A Monograph of *Trichonta* With a Model for the Distribution of Holarctic Mycetophilidae (Diptera)
Abstract


The 67 known species of fungus gnats in the genus Trichonta in the Northern Hemisphere are keyed and described. The terminalia of the male and, when known, those of the female are illustrated. The following 34 Trichonta species are new to science: amica, beata, canora, clara, clemens, comica, comis, concinna, contenta, delicata, exima, facitis, festa, fidelis, flebilis, fragilis, generosa, gentilis, justa, languida, lucida, lyrca, merita, placida, pulchra, salva, secura, sedata, sedula, serena, sincera, sobria, superba, and valida.

Trichonta is described and compared with its closest relatives, and data are given on biology, fossils, and Southern Hemisphere species not treated here. Palaeotrichonta is considered a new junior synonym.

Holarctic distribution patterns within Trichonta are elucidated and shown to be the same as for other northern groups of fungus gnats. The most striking of these patterns is that the eastern Nearctic fauna is more similar to the European fauna than to the western Nearctic fauna. A hypothesis is elaborated to explain these patterns in Trichonta and in the Mycetophiloidea in general.

KEYWORDS: Fungus gnats, key to Trichonta species, Mycetophilidae, Trichonta, zoogeography.
A Monograph of *Trichonta* With a Model for the Distribution of Holarctic Mycetophilidae (Diptera)

By Raymond J. Gagné
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Trichonta is a large genus of 67 species of small, yellow-to-dark-brown fungus gnats. Adults are usually caught flying above the forest floor and along damp ravines. Larvae have been taken from puffballs and various wood-encrusting fungi. The genus is closely related to Phronia, and the two are remarkably similar in number of species and in geographical distribution. As defined, Trichonta occurs only in the Northern Hemisphere, although I consider the known species from Chile and Australia as belonging to this genus in the broad sense. The Austral species are treated briefly here in a separate section.

Trichonta has never been revised comprehensively, although Landrock’s (1926) compilation and atlas have been useful as a guide for identifying the Palaeartic European fauna. As with Phronia, revised in Gagné (1975), Trichonta has more than three times the number of Nearctic species listed in Laffoon (1965), a further indication that the family Mycetophilidae is rich in number of species and rivals the Tipulidae in this regard. Forty-six Trichonta species are known from North America, only 16 of them previously recognized from Europe, 6 previously described from the Nearctic region, and 24 new to science. Forty-seven species, 4 new to science, are now recognized from Europe where only 36 were known before. 5 new species are described from the Himalayan region, 1 species from the Afrotropical region, and 1 from the Philippines.

During this study, I have determined the identity of all but a few of the available names and scrutinized specimens of each species for available taxonomic characters. This study has enabled me to develop a key and atlas of the terminalia that can be used with confidence to identify all males and the females for the most common species. Because of the scope of this work, a general outline of the distribution of Trichonta emerges that allows one to generalize about the distribution and systematics of the family. In light of the extremely broad distribution of some species, it should be apparent to any one working on the taxonomy of fungus gnats that local faunal lists are not essential additions to the body of literature and that, conversely, meaningful revisions are those that treat all the names within a taxon, not just those previously recorded from the relatively restricted area in question. Further species should be described as new only if their authors have first compared them with all other congeneres or made all reasonable efforts to do so.

I examined over 4,500 specimens of Trichonta from 21 personal or institutional collections (see Acknowledgments) and from the U.S. National Museum. Past records, e.g., faunal lists, were substantiated by either specimens or illustrations or they were ignored. Handling and preparing the terminalia are described in detail in Gagné (1975). Briefly, the terminalia were cleared in sodium hydroxide, neutralized in a drop of acetic acid, placed in 70 percent alcohol for a few minutes, and then in glycerin on a depression slide for microscopic study. The abdomen was later permanently stored in glycerin in a microvial, and the tip of the pin bearing the remainder of the specimen was run through the cork stopper of the microvial. Although I preferred pinned specimens, the richest collection in numbers and in species was in alcohol. This material was from the Zoological Museum in Helsinki. Most of it had been collected in the 1960’s by R. Tuomikoski, W. Hackman, and others, sorted directly to genus, and stored in alcohol. Their greatest contribution was sorting to genus, and thus the material was available for study.

I sorted male specimens first according to the shape of the terminalia; those with like terminalia were considered the same species. I then scrutinized the specimens for other body characters that were consistent enough for species determination. The genitalia characters were the most heavily weighed. Thus two males with identical genitalia were considered conspecific even if one had setae on the anal wing vein and the other did not. The nongenital characters were then used to associate females with the various species. I was aided in this task when long series of both sexes were in the same catch or reared from the same mushroom. Since the nongenital characters were fairly diagnostic in Trichonta, I was able to associate the sexes of most of the common species. Counts of setae and measurements were based on 15 specimens, if available, but many more specimens as obtainable were checked against my descriptions and keys.

My species concept was necessarily morphological, based mainly on the very complicated male terminalia with their many parts and convolutions that are unlikely to have evolved more than...
except that they could be placed without benefit of type study. Several types were lost or their deposition was unknown, and a few were unavailable for study.

Except in the discussion of extraterrestrial species, the use of "Trichonta" in this bulletin refers only to the species of the Northern Hemisphere and not to the Austral species, which belong to Trichonta in the broad sense. They are retained in that genus for the time being because of lack of study. They may form the sister group of Trichonta-Phronia of the Northern Hemisphere.

Trichonta and Phronia (revised in Gagné, 1975) together form a monophyletic group within the Mycetophilini by virtue of the bare mesepimeron and the characteristic gonostylus as outlined in the generic description. Additional characters to distinguish the two genera from other Mycetophilini are the short tibial setae, the fairly long Sc, even when free, termination of the costa just beyond its juncture with R₅, and the gradually diverging branches of the cubital fork.

Phronia is separated from Trichonta by the combination of three synapomorphies: The short Cu fork beginning appreciably distal of the fork of M, the free Sc, and the lack of a posterobasal, hind coxal seta. Some Trichonta species also have a free Sc, or lack the coxal seta, or both, but all have a long Cu fork, and the shape of the terminalia does not particularly resemble that of any Phronia species. I am satisfied that those apomorphic character states, when present in Trichonta, are separately derived. Other examples of apparent convergence in both genera are the presence of only four large scutellar setae in most Phronia and a few Trichonta and the presence of three or four rows of hind tibial setae in various species of both genera. Trichonta, in addition, has species with five rows of hind tibial setae as well as some with two. One can hope that further knowledge of biology, hosts, internal anatomy, and immature stages will shed light on the natural relationships between and within these genera. I have been able confidently to arrange more than half the Trichonta species into natural groups of two or more mainly on the basis of obvious similarities of the male terminalia (table 1).

Reasons for the separate groupings are given in the systematic treatment under at least one species in each group. Beyond these general groupings I have avoided hypothesizing relationships. Differences in form of the terminalia do not lend themselves, except among related species, to characterization as apomorphic or plesiomorphic, and those other body features that do can be shown to be separately derived. The groupings I have made help to point out trends in the distribution of Trichonta.

### Table 1.—Grouping of related Trichonta species with number of their collection localities

<table>
<thead>
<tr>
<th>Species</th>
<th>Collection localities in—</th>
<th>Nearctic region</th>
<th>Palaeartic region</th>
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<tbody>
<tr>
<td>aberrans</td>
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<td>5</td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>bilida</td>
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<td></td>
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<td>brevicauda</td>
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<td>28</td>
<td>34</td>
</tr>
<tr>
<td>clemens</td>
<td></td>
<td>2 (western)</td>
<td></td>
</tr>
<tr>
<td>generosa</td>
<td></td>
<td>2 (western)</td>
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</tr>
<tr>
<td>merita</td>
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<td>1 (western)</td>
<td></td>
</tr>
<tr>
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<td>43</td>
<td>27</td>
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<tr>
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<tr>
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<td>6</td>
<td>2</td>
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<tr>
<td>eximia</td>
<td></td>
<td>35</td>
<td>2 (Himalayas)</td>
</tr>
<tr>
<td>melanura</td>
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<tr>
<td>concinna</td>
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<tr>
<td>canora</td>
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</tr>
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<td>1 (western)</td>
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<td>86</td>
</tr>
<tr>
<td>facilis</td>
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<tr>
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</tr>
<tr>
<td>superba</td>
<td></td>
<td></td>
<td>1 (Himalayas)</td>
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</table>
Several species of *Trichonta* have been described from the Austral regions of the world, and I have examined specimens of many undescribed species from southern South America. As mentioned previously, they are outside the scope of this revision but are discussed briefly here for completeness. No species of Mycetophilidae is common to both the Holarctic and Austral regions, but there are known sister group relationships on the generic level (Munroe, 1974). The *Trichonta* of the Southern Hemisphere do appear to be more closely related to the northern *Trichonta-Phronia* than to other genera but are nonetheless rather distinct, having developed in ways that are foreign to the concept one derives from the study of the strictly northern fauna.

Seven species were described from South America, specifically Chile, all by Freeman (1951): *Trichonta fasciata, fuñereaa, longinervis* (transferred from *Phronia* by Gagné (1975)), major, *nobilipennis, similis,* and *spinitera.* These can be separated, as Freeman (1951) suggested, into three distinct, probably natural groups. Some characters that appear on the Austral *Trichonta* fauna and that are peculiar to it are well-developed wing maculations, corrugated wing membranes, long antennae, fore-shortened tibiae and tarsi, spurlike tibial setae, the loss of dorsocentral and mesoscutal bristles, the large body (occasionally over 1 cm long), and the relatively undeveloped dorsal and medial parts of the gonostylus.

In addition to the South American species, three other species have been reported from the Austral regions. *Trichonta illaetabilis* and *T. vegeta* were described by Skuse (1888) from New South Wales, Australia, and an undescribed species was reported by Freeman (1951) from Tasmania.

Three Baltic amber fossils, each described from a female by Meunier (1904), can be referred to *Trichonta: Trichonta brachycaamptoides, crassipes,* and *brachycaamptites.* The last is a new combination here, having originally been placed in *Palaeotrichonta,* here a synonym of *Trichonta.* In addition, one fragmentary North American Tertiary fossil, *Trichonta dawsonii* Scudder (1877), sex indistinguishable, was properly referred here. These fossils establish not only that *Trichonta* was widespread in the Holarctic region during the Tertiary but that it existed in some variety with *brachycaamptoides* and *crassipes* having a swollen front tarsus and *brachycaamptites* a simple one, character states that are both present in modern species.

Litter is known of the biology of the *Trichonta* species. From the time span in collection dates of most species, one can infer that these flies have several generations a year. Collection dates for adults of the more common species span between late winter and late autumn.

