif. Acad. Sci. 17:61 figs. 33 and 34.

Recorded from: Calif. May.

"This is much like extenta Johannsen, which also has a spine at tip of claspers, but in that species the claspers are longer and more slender, the bristle at tip longer --"

The drawings below are copied from Van Duzee's of dried specimens.



Mycetophila spinosa n.sp.

Male. Length 3.5 mm. Head brown; antennae yellow, tips darker; mouth parts yellow. Thorax yellow, mesonotum with three confluent brown stripes; cephalo-lateral corners of scutellum, anepisternites, dorsal half of pteropleurites, pleurotergites, and postnotum brown. Dorsal and hind edge of anepisternites a deeper brown. Abdominal tergites brown with narrow yellow posterior borders. Terminalium plate 32, figs. 7 and 9. Wings hyaline, a large central wing spot; preapical fascia begins beyond tip of R_1 , reaches tip of R_3 , extends posteriorly but not

reaching M_{1+2} . Cu forks distad of fork of M.
Halteres yellow. Legs yellow except tips of middle and hind femora. Three setae on the flexor surface of the middle tibiae, 3 on the outer, one range on the extensor, one seta apically between the outer and extensor rows. 4 or 5 on the inner. Two ranges of setae on the extensor surface of the hind tibiae, 4 to 5 fine setae on the inner side apically.

Holotype: C.U. coll. No. Canajoharie,
N.Y. Aug. 4. H.K. Townes coll.

(spinosus -a -um full of thorns)

This runs to near lenta in Johannsen's key;
runs near lamellata Lundst. in Landrock's key.

Zygosternum entire. Ventral portion of the style with strong stout thorn-like spines. Dorsal portion with distal lobe more heavily sclerotized, dorsally directed lobe bent caudad at its tip and provided with stout setae. Plate 32, figs. 7 and 9.

The terminalium resembles M. lunata Meig. somewhat as illustrated by Lundstroem not Dziedzicki.

Mycetophila trichonota Loew.

1869. trichonota, Loew, Berl. Ent. Zeitschr. 13:155.

Recorded from: D.C. (Loew).

I do not know the typical species.

M. trichonota var. a of Joh.

Recorded from: Ithaca, N.Y. July, August (Joh.);

N.S. Sept. (E.G.F.)

See note under M. contigua.

Terminalium resembles M. morosa Winn. as figured by Lundstroem (1911). The ventral portion of the style bears a mesally directed seta in ventral aspect, in dorsal aspect it bears 4 stout spines on its border and several very short spines on its dorso-mesal aspect. The dorsal portion of the style is bifid distally. Plate 34, figs. 5 and 8. There is a slight variation in the form of these lobes. Plate 34, fig. 4.

Mycetophila trifasciata Coq. see Mycetophila paula Loew.

Mycetophila trinotata Staeg. see Epicypta trinotata (Staeg.)

Mycetophila vitrea Coq.

1905. vitrea, Coquillett, Journ. N.Y. Ent. Soc. 13:
68, 69.

Recorded from: N.J., B.C. (Coq.)

This may belong to Delopsis or Epicypta. I do not know it.

Zygomya Winn.

1863. Zygomya, Winnertz, Verh. Zool.-bot. Ges. Wien.
13:901.

? 1853. Bolithomyza, Rondani, Dipt. Ital. Prodomus 1:
197 (type a nomen nudem)

Head broad; ocelli 3, laterals close to the eye margin, middle ocellus small; palpi four jointed; antennae

2+14 jointed. Thorax small; highly arched; pleurotergites and pteropleurites broad; scutellum half semicircular; postnotum steep, swollen; anepisternites and sternopleurites squarish. Thoracic sclerites setose except sternopleurites and postnotum. Legs robust; tibial setae strong as in Mycetophila. Wings hyaline or fasciate; vein Sc ends free; C ends at tip of R₅; fork of M short; M₁ often sinuate; Cu unbranched; anal vein short. Abdomen in male with six visible segments, in female with seven.

Terminalium of the "cup-type". Non-rotatable. Seventh and eighth segment retracted. Zygosternum entire ventrally or only broadly notched on its mid-ventral line and the styles single; although often complex, or with the dorsal and ventral portions distinct. The whole appearance of the terminalium suggests Mycetophila but the styles are not always so distinctly divided into a superior and inferior portion as in that genus.

Key to Nearctic species (based mainly on description)

1. M₂ incomplete not reaching wing margin; four scutellar bristles, with a central wing spot and a very faint indication of a preapical one at tip of R₁. Illinois ----- interrupta Mall.
- M₂ complete or almost so ----- 2.
2. Wing spotless ----- 3.
- Wing with a central and usually a preapical spot -5.
3. Middle tibiae with one large and one small seta

below; Cu tip slightly proximad of R₁ tip;
M₂ tip slightly proximad of R₅ tip. East-
ern forms ----- ignobilis Lw.

Middle tibiae with one or two fine setae below; tip
of Cu distad or under R₁ tip; M₂ tip slightly
proximad or distad of R₅. ----- 4.

4. Cu tip distad of R₁ tip; M₂ tip distad of R₅ tip;
wings yellow along C to R₅, with indications
of dark spots over r-m and tip of R₅ -----
----- christata Garr.

Cu tip under R₁ tip; M₂ tip just proximad of R₅
tip ----- christulata Garr. + sp. A

5. Preapical cloud present, but may be diffuse --- 7.

Preapical cloud absent, tip of Cu proximad of tip
of R₁; tip of M₂ proximad of tip of R₅ ---- 6.

6. Four scutellar bristles -- pilosa Garr. + vara Staeg.

Six scutellar bristles --- coxale Garr. + vara Staeg.

7. Preapical spot dark ----- 9.

Preapical spot diffuse; middle tibiae with two
setae below ----- 8.

8. Wings yellowish; head brown; Maine ----- vara Staeg.

Wings dusky; M₁ straight; 2 scutellar bristles;
B.C. ----- pilosa Garr.

9. Preapical spot reaching from R₁ almost to M₁; tip
of Cu distad of R₁; tip of M₂ under R₅ -----
----- bifasciata Garr. + sp/259

Preapical spot reaches M₁ and extends below it as
a paler band ----- ornata Lw.

Zygomyia bifasciata, cristata, christulata, coxale Garr.

1925. bifasciata, cristata, christulata, coxale,
Garrett, Seventy New Diptera p. 15-16.

Recorded from: B. C.

I do not know these species.

Zygomya ignobilis Loew

1869. ignobilis Loew. Berl. Ent. Zeitschr. 13:150.

Recorded from: Middle States (Loew); N.Y. (Joh.);
N.C. June (Shaw and Townes).

Dorsal aspect of style tri-pronged, submem-
branous, bare, its lateral edge curved around to
form a setose ventral region which bears one stout
mesally directed seta and several finer on its distal
edge. Plate 37, fig. 8.

Zygomya interrupta Mall.

1914. interrupta, Malloch, Bull. Ill. St. Lab. N.H.
10 Art. IV p. 234. plate IV, fig. 29
(wing).

Recorded from Urbana, Ill., Nov.

"Hypopygium with two small, rounded, slightly
projecting lobes, covered with short hairs, the
whole organ very inconspicuous."

Zygomya ornata Lw.

1869. ornata, Loew, Berl. Ent. Zeitschr. 13:150.

Recorded from: Pa (Loew); Wis., Ill., N.Y., (Joh.);
N.C., (Shaw and Townes); June-Aug. Ark., May; N.C.
Sept.; Mo., May (E.G.F.); Mass. Aug. (Johnson).

Styles apparently of two parts; a broad sub-
triangular dorsal portion; a slightly bifurcate

ventral portion, the outer arm ending in two stout setae and the inner arm broadening at the tip with four slender distal setae. Plate 37, figs. 1,5,6.

Zygomyia pilosa Garr.

1925. pilosa, Garrett, Seventy New Diptera p. 14.

Recorded from: B.C. July-Sept.

"-- Hypopygium clasps represented by three curved pieces."

Zygomyia vara Staeg.

1840. vara, Staeger, Kröjer Tidskr. 266. (Mycetophila)

Recorded from: Europe; Me., July (Joh.).

I do not know this species. The terminalium figures (plate 37, figs. 3 and 4) are after Edward's.

Zygomyia sp. A

Recorded from: Cape Breton I., N.S., Aug.

This species differs from Z. ignobilis in the form of the styles and as indicated in the key. I do not name this species as it agrees well with Garrett's description of Z. christulata. Terminalium plate 37, figs. 9 and 10.

Zygomyia sp. #259.

Recorded from: Beaverkill, N.Y. July (Townes coll.)

This species fits Garrett's description of Z. bifasciata but has an additional smaller seta above the single setae on the flexor surface of the middle

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tibia. Terminalium plate 36, figs. 13 and 14.

Sceptonia Winn.

1863. Sceptonia Winnertz. Verh. Zool. bot. Ges. Wien.
13:907.

Head in profile forming a continuous curve with the mesonotum; ocelli three, laterals close to the eye margin, middle ocellus minute; palpi four jointed; antennae 2 14 jointed. Thorax with small sclerites; anepisternites and sternopleurites squarish; pteropleurites almost equal to pleurotergites in size, both of which are small, scutellum flat above, semicircular; postnotum small somewhat pointed, projecting cone-like with a short dorsal surface. Pronotum, mesonotum, anepisternites, scutellum, pteropleurites, and hypopleurites setose. Legs robust; tibial setae strong, those of hind tibiae longer than the diameter of the tibia. Wings hyaline; cells C and R₁ narrow, R₅ being curved so as to parallel the costa; C produced slightly beyond the tip of R₅; Sc short; Cu unbranched; anal vein incomplete. Abdomen with six visible abdominal segments in the male, seven in the female.

Edwards states that in all species the middle tibiae have three dorsal bristles and no ventral ones, and a single short internal bristle intermediate between ventral and lateral. Garrett says his S. autumnalis has 1 seta below on the middle tibia, perhaps this is actually the internal seta of Edwards. Sceptonia sp. A has such an internal seta that on superficial examination looks like a ventral seta.

Terminalium non-rotatable. Zygosternum entire or divided distally on the mid-line. Tergum and anal segment large, typical. Styles complex with inferior and superior portions. The superior is hidden in life within the genital chamber. It is simple, usually rounded. The inferior is lobed.

Key to Nearctic Males

S. nigra Mg. (nec Joh.) is omitted from the key as it has not definitely been recorded from Nearctica.

1. Four scutellar bristles; r-m cross-vein $\frac{1}{2}$ as long as M. petiole ----- 2.

Six scutellar bristles; r-m cross-vein $\frac{1}{4}$ to subequal to the petiole of M in length --- subnigra n. n.

2. Middle tibiae with no seta below -- johannseni Garr.

Middle tibiae with one seta below or a single short internal seta intermediate between ventral and lateral ----- *autumnalis Garr. + sp.A + sp.B.

Sceptonia autumnalis, johannseni Garr.

Recorded from: B.C., July-Aug.

I do not know these species.

Sceptonia nigra Mg.

1818. nigra Meigen. Syst. Besch. 1:270 (Aycetophila)

Recorded from Europe; America (?)

There are three distinct species that have been called S. nigra in Europe according to Edwards. He

* M. autumnalis may possibly not run out here; I have seen no specimens.

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has named them. S. nigra Mg. he restricts to the commonest of these three British species. He figures the terminalium, Plate 37, figs. 2 and 7. The Roger's Pass specimen (no. 648 Joh. coll.) has a different terminalium. S. nigra is the form illustrated in Plate 37, figs. 2 and 7 (after Edwards).

Sceptonia subnigra n.n. for nigra Joh. not Mg.

1912. nigra Mg., Johannsen, Me. Agr. Exp. Sta. Bull. 200:109 figs. 96, 213.

Recorded from: B.C., Wisc., Mass., N.Y., Me. (Joh.)

This is the species described by Johannsen and figured by him.

See note above under S. nigra.

Terminalium. Zygosternum entire. Styles of two parts, a bare portion within the genital chamber, and a distally projecting portion with a setose edge and a long narrow dorsal lobe. The two portions are an apparently continuous piece separated only by the line of attachment to the zygosternum. Plate 37, figs. 11 and 12.

Sceptonia sp. A

Recorded from: N.S., Sept. Me., Aug.

This species apparently differs little from S. autumnalis and may possibly be the same species. The terminalium resembles S. fumipes in ventral aspect. The styles are complex. The dorsal portion

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is hidden in life in the genital chamber; the ventral portion is lobed distally in lateral aspect and with a basal ventral lobe which is directed mesad into the genital chamber. Plate 37, figs. 13 and 15.

Sceptonia sp. B

Recorded from: Big Intervale Margaree, Cape Breton I., N.S. Sept.

This differs in the form of the distal edge of the ventral portion of the style. It is perhaps only a variety of sp. A. Plate 37, fig. 14.

Sceptonia spp.

There are several females that run to S. concolor + tenuis, S. costatata, and S. nigra + membraracea in Edwards key (1925).

Epicypta Winn.

1863. Epicypta, Winnertz, Verh. Zool.-bot. Ges. Wien. 13:909.

Head rounded in profile forming the same curve as the mesonotum; palpi four jointed; antennae 2 + 14 jointed; ocelli three, the middle ocellus small, the laterals contiguous to the eye margins. Thorax with small pleural sclerites. Dorsal portion of pronotum and anterior spiracular area in notch of the mesonotum. Anepisternites and sternopleurites almost square; postnotum pointed, cone-like. Thoracic sclerites setose except sternopleurites

and postnotum. Legs robust with strong setae. Wings with C produced beyond tip of R_3 ; Sc short, ending free; petiole of M short; Cu forked; anal vein strong; Cu_1 and M_2 parallel. Abdomen with six visible abdominal segments in the male, seven in the female.

Terminalium non-rotatable. Sixth and seventh segments retracted in life. Zygosternum divided distally on its mid-ventral line. The styles consist of two distinct parts flexibly connected to each other and both articulated to the zygosternum basally.

Key to Nearctic Species (after Johannsen)

1. Wings hyaline, unspotted, Cu forks proximal of the end of the r-m cross-vein by the length of this vein; humeri dusky yellow ---- pulicaria Lw.

Wing marked with brown ----- 2.

2. Mesonotum shining, unicolored, blackish; a single spot on the wing ----- punctum (Stannius)

Mesonotum yellowish with 3 dark subconfluent stripes, or sometimes confluent, leaving only the humeri and anterior margin yellow; wing with central spot and broad preapical spot which may be rather faint, rarely wanting ----- testata Edw.

Epiclypta pulicaria Lw.

1869. pulicaria, Lowe, Berl. Ent. Zeitschr. 13:151.

Recorded from: Pa. (Loew); N.H., May; Mass., Nov.,

July. (Johnson).

Known from the female only.

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Epicrypta punctum (Stan.)

1831. punctum, Stannius, Observ. de Myc. p. 16.
(Mycetophila)

Recorded from: Europe; N.J. (N.J. State List);
Mass., Aug. (Joh.); S.C. May-June (Shaw and Townes);
Mo., May. (B.G.F)

Ventral portion of style setose, subglobular;
dorsal a bare hook-like lobe. Plate 37, figs. 16
and 19.

Epicrypta testata Edw.

1924. testata, Edwards, Ent. Tidskrift 45:167
(Epicrypta)

1863. trinotata, Winnertz, Verh. Zool.-bot. Ges.
Wien 13:912 (Epicrypta)

(nec trinotata Staeg.)

M. trinotata Staeg. is a Mycetophila (Edwards
1924). E. trinotata Winn. Edwards renames E. testata.

Recorded from: Mass., June; N.Y., June-Aug.; Kings-
mere, Canada (Joh.);

Ventral portion of style setose, truncate; dor-
sal curved with long setae on its edge. Plate 37,
fig. 17.

Epicrypta trinotata of Johannsen. See E. testata Edw.

Delopsis Skuse.

1890. Delopsis, Skuse. Proc. Linn. Soc. N.S.W. 5:623.

Head fitting closely into the front of the thorax;

ocelli two, close to the eye margins. Thorax greatly specialized by the great reduction in size of the sternopleurites and the pleurotergites. Entire thorax except sternopleurites, pleurotergites, hypopleurites and postnotum covered with a long yellow pile. Prothorax, anepisternites, pteropleurites, pleurotergites, and scutellum with black setae. Hypopleurites with small yellow setae. Pleurotergites projecting caudad overlapping the hypopleurites and the metathoracic spiracular area. Postnotum produced cone-like posteriorly. Scutellum large. Wings with setulae regularly arranged; C ends at tip of R₅; fork of Cu proximad of r-m cross-vein; branches of Cu straight and evenly divergent, anal vein strong. Tibial setae regularly arranged, spurs 1-2-2, 2 ranges of strong setae on the posterior tibiae. Abdomen with six visible segments in the male; second abdominal sternite with two strong bristles. Sixth and seventh abdominal segments retracted. Terminalium non-rotatable. Structure of ninth segment discussed under the only Nearctic species D. anomala. (Perhaps Mycetophila vittrea belongs here also.)

Delopsis anomala (Joh.)

1912. anomala, Johannsen. Me. Agr. Exp. Sta. Bull. 200:96. figs. 77, 199. (Mycetophila)

Recorded from: Wis., Aug. (Joh.); Mass., May and Aug. (Johnson). N.Y. (E.G.F.); R.I., Aug. (M. Chapman coll. - E.G.F.).

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Tergum and zygosternum are separated laterally by a less sclerotized area. The dorso-lateral corners of the tergal border are produced into elongate points. The zygosternum entire ventrally produced into a blunt lobe on its mid-point. The styles are elongate setose appendages. At the base of each style is a minute lobe apparently flexibly moveable. The aedeagus is prominent. Two sclerotized bars extend from its base across the genital chamber floor to near the base of the styles. Plate 37, figs. 18, 20, 21.

Terminalium resembles Delopsis atterrima Zett. as figured by Edwards.

Sciarinae

Enderlein (1911 Archiv. f. Naturgeschichte) united this subfamily with the Lestremiinae in a separate family, the Sciaridae. Kieffer pointed out that the larvae of the Lestremiinae are like those of the Cecidomyiidae, while the larvae of the Sciarinae are like those of the other Mycetophilidae.

The adults of the Sciarinae have distinct tibial spurs; the Lestremiinae lack them. The larvae of the Sciarinae have distinct heavily sclerotized heads and strong mandibles and no sternal spatula; the larvae of the Lestremiinae have an undeveloped head, indistinct mouthparts, and a sternal spatula.

Phyxia has been removed to the Sciophilinae by Edwards. Johannsen considers it to belong here because of the Sciarid-like larva. I have not seen it.

I would place Zygoneura here rather than in the Lestremiinae as it has a distinct spurs. I have not seen the larva.

Key to Nearctic Genera (modified after Johannsen).

1. Palpi reduced, with only one or two small segments;
wings absent in the female -----
----- Phyxia Joh. + Peyerimhoffia (?) Kieffer.
- Palpi normal with 3 or 4 segments; wings present in
the females ----- 2.
2. Proboscis longer than the thorax --- Eugnoriste Coq.
Proboscis not greatly prolonged, normal ----- 3.

- 3. Wings with macrotrichia ----- Trichosia Winn.
Wings with microtrichia only ----- 4.
- 4. Fork of M arcuate at base ----- 5.
Fork of M not arcuate at base ----- 6.
- 5. Antennal joints of males pedicellate with whorls of hairs ----- Eygoneura Mg.
Antennal joints of males bare or with short hair; claws toothed ----- Metangela subg.
- 6. Claws toothed ----- Phorodonta Coq.
Claws not toothed, face not produced - Sciara Mg.

(Manota, Probolaeus and Rhynosciara have not been been recorded from the Nearctic Region.)

Manota sp. has been recorded from Canada (Sherman).

Phyxia Joh.

1912. Phyxia, Johannsen. Mo. Agr. Exp. Sta. Bull. 200:114, 115 figs. 262, 264.

1915. Allostomma, Schmitz, Tijds. v. ent. 239.

Lacks dorsal bridge to the eyes according to Edwards. M arises at an angle from the basal section of R₅. Cu₁ and Cu₂ arcuate at base, so that they appear to arise separately from the continuation of the m-cu cross-vein. Females lack wings and halteres. Palpus with 2 or 3 joints (Johannsen).

Terminalium of the Sciariid-type.

Phyxia scabei Hopkins.

1895. scabei, Hopkins, Proc. Ent. Soc. Wash. 3:152 (Epidapus)

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Recorded from: W.Va. (Hopkins), Penn., N.Y. (Johannsen); Mo. (Howard); R.I. (Johnson).

Terminalium of the Sciariid-type. Styles simple, figured by Johannsen 1912. Both sexes figured by Gui 1933 (Ohio Agr. Exp. Sta. Bull. No. 524) show rounded eyes.

Peyerimhoffia Kieff. (?)

1903. Peyerimhoffia, Kieffer, Ann. Soc. Sc. Brux. 198.

A single Nearctic female without wings or halteres and with a two jointed palpus with the tip ovoid is referred here by Shaw (1935) with some question. But Peyerimhoffia according to Edwards has reduced wings and possesses halteres in the female. Epidapus lacks wings and halteres. Walker figures its palpus as only one segmented. Lengerdork says it may be one or two segmented. Phyxia lacks the dorsal bridge over the eyes.

Peyerimhoffia johnstoni Shaw

1925. johnstoni, Shaw, Bull. Brook. Ent. Soc. 30: 160-161. plate VI, figs. 1 and 2.

Recorded from: Petersham, Mass.

Known from the female only.

Eugnoriste Coq.

1896. Eugnoriste; Coquillett. Proc. Wash. Ent. Soc. 3:321.

This genus differs from Sciara in the elongate rigid proboscis which is directed downwards and backwards and is longer than the head.

Terminalium Sciariid-like.

Key to Nearctic Species (after Johannsen).

Proboscis longer than the head and thorax - occidentalis

Proboscis slightly longer than the head, slender,
horny ----- brevirostris

Eugnoriste occidentalis Coq.

1896. occidentalis, Coquillett, Proc. Wash. Ent. Soc. 3:321.

Recorded from: N.M. (Coq.); Idaho (Aldrich); N.Y. (Joh.-N.Y.S. List); Oregon (Cole and Lovett); N.H. (Johnson); N.J. (Smith).

Terminalia Sciariid-like. Styles subglobular with a terminal group of fine setae and two stronger setae (see fig. 138, Johannsen 1912).

Eugnoriste brevirostris Coq.

1904. brevirostris, Coquillett. Proc. Wash. Ent. Soc. 6:169.

Recorded from: Pike's Peak, Colo., Sept. (Coq.).

Known from the female only.

Trichosia Winn.

1867. Trichosia, Winnertz, Monogr. Sciariinen 173.

Differs from Sciara only in the possession of macrotrichia on the wing membrane. There is only one Nearctic species.

Terminalium Sciariid-like in European species.

Trichosia hebes Loew

1869. hebes, Loew, Berl. Ent. Zeit. 13:161.

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Recorded from: Ithaca, N.Y., July (Joh.); (?)
Douglass Co., Kas.

Known from the female only.

Zygoneura Meig.

1830. Zygoneura, Meigen, Syst. Besch. 6:304.

1911. Zygomma, Enderlein, Arch. Naturges. 77 Supp. 3:
143-144.

This genus differs from Sciara in the arcuate base to the median fork, and in the pedicillate antennal joints with whorls of hair in the male. It differs from Metangela in having simple tarsal claws.

Zygoneura flavicoxa Joh.

1912. flavicoxa Johannsen. Me. Agr. Exp. Sta. Bull.
200: 116. figs. 99 and 254.

Recorded from: N.Y. July (Joh.); Me.; Mass., Aug.
(Johnson).

Terminalium Sciariid-like, the styles with two subterminal stout setae on papillae as figured by Johannsen.

Metangela Ruls.

1894. Metangela, Rulsaamen, Berl. Ent. Zeit. 39:19.

This genus differs from Sciara in having the M fork arcuate and in having toothed tarsal claws.

Metangela toxoneura Osten Sacken

1862. toxoneura, Osten Sacken, Proc. Ent. Soc. Phil.
165. (Sciara)

Recorded from: D.C. (Osten Sacken)

I do not know this genus or species. There are no illustrations of its terminalium.

Phorodonta Coq.

1894. Odontonyx, Rubsamen, Berl. Ent. Zeit. 39:19.
1910. Phorodonta, Coquillett, Proc. U.S. Nat. Mus. 27:589.
? 1911. Aniarella, Enderlein, Arch. Naturges. 77 Suppl. 3:
1800. Lycoria, Meigen, Nouv. Class. 1800.

Differs from Sciara only in the toothed claws. Perhaps, it should not be treated as a distinct genus.

European species have the Sciariid-type terminalium.

Phorodonta niger (Wied.)

1821. niger, Wiedemann. Diptera exot. 1:44. (Sciara)
1912. niger, Wiedemann, Johannsen. Me. Agr. Exp. Sta. Bull. 200:117 (Phorodonta)

Recorded from: Ga., N.M., Mexico.

I do not know this species.

Sciara Meigen

1803. Sciara, Meigen, Illiger's Mag. 2:265.
1800. Lycoria, Meigen, Nouv. Class. 1800.
>1918. Neosciara, Pettey, Ann. Ent. Soc. Amer. 11:319-343.
1804. Mclobrus, Latreille, N. Dict. 24:188.
1840. Plantella, Westwood, Intr. Classif. Ins. 2:126.
1835. Plantas, Walker, Ent. Mag. 3 fasc. 2:178.

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Eyes with a dorsal bridge; proboscis normal; palpi three or four jointed; ocelli 3, the laterals remote from the eye margin. Thorax not highly arched. Sternopleurites large; anepisternites small, subtriangular, pteropleurites angulated; hypopleurites large. Wing and halteres present in both males and females. C extends beyond tip of R_5 ; Sc short, ends free; R_1 short; basal section of R_5 short vertical; r-m appears like base of R_5 ; M stalk long; Cu forks near base of wing. Abdomen with seven or eight visible segments.