Several species have been reared from fungi, usually the "bark-encrusting" kinds, as Edwards (1925b) noted, but belonging to several orders—Agaricales, Polyporales, and Tremellales. Larvae of *T. foeda* (as *stereana*) and *T. falcata* were found in England, often together, in *Stereum hirsutum,* either within the fungus or on the surface and covered with mucilage and excrement (Edwards, 1925b). *T. foeda* was reared also from *Polytictus versicolor* in Virginia (unpub.). *T. vitta* was taken repeatedly in England and France from *Poria vaporaria* (or *P. versipora*) (Edwards, 1925b; Buxton, 1960; Matile, 1963). *T. terminalis* was reared from larvae feeding on a flat, purplish, wood-encrusting fungus, possibly a *Corticium,* and *T. atricauda* came from another possible *Corticium* (Edwards, 1925b). *T. brevicauda* was reared recently in large numbers from *Lentinellus vulpinus* in Vermont by J. Lawrence (unpub.). Buxton (1960) reported *T. vernalis* from *Calocera cornea.* These larvae were bright yellow, the same color as the fungus, and crawled away from the fungus to make their cocoons. *T. venosa* was reared from "puff balls" (Edwards, 1925b) and is the only *Trichonta* so far reared from other than wood-encrusting fungi.

A Monograph of *Trichonta*
Sixty-five *Trichonta* species are now known to occur in the Holarctic, one in the Oriental, and one from the Afrotropical region. This last species seems to be a derived representative of the genus, distinct from other *Trichonta*, and not discussed further in this section. About half of the other *Trichonta* occur in both North America and Eurasia; the other half are almost equally divided between the two continents. The number of species dwindles from north to south as it does for *Phronia* (Gagné, 1975).

Although more information would be desirable for some of the less common species, I believe that more collection data will strengthen the general trends that are repeated too many times to be regarded as chance occurrences. For example, since my revision of *Phronia* (Gagné, 1975), I have examined over 500 additional specimens and found that the geographic range has changed markedly for only 2 species, and then in a way that might have been predicted by my argument, specifically, that a western Nearctic species in Europe will also occur in the eastern Nearctic. Since I found no new or previously unreported Palaearctic species, the predictive value of studying all available material is good.

For even uncommon *Trichonta* species, one can safely guess the general range. For example, I saw only 20 American specimens of *T. perspicua*, but they came from Alaska, Washington to California, Alberta, Iowa, Wisconsin, Quebec, New York, New Hampshire to Virginia, and Louisiana. One might confidently assume that *perspicua* will eventually be found in the States and Provinces between those named. On the other hand, knowledge of the ranges of *T. bezzi* and *T. excisa*, known from eastern Europe and one eastern North American or one Mexican locality, is too sketchy to assume their presence in western North America.

As a confidence index in discussing various species mentioned here, I have, where pertinent, added in parentheses following species names the number of American collection localities. I was not able to see specimens of *Trichonta* from most of Asia, including Japan, but the genus doubtless occurs there. Regrettably, comparisons cannot be made between the fauna of that area and the remainder of the Holarctic.

Several major patterns are apparent in the distribution of *Trichonta*. They are reflected many times in this and other groups of fungus gnats and indicate the relative age of these and possibly other organisms. Only a few other genera of fungus gnats are well enough known across the Holarctic region to allow comparisons with *Trichonta*. Revisions that were helpful in relating Nearctic and Palaearctic faunas are Lafoonte (1957) for *Mycetophila*, a revision of the Nearctic and a partial review of the Palaeartic species; Lašťovka (1972), a refinement on a part of *Mycetophila* group A of Lafoonte (1957); Lašťovka and Matile (1972), a revision of Holarctic *Diadocidae*, but based on limited Nearctic material; Munroe (1974), a revision of *Symmerus* and *Australosymmerus* of the world; and Gagné (1975), a revision of Nearctic *Phronia* and a review of the Palaearctic species.

The first general pattern concerns the gross distribution of *Trichonta* and *Phronia*. Twenty-eight *Trichonta* species occur in both Eurasia and North America, 18 are Nearctic only, and 19 Palaearctic. *Phronia* has 37 Holarctic, 16 Nearctic, and at least 21 Palaearctic species. There are actually 37 nominal Palaearctic *Phronia* species, but 10, known from the female only, and 6 others, known only from the Canary Islands and unavailable for study, are probably synonymous with other taxa. The corrected number for Palaearctic *Phronia* will probably be closer to 21 than 37 and thus will show a closer resemblance to *Trichonta*.

The second general pattern is that most natural groups of species have one or more Holarctic, one or more Nearctic, and/or one or more Palaeartic species (table 1). This not only reflects the distribution of the genus as a whole but shows that the pattern has repeated itself many times. This is true for *Phronia* (cf. the groups of species related to *conformis*, *tenebrosa*, and *ni-gricornis*), *Mycetophila* (for each of Lafoonte’s (1957) groups A–F and for Lašťovka’s *ruficollis* group), and for the small genus *Diadocidae*.

The third general pattern is that the eastern Nearctic fauna is more similar to the European fauna than to the western Nearctic fauna. Although most Nearctic species occur from coast to coast, some are found only east of the Great Plains (inclusively) and others only west of the Rocky Mountains (inclusively). *Trichonta* species in Europe and eastern North America, with number of collection localities, are *beata* (9), *bezzii* (1), *bicolor* (2), *clara* (8), *excisa* (1), *foeda* (9), and *pulchra* (1); species common to Europe and western North America only are *comica* (2), *fissicau-da* (6), and *fragilis* (1). Only 2 Nearctic species of *Phronia*, both common, do not occur in the Holarctic: they are *similis* (54), which is confined in the east, and *conformis* (63), which occurs also in Europe. In western North America, 12 species of *Phronia* are endemic. *P. matilei* and *P. digitata*, both of which are also Euro- pean and which I indicated as only western (Gagné, 1975), have since been found in material collected from New England and Quebec, respectively (unpub.).

*Mycetophila*, with 96 species known from the Nearctic region, shares at least 21 species with Europe (Lafoonte, 1957), and many of the remaining 75 species are either eastern or western Nearctic. Sixteen of the twenty-one Holarctic species are widespread in North America. Of the remaining 5, *finlandica* (3), *mitis* (47), *pictula* (15), and *unipunc-tata* (48) are eastern Nearctic only, and *scotica* (2) is western Nearctic only.

*Symmerus* shows this pattern also, but on the subgeneric level. No species is known from both Eurasia and North America, but the subgenus *Symmerus* consists of one eastern Nearctic, two European, and one Japanese species.

To summarize these trends, a particular model for the distribution pattern shows itself repeatedly enough so that whatever the reason it is probably the same in each instance. A satisfying hypothesis will be one that explains why the eastern North American fauna resembles more closely the European fauna than does the western North American fauna.

*Trichonta*, *Mycetophila*, and *Symme-rus*-*Australosymmerus* have amphipolar distributions. The last has been well researched by Munroe (1974), who showed that *Symmerus* was probably the northern vicariant of *Australosymmerus* of the Austral regions. *Trichonta* and *Mycetophila*, both in the broad sense, occur in the southern part of the world also, but the species there are different from the concepts one derives...
from study of the northern fauna alone and are probably sister groups of the northern section of their respective genera. For a discussion of Trichonta in this regard, see the section on Systematic Position and Relationships.

The widespread distribution, both amphipolar and Holarctic, indicates that these genera are very old when compared with the other groups of organisms that have no connections among the southern continents except via Laurasia.

In addition, speciation in these genera progressed at different rates as seen in Trichonta, which has species common to both continents, and Symmerus, which has taxa common to both continents but only on the subgeneric level.

Congruence between the European and eastern Nearctic fungus gnats suggests a connection between the two areas other than the Beringian one. If Beringia had been a major pathway for gene exchange in these flies, why then should the eastern fauna resemble more closely the European fauna than does the fauna of western North America? Pleistocene glaciation might not have been as great a factor in the creation of differences between the eastern and western American faunas as it was in maintaining the status quo of the separate faunas.

The most recent land connections between eastern North America and Europe was before the middle Eocene, a time when North America and Eurasia were both divided from North to South by seas. McKenna (1975) summarized fossil mammal and geological evidence, which strongly supports an early Eocene North Atlantic Euramerican connection. Fossil mammals of Europe and eastern North America were similar up to the middle Eocene but developed distinct differences after that time, differences that can be attributed to dispersal by the Bering route. The presumed Euramerican connection before the middle Eocene was fairly broad and considerably south of the pole, making it a more suitable faunal connection than the simultaneous Bering bridge, then much closer to the pole than it is now (McKenna, 1975) and consequently much colder and darker.

Can species of fungus gnats remain essentially unchanged for 50 million years, from the middle Eocene to the present? The fossil record gives some support for an affirmative answer. Trichonta is well defined and fairly diversified in Baltic amber (ca. 30 million years old) and in undated Tertiary deposits of North America. I cannot identify known fossil Trichonta species beyond generic level (see under Fossils) because they are represented only by females or specimens of indeterminate sex. But other Mycetophiloida, specifically the Cecidomyiidae from Mexican amber (Oligocene-Miocene, ca. 25-30 million years old), are virtually the same as extant Clidodiplosis terrestris (Felt), and female specimens of Contarinia sp. and Lestodiplosis sp. from the same amber are similar to extant species (Gagné, 1973). The fact that these fossils, which include a presumptive gallmaker of angiosperms, are so similar to our present fauna supports the assumption that species of fungus gnats could have remained essentially unchanged since the early Tertiary.

My hypothesis for the distribution of the Holarctic groups of Mycetophilidae is as follows: That the Laurasian fauna at the beginning of the Tertiary had many widespread species similar to extant species, e.g., Trichonta vulcani (map 1), T. melanura, and Phronia flavipes; that toward the early Eocene when Europe was divided from Asia and western North America from eastern North America, differentiation occurred in some species, resulting in a distribution as seen for Phronia confor mis-Ph. laffooni (map 2) and for Symmerus-Symmerus (Symmerus)-Symmerus (Psilosymmerus) (Munroe, 1974); and that after the middle Eocene, when Euramerica separated, further differentiation occurred between the American and European populations of some taxa as, e.g., in Trichonta conjungens-T. sedula (map 3) and subsequently between populations on each continent (maps 4-5). This hypothesis does not depend on directional movement across a narrow land bridge or extinctions. If correct, it should explain the distribution of other insect groups.

An example is the presence in the Americas of two vicariant tribes of Cecidomyiidae, the Alycaulini and the Lasiopterini, and the presence in the Old World of only the latter tribe. Each contains hundreds of species of host-specific gallmakers, chiefly of stems. The previous hypothesis does not beg the
Map 1.—*Trichonta vulcani* collection localities.
MAP 2.—Phronia conformis (circles) and P. lafooni (triangles) collection localities.

A Monograph of Trichonta
MAP 3.—*Trichonta foeda* (triangles), *T. sedula* (squares), *T. conjungens* (circles) collection localities.
MAP 4. — *Trichonta beata* (circles) and *T. clavigera* (triangles) collection localities.

A Monograph of *Trichonta*
Under Species Descriptions, the 67 recognized species are treated alphabetically followed by descriptions of the few unrecognized ones. Names for new species are short adjectives with pleasant sounds and connotations.

Various characters in the descriptions need some explanation. Color is used only as a general guide. Some species are always dark, others always light, but most show much color gradation.