Terminalium rarely rotatable; the macrocera-type. The styles are simple and have been illustrated by Johannsen or Pettey for most Nearctic forms. Since that time Garrett has described species of this genus but no figures were given. The following is a list of Nearctic species and where an illustration of their terminalium may be found:

- S. picea Rubs. - males undescribed.
- S. cingulata Rubs. - males undescribed.
- S. vincina Joh. fig. 100 Johannsen 1912.
- S. dives Joh. fig. 101 Johannsen 1912.
- S. futilis Joh. fig. 102 Johannsen 1912.
- S. actuosa Joh. fig. 260 Johannsen 1912.
- S. sp. #37 of Joh. fig. 126 Johannsen 1912.
- S. dolens Joh. fig. 127 Johannsen 1912.
- S. diluta Joh. fig. 132 Johannsen 1912.

- S. varians Joh. fig. 115 Johannsen 1912.
S. scita Joh. fig. 128 Johannsen 1912.
S. fumida Joh. fig. 129 Johannsen 1912.
S. acuta Joh. fig. 131 Johannsen 1912.
S. impatiens Joh. fig. 137 Johannsen 1912.
S. coprophila Lintner fig. 133 Johannsen 1912.
S. caldaria Lintner no figure.
S. caldaria var. Pettey fig. 31 Pettey 1918.
S. ocellaris Comstock fig. 263 Johannsen 1912.
S. abbreviata Walker no figure - defective type
S. atrata Say No figure.
S. dimidiata Say no figure.
S. exigua Say no figure.
S. exilis Say no figure.
S. femorata Say no figure.
S. fraterna Say no figure.
S. fuliginosa Fitch no figure.
S. inconstans Fitch no figure.
S. lurida Walker - type a female.
S. mali Fitch no figure.
S. perpusilla Walker no figure - defective type.
S. polita Say no figure.
S. punctata Walker - type a female.
S. robusta Walker - type a female "related to S. abdita."
S. rotundipennis Macq. no figure.

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- S. vulgaris Fitch no figure.
 - S. forceps Pettey fig. 1. Pettey 1918.
 - S. abdita Joh. fig. 258 Johannsen 1912.
 - S. ochrobasis Loew. fig. 103 Johannsen 1912.
 - S. habilis Joh. fig. 139 Johannsen 1912.
 - S. sciophila Loew fig. 104 Johannsen 1912.
 - S. fulvicauda Felt fig. 111 Johannsen 1912.
 - S. tridentata Ruls. fig. 109. Johannsen 1912.
 - S. munda Joh. fig. 105 Johannsen 1912.
 - S. dux Joh. fig. 106 Johannsen 1912.
 - S. imitans Joh. fig. 107 Johannsen 1912.
 - S. prolifica Felt fig. 108 Johannsen 1912.-
 - S. silvestrii Kieffer males undescribed.
 - S. mellea Joh. fig. 110 Johannsen 1912.
 - S. tritici Coq. (resembling sativae) no figure.
 - S. hastata Joh. fig. 112 Johannsen 1912.
 - S. pauciseta Felt. fig. 117. Johannsen 1912.
 - S. multiseta Felt. fig. 124 Johannsen 1912.
 - S. agararia Felt.
 - S. jucunda Joh. fig. 123, 123a Johannsen 1912.
 - S. sp. #24 of Joh. fig. 119 Johannsen 1912.
 - S. mutua Joh. fig. 113. Johannsen 1912.
 - S. naeta Joh. fig. 114 Johannsen 1912.
 - S. nobilis Winn. fig. 116 Johannsen 1912 (- longispina Pettey, sp. #27 Johannsen)
 - S. lugens Joh. (resembles fig. 123 Johannsen 1912) no figure.

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- S. parilis Joh. fig. 118 Johannsen 1912.
 - S. fatigans Joh. fig. 135. Johannsen 1912.
 - S. sativae Joh. fig. 120 Johannsen 1912.
 - S. cucumeris Joh. fig. 261 Johannsen 1912.
 - S. sp. #33 of Joh. fig. 121 Johannsen 1912.
 - S. neglecta Joh. fig. 122 Johannsen 1912.
 - S. johannseni End. fig. 125 Johannsen 1912 (nigri-
cans Joh.)
 - S. multisetifera Pettey fig. 2 Pettey 1918.
 - S. cylindrica Pettey fig. 3 Pettey 1918.
 - S. congregata Joh. fig. 4 Pettey 1918.
 - S. psittacus Pettey fig. 5 Pettey 1918. -
 - S. habilis var. fig. 6 Pettey 1918.
 - S. globosa Pettey fig. 7 Pettey 1918.
 - S. falcata (Pettey) fig. 8a,b Pettey 1918.
 - S. fochi (Pettey) fig. 9a,b. Pettey 1918.
 - S. joffrei (Pettey) fig. 10 Pettey 1918.
 - S. quadrispinosa (Pettey) fig. 11 Pettey 1918.
 - S. luteola (Pettey) fig. 11 Pettey 1918.
 - S. lobosa (Pettey) fig. 13a,b Pettey 1918.
 - S. petaini (Pettey) fig. 14a,b Pettey 1918.
 - S. grandis (Pettey) fig. 15a,b Pettey 1918.
 - S. trifolii (Pettey) fig. 16a,b Pettey 1918.
 - S. polychaeta (Pettey) fig. 17, b Pettey 1918.
 - S. conglomerata (Pettey) fig. 18a,b Pettey 1918.
 - S. ovata Pettey fig. 19 Pettey 1918.

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- S. trifurca (Petty) fig. 20 Petty 1918.
 - S. pilata (Petty) fig. 21 Petty 1918.
 - S. ericia (Petty) fig. 22 Petty 1918.
 - S. penna (Petty) fig. 23 Petty 1918.
 - S. pollicis (Petty) fig. 24 Petty 1918.
 - S. hamata (Petty) fig. 25 Petty 1918.
 - S. felti (Petty) fig. 26 Petty 1918.
 - S. macroptera (Petty) fig. 27 Petty 1918.
 - S. subtrivialis (Petty) fig. 28 Petty 1918.
 - S. sexdentata (Petty) fig. 29 Petty 1918.
 - S. perfecta (Petty) fig. 30 Petty 1918.
 - S. hartii Joh. fig. 67 Petty 1918.
 - S. radialis Shaw fig. 2 Shaw 1934.
 - S. browni Shaw fig. 1 Shaw 1935.
 - S. diderma Garrett no figure.
 - S. diota Garrett no figure.
 - S. clavate Garrett no figure.
 - S. arcuata Garrett no figure.
 - S. unicorn Garrett no figure.
 - S. macfarlanei Jones - Plate I Jones 1920.
 - S. uniguicauda Malloch no figure.
 - S. similaris Johannsen (resembles S. pauciseta and Johannseni End.) no figure.
 - S. caesar Johannsen (resembles S. sativa) no figure.
 - S. luravi Joh. (resembles S. varians) no figure.
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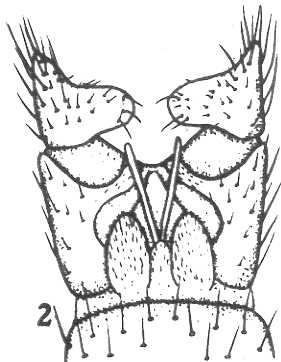
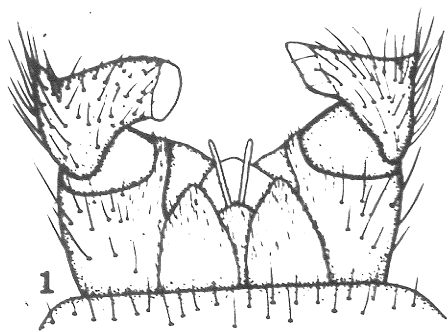
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Plate 1.

1. Belitophila diatma - dorsal*aspect.
2. Belitophila alberta -dorsal aspect, tergum of ninth segment pulled down.
3. Belitophila veluae -dorsal aspect.
4. Belitophila hybrida-dorsal aspect.
- 5a. Belitophila hybrida-caudal aspect of style tip.
5. Belitophila cinerea-dorsal aspect.
- 5a. Belitophila cinerea-mesal aspect of style.
6. Belitophila atlantica-dorsal aspect, tergum of ninth segment hidden.
7. Belitophila acuta-dorsal aspect, tergum of ninth segment hidden.
8. Belitophila disjuncta-dorsal aspect.
9. Belitophila perlata-dorsal aspect (Western form, paratype).
- 10a. Belitophila perlata-lateral aspect of style.
10. Belitophila perlata-ventral aspect.

*all positions refer to the morphological not the actual.

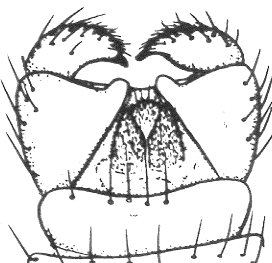
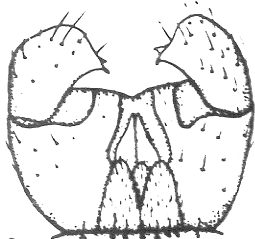


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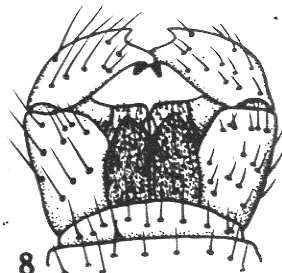
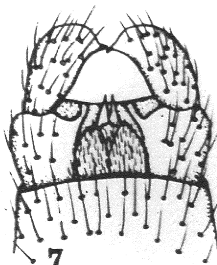
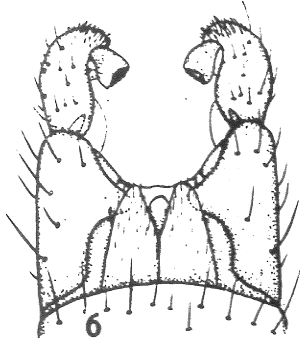
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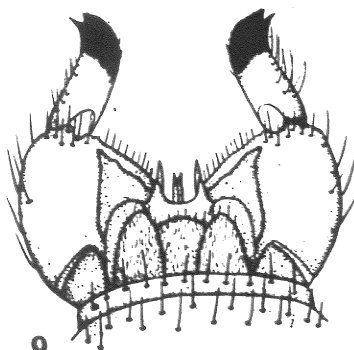
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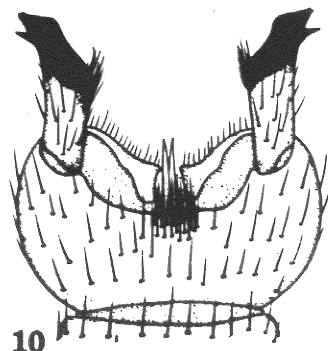
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Plate 3.

1. Diadoecidia ferruginosa-lateral aspect.
2. Diadoecidia ferruginosa-ventral aspect.
3. Ditomyia(?)sp. (#42)-dorsal aspect.
4. Macrocera clara-left style.
5. Macrosesgeminata -left style.
6. Macrocera sp. #4 of Johannsen. left style.
7. Macrocera fisheri-dorsal aspect of left side.
8. Symmerus lauta-lateral aspect, dorsal on right.
9. Symmerus lauta-mesal aspect of style tip showing notch.
10. Ceropterus militaris-lateral aspect.
11. Ceropterus militaris-ventral aspect.
12. Asindulum montanum-ventral aspect.
13. Asindulum Montanum-lateral aspect.
14. Asindulum flavum-after Lundstrom.
15. Asindulum montanum-dorsal aspect of posterior margin of terminalia.
16. Ceropterus sp. A (bellinus Joh.) right style from untreated terminalium.
17. Asindulum montanum-mesal aspect of style and sygesternum half showing muscles, dorsal on right.
18. Platyura angustata- lateral aspect of the untreated terminalium after Van Duzee.
19. Ceropterus militaris-dorsal aspect.

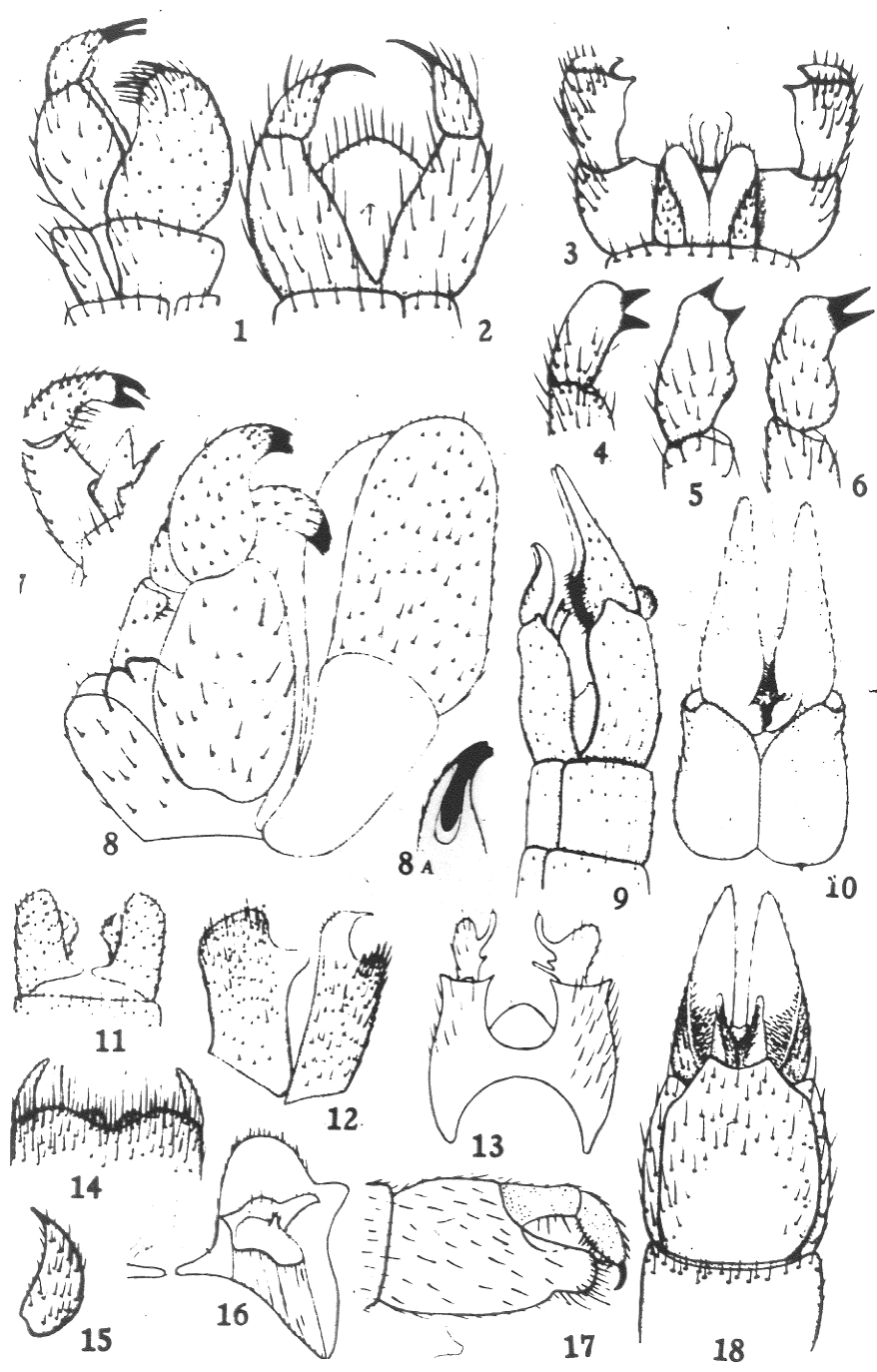


Plate 3.

1. Cereplatus clavatus-ventral aspect.
2. Cereplatus clavatus- dorsal aspect.
3. Apemon rufa-dorsal aspect.
4. Apemon nigriventris-dorsal aspect of left side.
5. Platyura nigrita-ventral aspect.
6. Platyura nigrita-A of fig. 5, lateral aspect.
7. Apemon similis-dorsal aspect of left side.
8. Platyura semirufa-dorsal aspect of right side.
9. Platyura setiger-ventral aspect of left side.
10. Platyura bidentata-ventral aspect of right side.
11. Macrocera sp. #137, lateral aspect, dorsal on right.
12. Platyura discoloria discoloria-ventral aspect of styles and zygoexternal edge.
13. Platyura setiger-lateral aspect of A in fig. 9.
14. Platyura setiger-ventral aspect of B in fig. 9.
15. Platyura sp. A (#138)-ventral aspect of right side.
16. Platyura sp. A (#37)-meso-ventral aspect of style.
17. Platyura bella-lateral aspect of intermediate abdominal segments-caudad to left.
18. Platyura bella-ventral aspect.
19. Platyura discoloria longiseta-ventral of left side.

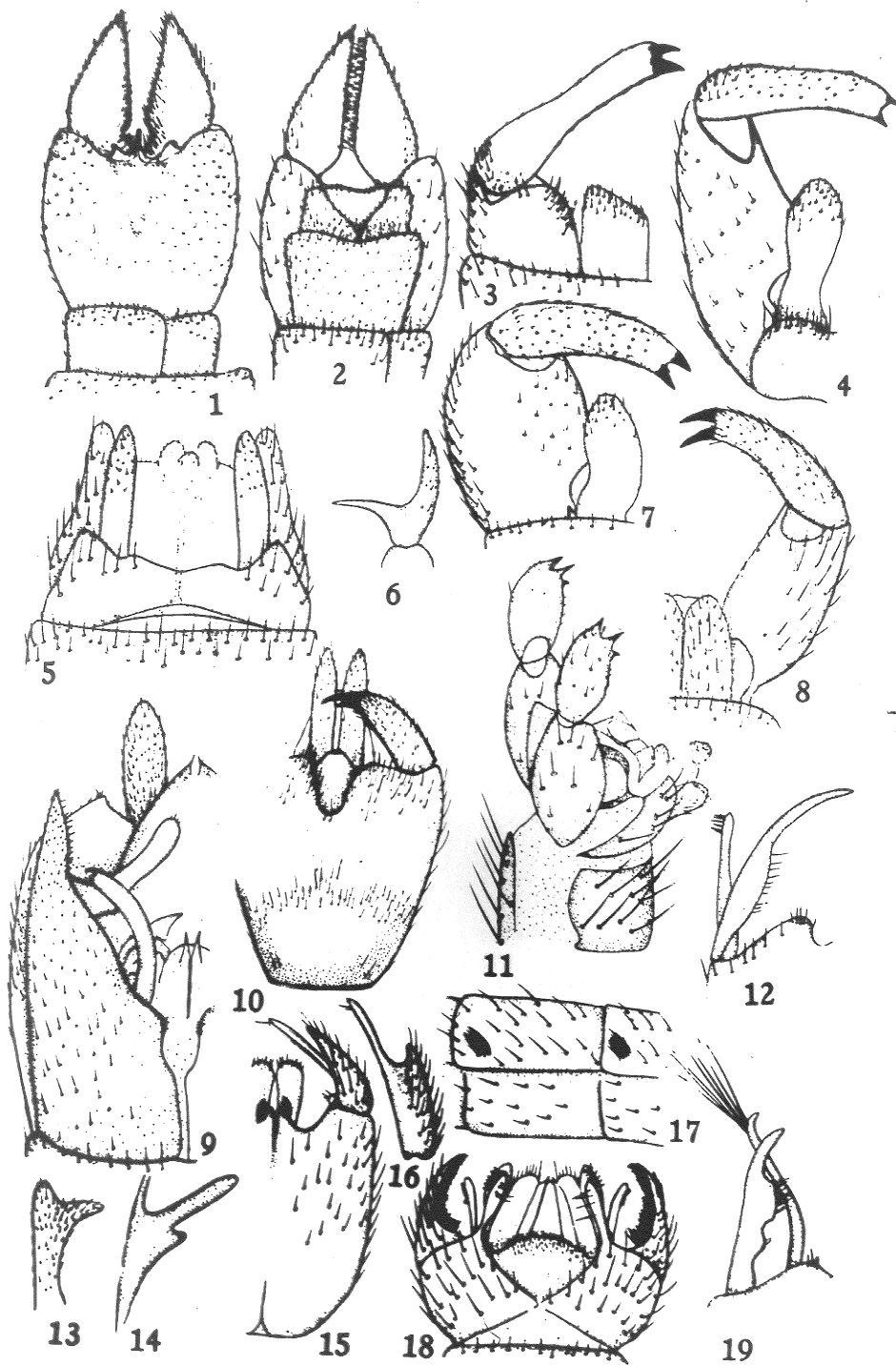


Plate 4.

1. Platyura mendosa-ventral aspect.
2. Platyura fascipennis sequax-ventral aspect.
3. Platyura moerens-ventral aspect.
4. Platyura inops-after Johannsen.
5. Platyura messia-after Johannsen.
6. Platyura genualis genualis- style.
7. Platyura pallita- ventral aspect.
8. Platyura pallita-lateral aspect, lettering
in figs. 7 and 8 correspond.
9. Platyura pallita-dorsal aspect.
10. Platyura genualis var.-ventral aspect.

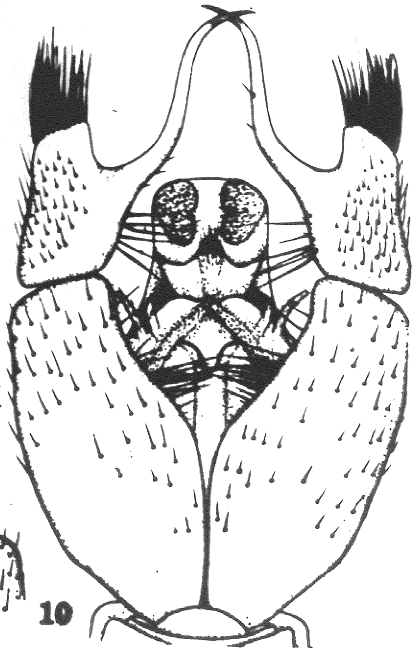
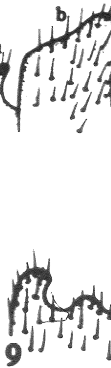
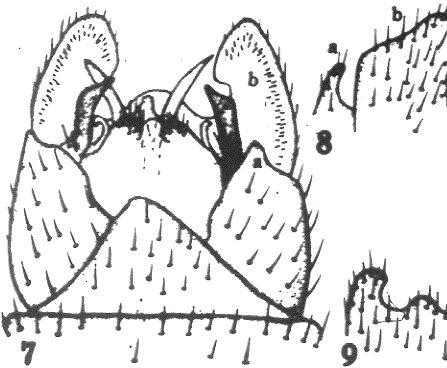
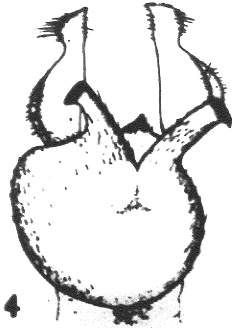
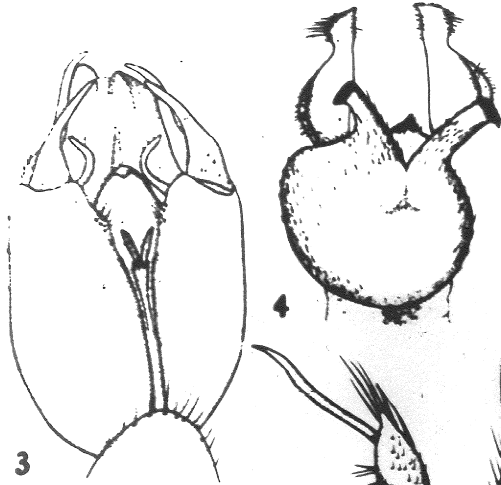
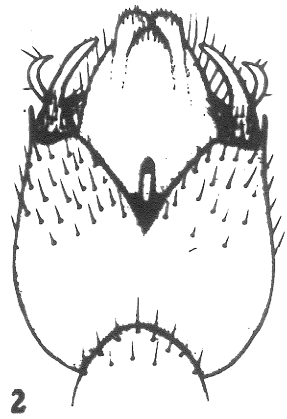
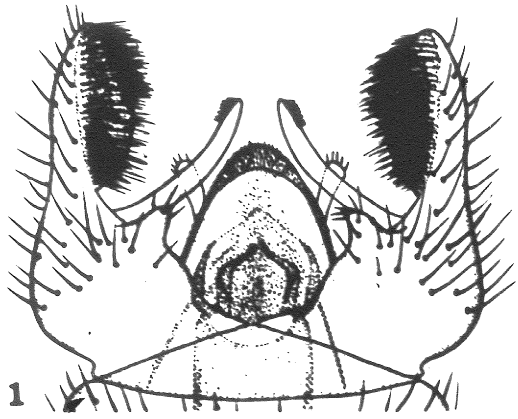
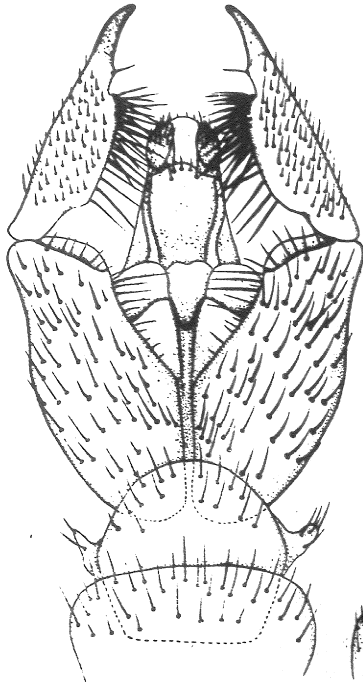
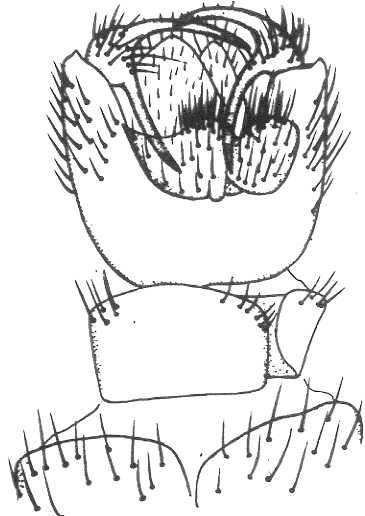


Plate 5.