Wing length indicates general size. It is measured from the base of the costa along a straight line sighted on the basal half of the costa to a point perpendicular to the wing tip. Position of bases of M and Cu forks is estimated in relation to a line perpendicular to the wing length line and running through Rs.

In my revision of Phronia (Gagné, 1975), I used “basimere” and “telo-mere” for what I now term “gonocoxite” and “gonostylus,” respectively, which are subdivisions of the gonopod. In addition, my former “male tergum X” and “cerci” are changed to tergite IX and X, respectively. The lobes of the latter are probably not homologous to cerci, but they may be called surstyli. I converted to this terminology in consideration of the usage in a manual for the Diptera of North America, being prepared by the Diptera Unit of the Biosystematics Research Branch, Agriculture Canada. As with Phronia, I refer for practical reasons to lateral, dorsal, and medial (changed here from mesal in Gagné (1975)) parts of the gonostylus. The description of the female terminalia includes anything remarkable about tergum VII and the shape and setation of tergum and sternum VIII and of cercus I and II; the last two roman numerals denote the first and second cercal segments, respectively.
Localities are given according to current maps. Usually only the names of States, Provinces, and, for Europe with occasional exceptions, countries are given for specimen localities. The exceptions are for type data and for those few new species for which only a few specimens are known. Complete specimen data and deposition were recorded in longhand on 8-by-10-inch paper, which will be kept for permanent record in the files of the Diptera Unit, Systematic Entomology Laboratory, U.S. Department of Agriculture.

The only locality abbreviations used in the text are of zoogeographical areas in Finland when denoted on the specimen labels: KS = Kuusamo, KB = Karelia borealis, LIM = Lapponia Imandrae, and LKEM = Lapponia kemsis. Abbreviations for paratype depositories are as follows: ANSP, Academy of Natural Sciences, Philadelphia; CAS, California Academy of Sciences, San Francisco; CNC, Canadian National Collection, Ottawa; HNHN, Hungarian National History Museum, Budapest; IRSNB, Institut Royal des Sciences Naturelles de Belgique, Brussels; ISU, Iowa State University, Ames; MNHN, Museum National d'Histoire Naturelle, Paris; PU, Purdue University, West Lafayette, Ind.; USNMNH, U.S. National Museum of Natural History, Washington, D.C.; UW, University of Wisconsin, Madison; and ZM, Zoological Museum, Helsinki.

Unless otherwise noted in the legends for the illustrations of the male terminalia, gonopods are shown in ventral view, gonostyli in dorsal view, and tergites IX and X (illustrations of which sometimes also include part of sternum X) in dorsal view.

Trichonta Winnertz 1863: 847. Type-species, Mycetophila melanura Staeger (Johannsen 1909: 94).

Palaeotrichonta Meunier 1904: 119. Type-species, brachycamptites Meunier (monotypy). New synonym.

**Adult.**—Antenna with 14 flagellomeres. Palpus 4-segmented. Mesoscutum (fig. 1) with long setae laterally and in 2 longitudinal rows beginning near humeral angles and converging toward scutellum. Scutellum with 4, 6, or 8 strong marginal setae, these usually interspersed with weaker setae. Mediotergite bare. Pronotum and proepimeron only partially separated, each usually with 2 strong setae and several weaker ones. Mesanepisternum hexagonoid, 0-4 setae along anterodorsal and 3-7 along posterodorsal border, usually 1-4 additional setae immediately cephalad of posterodorsal row. Mesokatepisternum and mesepimeron bare. Laterotergite with numerous long setae. Metepisternum without or with 1-5 short or long setae. Hind coxa with 0, 1-2 posterobasal, or a row of strong posterior setae. Front tibia with 1 apical spur, middle and hind tibiae each with 2 apical spurs; middle tibia with 4–5 longitudinal rows of setae; hind tibia with usually strong anterior and dorsal setae along entire length, shorter posterior setae along distal half at least, and, if present, sparse, short, anteroventral and/or posterodorsal setae. Front tarsomeres dilated in some species, usually only in female. Wing (figs. 5–12): Anterior edge convex or straight; C only slightly produced beyond apex of R; Sc ending free or in R; Cu fork usually basad, occasionally even with or slightly distad of fork of M; Cu petiole with or without setae; branches of M and Cu usually setose except basally; A weak to strong, with or without setae.

Male abdomen with terga I–VI broad and rectangular and with corresponding sternum much narrower; terga and sternum VII and VIII very short; gonocoxites fused basally and ventrally to form cupulate structure surrounding aedeagus; gonostylus of complicated form, usually with distinct lateral, dorsal, and medial parts; segment X and cerci variously shaped.

Female abdomen with terga and sternum I–VII rectangular; tergum and sternum VIII smaller, of various shapes, often divided caudomedially; cerci 2-segmented.

**Larva.**—Those described short-cylindrical. For available details and illustrations, see Madwar (1937).

**Remarks.**—Meunier (1904) distinguished his fossil Palaeotrichonta from Trichonta on the basis of the simple female front tarsus as opposed to the swollen one he thought was normal for Trichonta. Although the females of most species have swollen front tarsi, many, including the type-species, _T. melanura_, do not. For this reason, I consider _Palaeotrichonta_ a junior synonym of _Trichonta_.

A Monograph of Trichonta

11
Key to Species of Trichonta

1. Hind coxa with strong posterobasal seta(e) (figs. 1–3) .................................................. 2
   Hind coxa without strong posterobasal seta (fig. 4) ...................................................... 49

2. Hind coxa with row of several strong posterior setae (fig. 2); Holarctic ....... T. perspicua
   Hind coxa with 1 (rarely 2) strong posterobasal seta .......................................................... 3

3. Hind tibia with anteroventral and/or posteroventral setae ............................................. 4
   Hind tibia without anteroventral and/or posteroventral setae .......................................... 10

4. Scutellum with only 4 large setae; Cu petiole setose; Holarctic ...................... T. falcata
   Scutellum with 6–8 large setae; Cu petiole setose or asetose ........................................ 5

5. Hind tibial posterior setae of unequal length; setae on basal two-thirds longer than
   tibial width, those on distal third shorter than tibial width; Holarctic ....... T. venosa
   Hind tibial posterior setae of uniform length ........................................................................ 6

6. Hind tibia with anteroventral and posteroventral setae ............................................. 7
   Hind tibia without anteroventral setae ................................................................................... 10

7. Hind tibial middorsal setae not longer than width of tibia at midlength; male ter-
   minalia as in figures 142–144; Holarctic ................................................................. T. excisa
   Hind tibial middorsal setae appreciably longer than width of tibia at midlength ................. 8

8. Male terminalia brown; female unknown; western Nearctic ....................... T. secera
   Male terminalia brown and yellow ...................................................................................... 9

9. Male tergite X attenuate, gonocoxite with dorsocaudal extensions (fig. 52); female
   sternum X cleft to base; Holarctic ............................................. T. hamata
   Male tergite X not attenuate, gonocoxite without dorsocaudal extensions (fig. 99); female
   sternum X weakly cleft; Holarctic ................................................................................... 10

10. Cu petiole setose .................................................................................................................. 11
    Cu petiole asetose ................................................................................................................ 14

11. Wing hyaline, strong seta near ventral corner (fig. 26); Palaearctic ................... T. comis
    Wing fumose at least in part; lateral part of gonostylus without conspicuous, large
    seta near ventral corner ....................................................................................................... 12

12. Wing fumose on apical third; lateral part of gonostylus short, rectangular, with
    strong setae (fig. 56); western Nearctic ................................................................. T. salva
    Wing fumose throughout; lateral part of gonostylus attenuate, sinuous, with weak
    setae (fig. 94) .................................................................................................................. 13

13. Male cerci stout, shorter than gonocoxite (fig. 95); Holarctic ...................... T. terminalis
    Male cerci attenuate, longer than gonocoxite (fig. 97); Holarctic ......... T. faciliis

14. Scutellum with 4 large setae ............................................................................................... 15
    Scutellum with 6–8 large setae ............................................................................................ 18

15. Cu forking appreciably distad of M fork (fig. 10); hind tibial posterior setae distinctly
    shorter on apical third than basally; Holarctic ............................................................... 16
    Cu forking even with or basad of M fork; hind tibial setae of equal length ......................... 17

16. Lateral part of gonostylus broadly rounded at apex of dorsal section (fig. 17);
    Nearctic ......................................................................................................................... T. languarda
    Lateral part of gonostylus attenuate at apex of dorsal section (fig. 18) ............................ 17

17. Lateral part of gonostylus broadly rounded apically and covered with setae on
    ventral section (fig. 19); Nearctic ................................................................. T. lucida
    Lateral part of gonostylus crenulate apically and with naked areas on ventral section
    (fig. 22); Holarctic ..... T. fragilis

18. Sc free (fig. 6) ................................................................................................................... 19
    Sc joining R (fig. 5) ........................................................................................................... 21

19. Hind tibia brown on basal 3d and distal 10th, posterior setae absent; front tarso-
    meres II–III of male slightly swollen; Afrotropical ............................................... T. sincera
    Hind tibia yellow, posterior setae present; front tarsomeres not swollen ....................... 20

20. Dorsal part of gonostylus quadrate (fig. 102); eastern Nearctic ...................... T. gentilis
    Dorsal part of gonostylus triangular (fig. 105); Palaearctic ........................................... T. aberrans

21. Cu, sinuous, A usually weak (fig. 5); male terminalia brown; female sternum VIII
    dark brown in contrast to remainder of female terminalia ............................................... 22
    Cu, evenly curved, occasionally weakly sinuous, A moderate to strong (fig. 8);
    male genitalia brown and/or yellow; female terminalia unicolorous ............................. 28

22. Lateral part of gonostylus not indented caudally; tapering to point or convexly
    rounded (figs. 35, 38) ..................................................................................................... 23
    Lateral part of gonostylus indented caudally (figs. 31, 36, 37, 39) ................................. 24

23. Lateral part of gonostylus setose over most of surface, setae short dorsocaudally
    (fig. 35); Holarctic ........................................................................................................ T. brevicauda
    Lateral part of gonostylus with extensive naked area, setae where present uniformly
    long (fig. 38); western Nearctic ...................................................................................... T. merga

24. Lateral part of gonostylus with pointed, setose caudal projection (fig. 40); Palaear-
    actic ................................................................................................................................. T. bifida
    Lateral part of gonostylus without caudal projection (figs. 31, 36, 37, 39) .................... 25
25. Lateral part of gonostylus indented ventrally (figs. 31, 39) 26
Lateral part of gonostylus undivided ventrally (figs. 36, 37) 27
Lateral part of gonostylus strongly indented ventrally, area caudad of indentation
with row of strong setae (fig. 39); western Nearctic .......................... 28
T. clemens
Lateral part of gonostylus weakly indented, area caudad of indentation naked (fig.
31); Holarctic .......................... 29
T. vulgaris
Lateral part of gonostylus with most setae uniformly long (fig. 37); western Nearc-
tic .......................... 30
T. amica
Lateral part of gonostylus with approximately equal areas of long and short setae (fig.
36); Nearctic .......................... 31
T. genera
Male terminalia brown .......................... 32
Male terminalia partly or entirely yellow .......................... 33
Metepisternal setae short, much less than half height of sclerite (figs. 3-4) .......................... 34
Metepisternal setae long, as long as or longer than height of sclerite (fig. 1) .......................... 35
Lateral part of gonostylus shorter than wide, distal edge pointed (fig. 28); Holar-
ctic .......................... 36
T. beata
Lateral part of gonostylus longer than wide, distal edge blunt (fig. 25); Palae-
arctic .......................... 37
T. clavigera
Lateral part of gonostylus greatly attenuate ventrally (fig. 81); western
Nearctic .......................... 38
T. festa
Lateral part of gonostylus weakly attenuate ventrally (figs. 82, 86) .......................... 39
Dorsal part of gonostylus about twice as long as wide (fig. 86); Palaeartic .......................... 40
T. conjungens
Dorsal part of gonostylus about 3 times as long as wide (fig. 82); Palaeartic (Himalayan) .......................... 41
T. fidelis
Dorsal part of gonostylus elongate-attenuate, narrowest distally .......................... 42
Dorsal part of gonostylus triangular, widest distally .......................... 43
Gonostylus in dorsal view with 2 discrete, setose lobes distad of dorsal part (fig. 162); Holarctic .......................... 44
T. girschneri
Gonostylus in dorsal view with 3 discrete, setose lobes distad of dorsal part (figs.
42, 44) .......................... 45
T. fidelis
Dorsal part of gonostylus an acute triangular plane, less than 3 times as long as
wide (fig. 42); Nearctic (Mexico) .......................... 46
T. placida
Dorsal part of gonostylus parallel sided for most of length, about 5 times as long as
wide (fig. 44); Palaeartic (Himalayan) .......................... 47
T. superba
Anal vein setose .......................... 48
Anal vein asetose .......................... 49
Gonocoxite longer ventrally than dorsally, obscuring gonostylus in ventral view
(fig. 137); Sc long, joining R much beyond midlength of R cell; western Ne-
arctic .......................... 50
T. serena
Gonocoxite as long ventrally as dorsally, gonostylus not obscured in ventral view
(fig. 13); Sc short, joining R near midlength of R cell (fig. 8); Palaeartic .......................... 51
T. trivittata
Aedeagal projections strongly twisted; Palaeartic .......................... 52
T. concinna
Aedeagal projections straight .......................... 53
T. fravicauda
Lateral part of gonostylus setose on most of medial surface (fig. 71); Holarctic .......................... 54
T. comica
Lateral part of gonostylus setose only distally on medial surface (fig. 77); Palae-
arctic (Nepal) .......................... 55
T. contenta
Male terminalia yellow; abdominal terga usually yellow along cephalic margins;
Holarctic .......................... 56
T. foeda
Male terminalia yellow and brown; abdominal terga yellow along caudal margins .......................... 57
Male terminalia brown only on triangular area on venter of gonocoxite .......................... 58
Male terminalia brown on apical third of gonocoxite and all of gonostylus .......................... 59
Dorsal part of gonostylus disk shaped, rounded apically (fig. 140); Holarctic .......................... 60
T. flavicauda

1 T. subfuscipennis from the Philippines also runs here. As noted under species treatment, it differs from bezzii only in
minor details.
Species Descriptions

Trichonta aberrans (Lundström) 1911: 402.

Adult (male only).—Wing length, 3.6–3.7 mm. Fits description of gentilis except in shape of terminalia (figs. 104–105).

Types.—Syntypes, 2 males, Budapest, Hungary, 22–V–1910, Kertész, originally deposited in Hungarian Natural History Museum, Budapest, destroyed in 1956.3

Remarks.—The illustrations in Lundström (1911) are adequate for placing this species. I saw only two specimens of aberrans from Oltenia in Rumania. Landrock (1912a) reported aberrans from Moravia (Czechoslovakia); otherwise there have been no other records of this rare species subsequent to the original description. See under gentilis for remarks concerning affinities.

Trichonta amica Gagné, new species

Adult (male only).—Wing length, 3.0–3.3 mm. Fits description of vulgaris except in shape of terminalia (fig. 36).

Types.—Holotype, male, Old Chelsea, Quebec, 18–VII–1961, J. R. Vockeroth, in Canadian National Collection. Paratypes (all males): 2, Old Chelsea, Quebec (CNC); 3, Mt. Orford, Quebec (CNC); 1, Abbotsford, Quebec (CNC); 4, S. March, Ontario (CNC); 1, Keene Valley, Essex Co., N.Y. (CNC); 1, White Mts., N.H. (USNMNH); 1, Elkwater, Alberta (CNC).

Remarks.—I examined 17 males from 12 collections made in the 7 localities listed here, all of which except the Alberta locality, are in a fairly small, circumscribed area. The only apparent difference between amica and the five other species related to vulgaris lies in the shape of the gonostylus. In amica, the lateral part has a sinuous but undivided caudal edge, and an extensive a-setose area, and it narrows ventrally to the scalloped tip. See further remarks under vulgaris.

Trichonta apiicalis Strolbi


3Throughout this bulletin, information pertaining to specific distribution records is given essentially as it appears on the insect labels.
Adult (male only).—Wing length, 2.8–3.3 mm. Body mostly brown, humeral angles of mesoscutum and prothoracic sclerites usually yellow; legs yellow to fuscous yellow; male terminalia brown except yellow gonostylus. Scutellum with 6 strong setae. Mesepisternum with 4–5 setae along posterodorsal margin and 1–2 in dorsal corner. Memepisternum bare. Wing: Membrane hyaline; occasionally clouded on apical third; anterior edge straight; Sc parallel to R for most of length joining R apically; M forking distad of Rs; Cu forking below or distad of Rs but not distad of M fork. Cu petiole setose, Cu, not sinuous; A moderate, asetose. Front tarsomerites not swollen. Hind coxa without postero basal seta. Hind tibial setae: 4–5 anterior; 4–5 dorsals, middorsals slightly longer than width of tibia at midlength; 4–6 widely separated posteriors; usually 0 (occasionally 1) anteroventrals and 0 posteroven- trals. Male genitalia as in figures 129–131.

Types of names included in this taxon:


Remarks.—I saw only seven specimens from six separate collections and localities in France, Austria, and Hungary. Edwards (1925b) reported apicalis from Britain and his description of the dorsal part of the telomere fits only this species. Although I saw neither of the types of vernalis and phrionioides, the original figures are adequate evidence on which to base this synonymy. The holotype of apicalis is damaged. All that remains of the terminalia are the cerci and aedeagus, but these are distinctive and similar to the other specimens I have placed under apicalis. T. apicalis even without terminalia is readily keyed by the characters outlined in the key.

Trichonta atricauda (Zetterstedt)

atricauda Zetterstedt 1852: 4219 (Mycetomo- phila).


Adult (male only).—Wing length, 3.3–4.0 mm. Fits description of melanura, differing only in shape of male terminalia (figs. 61–64).

Types of names in this taxon:


Remarks.—T. atricauda appears to be a widespread Holarctic species. I saw 17 North American specimens from 14 collections made in 13 localities in Northwest Territories, British Columbia, Alberta, Ontario, Quebec, Michigan, New York, and Maine. I saw 23 European specimens from Norway, Sweden, Finland, Scotland, England, and Belgium. For convenience, I follow Edwards (1913) in his tentative synonymy of paralella with atricauda. The type of paralella is lost so there is no way to ascertain what Edwards had before him. Edwards (1925a) gave the name adunca to the species misidentified by Lundström (1909) as fissicauda Zetterstedt. Neither Lundström nor Edwards gave any information about the specimen illustrated (terminalia only) by Lundström, but I was able to examine the terminalia of a specimen labeled "fissicauda" from the Zoological Museum in Helsinki that fits exactly figure 45 in Lundström (1909). That specimen is a typical atricauda, but it has had the aedeagus thrust forward and thereby other features of the terminalia are distorted. The cerci do not lie flat and so are foreshortened in Lundström’s illustration. For relationships of atricauda, see melanura.

Trichonta beata Gagné, new species

Adult (male only).—Wing length, 2.9–3.5 mm. Body brown except yellow humeral angles of mesoscutum, prothoracic sclerites, and caudal margins of abdominal terga II–V; male terminalia brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 4–5 setae along posterodorsal border and 2–3 cephalad of that row. Memepisternum (fig. 3) with 2–3 short setae. Wing: Membrane darkish; anterior edge straight; Sc ending in R, parallel with R for most of length; M fork distad of or below Rs; Cu fork basad of Rs, Cu petiole asetose, Cu, not sinuous; A strong, with or without setae. Front tarsomerites not swollen. Hind coxa with strong, postero basal seta. Hind tibial setae: 5–7 anteriors; 5–7 dorsals, middorsals subequal to or slightly longer than width of tibia at midlength; 4–7 widely spaced posteriors; 0 anteroventrals and posteroven- trals. Male terminalia as in figures 28–30.

Types.—Holotype, male, Redding, Conn., 3–VI–1934; A. L. Melander, USNM type No. 75641. Paratypes (all males): 3, Old Chelsea, Quebec (CNC); 1, Redding, Conn. (USNMNH); 3, Thomkins, N.Y. (ANSP, USNMNH); 4, Baltimore Co., Md. (ANSP, USNMNH); 3, Macon Co., N.C. (1 CNC, 2 ISU); 2, Needmore, Ind. (USNMNH); 1, Juuma (2M); 1, N. Esbo Kolmpera, Finland (JHNH).

Remarks.—T. beata is known from 15 male specimens, from 6 localities in eastern North America and 2 localities in Finland. This species and clavigera resemble one another closely. The male cerci of both species have a strong apical seta and a dense group of strong setae medioapically with a similar aedeagus and basimere, but the gonostylus of both species is distinct. T. clavigera has been found only in Europe. This species pair is another example of both members found in Europe, but only one in eastern North America.

Trichonta bezii Landrock

bezii Landrock 1913: 89.

Adult (male only).—Wing length, 2.8–3.2 mm. Body mostly brown, humeral angles, prothoracic sclerites, and anterior margins of basal abdominal terga yellow; terminalia yellow except venter of gonocoxite; legs yellow. Scutellum with 6 setae. Mesanepisternum with 3–4 setae along posterodorsal margin. Memepisternum with 1 long seta. Wing: Membrane hyaline; anterior edge straight; Sc parallel to R for most of length, ending in R; M fork distad of or below Rs; Cu fork basad of Rs, Cu petiole asetose, Cu, not sinuous; A
strong, setose. Front tarsomeres not swollen. Hind coxa with 1 long, postero-basal seta. Hind tibial setae: 7 anteriors; 10–11 dorsals, middorsals approximately as long as width of tibia at midlength; 8 posteriors along length of tibia; 0 anteroventrals and 0–4 posteroventrals. Male terminalia as in figures 159–160.

**Types.**—Holotype, male, Adamstal, Moravia, Czechoslovakia, 27–V. Type depository unknown to me.

**Remarks.**—Although I did not see the holotype, Landrock’s (1913) illustrations of the male terminalia are an adequate basis for identification of this species. *T. bezzii* is evidently Holartic, although I saw only three specimens, two from Lockeport, Nova Scotia, Canada, and one from Magas Tátra, Otátrafüred, Hungary. The only other previous record of this species was of the type specimen in Czechoslovakia. *T. bezzii* is remarkably similar to *subfascipennis* (q.v.).