1. Platyura scapularis-ventral aspect.
2. Platyura subterminalis nexilis-ventral aspect after Johannsen.
3. Platyura elegans-latero-ventral aspect.
4. Platyura discoloris var. a -ventral aspect.
5. Platyura subterminalis-ventral aspect.

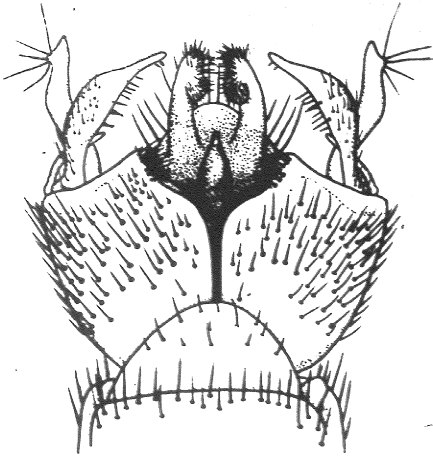


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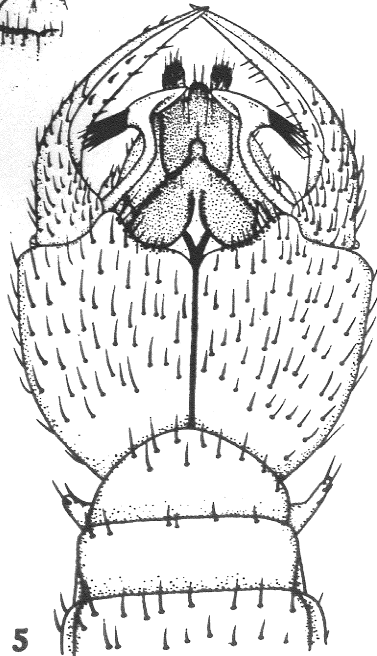


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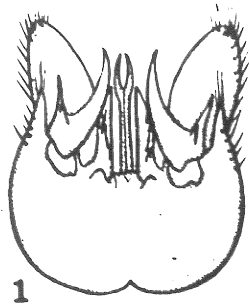
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Plate 5.

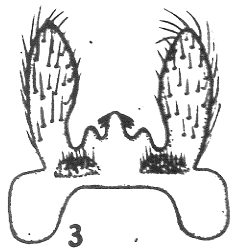
1. Mycomyia polleni Carr., neotype, ventral aspect.
2. Mycomyia vulgaris, paratype, dorsal aspect.
3. Mycomyia polleni -dorsal aspect of tergum.
4. Mycomyia echinata- ventral aspect.
5. Mycomyia echinata-dorsal aspect.
6. Macrocera formosa indigna-right style.
7. Mycomyia terminata-ventral aspect.
8. Synserra annulata-after Tarvid.
9. Macrocera immaculata-from unprepared terminalium.
10. Platyura nigula-lateral aspect from unprepared terminalium.
11. Platyura nigula-ventral aspect from unprepared terminalium.
12. Mycomyia marginalis-dorsal aspect of tergal border.
13. Mycomyia flavohirta-ventral aspect of the unprepared terminalium.
14. Paleoplatyura johnsoni -dorsal aspect of right side.



1



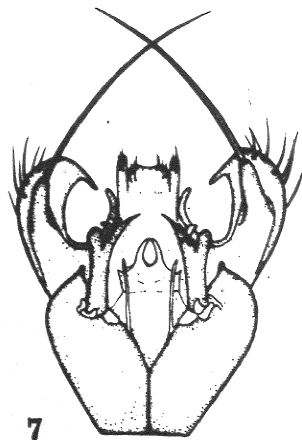
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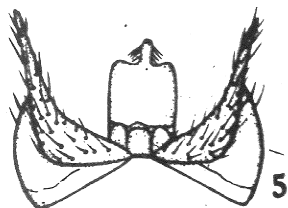
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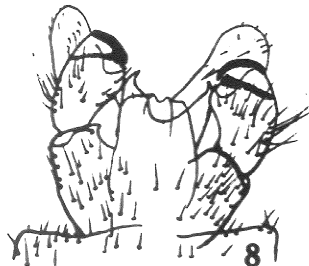
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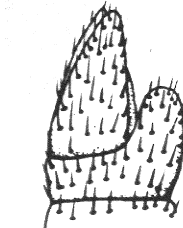
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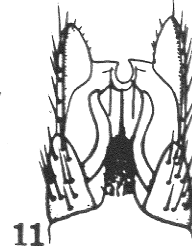
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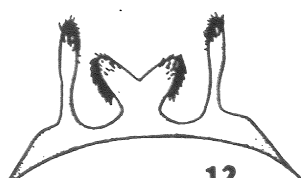
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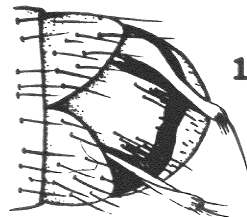
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Plate 7.

1. Mycomya sigma-ventral aspect.
2. Mycomya maxima-dorsal aspect.
3. Mycomya sigma-dorsal aspect.
4. Mycomya marginalis-lateral aspect.
5. Mycomya intermedia-dorsal aspect.
6. Mycomya hirticollis-lateral aspect.
7. Mycomya intermedia-ventral aspect.
8. Mycomya hirticollis-dorsal aspect.
9. Mycomya obliqua-dorsal aspect.

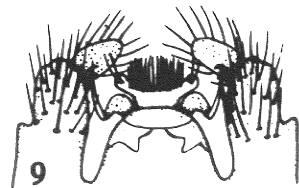
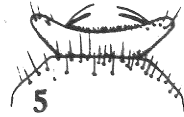
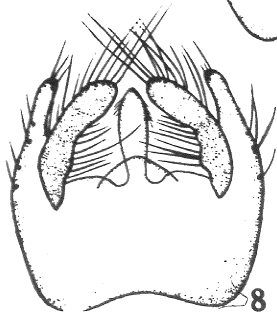
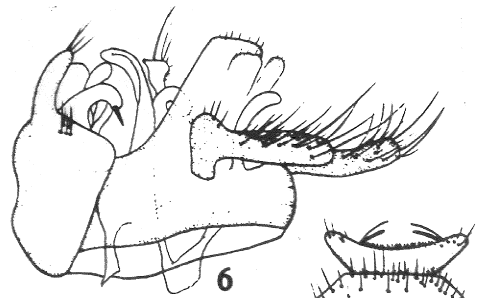
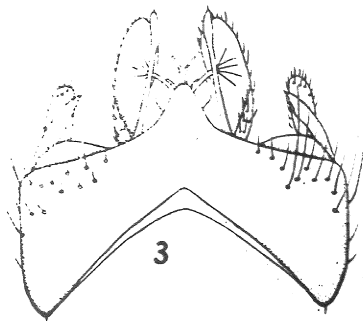
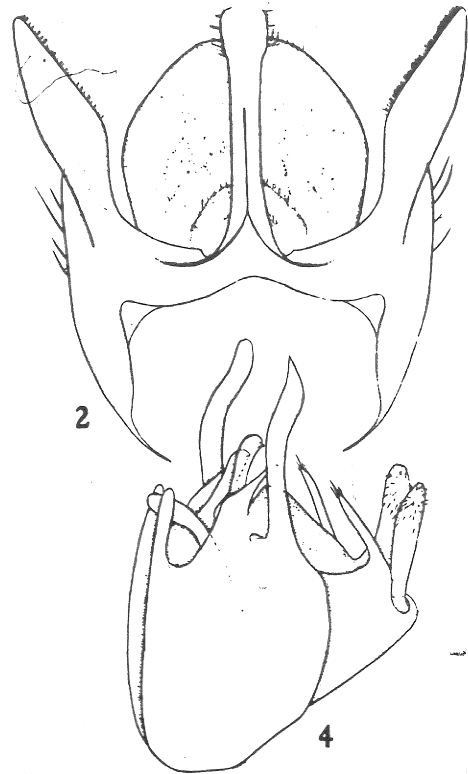
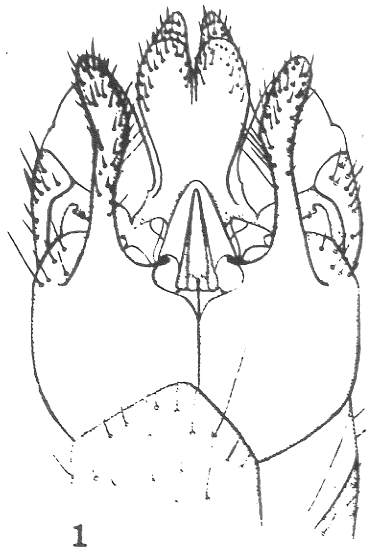


Plate 8.

1. Mycomyia terminata var. dichasta-ventral aspect, right side.
2. Mycomyia brevivittata-lateral aspect, dorsal side on right.
3. Mycomyia scopula-dorsal aspect.
4. Mycomyia littoralis littoralis-lateral aspect of style. (Joh#239)
5. Mycomyia littoralis littoralis-dorsal aspect. (Joh#240)
6. Mycomyia littoralis littoralis-ventral aspect. (Joh#240)
7. Mycomyia littoralis ? var.-lateral aspect of style
8. Mycomyia littoralis frequens-lateral of style. (Joh#242)
9. Mycomyia scopula-ventral aspect of left half.
10. Mycomyia parascopula-ventral aspect.
11. Mycomyia littoralis littoralis-lateral aspect of style. (Joh#240)
12. Mycomyia littoralis littoralis-lateral aspect of style.
13. Mycomyia brevivittata-dorsal aspect.
14. Mycomyia humidus-ventral aspect.
15. Mycomyia turitella-dorsal aspect.
16. Mycomyia turitella-ventral aspect.
17. Mycomyia alternata-lateral aspect, dorsal on left.
18. Mycomyia dentata-dorsal aspect.
19. Mycomyia pseudomaxima-ventral aspect.

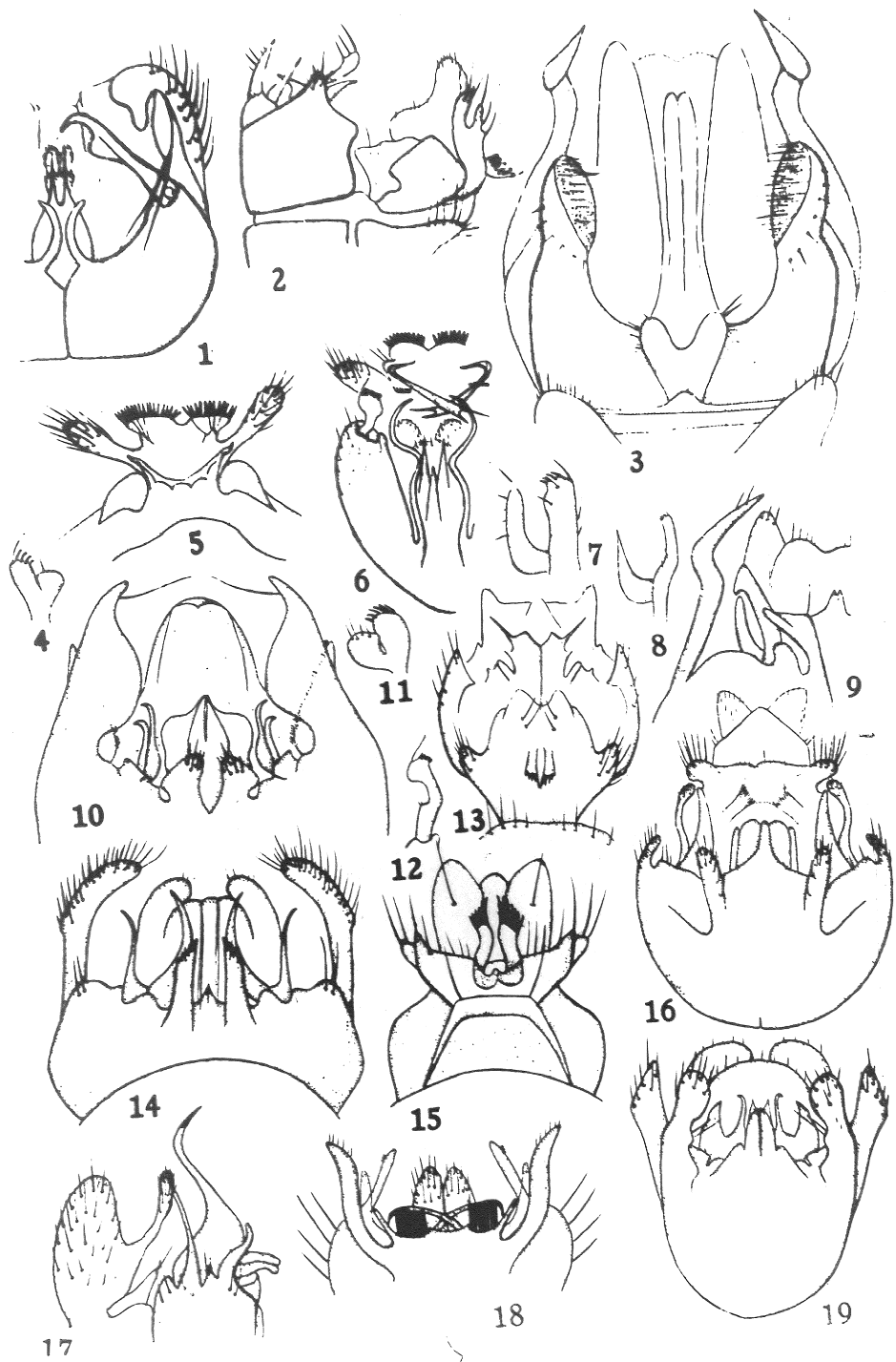


Plate 9.

1. Mycomyia ornata (#37)-dorsal aspect.
2. Mycomyia ornata (#37)-ventral aspect.
3. Mycomyia ornata (#33)-dorsal aspect.
4. Mycomyia ornata (#33)-ventral aspect, styles
hidden by zygothoracic lobes.
5. Mycomyia ornata (#33)-style.
6. Mycomyia tantilla-lateral aspect, dorsal on
left.
7. Mycomyia sequax-ventral aspect.
8. Mycomyia nigricauda (?) -lateral aspect.
9. Mycomyia nigricauda (?) -lobe of tergum.
10. Mycomyia imitans-ventral aspect of right
side.
11. Mycomyia magnifica-ventral aspect of right side
side.
12. Mycomyia imitans-dorsal aspect of tergum.
13. Mycomyia bretonensis-dorsal aspect.
14. Mycomyia pura-dorsal aspect.
15. Mycomyia pura-ventral aspect.
16. Mycomyia bretonensis-ventral aspect.

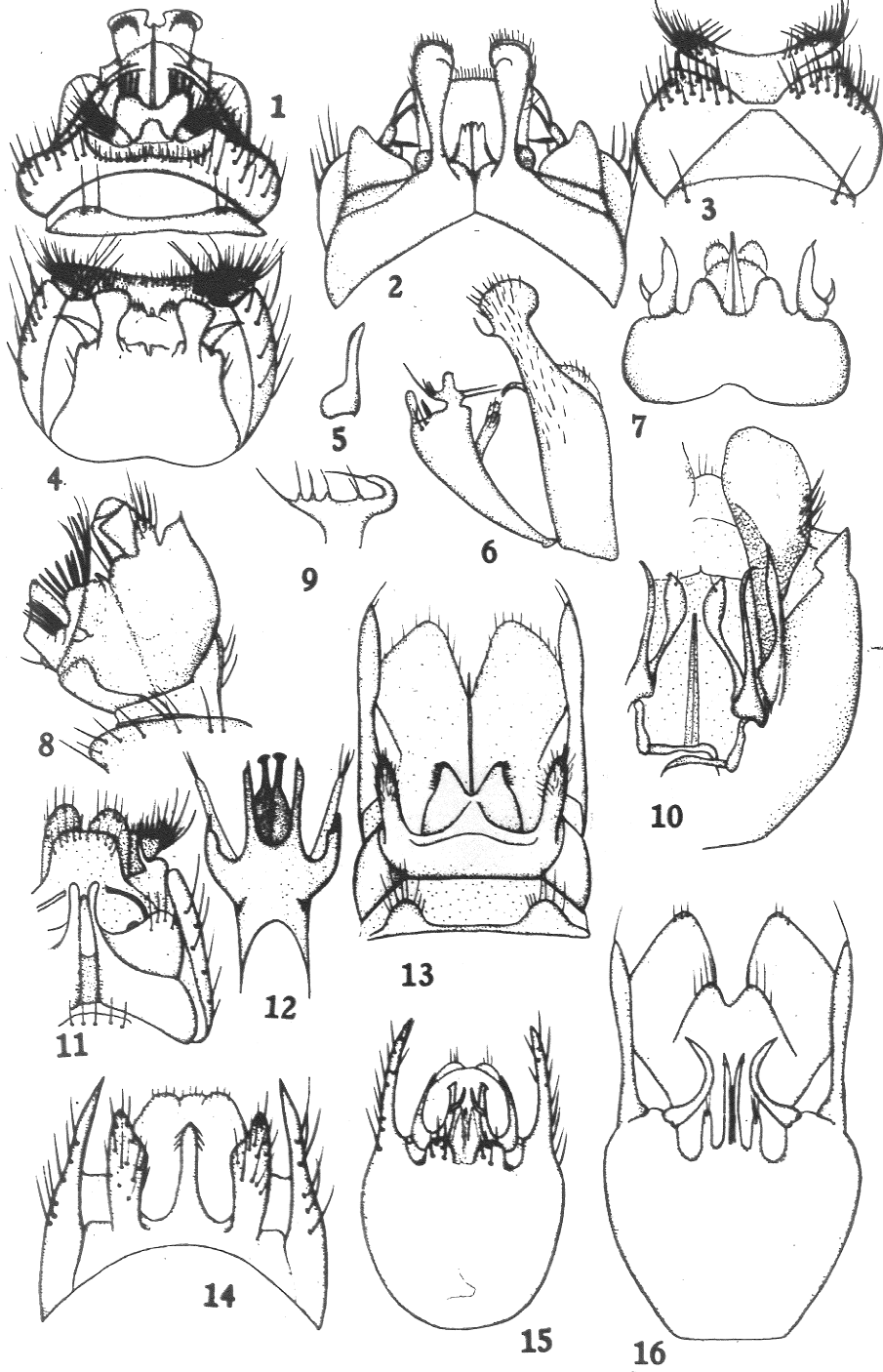


Plate 10.

1. Mycomyia obliqua-lateral aspect, dorsal to right.
2. Neocempheria macularis-dorsal aspect.
3. Neocempheria macularis-lateral aspect, dorsal to left.
4. Neocempheria digitalis-lateral aspect, dorsal on left.
5. Neocempheria illustris-lateral aspect, dorsal on left.
6. Neocempheria helioptera-lateral aspect, dorsal on left.
7. Neocempheria indulgens-dorsal aspect.
8. Neocempheria impatiens-lateral aspect, dorsal on left.
9. Neocempheria impatiens-dorsal aspect.

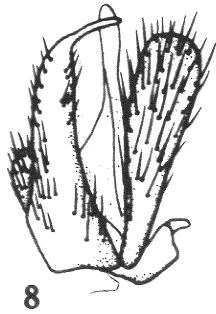
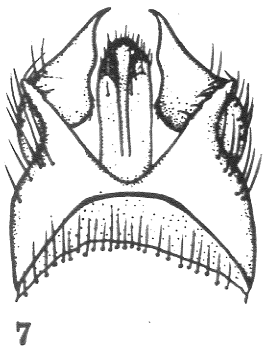
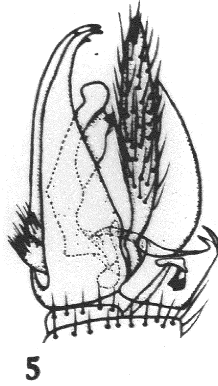
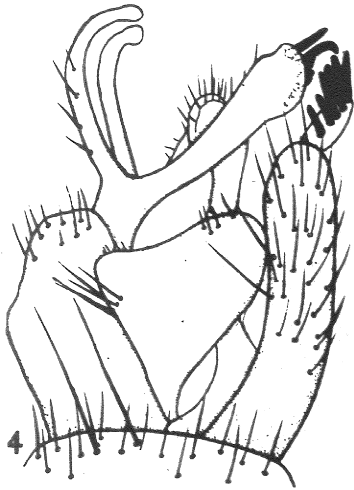
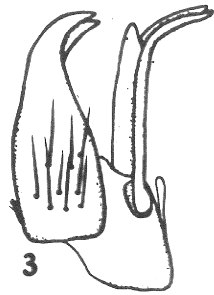
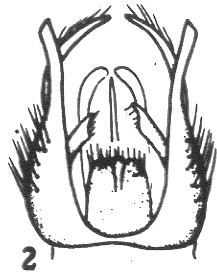
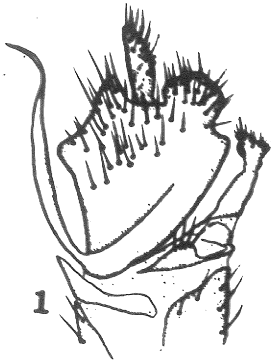


Plate 11.

1. Eudicrana obumbrata-dorsal aspect.
2. Leptomorphus bifasciata-dorsal aspect.
3. Leptomorphus ypsilon-dorsal aspect.
4. Leptomorphus walkeri- after Landrock.
5. Leptomorphus walkeri var. forcipata-after Landrock.
6. Leptomorphus subcaeruleus magnificus-dorsal aspect.
7. Leptomorphus ypsilon-ventral aspect.
8. Phthinia tanypus var. a -ventral aspect of a style.
9. Phthinia tanypus var. a -dorsal aspect of a style.
100. Phthinia tanypus- ventral aspect.
11. Phthinia tanypus- dorsal aspect.
12. Paratithinia recurva- dorsal aspect.
13. Monoclonia furcata-lateral aspect.
14. Phthinia curta- dorsal aspect.
15. Monoclonia elegantula- dorsal aspect.
16. Phthinia curta-ventral aspect of zygo-
sternal half.
17. Monoclonia elegantula- lateral aspect, dorsal
to right.

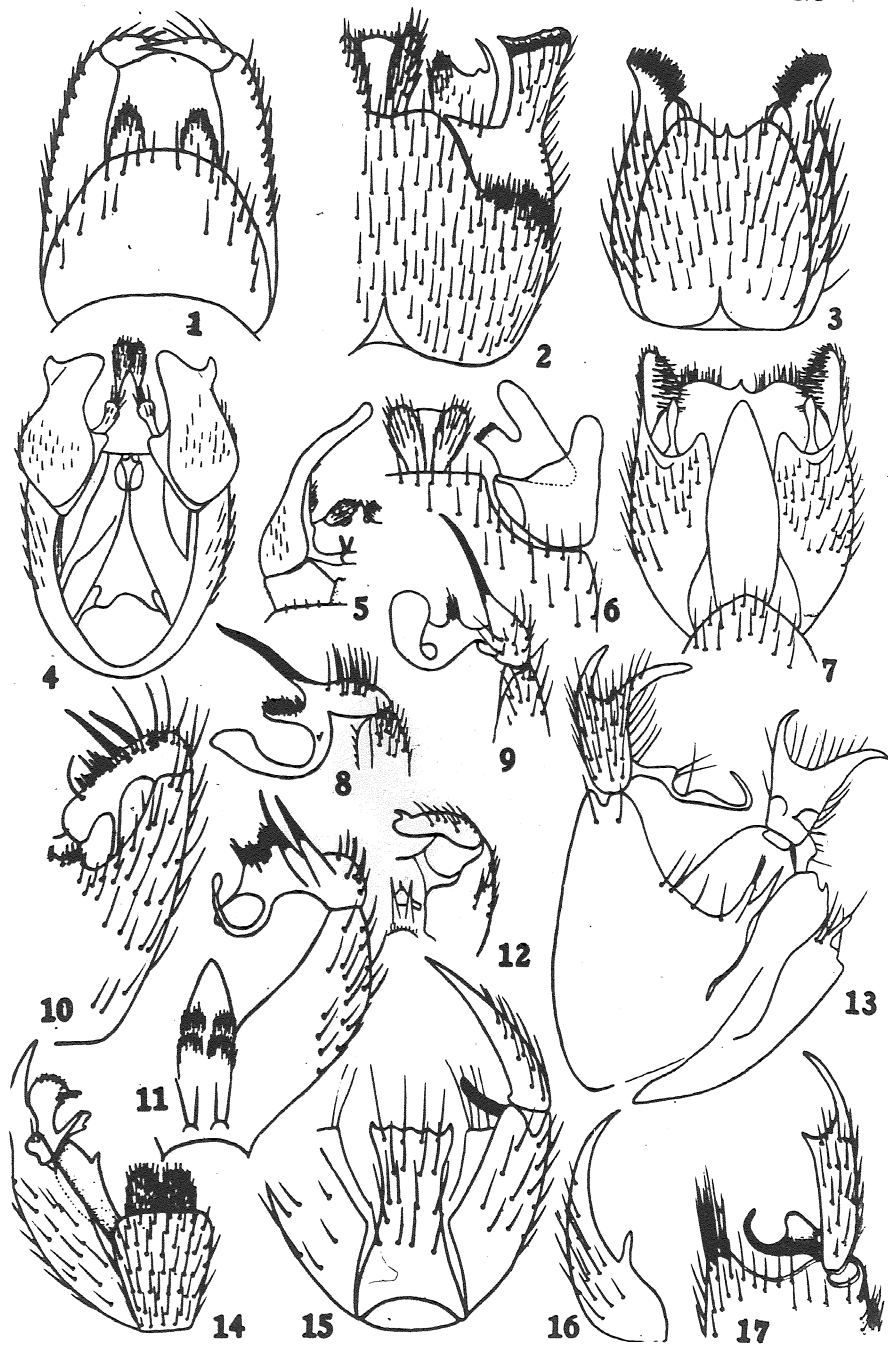
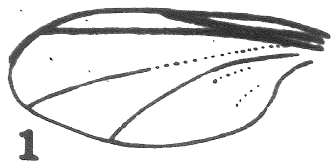




Plate 12.

1. Azana isabella- wing.
2. Acnemia psylla var. a- tip of zygoasternal lobe
3. Acnemia psylla- dorsal aspect of right side.
4. Acnemia flaveola- ventral aspect of right side.
5. Azana isabella- dorsal aspect.
6. Acnemia flaveola-dorsal aspect of right side.
7. Polybepta obediens- ventral aspect.
8. Polybepta obediens- dorsal aspect.
9. Polybepta nigellus- dorsal aspect.
10. Polybepta nigellus- dorsal aspect. of style.
11. Neuratelia nemoralis- dorsal aspect of left style and adjacent parts.
12. Neuratelia silvatica- dorsal aspect.
13. Neuratelia ascitula-dorsal aspect, after Johannsen.



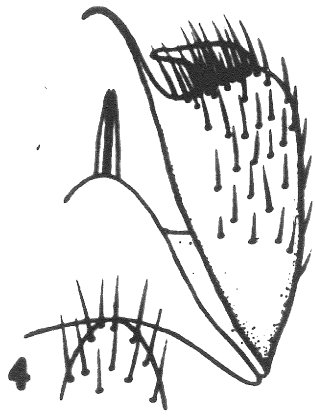
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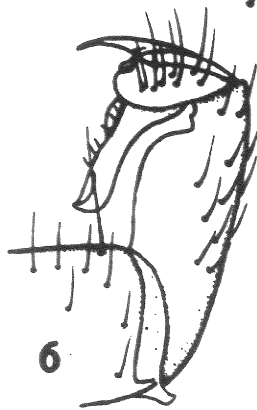
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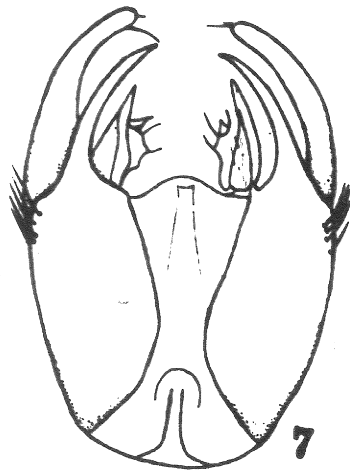
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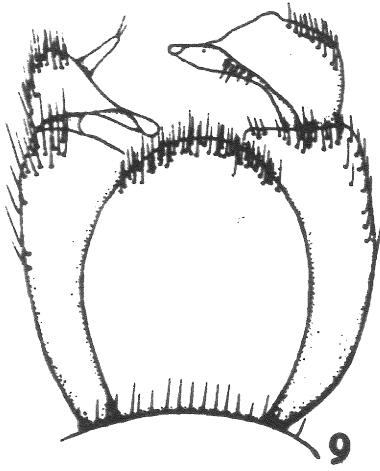
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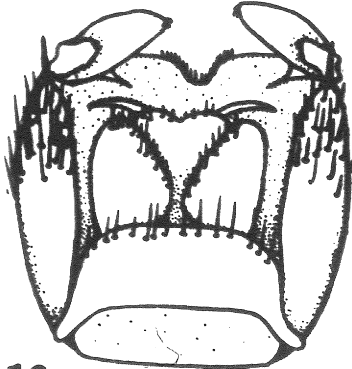
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Plate 13.

1. Sciophila impar- dorsal aspect.
2. Sciophila hirta- ventral aspect, after Edwards.
3. Sciophila habilis-ventral aspect of style.
4. Sciophila hirta- dorsal aspect, after Edwards.
5. Sciophila virginiana- dorsal aspect of right side.
6. Sciophila habilis-dorsum of tergum.
7. Sciophila hebes- ventral aspect of style.
8. Sciophila hebes-dorsal aspect of zygosternal edge and tergal edge.
9. Sciophila dakota- dorsal aspect of right side.
10. Sciophila pallipes-ventral aspect of style.
11. Sciophila nugax-dorsal aspect of style.
12. Sciophila nugax-ventral aspect of style.
13. Sciophila severa- ventral aspect of style.

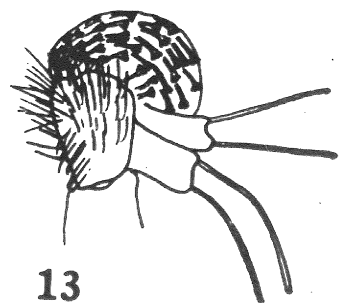
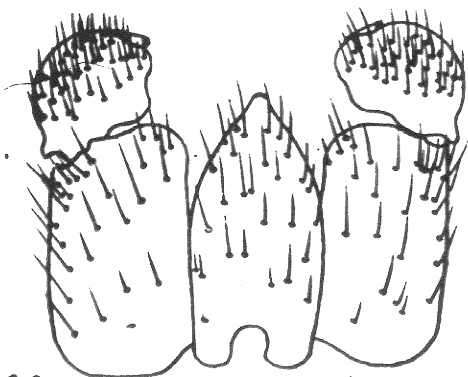
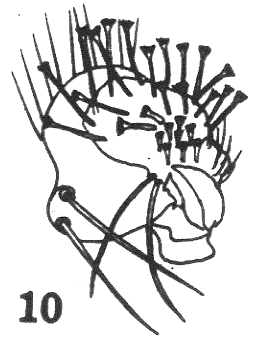
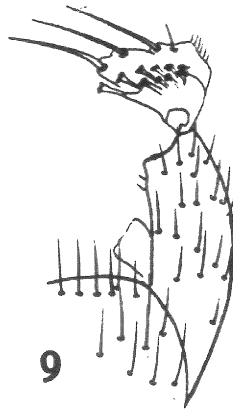
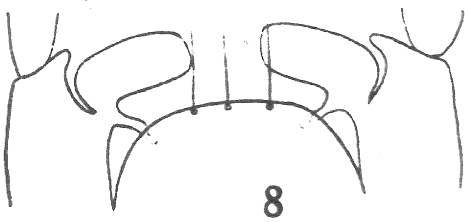
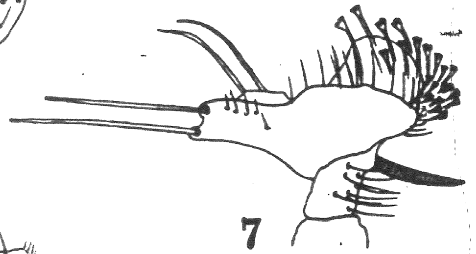
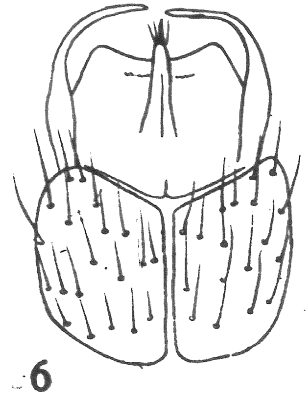
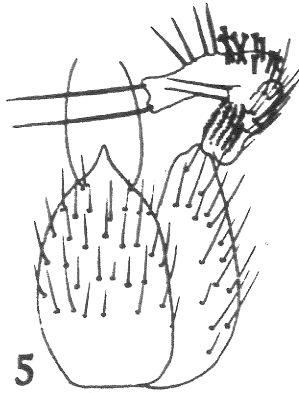
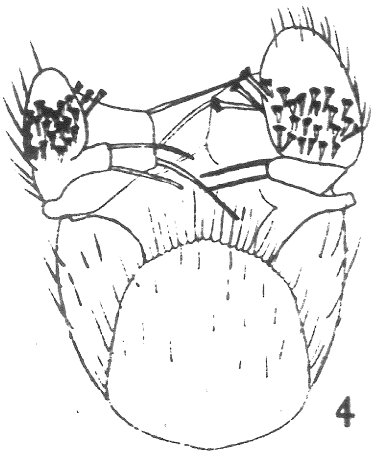
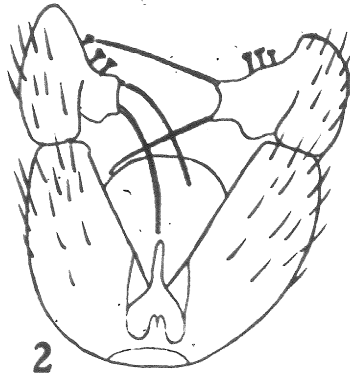
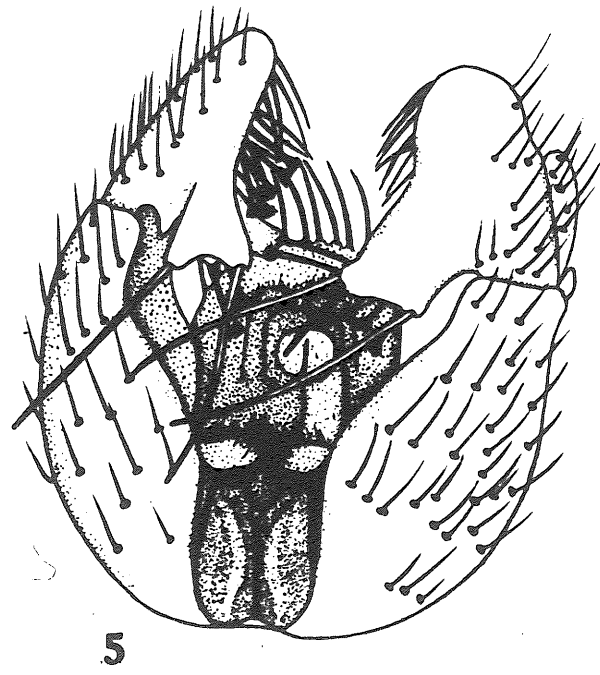
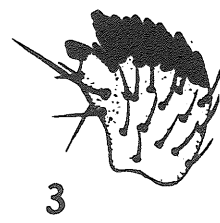
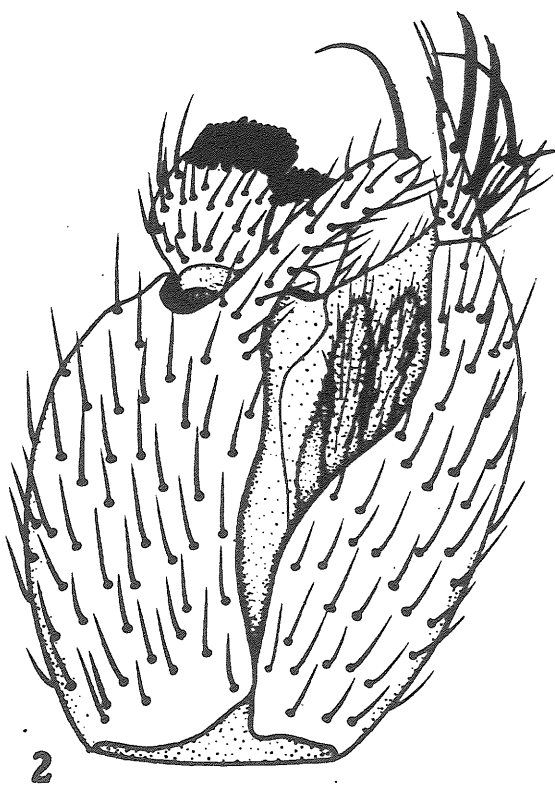
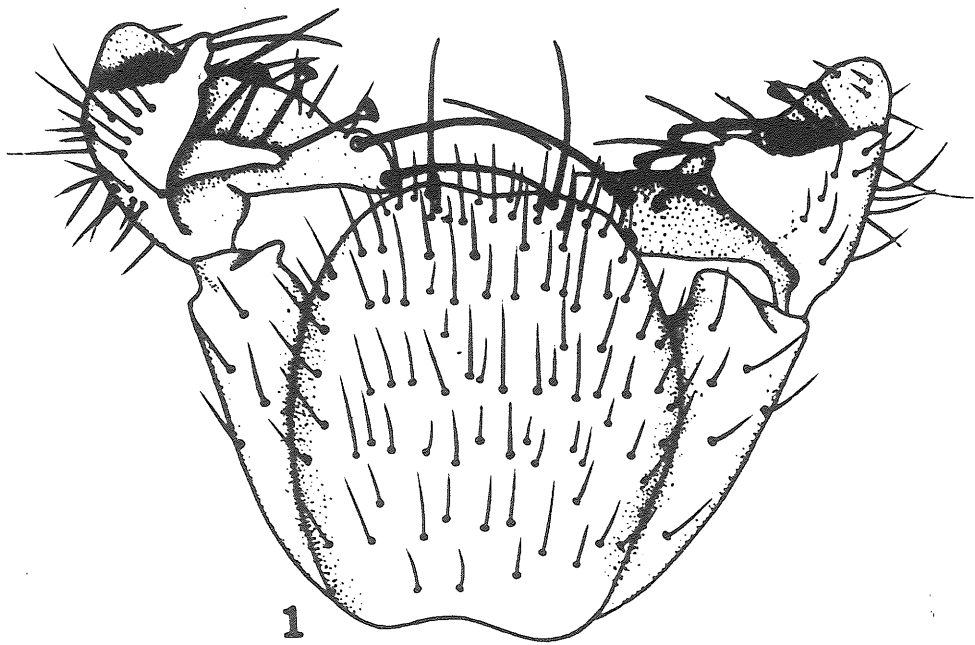


Plate 14.

1. Sciophila novata- dorsal aspect
2. Sciophila galbana- lateral aspect, terminal.
flap of tergum turned up.
3. Sciophila galbana-ventral aspect of style.
4. Gnoriste apicalis-dorsal aspect of style,
after Landrock.
5. Sciophila impar- ventro-lateral aspect.



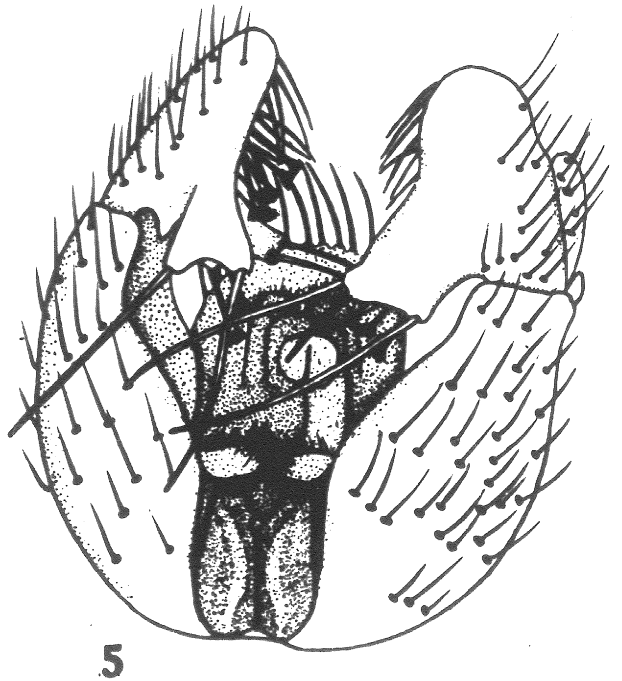
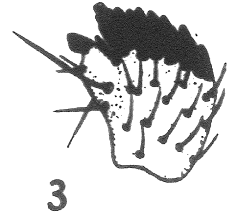
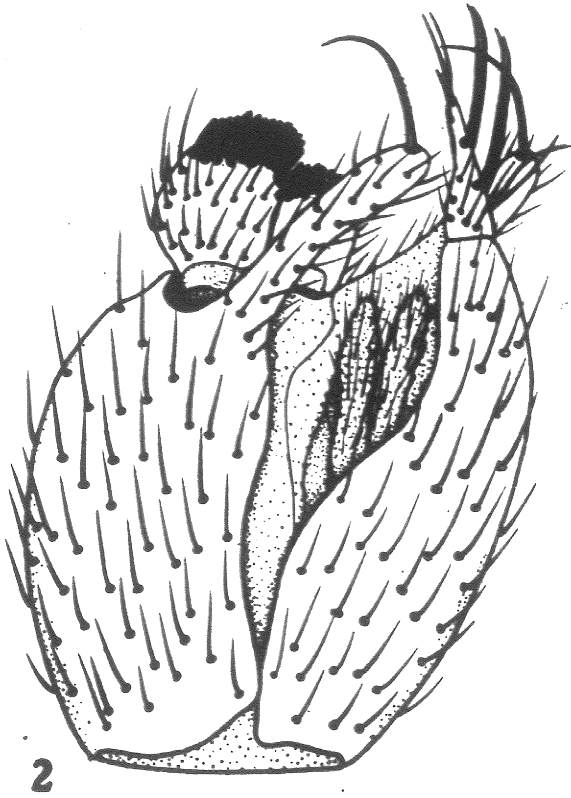
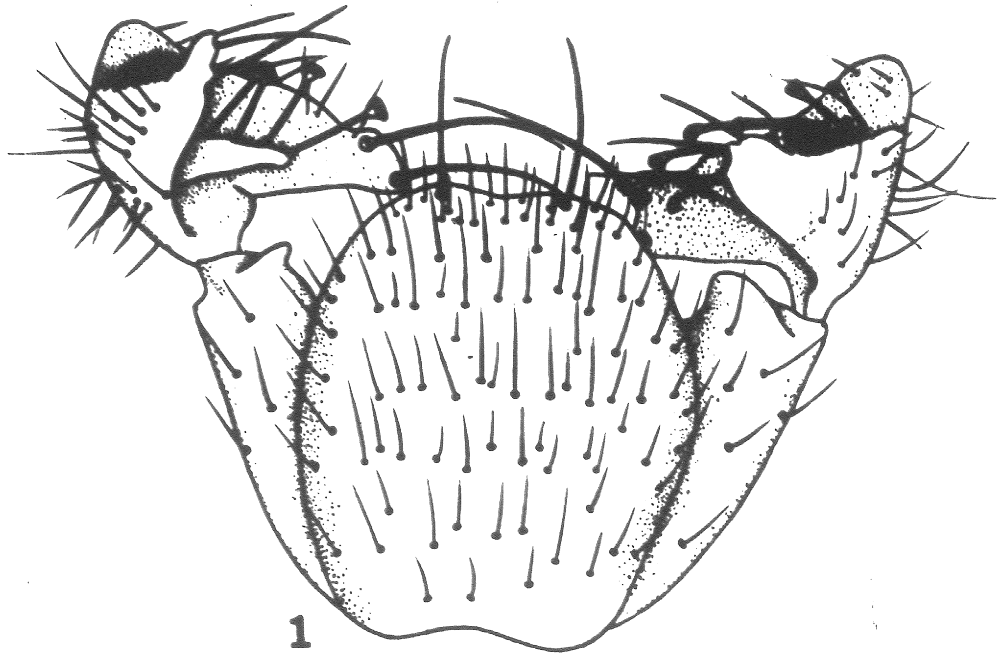


Plate 15.

1. Boletina notescens- ventral aspect.
2. Boletina melancholicus- ventral aspect.
3. Boletina melancholicus-dorsal aspect of
left dorsal anal lobe.
4. Boletina groelandica- dorsal aspect.
5. Boletina hopkinsii-dorsal aspect of
right dorsal anal lobe.
6. Boletina obscura- dorsal aspect of left
anal lobe.
7. Boletina tricincta- ventral aspect.
8. Boletina groelandica- ventral aspect.
9. Boletina sedula- ventral aspect.

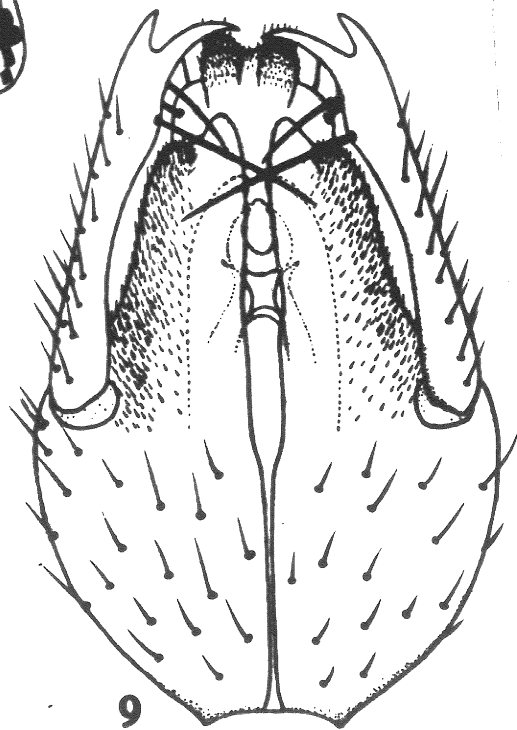
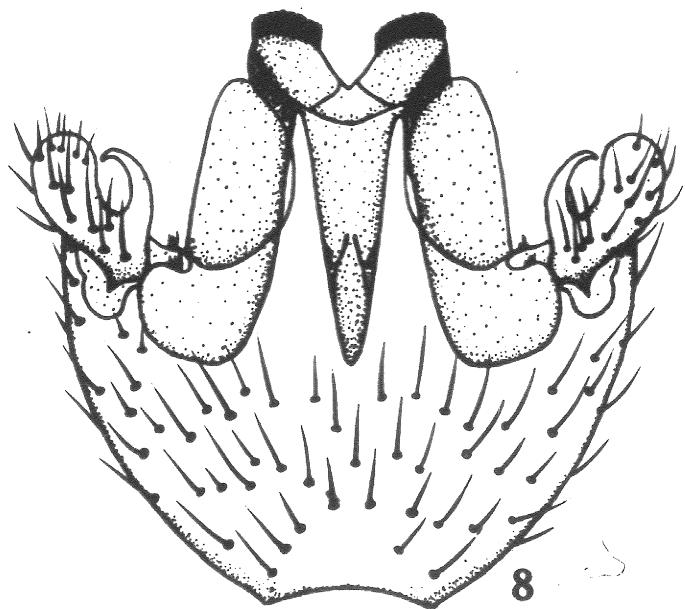
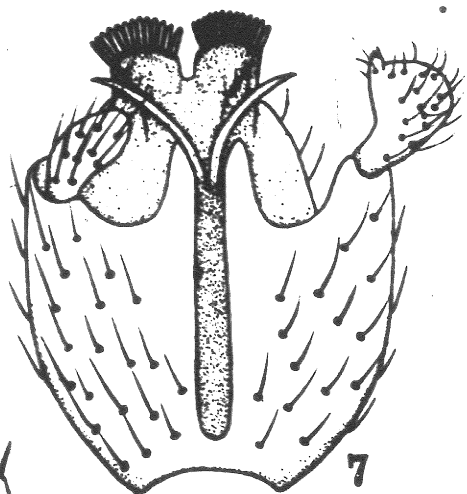
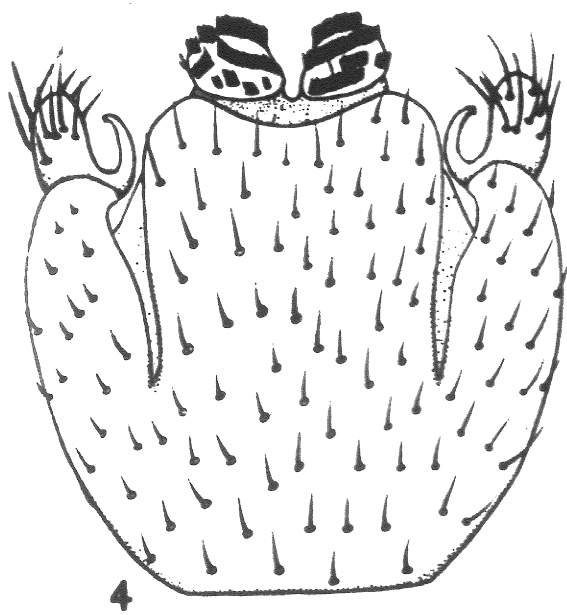
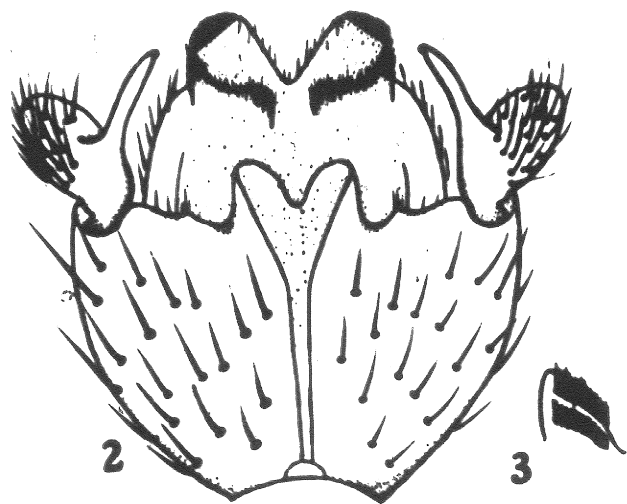
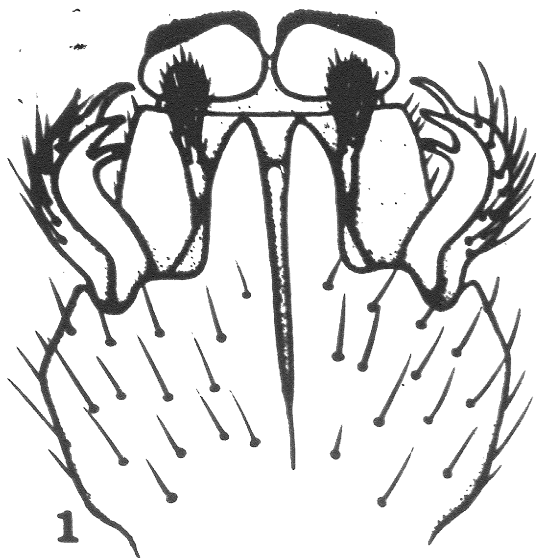
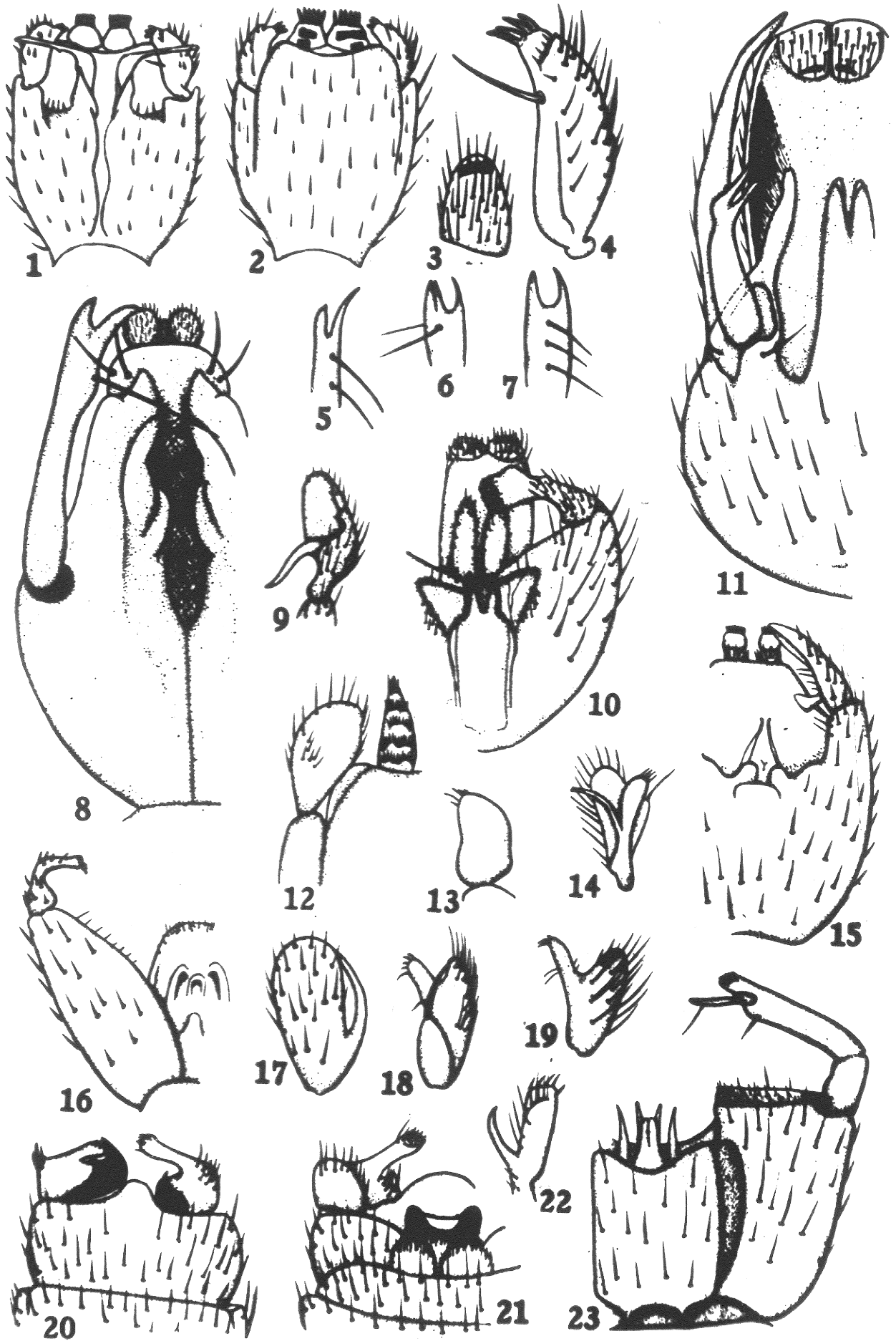


Plate 16.