**Trichonta bicolor** Landrock

*bicolor* Landrock 1912b: 182.

**Adult (male only).**—Wing length, 2.7–3.0 mm. Body brown except yellow humeral angles of mesoscutum and prothoracic scutellum; male terminalia yellow except brown gonostyly and caudal margin of gonocoxite; legs yellow. Scutellum with 6 setae. Mesanepisternum with 4 setae along postero-dorsal margin and 1 in dorsal corner. Metepisternum with 2–3 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel to R for most of length; M forking distad of Rs; Cu forking basad of Rs, Cu petiole asetose, Cu, not wavy; A weak, asetose. Front tarsomeres not swollen. Hind coxa with strong postero-basal seta. Hind tibial setae: 7–9 anteriors; 8–10 dorsals, middorsals longer than tibial width at midlength; 8–12 posteriors two-thirds of length; 0 antero dor-sal or postero-dorsal setae. Male terminalia as in figures 48–49.

**Types.**—Syntypes, males, Adamstal, 17–V. Hobitschau, 25–VI. Czechoslovakia, depository unknown to me.

**Remarks.**—Although I did not see the types, Landrock’s figures of the male terminalia are diagnostic. *T. bicolor* is known from eastern North America and Europe. I saw only 2 specimens from the United States, one from Connecticut, the other from Maryland, but many more from Europe: 52 specimens from 18 collections made in 15 localities in Finland, England, France, Switzerland, and Hungary. The general similarity of the terminalia of *bicolor* and of *canora* suggests the species are closely related; they differ only in the shape of the gonostyly.

**Trichonta bifida** Lundström


**Adult (male only).**—Wing length, 3.3–3.5 mm. Fits description of *vulgaris* except shape of male gonostyly (fig. 40).

**Types.**—Syntypes: Male, Kuusto, AB, Finland, VI–1907, Lundström; male, Muonioniska, KEM, Finland, 27–VI–1967, Palmen.

**Remarks.**—I examined 90 males, including the syntypes, caught on 28 occasions in 19 localities in Norway, Sweden, Finland, and Italy. *T. bifida* is one of six species related to *vulgaris* and can be separated from them by the shape of the gonostyly that has a characteristic setose, fingerlike lobe on the caudal margin of the lateral part. *T. bifida* otherwise closely resembles *gen erososa*, a species restricted to western North America. See further remarks concerning affinities under *vulgaris*.

**Trichonta brevicauda** Lundström

*brevicauda* Lundström 1906: 29.

**Adult (male only).**—Wing length, 3.0–3.5 mm. Fits description of *vulgaris* except shape of gonostyly (fig. 35).

**Types.**—Holotype, male, Kuusto, AB, Finland, 1905, Lundström, in Zoological Museum, Spec. type No. 4211, Helsinki.

**Remarks.**—From North America I examined 72 males from 35 collections made in 28 localities in Alberta, Oregon, Idaho, Montana, California, Arizona, New Mexico, Ontario, Michigan, Iowa, Quebec, Nova Scotia, Maine, Vermont, New York, Connecticut, and North Carolina; from Europe, 133 males, including the holotype, from 37 collections made in 34 localities in Norway, Finland, France, Spain, Switzerland, Hungary, and Rumania.

The only apparent differences between *brevicauda* and the other five species related to *vulgaris* are in the shape of the gonostyly. In *brevicauda*, the lateral part is widest dorsally, where the caudal half is covered with very short setae, and tapers to the narrow ventral corner. See further remarks under *vulgaris*. The female *brevicauda* is probably similar to that of *vulgaris*.

**Trichonta canora** Gagné, new species

**Adult (male only).**—Wing length, 3.4–3.6 mm. As for *bicolor* except shape of male gonostyly (figs. 50–51).

**Types.**—Holotype, male, Kitee, KB, Finland, 28–VI–1963, W. Hackman. Paratypes (all males, all Finnish): 3, Jakalavuoma, KS (1 USNMNH, 2 ZM); 3, Kesälähti, KB (ZM); 1, N. Esbo, Kolimperä (ZM).

**Remarks.**—This species is rare, with seven known specimens from four collections made in four localities in Finland. The general configuration of the terminalia suggests that *canora* is related to *bicolor*; *canora* differs from the latter only in the shape of the gonostyly.

**Trichonta chaoi** Shaw

*chaoi* Shaw 1951: 279.

**Adult.**—Wing length, 3.5–4.2 mm. Body brown, including terminalia; legs yellow brown, hind coxa light brown. Scutellum with 6–8 setae. Mesanepisternum with 3–5 setae along postero-dorsal edge and an occasional seta in dorsal corner. Metepisternum with 1–3 short setae. Wing: Membrane dusky, apical third darkest; anterior edge straight; Sc parallel to R for most of length; joining R apically; M forking apically of Rs; Cu forking basad of Rs, Cu petiole setose, Cu, slightly sinuous; A strong, setose. Front tarsomeres not swollen. Hind coxa naked postero-basally. Hind tibial setae: 5–7 anteriors; 6–9 dorsals, those at tibial midlength slightly longer than tibial width, 5–7 widely spaced posteriors; 0 anteroventrals and posteroventrals. Female terminalia (fig. 174); Tergum VIII longest laterally, bare medially, setose only laterally; sternum VIII slightly longer than tergum VIII; setae on caudal two-thirds with strongest setae along triangular medio-caudal incision; cercus I cylindrically, slightly bilaterally flattened; cercus II ovoid, setae strongest caudally. Male terminalia as in figures 145–147.

**Types.**—Holotype, male, Snowy Range Mts., Albany Co., Wyo., 17–VII–1948, D. G. Denning, deposited in Uni-
Remarks.—T. chaoi appears to be limited to western North America. I examined 30 specimens from 21 collections made in 16 localities in British Columbia, Washington, Idaho, Wyoming, and Colorado. This species is distinctive and without apparent close relatives. The type was not located during this study; however, Shaw's (1951) illustrations of the male terminalia definitely show this species.

Trichonta clara Gagné, new species

Adult.—Wing length, 2.5–2.9 mm. Body mostly brown, humeral angle of mesoscutum and prothoracic sclerites yellow; legs yellow; terminalia brown. Mesanepisternum with 3–4 setae along posterothalassic edge. Metepisternum with 0–2 setae; short when present. Scutellum with 4 strong setae; occasionally 2 weaker setae. Wing: Membrane hyaline; anterior edge straight; Sc parallel to R except apically, joining R at approximately 45° angle; M forked distal of Rs; Cu forking basad of Rs; Cu petiole setose. Cu, slightly sinuous; A strong, asetose. Prothoracic sclerites occasionally yellow; male terminalia brown; legs yellow. Mesanepisternum with 4 setae along posterior border and 1–2 in dorsal corner. Metepisternum with 2 long setae. Wing: Membrane darkish; anterior edge straight; Sc ending in R, parallel with R for most of length; M forking below or distal of Rs; Cu forking basad of Rs; Cu petiole asetose. Cu, slightly sinuous; A strong, asetose. Front tarsomes not swollen. Hind coxa with strong posterothalassic setae. Hind tibial setae: 5–7 anteriors; 6–7 dorsals, middorsals approximately as long as width of tibia at midlength; 5–11 widely spaced posteriors; 0 anteroventrals and posteroventrals. Male terminalia as in figures 25–27.

Types.—Syntypes, 5 males. Kovacs-patak, Hungary, 16–V–1912, Kertész. Type depository given as Hungarian Museum (Lundström, 1913), but I saw 1 syntype (Spec. Type No. 4758) from the Zoological Museum, Helsinki.

Remarks.—Besides the syntype collected in Hungary, I saw three other specimens of this species, one each from Vallée Lupsa, Oltenia, Rumania; Cerfontaine, Belgium; and Brockenhurst, Hants., England. See under beata for further remarks.

Trichonta clavigera Lundström

clavigera Lundström 1913: 309.

Adult (male only).—Wing length, 3.5–3.9 mm. Body brown, occasionally with yellow prothoracic sclerites and caudal margins on abdominal segments II–III; male genitalia brown; legs yellow except hind coxa usually brown. Thoracic sclerites and wings as for beata. Hind coxa with strong posterothalassic setae. Hind tibial setae: 5–7 anteriors; 6–7 dorsals, middorsals approximately as long as width of tibia at midlength; 5–11 widely spaced posteriors; 0 anteroventrals and posteroventrals. Male terminalia as in figures 25–27.

Types.—Holotype, male. Roaring River, 9400 ft, Rocky Mt. N. P., Colo., VII–11–1959, Jean Lafloon. USNM Type No. 75643. Paratypes (all males): 2, same data as holotype except II, 1949 (USNMNH); 1, Rocky Mt. National Park, Colo. (ISU); 3, each from Helsinki, Juuma, and Vihti-jarvi, Finland (Z.M.); 1, Agnelliers, Basses-Alpes, France (MNHN).

Remarks.—T. clavigera is barely found in Europe. It resembles concinna and contenta in the structure of the male terminalia as well as in various characters used in the key. In these species, the lateral part of the gonostylus is generally triangular, simple, with uniformly long setae laterally and partially setose mesally; the basal arm of the dorsal part of the gonostylus is fairly large, with short, stubby setae apically; the ceroi are not flat but curve to cover sternum X laterally; the aedeagus has two long, lateral prongs.

Trichonta comis Gagné, new species

Adult (male only).—Wing length, 3.5 mm. Body brown except yellow humeral angles of mesoscutum and prothoracic sclerites; male terminalia brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 4 setae along posterodorsal border and 1 in dorsal corner. Metepisternum with 2 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel with R for most of length; M forking below Rs; Cu forking basad of Rs; Cu petiole se-
Trichonta concinna Gagné, new species

Adult (male only).—Wing length, 3.2–3.5 mm. Nongenitalic characters as for comica. Male terminalia as in figures 74–76.

Types.—Holotype, male, Forêt de Mâgura, Oltenia, Romania, 15–X–1968. L. Matile, in Muséum National d'Histoire Naturelle, Paris. Paratypes (all males), all from Finland: 7 Vihtijarvi (3 USNMNH, 4 ZM); 1, Lumland, Verkatehdas (ZM); 4, Helsinki (ZM); 1, Kattila, Pallas (ZM); 1, Kuusamo, Kukanen (ZM).

Remarks.—T. concinna is rare and known only from Rumania and Finland. For remarks on relationships, see under comica.

Trichonta conjungens (Lundström)

 conjungens Lundström 1909: 33.