1. Boletina sciarina- ventral aspect , after Dziedzioki.
2. Boletina sciarina- dorsal aspect, after Dziedzioki.
3. Boletina imitator-dorsal aspect of dorsal, anal lobe.
4. Boletina sciarina- style , after Dziedzioki.
5. Boletina sedula- ventral aspect of tip of left style.
6. Boletina necta-ventral aspect of tip of right style.
7. Boletina gracilis-ventral aspect of tip of left style.
8. Boletina sedula-ventral aspect of left side.
9. Boletina profectus-ventral of style.
10. Boletina sp.-(K.G.F.#152)-ventral of right half.
11. Boletina imitator-ventral aspect of left side.
12. Boletina delicata-dorsal aspect of style, anal lobe and corner of tergum.
13. Boletina tricineta-(Joh.#486)-style.
14. Boletina sp.-(Joh.#501)-style.
15. Boletina artica -ventral aspect, after Lundström.
16. Boletina sineta-ventral aspect , after Johannsen.
17. Boletina delicata-ventral aspect of style.
18. Boletina sp. (near sciarina)-style.
19. Boletina tricineta-(Joh.#485)-style.
20. Genus ? (Apolipthisa?) -ventral aspect, left style raised somewhat.
21. Genus ? (Apolipthisa?) -dorsal aspect.
22. Boletina sp.A-lateral aspect of style.
23. Boletina longicornis- dorsal aspect.



Plats 17.

- 1.
1. Gnoriste macra-ventral aspect.
2. Gnoriste megarrhinia-ventral aspect.
3. Gnoriste megarrhinia-dorsal aspect of style.
4. Gnoriste macra-left corner of tergum.
5. Gnoriste megarrhinia-left corner of tergum.
6. Dziedziackia longicornis -right side of tergum.
7. Coelosia modesta-ventral aspect of right style.
8. Coelosia pecten-ventro-mesal aspect of style.
9. Coelosia lepida-tergum.
10. Coelosia modesta-mesal aspect of anal segment.
11. Coelosia flava-dorsal aspect ,after Lundstroem.
12. Synapha bicolor-dorsal aspect.
13. Coelosia lepida-mesal aspect of style.
14. Dziedziackia pullata-right style.
15. Coelosia sp. A.-dorsal aspect of right style.
16. Dziedziackia polyzona-dorsal aspect.
17. Synapha bicolor-ventral aspect.
18. Dziedziackia vittata fasciata-mesal aspect of style.
19. Dziedziackia vittata fasciata-ventral aspect of style, mesal side on right.
20. Dziedziackia longicornis- lateral aspect of style.
21. Dziedziackia vittata fasciata- dorsal aspect.
22. Dziedziackia longicornis-ventral aspect.
23. Dziedziackia alberta-dorsal aspect of right side tergum turned forward so it is viewed in caudal aspect.

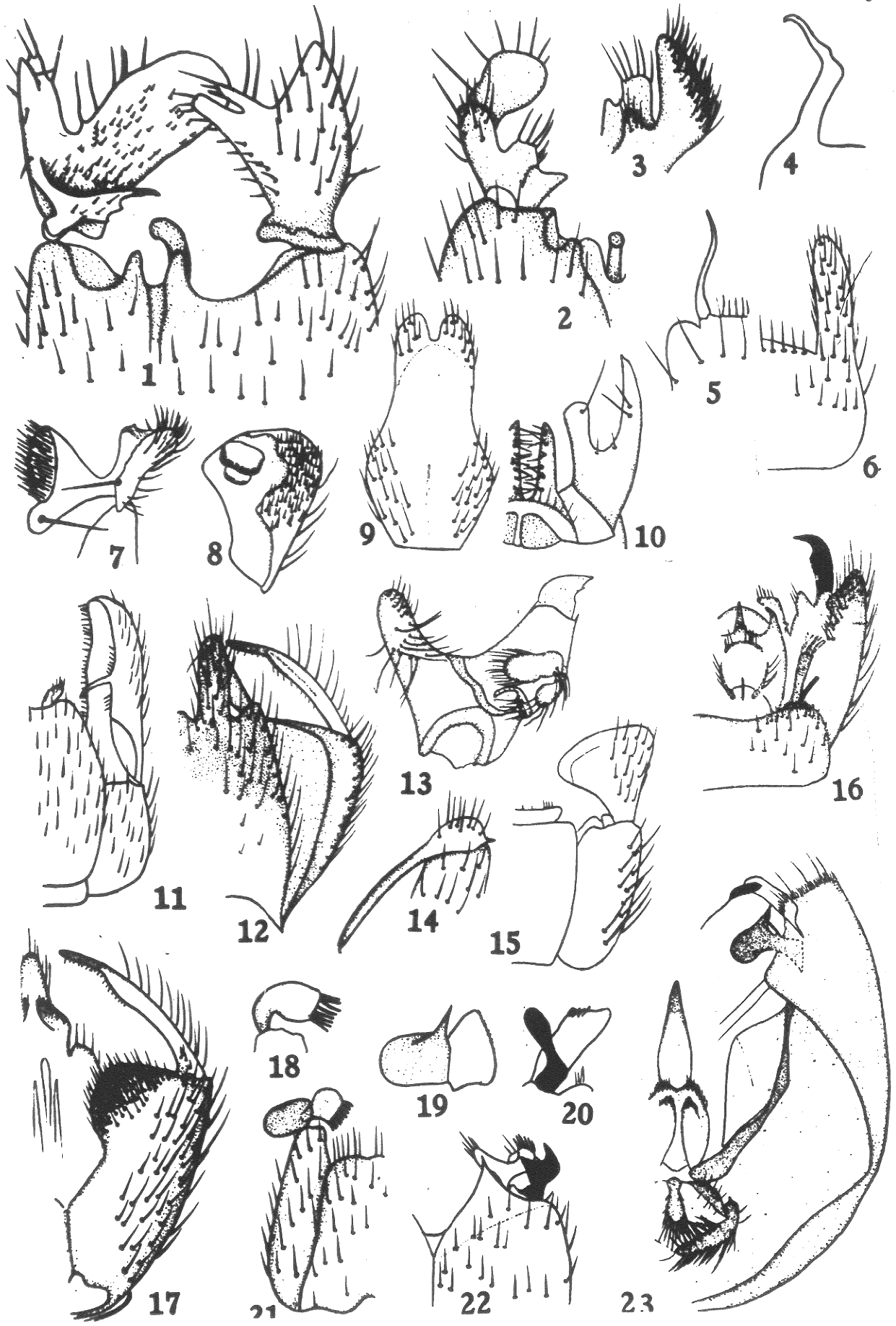


Plate 18.

1. Leia bivittata- ventral aspect.
2. Leia bivittata-dorsal aspect.
3. Leia bivittata-lateral aspect of style.
4. Leia dryas- dorsal aspect of style.
5. Leia striata- lateral aspect of style and
 sygosternal edge.
6. Leia oblectabilis-lateral aspect.
- 6a. Leia oblectabilis-center of ventral margin.
7. Leia oblectabilis-dorsal aspect.
8. Leia decora-dorsal aspect.
9. Leia sublunata-lateral aspect, showing one
 side only.
10. Leia melana-mesal aspect of style.
11. Leia decora-ventral aspect.
12. Leia melana-dorsal aspect.
13. Leia nigra-dorsal aspect.
14. Leia opima-lateral aspect, distal portion of
 one side only.
15. Leia winthensii-ventro-mesal aspect of style
 and edge of sygosternum.
16. Leia decora-mesal aspect of styles.
17. Leia opima- ventral aspect.

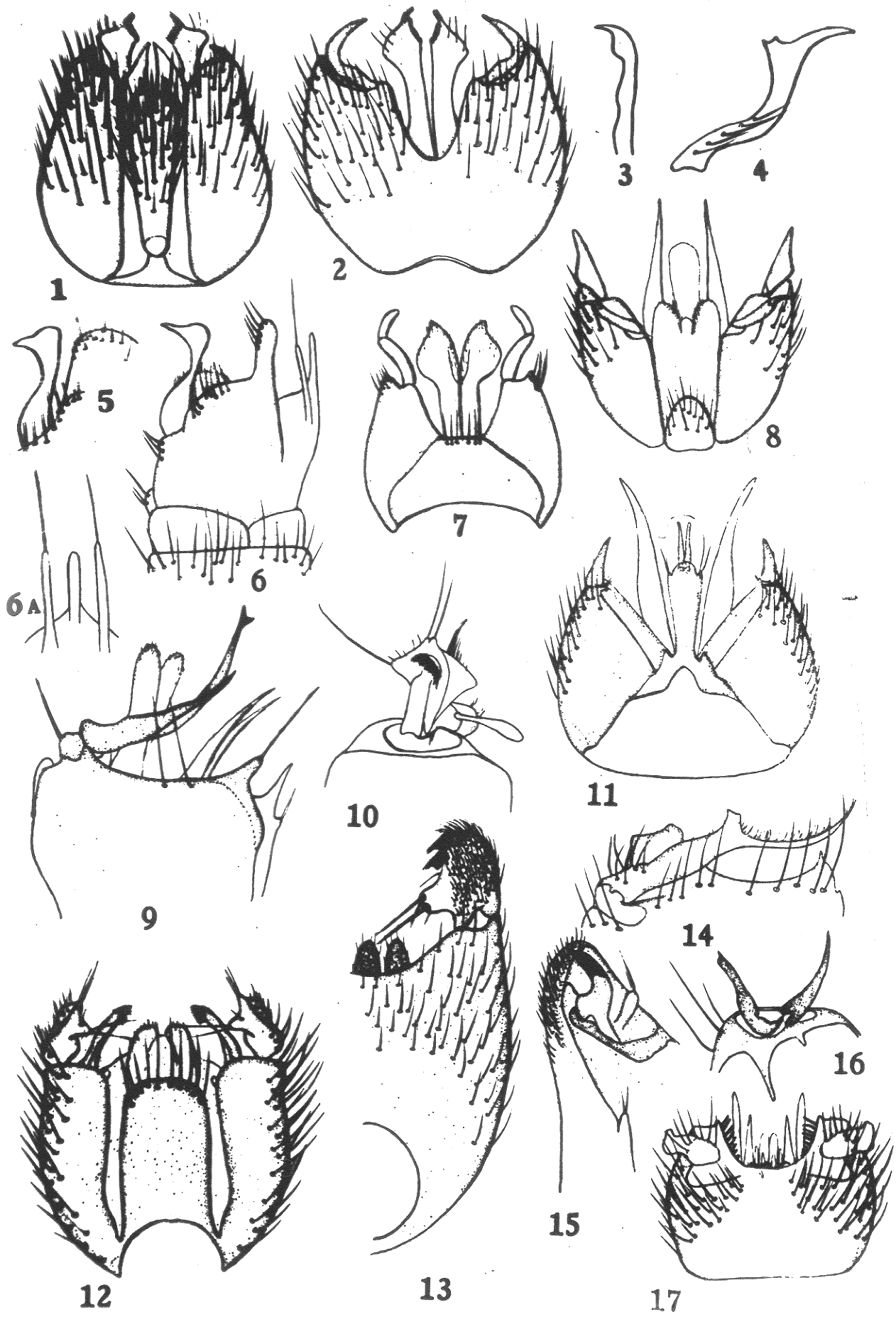


Plate 19.

1. Rondaniella abbreviata-lateral aspect of
distal portion of one side only.
2. Rhandaniella abbreviata-ventral aspect.
3. Rhandaniella abbreviata-dorsal aspect.
4. Docosia paradichroa-ventro-lateral aspect.
5. Docosia dichroa-ventral aspect.
6. Docosia dichroa-dorsal aspect.
7. Megothalmidia occidentalis-ventral aspect.
8. Docosia nitida-dorsal aspect.
9. Docosia nigella-dorsal aspect of style.
10. Docosia nigella-ventral aspect.
11. Megothalmidia occidentalis- mesal aspect
of style.
12. Leia plebeja-dorsal aspect.
13. Leia plebeja-ventral aspect.

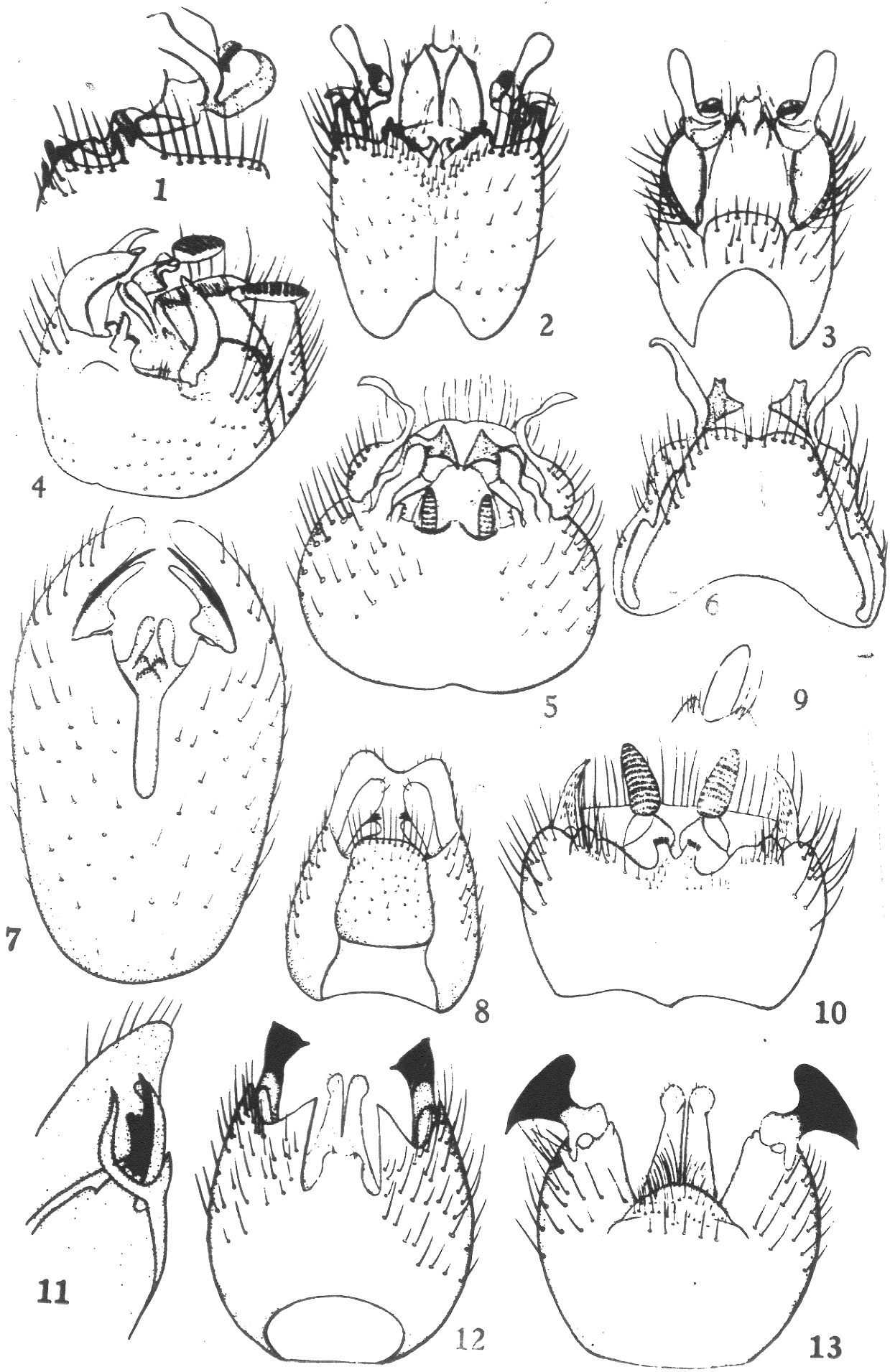


Plate 20.

1. Tetragoneura nitida- dorsal aspect.
2. Tetragoneura longicauda-untreated specimen
after Van Duzee.
3. Tetragoneura pimpla-caudal aspect of mesal
lobe of style.
4. Tetragoneura pimpla-lateral aspect.
5. Tetragoneura pimpla-meso-dorsal aspect of style
and zygosternal edge with muscles.
6. Anatella silvestris-dorso-lateral aspect.
7. Anatella silvestris-ventral aspect of styles
and hind border of zygosternum.
8. Anatella incisurata-mesal aspect of styles.
9. Anatella incisurata-lateral aspect.
10. Anatella incisurata-ventral aspect.
11. Anatella ciliata-dorsal aspect.
12. Anatella ciliata-ventral aspect , styles
removed.
13. Anatella ciliata-mesal aspect of style.

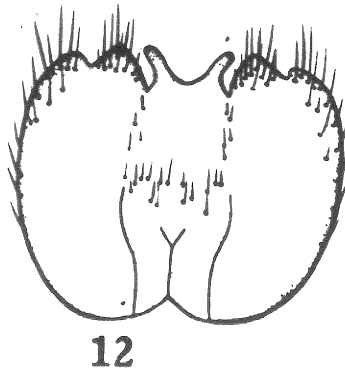
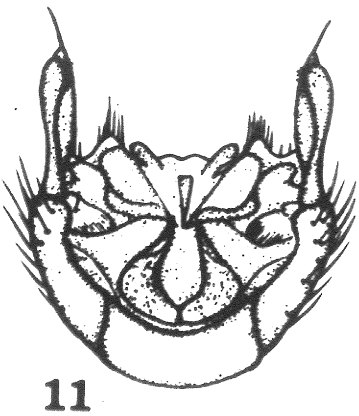
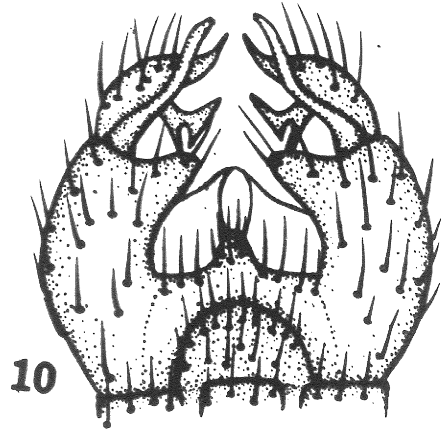
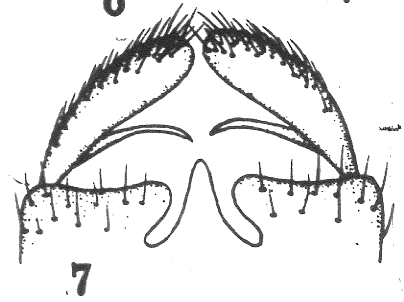
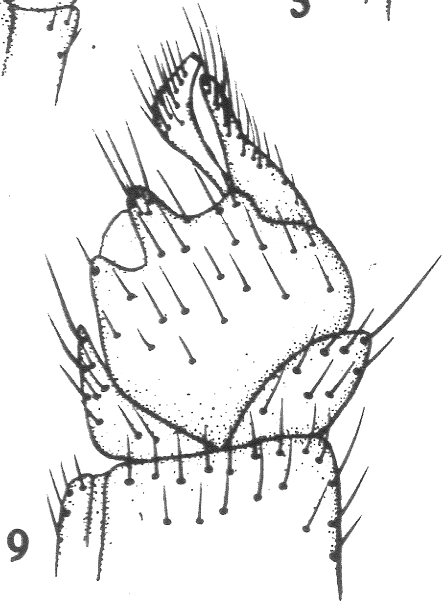
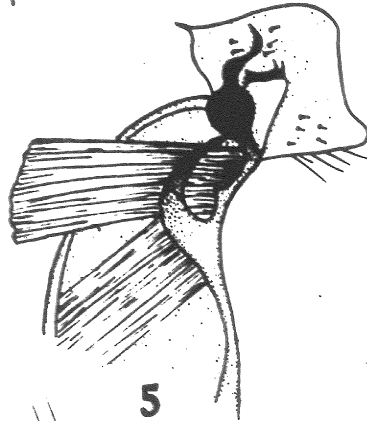
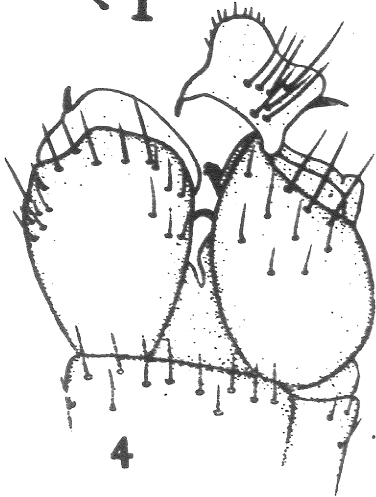
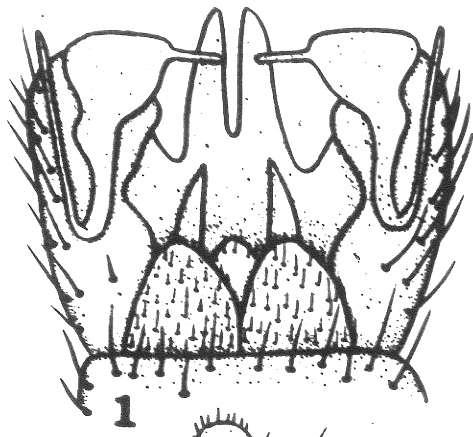


Plate 21.

1. Exechia umbratica-dorsal aspect.
2. Exechia perspicua-dorsal aspect.
3. Exechia nexa-dorsal aspect.
4. Exechia nugar-dorsal aspect.
5. Exechia umbratica-mid line of hind zygosternal edge.
6. Exechia auxiliaria-dorsal aspect.
7. Exechia attrita-dorsal aspect.
8. Exechia attrita- lateral aspect.
9. Exechia nexa-mid line of hind zygosternal edge.
10. Exechia nugar-mesal aspect of style lobes.
11. Exechia attrita-mesal aspect of styles.
12. Exechia obediens-ventral aspect.
13. Exechia bellula-ventral aspect.
14. Exechia bella-ventral aspect.
15. Exechia bella-dorsal aspect.

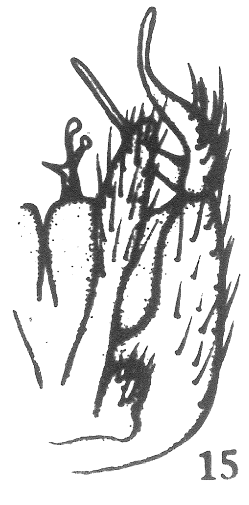
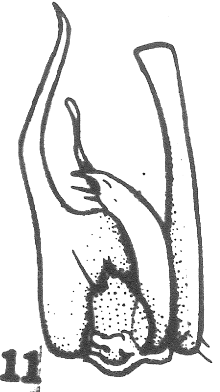
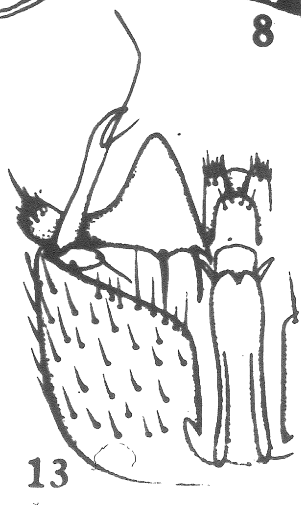
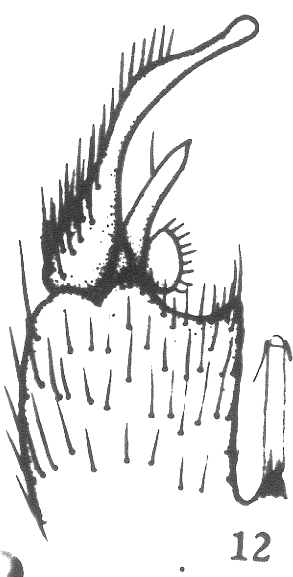
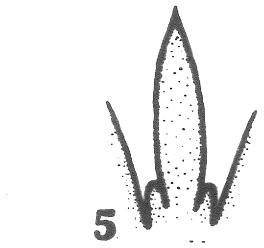
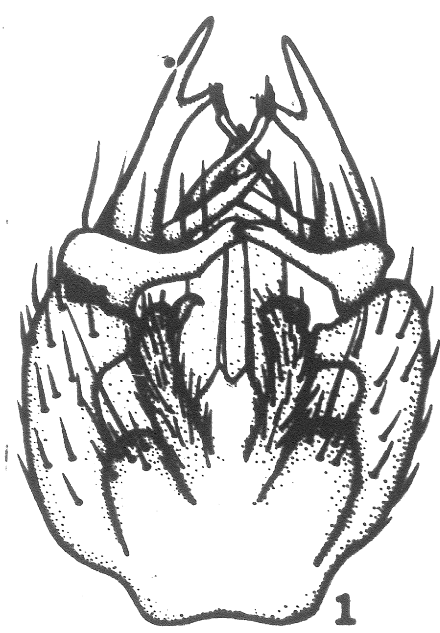


Plate 22

1. Exechia pollex- ventral aspect of left side after
Shaw.
2. Exechia frigida- ventral aspect of left side.
3. Exechia obtusa- ventral aspect of right side.
4. Exechia sp. A- dorsal aspect of left side.
5. Exechia stolo- dorsal aspect of right side.
6. Exechia lata- ventral aspect of right side.
7. Exechia contaminata- ventral aspect of right side.
8. Exechia palmata- ventral aspect of left side.
9. Exechia absurda- lateral aspect
10. Exechia lata- dorsal aspect of left style.
11. Exechia shawi- ventral aspect of left side.
12. Exechia shawi- mesal aspect of style.
13. Exechia absurda- mid ventral line of hind zygo-
sternal border.
14. Exechia bifurcata- ventro-lateral aspect.

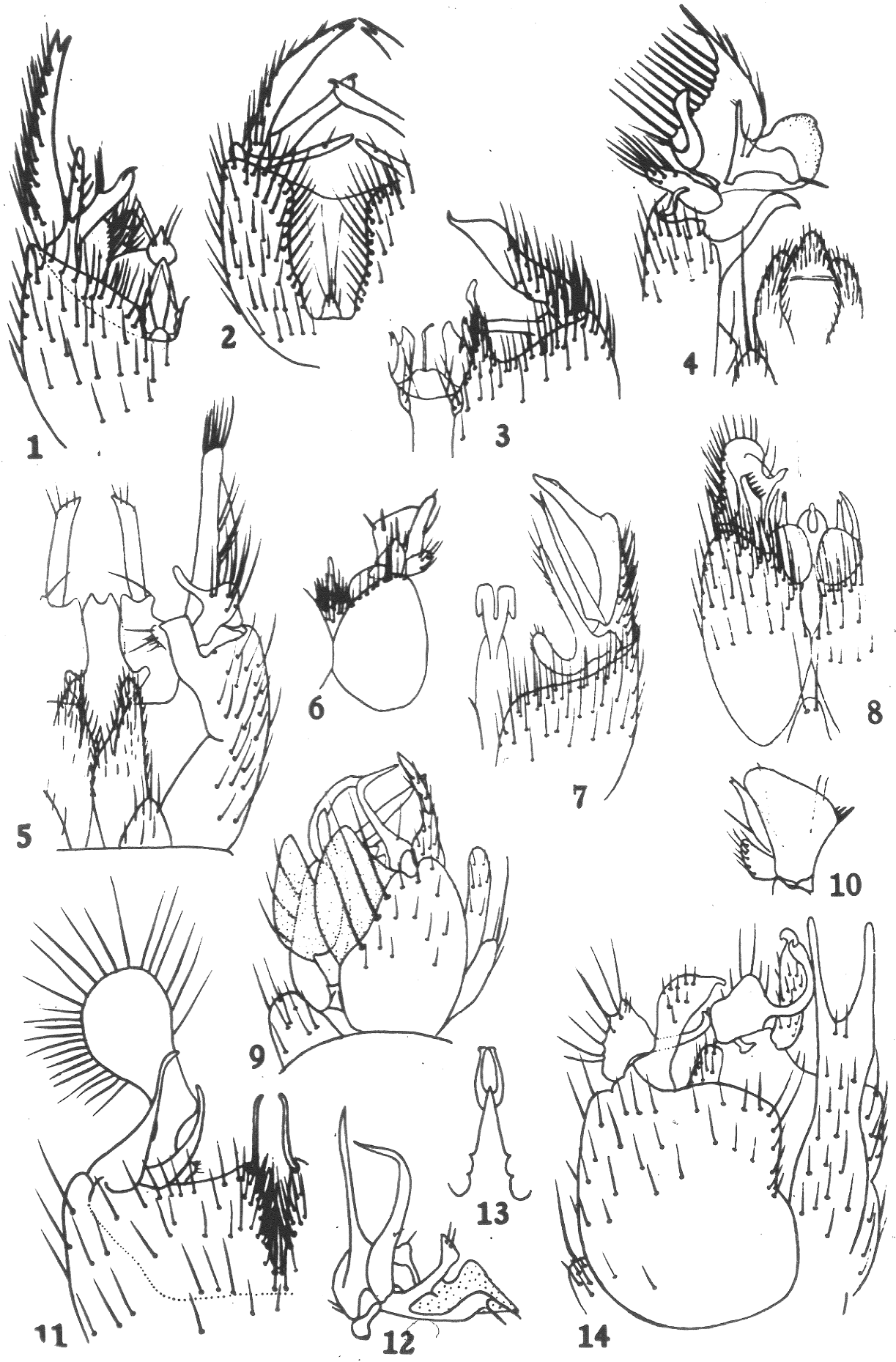


Plate 23.

1. Exechia ovata- dorsal aspect of style.
2. Exechia ovata-mid ventral line of zygosternal border.
3. Exechia sp. B- tergum and anal segment.
4. Exechia sp. B- dorsal aspect of style.
5. Exechia lundstroemi- dorsal aspect of style.
6. Exechia lundstroemi- ventral aspect of style.
7. Exechia fusca- dorsal after Dziedziicki
8. Exechia bicincta- ventral aspect of left side.
9. Exechia capillata- mesal aspect of styles.
10. Exechia capillata- dorsal aspect of style and zygosternal border.
11. Exechia capillata-lateral aspect, distal portion only.
12. Exechia fusca- ventral aspect after Dziedziicki.
13. Exechia repanda- lateral aspect of style and zygosternal border.
14. Exechia repanda- dorso-mesal aspect of styles.
15. Exechia repanda- dorsal aspect of styles.
16. Exechia bicincta- dorsal aspect after Dziedziicki.
17. Allodia callida-mesal aspect of styles and zygosternal half after Johannsen.
18. Allodia sp. #109- dorso-mesal aspect of styles.
19. Allodia subelata- style tip after Malloch.
20. Allodia subelata - dorsal aspect of the right side after Malloch.
21. Allodia crassicornis- ventral aspect after Dziedziicki.
22. Allodia crassicornis- dorsal aspect after Dziedziicki.

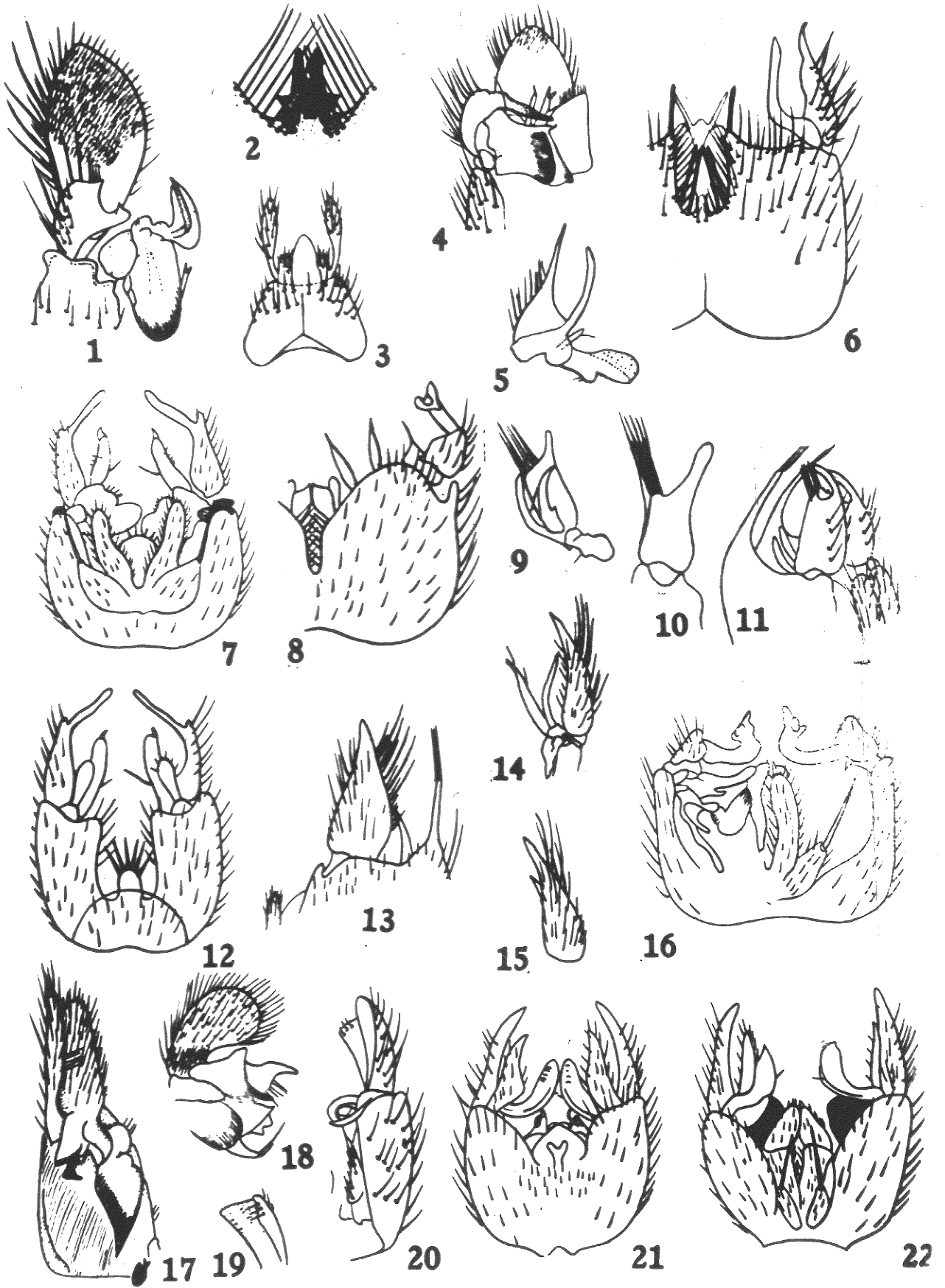


Plate 24.

1. Exechia gatiata- dorsal aspect.
2. Exechia cincinnata- dorsal aspect.
3. Exechia cincinnata- mesal aspect of styles.
4. Exechia canalicula- dorsal aspect.
5. Exechia assidua- dorsal aspect.
6. Exechia abrupta- lateral aspect.
7. Exechia nugatoria -dorsal aspect.
8. Exechia nativa- dorsal aspect.
9. Exechia quadrata- dorsal aspect.
10. Exechia clepsydra- mesal aspect, dorsal on the right.
11. Exechia absoluta- dorso-mesal aspect of styles.
12. Exechia clepsydra- ventro-lateral aspect.
13. Exechia nugatoria- lateral aspect of styles, dorsal
on the right.
14. Exechia abrupta- mid ventral line of zygosternal
border.
15. Exechia absoluta- lateral aspect.



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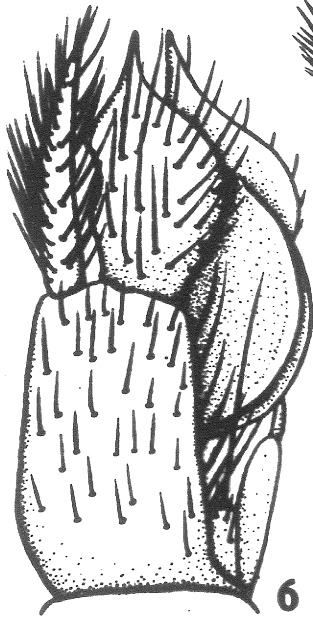
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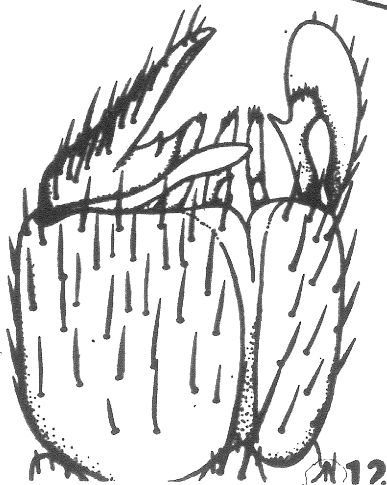
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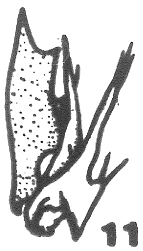
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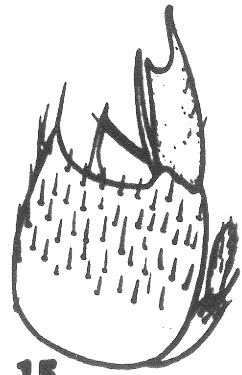
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Plate 25 cont.

26. Allodia sp. #107(near proxima)-dorsal aspect of style.
27. Allodia beata(Joh.#120)-ventral aspect of left side.
28. Allodia beata(Joh.#120)-dorsal aspect of style.
29. Allodia actuaria(Joh.#121)-ventral aspect of left style and zygosternal border.
30. Allodia crassicornis var. a (Joh.#547)-dorsal aspect of style.
31. Allodia crassicornis var. c(Joh.#554)-dorsal aspect of style lobe C.
32. Allodia bulbosa-ventral aspect of right side.

Plate 25.

1. Allodia ornaticollis- ventral aspect.
2. Allodia ornaticollis -lateral aspect of style lobe
A
3. Allodia lugens- lateral aspect of style lobe A.
4. Allodia anglofennica- tip of left style lobe (C)
in dorsal aspect.
5. Allodia anglofennica- tip of left style lobe(B) in
dorsal aspect.
6. Allodia ornaticollis var. #105-lateral aspect of
style lobe A.
7. Allodia truncata(#108)-lateral aspect of style lobe
A.
8. Allodia truncata(#108)-dorsal aspect of style.
9. Allodia anglofennica-lateral aspect of style lobe
A.
10. Allodia ornaticollis var. (105)-dorsal aspect of
right style.
11. Allodia ornaticollis var. (105)-ventral aspect of
right style.
12. Allodia delita-ventral aspect of style.
13. Allodia delita- lateral aspect of style.
14. Allodia ornaticollis var. a of Johannsen's falcata
(#553 Joh. Coll.)-lateral aspect of style
lobe A, ventral to the right.
15. Allodia ornaticollis var. a of Johannsen's falcata
(#553 Joh.)-dorsal aspect of left style
lobe B.
16. Allodia ornaticollis (typical form)-mesal aspect
of style.
17. Allodia bulbosa-dorsal aspect of style.
18. Allodia sp #112 (veralli Edw. ?)-dorsal aspect
of style.
19. Allodia elata (Joh. #526)-dorsal aspect of style.
20. Allodia elata(Joh. #526)-ventral aspect of style.
21. Allodia sp #53-dorsal aspect of style.
22. Allodia bella(Joh. #558)-dorsal aspect of style.
23. Allodia bella (Joh. #558)-ventral aspect of style.
24. Allodia delita-dorsal aspect of style.
25. Allodia sp. #53-ventral aspect of style.

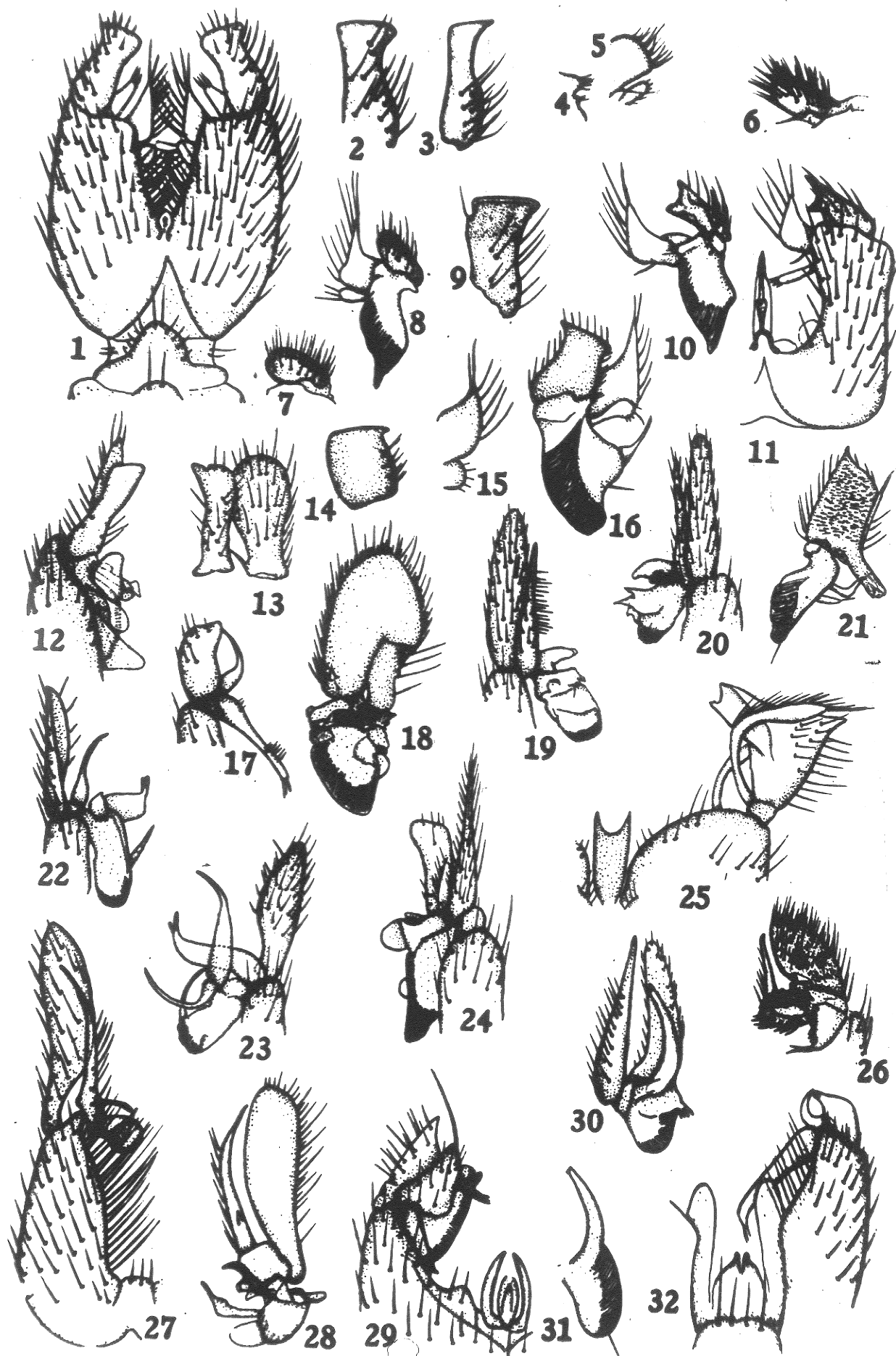


Plate 26.

1. Rhymosia inflata- dorsal aspect.
2. Rhymosia imitator-ventral aspect of left side.
3. Rhymosia cristata- mesal aspect of style.
4. Rhymosia imitator-dorsal aspect of right style.
5. Rhymosia imitator-lateral aspect of style lobe B.
6. Rhymosia triangularis-lateral aspect of style.
7. Rhymosia domestica-ventral aspect of right side.
8. Rhymosia domestica-mesal aspect of style, dorsal
on the left.
9. Rhymosia akeleyi- lateral aspect of style.

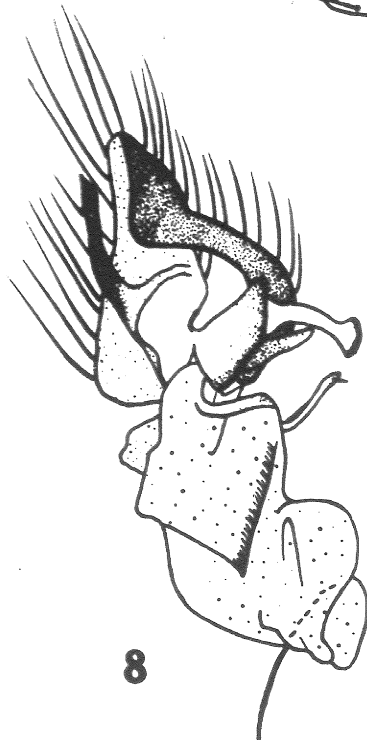
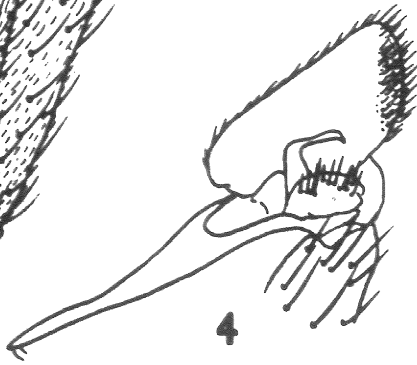
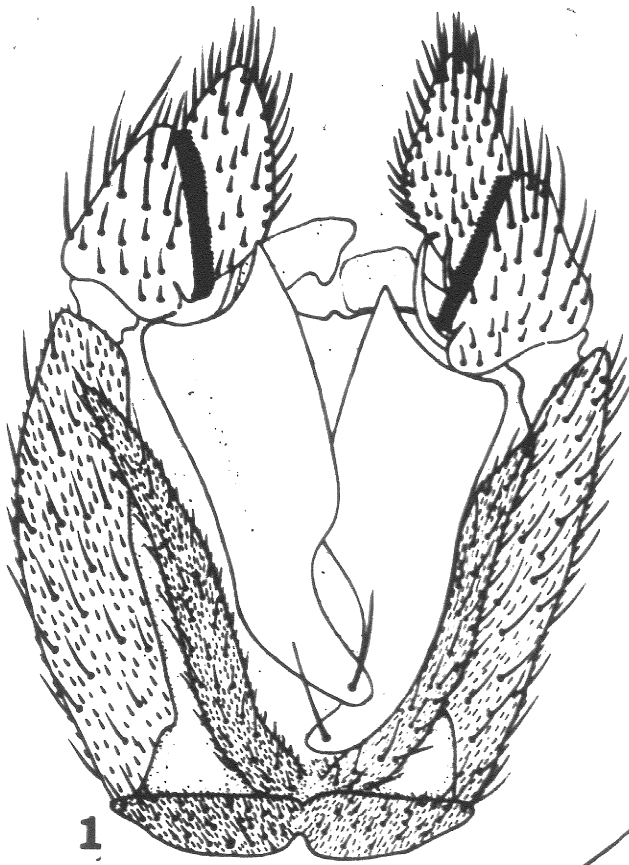
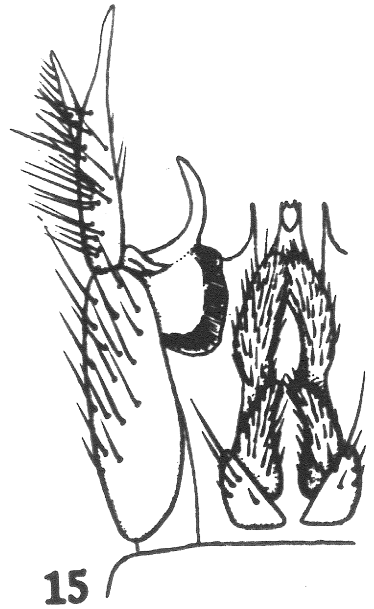
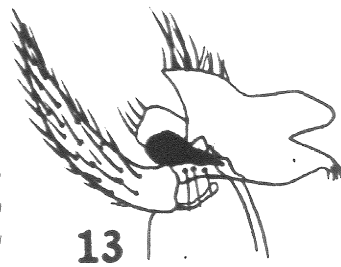
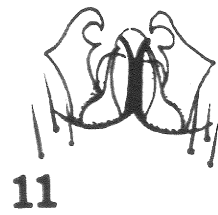
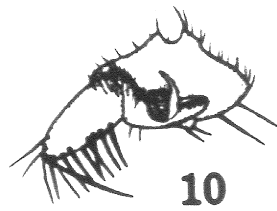
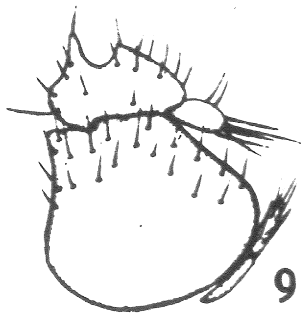
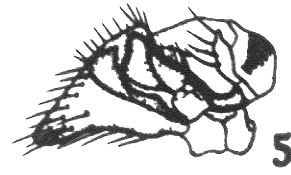
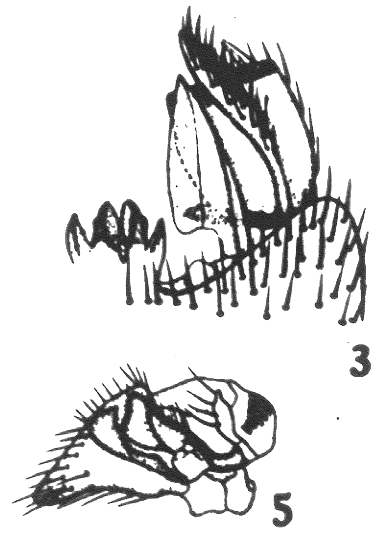
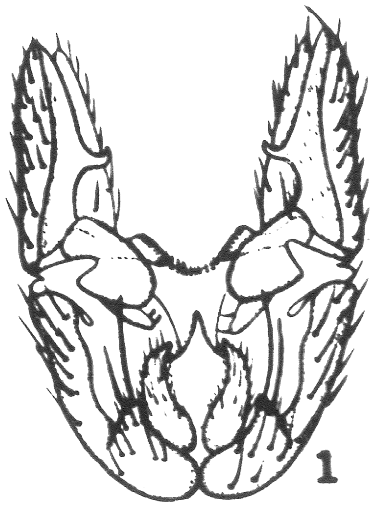


Plate 27.