Adult.—Wing length, 3.1–3.6 mm. Body mostly brown, prothoracic scutellate occasionally yellow; male terminalia brown; legs yellow except hind coxa and occasionally middle coxa brown. Scutellum with 6–8 large setae. Mesepisternum usually with 3 (sometimes 4) setae along posterodorsal border only, occasionally with 1 other in dorsal corner. Metepisternum with 2–3 long setae. Wing: Membrane darkish, occasionally darker on distal third; anterior edge straight; Sc ending in R, parallel to R for most of length; M fork distad of Rs; Cu fork basad of Rs; Cu petiole aseptose, Cu, slightly sinuous; A strong, usually setose apically. Front tarsomers II–III swollen in female. Hind coxa with 1 (occasionally 2) strong, posterobasal seta. Hind tibial setae: 7–11 anteriors; 8–11 dorsals, middorsals longer than width of tibia at midlength; 6–8 closely spaced posteriors on distal half; 0–1 posteroventrals and 0 anteroventrals. Female terminalia as for festa (fig. 180). Male terminalia as in figure 86.

Types.—Holotype, male, Pojo, AB, VI, Frey, in Zoological Museum, Helsinki.

Remarks.—T. conjungens appears to be limited to Europe. I saw 93 specimens, including the holotype, from 22 collections in 10 localities in Finland, Germany, Italy, and Hungary. T. conjungens forms a natural group with festa, sedula, tidelis, and fidelis on the basis of the general similarities of both the male and female terminalia. The aedeagus is globular with two lateral prongs that articulate with the caudal surface of the globe. T. festa is restricted to western North America, sedula to eastern North America, and tidelis and fidelis to the Himalayan region.

Trichonta contenta Gagné, new species

Adult (male only).—Wing length, 3.0–3.3 mm. Nongenitalic characters as for comica except wings fumose on apical third and middorsal setae on hind tibia slightly longer than tibia width at midlength. Male terminalia as in figures 77–78.

Types.—Holotype, male, 27°58' N, 85°00' E, Nepal, 11,100', 7– VI–1967, Canadian Nepal Expedition, in Canadian National Collection. Paratypes, 4 males, same locality as holotype on 4 separate dates (3 CNC, 1 USNMNH).

Remarks.—The five known specimens of contenta were each collected on a different date in the same locality in Nepal. For remarks on relationships, see under comica.

Trichonta delicata Gagné, new species

Adult (male only).—Wing length, 3.2–3.5 mm. Fits description of melanura, differing only in shape of male terminalia (fig. 68).

Types.—Holotype, male, Lake McDonald, Glacier Park, Mont. 14–VIII–1916, A. L. Melander, USNM Type No. 45645. Paratypes (all males): 1, Kootenay National Park, British Columbia (CAS); 1, Ottawa, Ontario (CNC); 1, S. March, Ontario (CNC); 1, Hull, Quebec (CNC); 1, Knowlton Landing, Quebec (CNC); 6, Kuusamo, and 2, Vihtijarvi, Finland (ZM).

Remarks.—T. delicata is distributed across North America and in Finland. It is uncommon in collections. For remarks concerning relationships, see under melanura.

Trichonta excisa Lundström

excisa Lundström 1916: 73.

Adult (male only).—Wing length, 3.6 mm. Body mostly brown, mesoscutum with striking brown and yellow pattern. 2 brown stripes beginning at humeral angles, converging at scutellum, yellow between, yellowish white laterally; male terminalia brown; legs yellow. Scutellum with 6 large setae. Mesepisternum with 6 setae along posterodorsal border and 2 in dorsal corner. Metepisternum with 2 long setae. Wing: Membrane hyaline-fumose; anterior edge straight; Sc ending in R, parallel to R for most of length; M fork distad of Rs; Cu fork basad of Rs; Cu petiole aseptose, Cu, slightly wavy; A strong, setose. Front tarsomers not swollen. Hind coxa with 1 strong, posterodorsal seta. Hind tibial setae: 6 anteriors; 5 dorsals, middorsals approximately as long as width of tibia at midlength; 5 short spaced posteriors; 1 anteroventral and 5 posteroventrals. Male terminalia as in figures 142–144.


Remarks.—I saw a single specimen caught 10 miles west of El Salto, Durango, Mexico (deposited in CNC). Its terminalia fit to the last detail those of the type as drawn by Lundström (1916). I have drawn the gonostylus in lateral view so that it can be compared to Lundström's figure. I think the distance between the type locality and the present and only other record of this species, namely Mexico, only shows that excisa is widespread but rare.

Trichonta eximia Gagné, new species

Adult (male only).—Wing length, 2.7–3.7 mm. Fits description of melanura, differing only in shape of male terminalia (figs. 65–67).

Types.—Holotype, male, Priest Lake, Idaho, VIII–1920, A. L. Melander. USNM Type No. 75646. Paratypes: 46 males from 35 collections in 35 North
American localities in British Columbia, Alberta, Washington, Oregon, Idaho, Wyoming, California, Iowa, Minnesota, Ontario, Quebec, New York, Pennsylvania, Virginia, and North Carolina. (ANSP, CAS, CNC, ISU, USNMNH) and 2 males from the Palaeartic region, 1 from Jammu and Kashmir, the other from Nepal (CNC, USNMNH).

Remarks.—The distribution of *eximia* is noteworthy in that the species is fairly common in North America, but it is represented in the Palaeartic region by only two specimens found in the Himalayas. For remarks concerning relationships, see under *melanura*.

**Trichonta facilis Gagné, new species**

**Adult (male only).**—Wing length, 3.1–3.5 mm. As for *terminalis* except differences in male terminalia (figs. 96–97).


Remarks.—This species is uncommon and rather local, but similarities of the male terminalia indicate it is related to the widespread *terminalis*. The female of *facilis* may be similar to that of *terminalis*. Lundström (1914) must have been aware of this species when he wrote about the specimens of *terminalis* with longer cerci.

**Trichonta falcata Lundström**

*falcata* Lundström 1911: 401.

*falcata* Dziedzicki 1915: Pl. X; Landrock 1926: 134 (n. syn.).

**Adult.**—Wing length, 2.6–3.7 mm. Body mostly brown except yellow on humeral angles of mesoscutum, prothoracic sclerites, and caudal margins of abdominal terga; male terminalia brown; legs yellow. Scutellum with 4 large setae. Mesanepisternum with 3–4 setae along posterodorsal border and 0–2 in dorsal corner. Metepisternum with 2 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel to R for most of length; M fork distad of Rs; Cu fork basad of Rs, Cu petiole setose, Cu, not sinuous. A strong, setose. Front tarsomerites not swollen. Hind coxa with 1 (occasionally 2) strong postero basal seta. Hind tibial setae: 5–8 anteriors; 5–9 dorsals, middorsals longer than width of tibia at midlength; 7–13 posteriors; 1–3 posteroventrals and 0 anteroventrals. Female terminalia (fig. 175): Tergum VIII more or less quadrate, setose on caudal half; sternum VIII slightly longer than tergum VIII, incised a short distance medio-caudally, setose on caudal half; cercus I somewhat bilaterally flattened, longest ventrally, evenly setose; cercus II elongate-ovoid, evenly setose. Male terminalia as in figures 164–165.

**Types of names in this taxon:**


T. *albescens*: Data not given with original description; specimen(s) returned by Dziedzicki to Winnertz collection in Bonn; destroyed during World War II.

Remarks.—I saw none of the types, but the original illustrations are detailed enough to identify this species. Its closest relatives are not apparent to me. The presence of only four large setae on the scutellum set this species apart from most. I have seen 47 specimens from 23 localities in Norway, Finland, France, England, Switzerland, and Hungary, and 43 from 35 collections made in 24 localities in Ontario, Quebec, Massachusetts, Connecticut, New York, Pennsylvania, Washington, D.C., Virginia, North Carolina, Iowa, British Columbia, and Washington. In addition, one of the types was collected in Austria.

**Trichonta festa Gagné, new species**

**Adult.**—Wing length, 3.1–3.5 mm. As for *conjungens* except shape of terminalia differs from the eastern Nearctic *sedula* only in several aspects of the shape of the gonostylus. See under *conjungens* for further remarks.

**Trichonta fidelis Gagné, new species**

**Adult.**—Wing length, 3.3–3.8 mm. As for *conjungens* except shape of terminalia, those of male as in figures 82–83, those of female as in *festa* (fig. 180) except setae on tergum VII are straight, not upturned.


Remarks.—*fidelis* is known only from Nepal. See under *conjungens* for discussion concerning relationships.

**Trichonta fissicauda (Zetterstedt)**

*fissicauda* Zetterstedt 1852: 4221 (Mycetophila).

*claripennis* Lundström 1914: 19; Edwards 1925a: 164 (syn. *fissicauda*).

**Adult.**—Wing length, 3.5–4.2 mm. Body mostly brown, except humeral angles of mesoscutum and prothoracic sclerites; female abdomen yellow caudally; male terminalia brown except yellow cerci and dorsum of basimere; legs yellow. Scutellum with 6–8 setae. Mesanepisternum with 4–5 setae along posterodorsal margin and 0–1 before. Metepisternum with 2–3 long setae. Wing: Membrane hyaline; anterior margin straight; Sc ending in R, parallel to R for most of length; M forking distad of Rs; Cu fork basad of Rs, Cu petiole setose, Cu, slightly wavy. A strong, usually setose. Front tarsomerites not swollen. Hind coxa with long, posterodorsal seta. Hind tibial setae: 8–10 anteriors; 7–9 dorsals, middorsals longer than width of tibia at midlength; 10–15 posteriors; 1–3 anteroventrals and 1–3 posteroventrals. Female terminalia (fig. 173): Tergum VIII longest laterally, setose on caudal half, setae strong along caudal margin; sternum VIII longer than tergum VIII, setose throughout, deeply incised medio-caudally, setose through-
out; cercus I cylindrical, longest ventrally; cercus II ovoid, evenly setose. Male terminalia as in figures 52–54.

Types of names in this taxon:
Remarks.—I studied the type of fissicauda but not of claripennis. Lundström's (1914) figures of the male terminalia definitely show this species.
T. fissicauda occurs in western North America and Europe. I saw 13 specimens from 10 collections made in 6 localities in British Columbia and Washington and 50 specimens from 7 collections in 17 localities in Sweden, Finland, Russian Lapland, and Italy.

The male terminalia are unique among Trichonta in that the sides of the gonocoxite next to the cerci are smooth, asetose, and elongated caudally. The cerci are long-attenuate and smooth, asetose, and elongated caudally.

Trichonta flavicauda Lundström
flavicauda Lundström 1914: 19.
largolamellata Landrock 1918: 116; Landrock 1926: 135 (syn. flavicauda).

Adult.—Wing length, 3.4–5.2 mm. Body yellow with 2 longitudinal, brown, mesoscutal stripes, occasionally brown pleurites, and saddle-shaped dorsal areas on abdominal terga; male terminalia yellow except triangular ventral area on gonocoxite; legs yellow. Scutellum with 6–8 setae. Mesanepisternum with 4–5 setae along postero dorsal margin and 1–5 in dorsal corner. Metepisternum with 2–3 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel with R for most of length; M fork distal of Rs; Cu fork basad of Rs, Cu petiole asetose, Cu, not sinuose; strong, setose; Front tarsomeres not swollen. Hind coxa with strong baso posterior seta. Hind tibial setae: 4–8 anterior; 5–10 dorsals, middorsals subequal in length to width of tibia at midlength; 6–9 posteriors on distal half of tibia; 0 anterodorsals and posterodorsals. Female terminalia in figs. 176: Tergum VIII rectangular, setose caudally, setae short; sternum VIII longer than tergum VIII, deeply incised mediolaterally, setose on caudal half; cercus I cylindrical, somewhat bilaterally flattened; cercus II ovoid, caudal end pointed ventrad in repose, evenly setose. Male terminalia as in figures 124–125.