1. Rhynchosia serripes-dorsal aspect.
2. Rhynchosia diffusa- dorsal aspect of left side.
3. Rhynchosia diffusa-ventral aspect of right side.
4. Rhynchosia labes-ventral aspect of right side.
5. Rhynchosia labes-mesal aspect of style.
6. Phronia exigua-ventral aspect after Dziedicki.
7. Phronia exigua-dorsal aspect after Dziedicki.
8. Erechia captiva-lateral aspect.
9. Phronia nebulosus-lateral aspect.
10. Phronia nebulosus-mesal aspect of style, dorsal on the left.
11. Brachypeza meramecensis-ventral aspect of mid-line of zygothoracic border.
12. Brachypeza bisignata divergens-dorsal aspect.
13. Brachypeza bisignata divergens-ventral aspect of style.
14. Brachypeza bisignata divergens-style lobe A.
15. Brachypeza meramecensis-dorsal aspect.



12

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Plate 25.

1. Cordyla recens-ventro-mesal aspect of style, dorsal to the left.
2. Cordyla recens-dorso-mesal aspect of style, dorsal to the left.
3. Cordyla recens-dorsal aspect.
4. Cordyla scita-ventral aspect.
5. Cordyla scita-dorsal aspect of supra-anal lobe.
6. Cordyla volucris- ventro-mesal aspect of style.
7. Dynatosoma fulvida-dorso-lateral aspect showing both styles.
8. Dynatosoma johannseni-dorso-lateral aspect showing both styles.
9. Cordyla manca-ventral aspect of right style.
10. Dynatosoma bifasciata-lateral aspect.
11. Dynatosoma bifasciata-ventral aspect of left side.
12. Dynatosoma placida-lateral aspect of unprepared terminalium.
13. Dynatosoma auresi-lateral aspect after Guthrie.
14. Dynatosoma auresi-dorsal lobe of style after Guthrie.
15. Allodia denticata-dorsal lobe of style after Guthrie.
16. Allodia denticata-ventral lobe of style after Guthrie.
17. Dynatosoma auresi-ventral lobe of style after Guthrie.
18. Allodia denticata-lateral aspect after Guthrie.

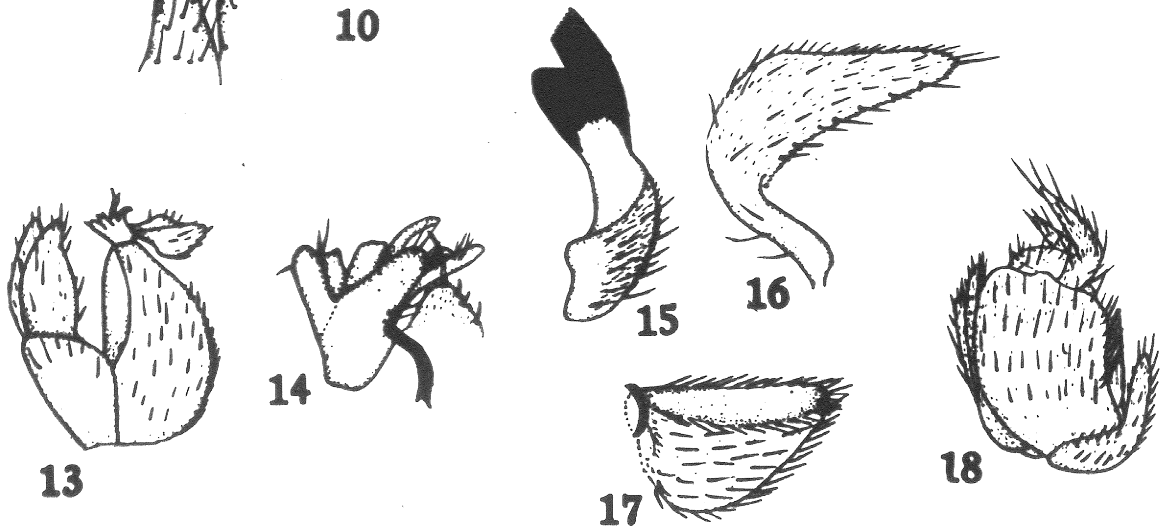
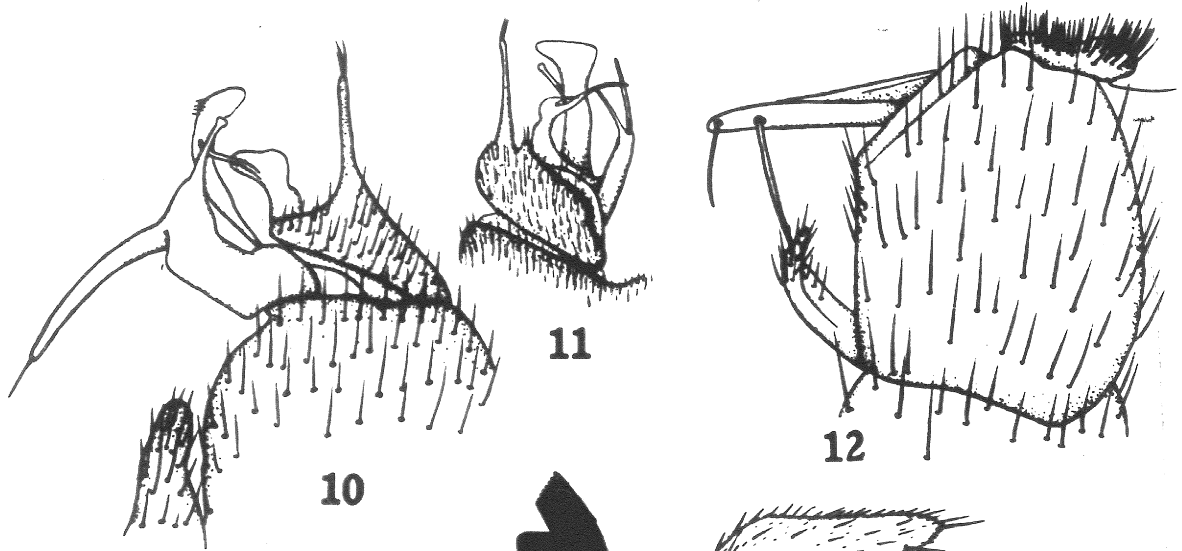
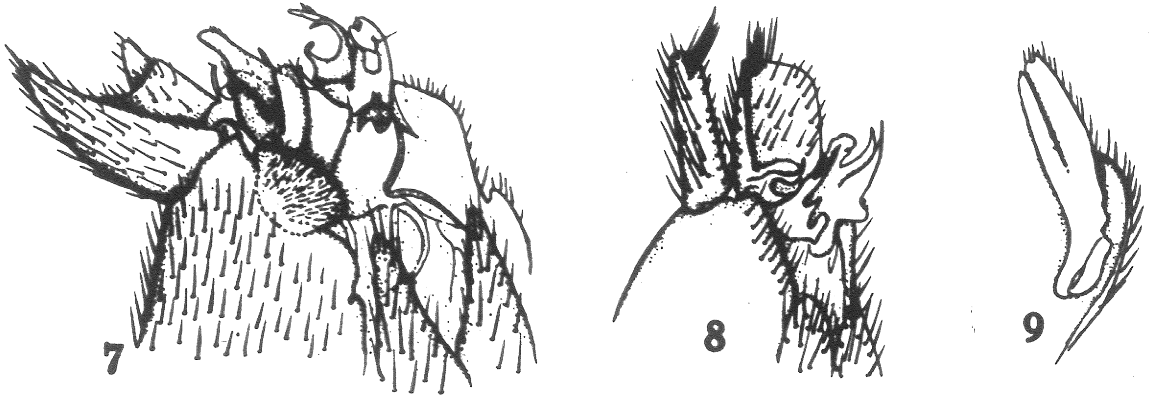
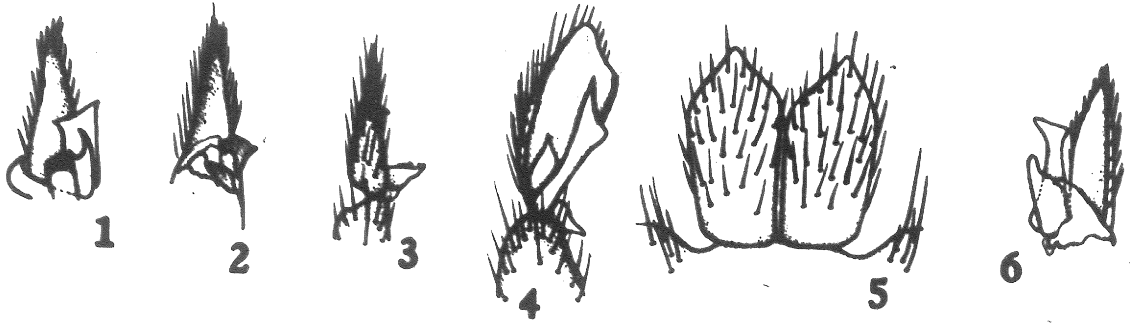
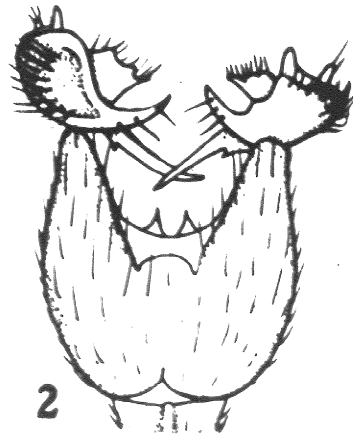


Plate 29.

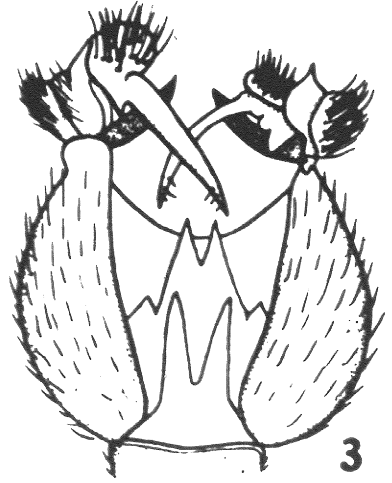
1. Trichonta vulgaris-dorsal aspect of style.
2. Trichonta obesa-ventral aspect after Mik.
3. Trichonta obesa-dorsal aspect after Mik.
4. Trichonta fusciventris-lateral aspect of unprepared terminalium after Van Duzee.
5. Trichonta obesa-lateral aspect after Mik.
6. Trichonta diffissa-ventral aspect of left style.
7. Trichonta diffissa-dorsal aspect.
8. Trichonta triangularis-lateral aspect of style.
9. Trichonta sp #205-lateral aspect of style.
10. Trichonta patens-dorsal aspect of style.
11. Trichonta sp. #206-lateral aspect of style.
12. Trichonta bellula-dorsal aspect of right style.
13. Trichonta bellula-lateral aspect.



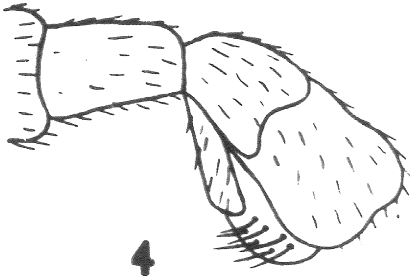
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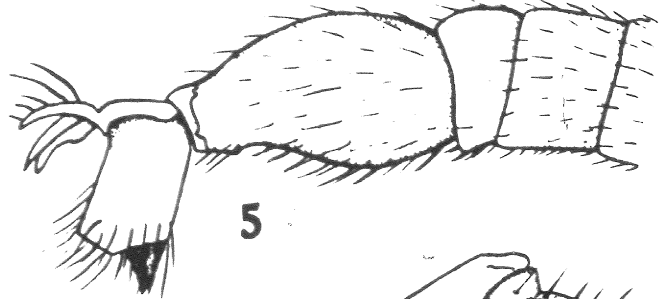
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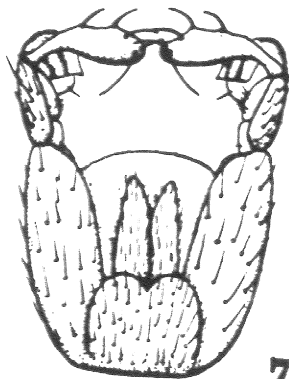
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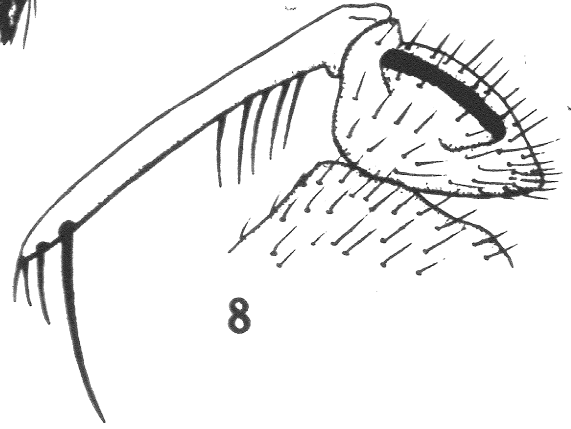
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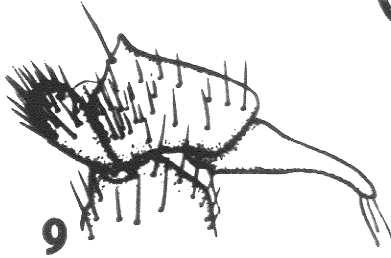
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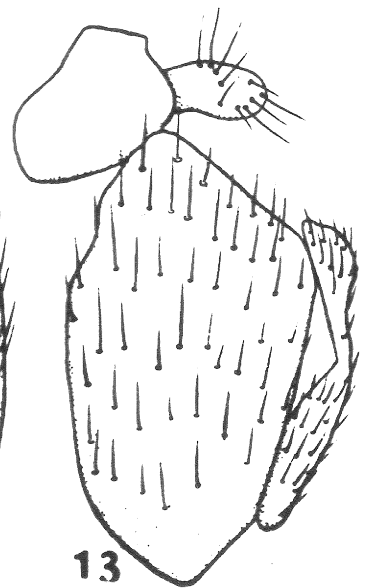
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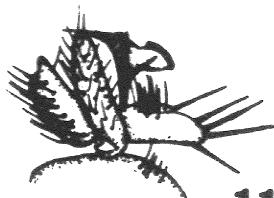
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13



10



11

Plate 30.

1. Phronia similis type-dorsal aspect of style.
2. Phronia similis type-lateral aspect of style.
3. Phronia similis type-ventral aspect of style.
4. Phronia sp #573 Joh.coll.=cotype of similis-
aedeagus.
5. Phronia sp. #573 Joh.coll.=cotype of similis
lateral aspect of terminalium.
6. Phronia sp.#573 Joh. coll.=cotype of similis
ventral aspect of style.
7. Phronia difficilis var.-mesal aspect of style.
- 8/ Phronia venusta-ventral margin of zygosternum.
9. Phronia venusta-dorsal aspect of styles.
10. Phronia venusta-aedeagus.
11. Phronia difficilis-ventro-lateral aspect of
terminalium.
12. Phronia insula-dorsal aspect.
13. Phronia insula-ventral aspect.
14. Exechia aviculata-lobe of zygosternum.
15. Exechia aviculata-styles.
16. Phronia producta- dorsal aspect of styles.
17. Phronia producta-ventral aspect of style.
18. Exechia aviculata-lateral aspect.

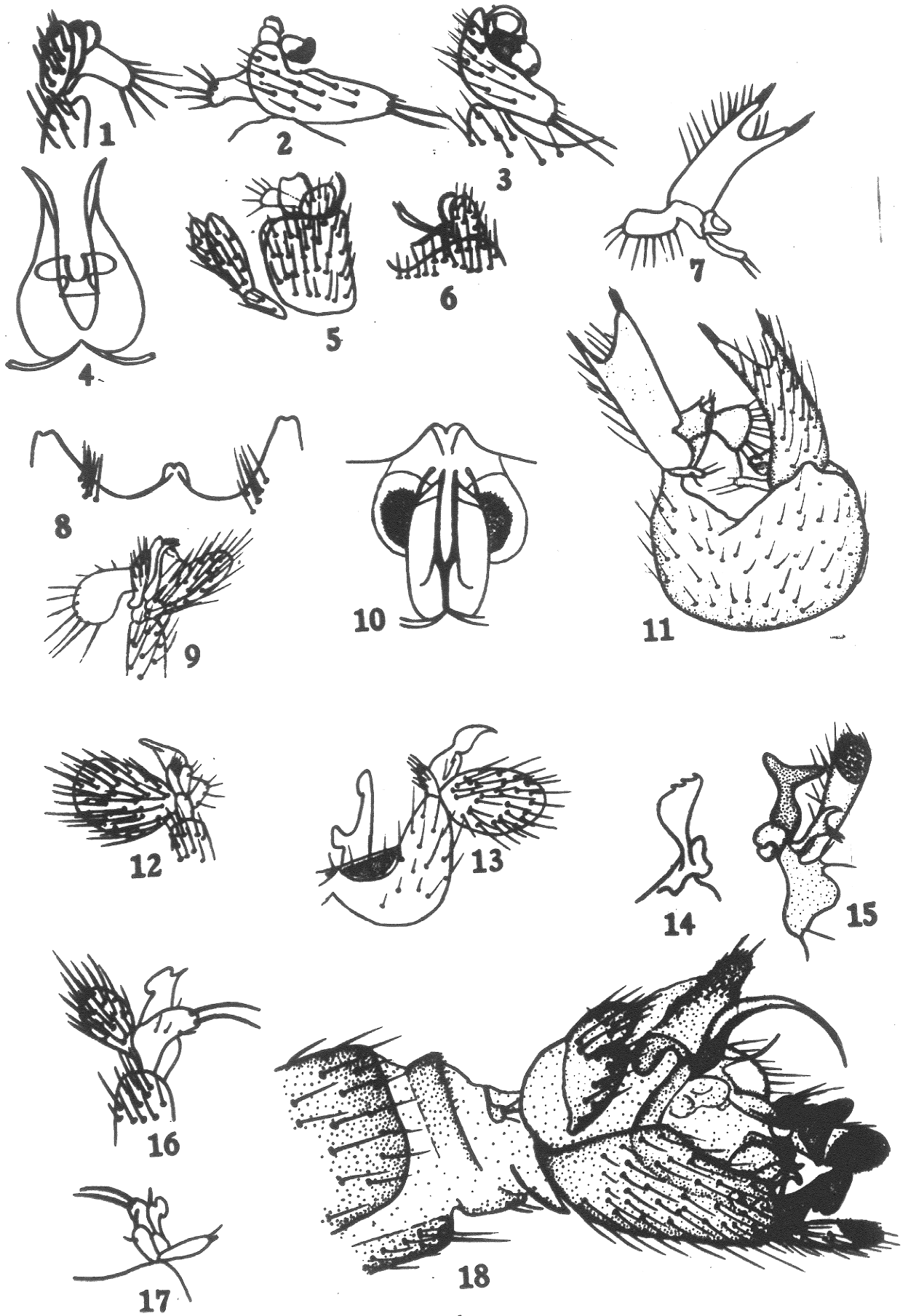


Plate 31.

1. Mycetophila inculta-ventral aspect.
2. Mycetophila mutica-ventral aspect.
3. Mycetophila mutica-lateral aspect of style and zygosternal border.
4. Mycetophila inculta-lateral aspect, dorsal on left.
5. Mycetophila inculta-ventral aspect.
6. Mycetophila fungorum fungorum-dorso-caudal aspect of right style.
7. Mycetophila fungorum obscura-dorso-caudal aspect of right style.
8. Mycetophila fungorum fungorum-ventral aspect of left style.
9. Mycetophila mitis-mesal aspect of style.
10. Mycetophila fungorum obscura-ventral aspect of left side.
11. Mycetophila mira-dorsal aspect.
12. Mycetophila mitis-lateral aspect.
13. Mycetophila mitis-ventral aspect.
14. Mycetophila jugata-lateral aspect.
15. Mycetophila mira-lateral aspect.
16. Mycetophila jugata-lateral aspect.
17. Mycetophila lenta-ventral aspect.
18. Mycetophila lenta-lateral aspect of style.
19. Mycetophila lenta distincta-lateral aspect of style.
20. Mycetophila lenta distincta-ventral aspect.

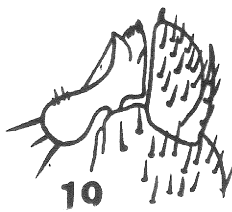
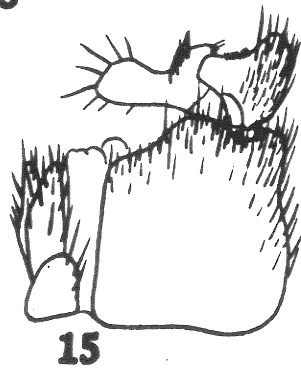
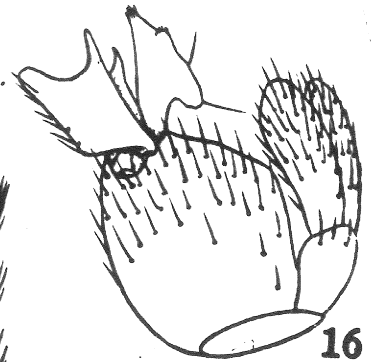
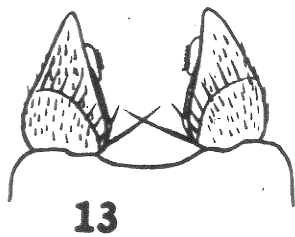
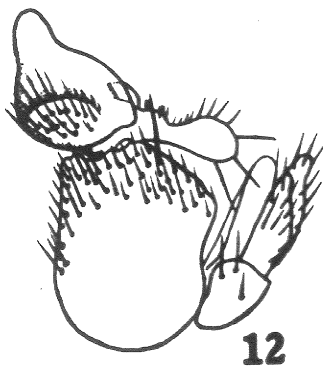
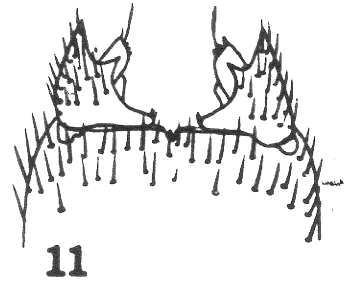
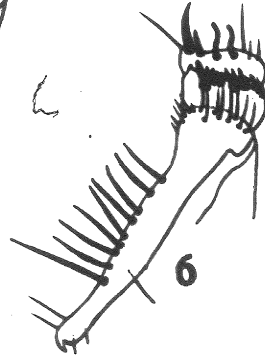
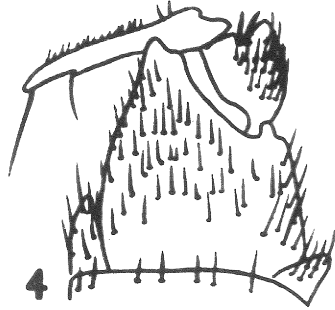
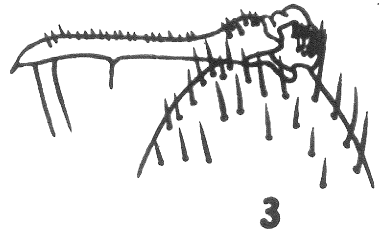
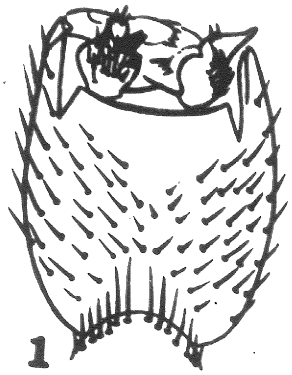


Plate 32.

1. Mycetophila cirrata-ventral aspect.
2. Mycetophila falcata-ventral aspect.
3. Mycetophila falcata-lateral aspect.
4. Mycetophila extincta-ventral aspect.
5. Mycetophila extincta-lateral aspect.
6. Mycetophila cippus-ventral aspect.
7. Mycetophila spinosa-ventral aspect.
8. Mycetophila cippus-lateral aspect.
9. Mycetophila spinosa-lateral aspect.
10. Mycetophila impellans-lateral aspect.
11. Mycetophila edentula-lateral aspect.
12. Mycetophila edentula-ventral aspect.
13. Mycetophila foscunda-lateral aspect.
14. Mycetophila jucunda-lateral aspect of styles.
15. Mycetophila lenis-lateral aspect.
16. Mycetophila lenis-ventral aspect.
17. Mycetophila jucunda-ventral aspect.

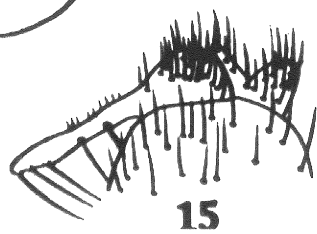
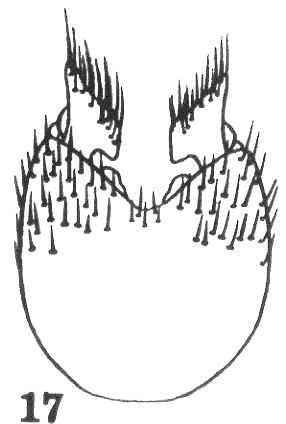
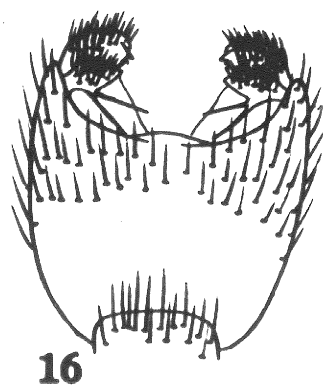
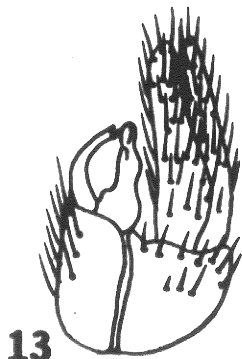
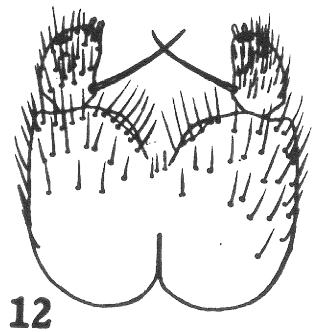
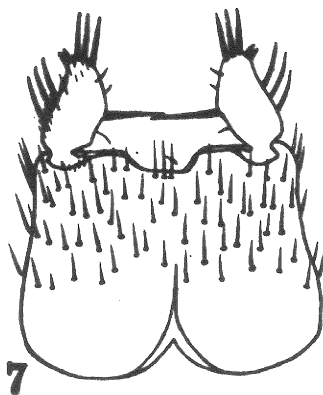
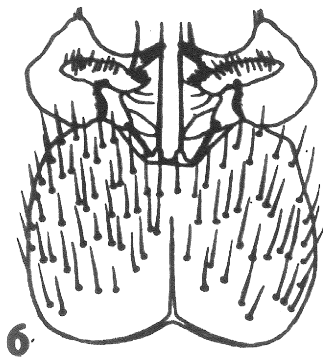
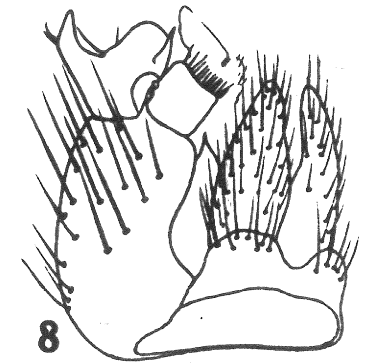
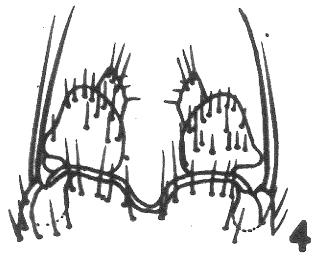
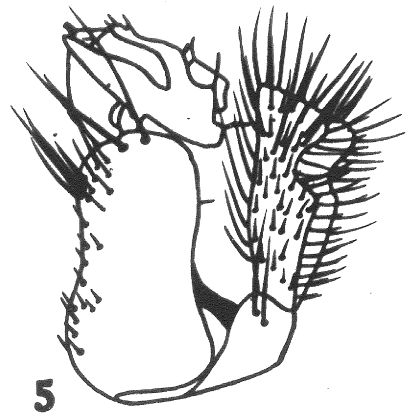
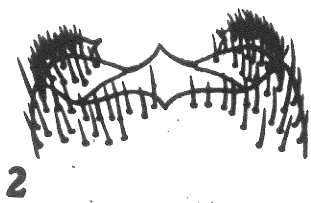
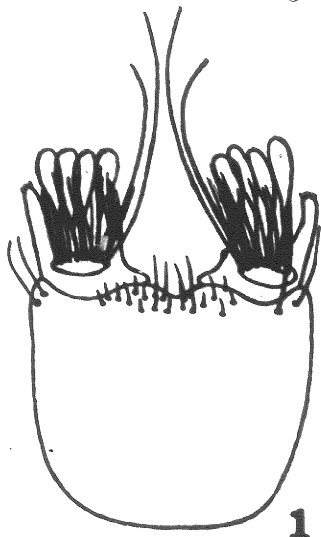


Plate 33.

1. Mycetophila sordida-lateral aspect.
2. Mycetophila sordida-ventral aspect.
3. Mycetophila bipunctata-lateral aspect.
4. Mycetophila sordida var.-ventral aspect.
5. Mycetophila sordida var.-lateral aspect.
- 5a. Mycetophila sordida var+style lobe C.
6. Mycetophila bipunctata-ventral aspect.
7. Mycetophila perlonga-ventral aspect.
8. Mycetophila lassata-dorsal aspect.
9. Mycetophila lassata-ventral aspect.
10. Mycetophila nocua-ventro-lateral aspect.
11. Mycetophila perlonga-lateral aspect.
12. Mycetophila pectita-dorso-lateral aspect.
- 12a. Mycetophila pectita-lateral aspect of tip of
style lobe C.
13. Mycetophila nocua-dorso-lateral aspect of style B.

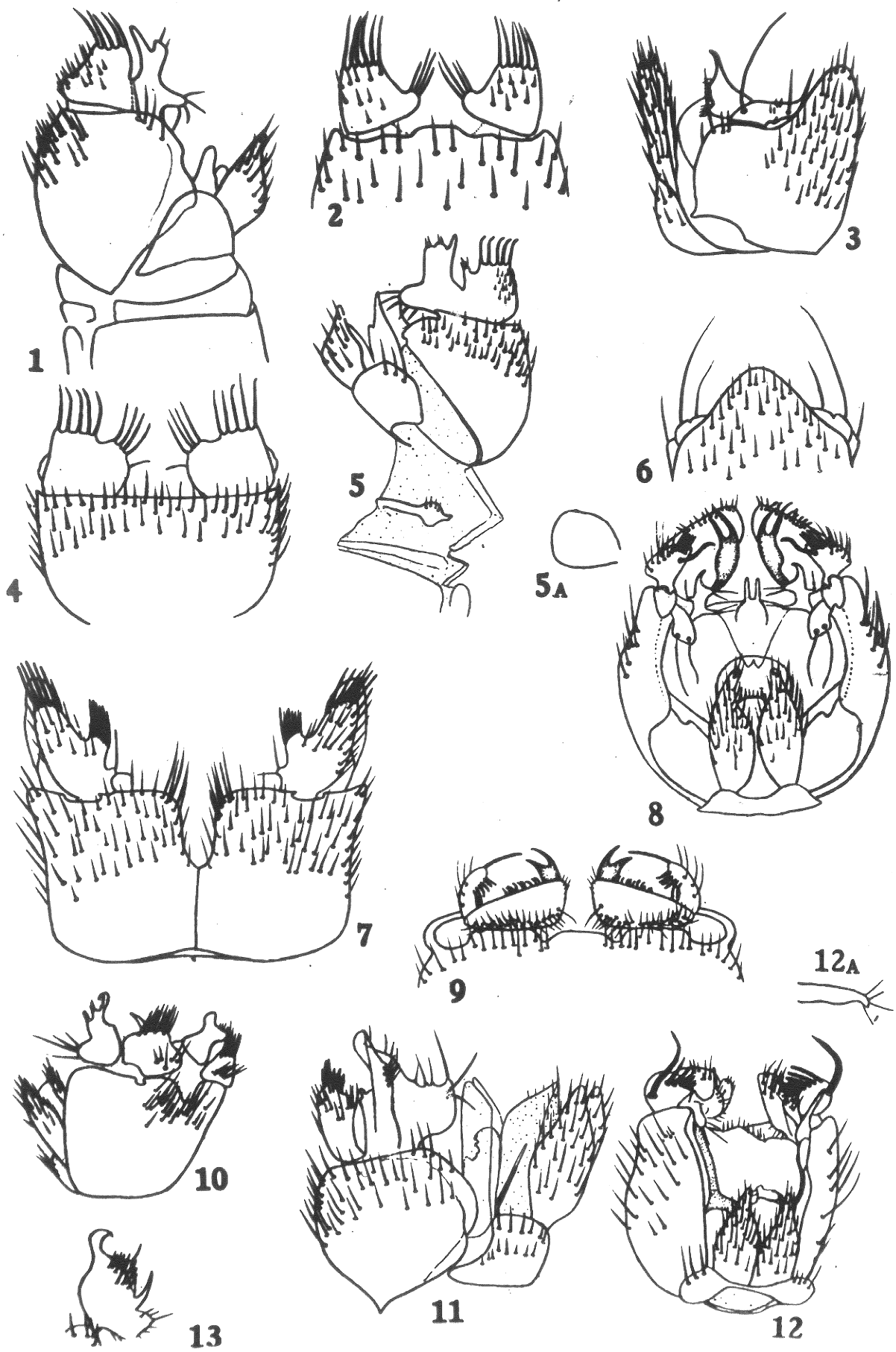


Plate 34.

1. Mycetophila fatua-dorsal aspect.
2. Mycetophila fatua-ventral aspect of right .
3. Mycetophila permata-ventral lobe of style
after Guthrie.
4. Mycetophila trinotata var.a-variation in style
tip.
5. Mycetophila trinotata var.a-dorsal aspect of
style.
6. Mycetophila permata-dorsal lobe of style after
Guthrie.
7. Mycetophila permata-lateral aspect after Guthrie.
8. Mycetophila trinotata var.a-ventral aspect.
9. Mycetophila alata-dorsal lobe of style after
Guthrie.
10. Mycetophila alata-ventral lobe of style after
Guthrie.
11. Mycetophila alata-lateral aspect after Guthrie.
12. Mycetophila intima-lateral aspect.
13. Mycetophila intima-ventral aspect.
14. Mycetophila labes-lateral aspect showing one style
only, style pulled up.
15. Mycetophila ingens-dorsal aspect.
16. Mycetophila ingens-ventral aspect.
17. Mycetophila maculosa -dorsal lobe of style,
after Guthrie.
18. Mycetophila maculosa-ventral lobe of style,
after Guthrie.
19. Mycetophila maculosa- lateral aspect, after Guthrie.

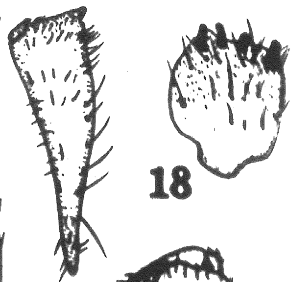
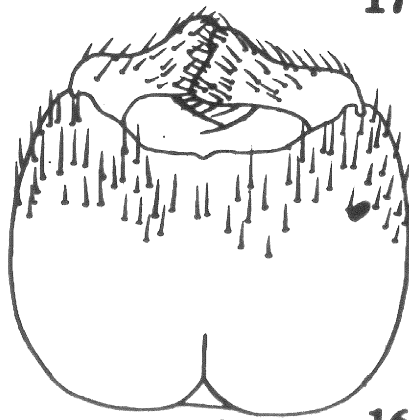
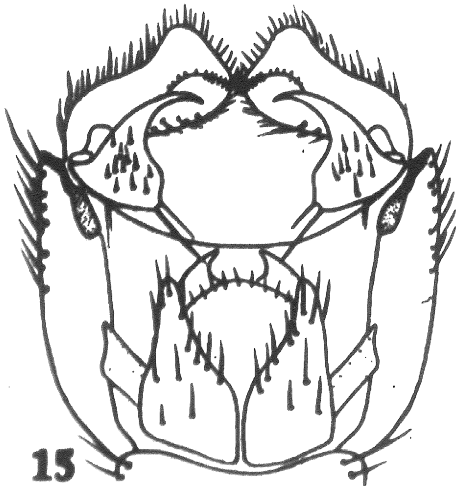
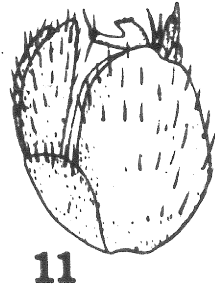
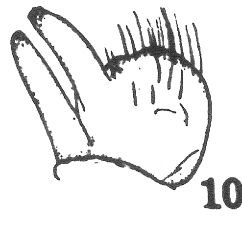
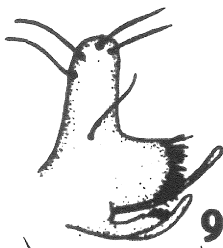
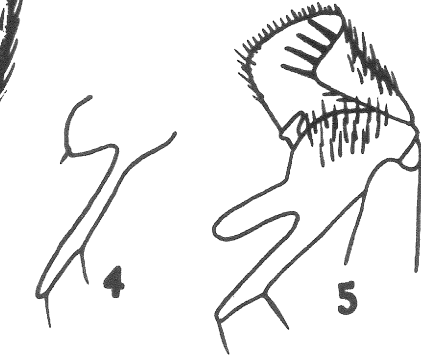
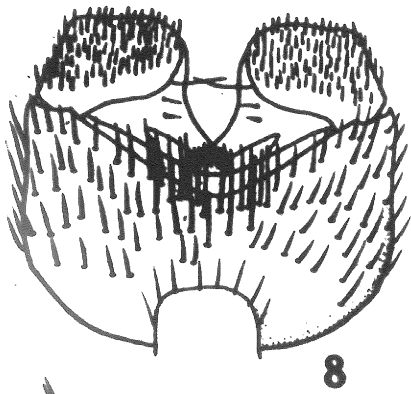
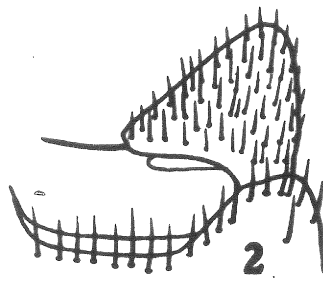
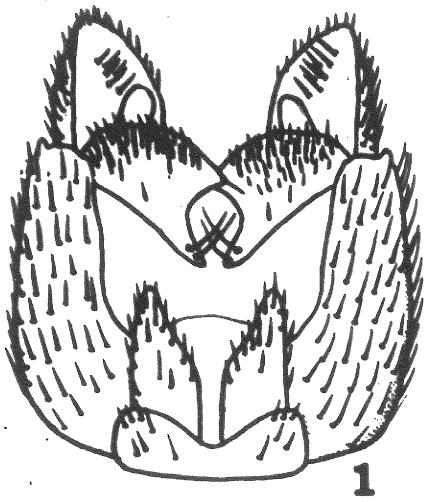


Plate 35.

1. Mycetophila parabola-lateral aspect.
2. Mycetophila impellans-ventral aspect of right side.
3. Mycetophila impellans-lateral aspect of style,
dorsal to the right, Cape Breton specimen.
4. Mycetophila recta-lateral aspect of style.
5. Mycetophila fastosa-lateral aspect of style.
6. Mycetophila recta-ventral aspect.
7. Mycetophila impellans var. 6ventral aspect ,
Cape Breton specimen.
8. Mycetophila fastosa-dorso-lateral aspect of
dorsal style lobe.
9. Mycetophila extenta-lateral aspect.
10. Mycetophila perita-dorsal aspect.
11. Mycetophila perita-ventral aspect.
12. Mycetophila edura-lateral aspect.
13. Mycetophila paula-ventral aspect.
14. Mycetophila paula-lateral aspect.
15. Mycetophila fallax ? -dorsal aspect.
16. Mycetophila imitator-ventral aspect.
17. Mycetophila imitator-dorsal aspect.
18. Mycetophila fallax ? -ventral aspect.

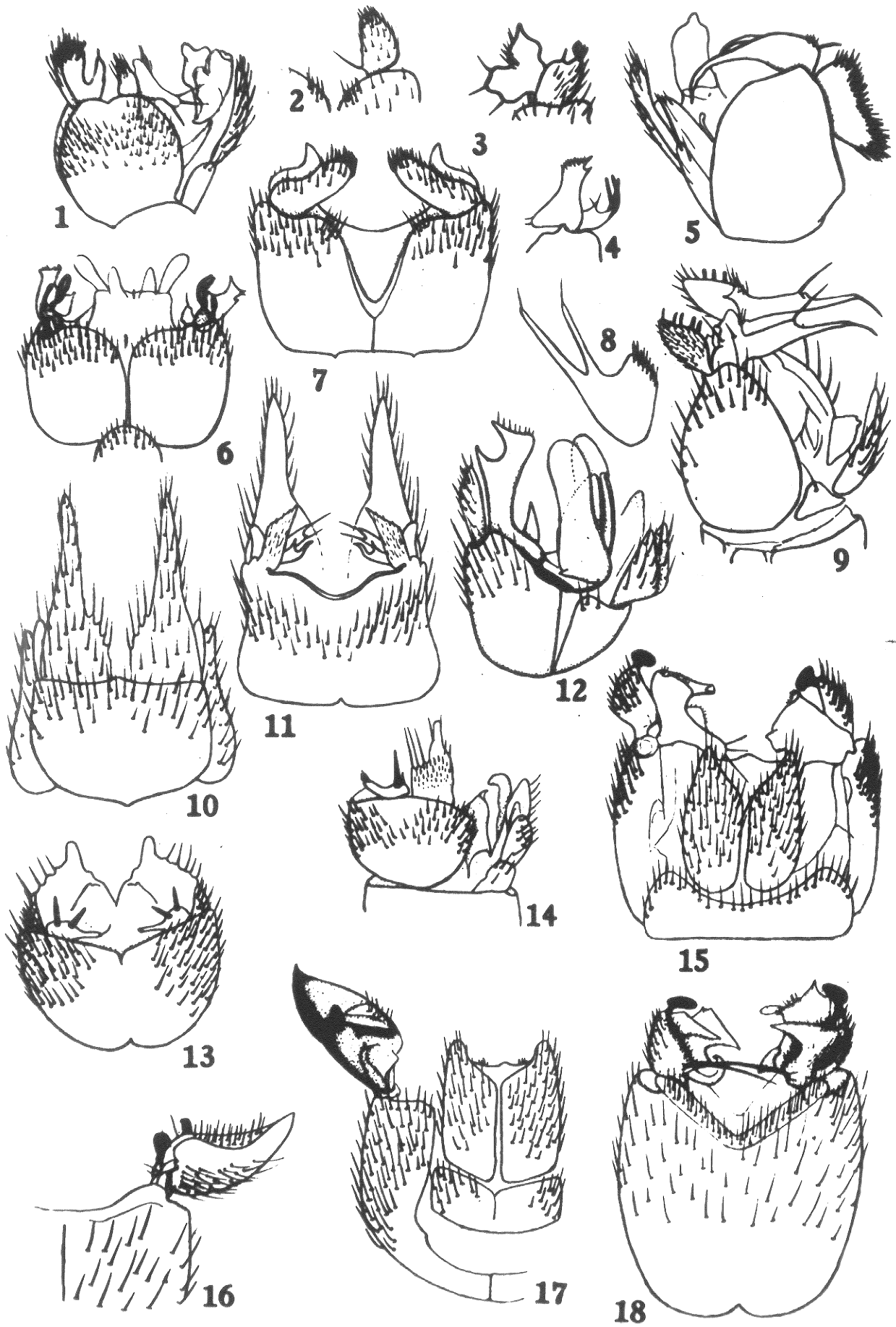


Plate 36.

1. Mycetophila scalaris-lateral aspect.
2. Mycetophila scalaris-lateral aspect of style.
3. Mycetophila scalaris-ventral aspect.
4. Mycetophila scalaris var. A-dorsal aspect of left style.
5. Mycetophila scalaris var. a-ventral aspect.
6. Mycetophila scalaris ventral aspect of left hind border and style.
7. Mycetophila quatuornata-dorsal aspect of style.
8. Mycetophila caudata-ventral aspect of left side.
9. Mycetophila caudata-caudal aspect of the anal segment.
10. Mycetophila caudata-lateral aspect.
11. Zygomysia sp. #259-ventral aspect.
12. Mycetophila socia-lateral aspect.
13. Zygomysia sp. #259-dorsal aspect of style.
14. Zygomysia sp. #259-lateral aspect.
15. Mycetophila socia-ventral aspect.
16. Mycetophila fenestrata var. exusta-lateral aspect of style.
17. Mycetophila fenestrata-lateral aspect of style.
18. Mycetophila fenestrata-edge of style lobe.
19. Mycetophila fenestrata-edge of style lobe.
20. Mycetophila fenestrata-ventral aspect.
21. Mycetophila fenestrata^{var. exusta}-ventral aspect.
22. Mycetophila quatuornata-dorso-lateral aspect of right style.
23. Mycetophila quatuornata-ventral aspect.

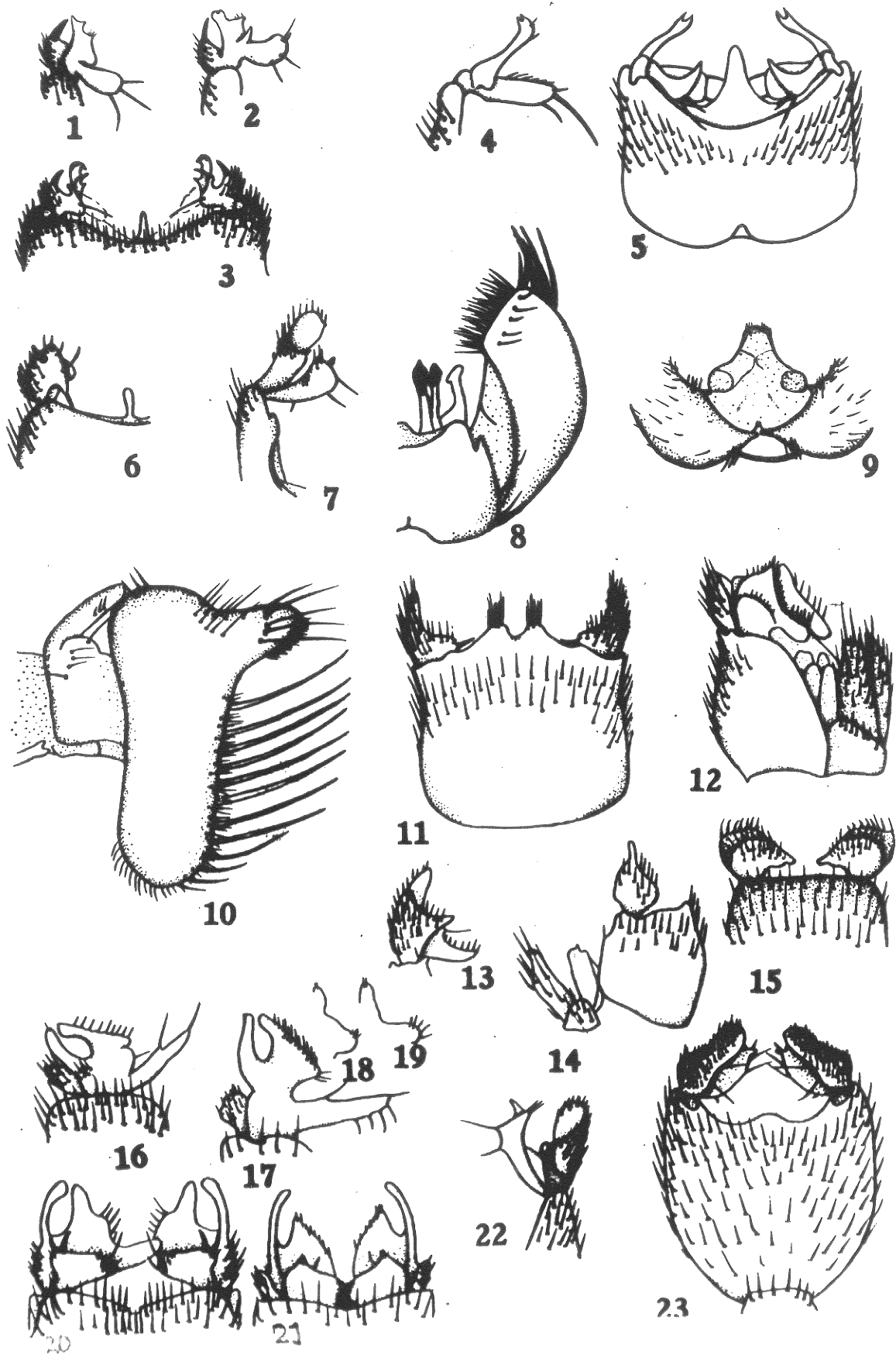


Plate 37.

1. Zygonia ornata-ventral aspect.
2. Sceptonia nigra-style after Edwards.
3. Zygonia vara Staeg.-ventral after Edwards.
4. Zygonia vara Staeg.-superior forceps after Edwards.
5. Zygonia ornata-ventro-lateral aspect.
6. Zygonia ornata-dorsal aspect.
7. Sceptonia nigra-ventral aspect after Edwards.
8. Zygonia ignobilis-ventral aspect.
9. Zygonia sp.A-lateral aspect of style.
10. Zygonia sp.A-dorsal aspect of style.
11. Sceptonia subnigra-lateral aspect.
12. Sceptonia subnigra-styles spread apart, dotted line indicates point of attachment.
13. Sceptonia sp.A-ventral aspect of left style.
14. Sceptonia sp.B-lateral aspect of style.
15. Sceptonia sp.A-lateral aspect of style, dorsal lobe pulled up into view.
16. Epicypta punctum-dorso-lateral aspect.
17. Epicypta trinotata-lateral aspect.
18. Delopsis anomala-lateral aspect.
19. Epicypta punctum-lateral aspect, dorsal on the right.
20. Delopsis anomala-dorsal aspect.
21. Delopsis anomala-ventral aspect.