Types of names in this taxon:
Remarks.—The terminalia of Loew's type agree exactly with those of females reared with males from Polycticus versicolor found in Clarendon, Va. Besides the type, I saw only 6 specimens from 7 collections at 7 localities in Maryland, Virginia, and Iowa and 6 from 4 collections made at localities in Wales, England, and Hungary. Striking features of the female terminalia are the short terga VII and VIII and the decumbent second cercal segment.

Trichonta flebilis Gagné, new species

Adult (male only).—Wing length, 2.8–3.0 mm. As for conjungens except shape of male terminalia (figs. 84–85).
Remarks.—T. flebilis is known only from Nepal. See under conjungens for discussion concerning relationships.

Trichonta foeda Loew
foeda Loew 1869: 150.
yellow. Scutellum with 4 large setae. Mesanepisternum with 4 setae along posterodorsal border and 0–1 in dorsal corner. Metepisternum with 1–2 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, converging gradually toward R for most of length; M fork distad of Rs; Cu fork based to below Rs, Cu petiole asetose, Cu, not sinuous; A weak, asetose. Front tarsomers not swollen. Hind coxa with strong posterobasal setae. Hind tibial setae: 7–9 anteriors; 6–9 dorsals, middorsals shorter or subequal to width of tibia at midlength; 4–7 posteriors on distad half; 0 anteroventrals and posteroventrals. Male terminalia as in figures 22–24.

**Types.**—Holotype, male, Matanuska, Alaska, 16–VII–1945, J. C. Chamberlin, USNM Type No. 75648. Paratypes (all males): 1, Treskavica, Yugoslavia (ISU); 1, Forêt de Vissavon, Corsica (MNHN); 1, Kiutaköngäs, Finland (ZM); 1, Yla-Tuloma, Nuorttijärvi, Russia; USSR (ZM).

**Remarks.**—T. fragilis is rare but widely distributed. The lateral part of the gonostylus varies slightly in shape from one place to another, but I do not consider the difference of specific significance.

T. fragilis forms a natural group with two other rare species, languarda and l cupid. Shared synapomorphies are the body terminalia except the yellow gonostylus, the two-lobed lateral part of the gonostylus with its characteristic medial part, the aedeagal lateral arms that are pectinate caudally, the elongate apical seta of the cerci, and the presence of only four large setae on the scutellum. Of the three species, only fragilis is Holartic; languarda and l cupid are eastern Nearctic. The first and last are probably more closely related to one another than to languarda because they both have the dorsal lobe of the lateral part of the gonostylus tapering to a dark, glabrous point.

**Trichonta fusca Landrock**

*fusca* Landrock 1918: 118.

**Adult (male only).**—Wing length, 3.1–3.4 mm. Body mostly yellow, even on humeral angles of mesoscutum and prothoracic sclerites, and venter of abdomen; male genitalia yellow on basal half to two-thirds, brown beyond; legs yellow. Scutellum with 6 long setae. Mesanepisternum with 4 setae along posterodorsal border. Metepisternum with 2 long setae. Wing: Membrane darkish; anterior edge straight; Sc ending in R, parallel with R for most of length; M fork distad of Rs; Cu fork distad of Rs; Cu petiole asetose; Cu, slightly wavy; A weak, asetose. Front tarsomers not swollen. Hind coxa with strong posteriorbasal seta. Hind tibial setae: 7–9 anteriors; 7–10 dorsals, middorsals longer than width of tibia at midlength; 12–15 long posteriors; 0 anterodorsal and posterodorsal setae. Male terminalia as in figures 132–133.

**Types.**—Holotype, male, Hungary, type depository unknown to me.

**Remarks.**—I saw 13 males of this species, 2 from 1 locality in England and 11 from 5 collections and 3 localities in Finland; in addition, the type was from Hungary. Landrock's (1918) drawings of the male terminalia of fusca do not show all the details in my figures 132–133, especially the frills of the cerci and large setae on the dorsal margin of the basimere, but there are enough similarities to satisfy me that the two illustrations show the same species.

**Trichonta fusciventris Van Duze**

*fusciventris* Van Duze 1928: 43.

**Adult.**—Wing length, 3.6–4.0 mm. Body brown except yellow humeral angles of mesoscutum and prothoracic sclerites; terminalia brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 3–4 setae before posterodorsal margin. Metepisternum bare. Wing: Membrane dark, in some specimens darker on apical third; anterior edge straight; Sc parallel to R for most of length, ending in R; M forking below or distad of Rs; Cu forking basad of Rs, Cu petiole asetose, Cu, slightly sinuous; A strong, asetose. Apex of front tarsomere I and all of II–IV conspicuously swollen in females. Hind coxa without posteriorbasal seta. Hind tibial setae: 4–7 anteriors; 5–6 dorsals, middorsals approximately as long as width of tibia at midlength; 4–7 widely spaced posteriors; 3–6 anteroventrals and 3–6 posteroventrals. Female terminalia (fig. 172): Tergum VIII secondarily subdivided and folded at midlength, setose on caudal parts of both halves; sternum VIII longer than tergum, triangularly incised caudomedially, uniformly setose; cercus I cylindrical; cercus II ovoid, evenly setose. Male terminalia as in figures 87–89.


**Remarks.**—T. fusciventris is restricted to far western North America. I saw 13 specimens, including the holotype, from 8 collections and localities in British Columbia, Washington, Oregon, and California.

**Trichonta gentilis Gagné, new species**

**Adult (male only).**—Wing length, 3.3–3.5 mm. Fits description of vulgaris except shape of gonostylus (fig. 37).

**Types.**—Holotype, male, Roaring River, 9400, Rocky Mt. N. P., Colo., VII–11–1959, Jean Lafton, USNM Type No. 75649. Paratypes (all males): 4, same data as holotype (2 ISU, 2 USNMNH); 1, mi. 206, Richardson Hwy., Israel Pass, Alaska, 15–VII–1962, P. J. Skitsko (CNC).

**Remarks.**—I saw only the six males from the two western North American localities given here. The only apparent differences between gentilis and the other five species related to vulgaris are in the shape of the gonostylus. As in brevicuda, the lateral part is widest dorsally where the caudal half is covered with very short setae, but the setae are more numerous and longer basally in gentilis; the ventral corner is notched and almost asetose. See remarks concerning affinities under vulgaris.

**Trichonta fusciventris gentilis**

**Trichonta gentilis Gagné, new species**

**Adult (male only).**—Wing length, 3.1–3.7 mm. Body brown except yellow humeral angles of mesoscutum and prothoracic sclerites; male terminalia brown; legs yellow. Scutellum with 6 large setae. Mesanepisternum with 4 setae along posterodorsal border margin and 1–2 setae in dorsal corner. Metepisternum with 2 long setae. Wing (fig. 6): Membrane hyaline; anterior edge straight; Sc free, parallel with R; M forking distad of Rs; Cu forking basad of Rs, Cu petiole asetose, Cu, not sinuous; A moderate, asetose. Front tarsomers not swollen. Hind coxa with strong posterobasal setae. Hind tibial setae: 10–12 anteriors; 8–10 dorsals; middorsals subequal in length to width of...
tibia at midlength; 6–8 posteriors on distal third; 0 anteroventrals and posteroventrals. Male terminalia as in figures 101–103.

Types.—Holotype, male, Ledges State Park, Boone Co., Iowa, 19–IX–1962, R. J. Gagné, USNM Type No. 75650. Paratypes (all males): 4 from type locality on 3 different dates (2 ISU, 1 USNMNH); 1, Ames, Iowa (ISU); 1, Needmore, Ind. (USNMNH); 1, Charleston, W. Va. (UW); 1, 14 mi sw El Paso, Durango, Mexico (CNC).

Remarks.—*T. gentilis* is known only from the central United States and Mexico. It resembles the European *aberrans* rather closely, differing only in the shape of the lateral part of the gonostylus. The ventral lobe of this lateral part is quadruate and more setose than the triangular one of *aberrans*. The two species have some characters in common with *vitta* and some of its relatives, mainly the free Sc and the long dorsal part of the gonostylus, but the anterior edge of the wing is straight and the coxa has a strong postero-basal seta.

**Trichonta girschneri** Landrock

**Adult.**—Wing length, 3.1–3.6 mm. Body mostly brown except yellow humeral angles of mesoscutum, prothoracic scutelar, and caudal margins on abdominal terga I–IV; male terminalia brown; legs yellow. Mesepisternum with 4 setae along postero-dorsal border and 1–3 anterior to those. Metepisternum with 2 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, slightly convergent to R for much of length; M forked distal of Rs; Cu forked basad of Rs; Cu petiole ase-tose. Cu, slightly sinuous: A moderate, asetose. Front tarsomeres II–IV swollen in female. Hind coxa with strong postero-basal seta. Hind tibial setae: 6–8 anteriors; 8–11 dorsals, middorsals slightly longer than width of tibia at midlength; 4–8 closely spaced posteriors on distal third; 0 anteroventrals and poteoroventrals. Female terminalia (fig. 178): Ter-gum VIII short, deeply incised medio-caudally, setose, setae mainly short; sternum VIII much longer than tergum VIII, narrowing gradually from base, tapering to narrow, deeply incised point, setose only at caudal tips; cercus I very long, narrow, setose basally and caudally, glabrous between; cercus II elongate-ovoid, uniformly setose. Male terminalia as in figures 161–163.

**Types of names included in this taxon:**

*T. girschneri:* Holotype, male, near Tracht, Moravia, Czechoslovakia, 17–V, depository unknown.

*T. lobata:* Holotype, male, nr. Alushta, Crimea, Ukrainian SSR, in Zoological Institute, Leningrad.

Remarks.—This is a widespread Hol-arctic species. I examined 41 North American specimens from 33 collections made in 25 localities in British Columbia, Alberta, Oregon, California, Colorado, Idaho, Montana, Ontario, Iowa, Michigan, Quebec, New York, and Pennsylvania and 13 Palearctic specimens from 12 localities in Finland, Italy, Rumania, and Iran. In addition, the types were from Czechoslovakia and Ukrainian SSR. I did not see the types, but the original illustrations are accurate enough to place this species.

**Trichonta hamata** Mik


**Adult.**—Wing length, 3.5–4.5 mm. Body mostly brown, yellow on humeral angles of mesoscutum, prothoracic scutellae, and caudal margins of abdominal terga I–IV; male terminalia yellow except brown on venter of basimere and on telomere; legs yellow. Scutellum with 6–8 strong setae. Mesepisternum with 3–4 setae along postero-dorsal margin and 1–2 setae in dorsal corner. Metepisternum with 2 long setae. Wing: Membrane hyaline; anterior margin straight; Sc ending in R, parallel with R for most of length; M fork below to distal of Rs; Cu forked basad of Rs; Cu petiole with or without setae. Cu, slightly sinuous: A strong, asetose. Front tarsomeres not swollen. Hind coxa with strong postero-basal seta. Hind tibial setae: 7–11 anteriors; 7–11 dorsals, middorsals much longer than width of tibia at midlength; 9–18 posteriors along whole length of tibia; 1–5 anteroventrals and 2–5 posteroventrals. Female terminalia (fig. 181): Tergum VIII rectangular, setose on caudal half; sternum VIII slightly longer than tergum VIII, caudal margin uneven, weakly incised medio-caudally, setose on caudal half, setae on caudal margin strongest; cercus I cylindrical, longest medio-ventrally, and with short lateral seta-tipped point, 3–4 caudalsetae black, remainder brown: cercus II ovoid, setae strongest on dorsocaudal margin. Male terminalia as in figures 98–100.

**Types of names included in this taxon:**

*T. hamata:* Syntypes: Males, near Freystadt, Austria, VII to VIII–1871; male, Kopaling, Galicia. Ukrainian SSR, 6–VIII–1878, presumably in Naturhistorisches Museum, Vienna.

*T. sagana:* Holotype, male, Mt. Desert Is., Maine, VI–1935, C. P. Alexander, cannot be located, but deposited in Department of Entomology, University of Massachusetts, Amherst.

Remarks.—I saw 23 American specimens from 12 collections made in 10 localities in British Columbia, Washington, Idaho, Ontario, New York, Maine, and North Carolina and 348 European specimens from 86 collections in 55 localities in Norway, Sweden, Finland, Russian Lapland, Scotland, England, Belgium, France, Spain, Switzerland, Italy, and Austria. In addition, a type was collected in what is now Ukrainian S.S.R. I did not see any syntypes of *hamata* or the type of *sagana*, but Mik’s (1880) and Shaw’s (1940) original figures definitely show this species.

**Trichonta hungarica** Landrock

hungarica Landrock 1925a: 37.

I did not recognize this species among the material I studied, but I suspect, judging from Landrock’s figures of the terminalia, that it is distinct. Because the original description included none of the taxonomic characters I have used in the descriptions, I could not redescribe *hungarica* or include it in the key to species.

**Types.**—Holotype, male, Borosjenő, Hungary, 24–IV, depository of type unknown to me.

**Trichonta icenica** Edwards

icenica Edwards 1925b: 622.

**Adult (male only).**—Wing length, 2.1–2.2 mm. As for *vitta* except wing membrane hyaline, Sc ending in R, and genitalic differences. Male terminalia as in figures 111–112.

Remarks.—I have examined only two specimens of icenica, one (possibly the lost type or paratype) from the type locality in England (IX–1916) and the other from Vihjärvi, Finland. This species has a characteristic patch of strong setae near the caudoventral margin of the gonocoxite. See under vitta for remarks concerning related species.

**Trichonta justa** Gagné, new species

**Adult.**—Wing length, 2.7–2.9 mm. Body mostly brown, humeral angles of mesoscutum and prothoracic scierites yellow; terminalia dark brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 4 setae along posterodorsal margin and 1 in dorsal corner. Metepisternum with 1–2 short setae. Wing: Membrane hyaline; anterior edge straight; Sc parallel with R for most of length, joining R at apex; M forked distal of Rs; Cu forked distal of Rs, petiole asetose. Cu, slightly sinuous; A weak, asetose. Front tarsomeres not swollen. Hind coxa without posteroventral seta. Hind tibial setae: 7–8 anteriors; 5–7 dorsals, middorsals approximately as long as width of tibia at midlength; 5–6 long, widely spaced posteriors; 0 anteroventrals and posterior setae. Female terminalia (fig. 180): Tergum VII widest medially, trianularly incised mediodorsally, setose on rugose caudal half; sternum VII subequal in length to tergum VIII, triangularly incised mediocaudally, setose medially and ventrally; A weak, asetose. Front tarsomeres not swollen. Hind coxa without posteroventral seta. Hind tibial setae: 7–8 anteriors; 5–7 dorsals, middorsals approximately as long as width of tibia at midlength; 5–6 long, widely spaced posteriors; 0 anteroventrals and posterodorsal setae. For remarks concerning relationships, see under fragilis.

**Trichonta lucida** Gagné, new species

**Adult (male only).**—Wing length, 2.9–3.3 mm. As for fragilis except differences in male terminalia (figs. 19–21).

**Types.**—Holotype, male. Needmore, Ind., 30-V–1961. J. C. Schaffner, USNM Type No. 75652. Paratype, male, same locality as holotype (USNM).

Remarks.—This species is known only from the type locality. For remarks concerning relationships, see under fragilis.

**Trichonta lyraca** Gagné, new species

**Adult (male only).**—Wing length, 2.8–2.9 mm. As for vitta except male terminalia brown, wing membrane hyaline. Sc joining R, hind tibia with 7–8 posterior setae, and genitalic differences. Male terminalia as in figures 109–110.


Remarks.—This species is known only from the type locality. See under vitta concerning related species.

**Trichonta melanura** (Staeger)

*melanura* Staeger 1840: 259 (Mycetophila).
*atricula* Zetterstedt: Lundstrom 1909: 29 (misident.)
*melanopyga* Zetterstedt 1852: 4222 (Myco-
tophila): Edwards 1925b: 621 fig. 45. Lundstrom (1909) and Lundstrom (1909). syn. melanura (misident.))
*L. melanopyga*: Landrock 1926: 136 (syn. melanura).

**Adult (male only except female terminalia).**—Wing length, 3.1–3.7 mm. Body mostly brown, usually yellow humeral angles of mesoscutum, prothoracic scierites, and caudal margins of some abdominal terga: male terminalia brown except yellow dorsal part of gonostylus; legs yellow. Scutellum with 6–8 setae. Mesepisternum with 4–5 setae along posterodorsal edge and 2–4 others anterior to that row. Metepisternum with 1–3, usually 2, long setae. Wing: Membrane hyaline; anterior edge straight; Sc parallel to R for most of length, joining R apically; M forked distal of Rs; Cu forked distal of Rs, Cu, petiole asetose. Cu, slightly sinuous; A weak, asetose. Front tarsomeres not swollen. Hind coxa without posteroventral seta. Hind tibial setae: 8–14 anteriors; 8–15 dorsals, middorsals slightly longer than width of tibia at midlength; 13–22 posteriors close set on distal two-thirds of tibia; 0 anteroventrals and posterodorsal setae. Female terminalia of specimens probably referable to this species (fig. 187): Tergum VII laterally with short, strong, flattened setae; tergum VIII widest laterally, setose on caudal half, setae strong, flattened; sternum VIII rectangular, trianularly incised mediodorsally, setose on caudal third, setae strongest on caudal margin; cercus I laterally flattened, longest dorsally and ventrally, setae mainly caudal; cercus II laterally flattened, caudal margin crenulate, setae strongest caudally. Male terminalia as in figures 57–60.

**Types of names in this taxon:**
*T. melanura:* Lectotype here designated, male, Frederiksborg, Denmark, in Universitetets Zooloegiske Museum, Copenhagen. Paralectotypes: 3 males, 5 females, same data as lectotype; only the males and possibly 1 female are *melanura*; 1 female is a subfusca, 2 are *terminalis*, and 1 is an unknown species, not related to *melanura*.


Remarks.—*T. melanura* is widespread in Europe and even occurs in Iran, but it appears to be fairly northern in North America. I examined 25 American males from 15 collections made in 11 localities in British Columbia, Washington, Idaho, Ontario, Michigan, and Quebec and 276 Palaeartic males from 67 collections in 52 localities in Norway, Finland, Russian Lapland, England, Denmark, France, Germany, Italy, Austria, Hungary, and Iran.

The male terminalia of *melanura* are similar in gross aspect to those of *atri
cuda* and the two have been confused in the past. To separate the two species, one should see the aedeagus and the mesal part of the gonostylus for the
characters outlined in couplets 60–62 of the key. Edwards (1925a) correctly synonymized the names melanura and melanopyga but misapplied them to melanopyga of Lundström (1909, fig. 45), which actually fitted atricauda. Lundström’s figure shows well the characteristically shaped, membranous lobe lying just caudoventral of the dorsal part of the gonostylus of atricauda. Specimens I saw that were identified by Edwards as melanura also belong to atricauda. The most characteristic feature of melanura is the presence of two enlarged, often curved setae and a seltalike prong caudo-mesad of the dorsal arm of the gonostylus.

*T. melanura, atricauda, delicata,* and *eximia* form a natural group. Males can be separated by using the characters outlined in the key, but I did not attempt to separate females, which probably in all these species have flattened setae on terga VII and VIII as in figure 187. The four species have the following synapomorphies: Lack of a postero-basal hind coxal seta; the general conformation of the male terminalia, viz. the elongate cerci, the aedeagus with two long, lateral prongs and one ventral prong, the extremely long dorsal arm of the dorsal part of the gonostylus, and the simple lateral part of the same; and, if indeed present in all females, the flattened setae of the terga VII and VIII. All are Holarctic, but two are apparently local in the Palearctic region: *eximia* is known only from the Himalayas and delicata only from Finland.

**Trichonta merita Gagné, new species**

**Adult (male only).—**Wing length, 2.7–3.5 mm. Body brown except yellow humeral angles of mesoscutum, prothoracic sclerites, and caudal margins of abdominal terga I–IV; male cerci and basal half of gonoxkite yellow, remaining brown; legs yellow except distal fifth of hind femur. Scutellum with 6 setae. Mesanepisternum with 4 setae along postero-dorsal border and 1–2 in dorsal corner. Metepisternum with 2–3 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel with R for most of length; M forking below or distad of Rs; Cu forking below or basad of Rs; Cu petiole setose. Cu, Cuul setae: 7–11 anteriors; 7–11 dorsals, mid-dorsals longer than width of tibia at mid-length; 6–8 posteriors on distal half; 0 anteroventrals and posteroventral bristles. Female terminalia (fig. 184): Tergum VIII incised near latero-caudal angle, setose on caudal half; sternum VIII longest medially and longer than tergum VIII; cercus I cylindrical, narrowing caudally; cercus II ovoid, evenly covered with setae. Male terminalia as in figures 90–92.

**Types of names in this taxon:**

*T. perspicua:* Holotype, male, vic. Quebec, Provancher, in Institut Royal des Sciences Naturelles de Belgique. Brussels.

*T. medistaniis:* Holotype, female, Saarijärvi (Woldstedti), Finland, in Zoological Museum, Helsinki.


**Remarks.**—T. perspicua is one of the largest *Trichonta* and the only one with a row of strong posterior setae on the hind coxa. It is not apparent to which other *Trichonta* this species is most closely related, although the gonostylus of *girschneri* does show a superficial resemblance to that of *perspicua.* *T. perspicua* is not common in collections. I saw only 12 male and 8 female North American specimens, including the Wulp and Johannsen types, but it is apparent that *perspicua* is widespread. The specimens were caught in 17 collections and localities in Quebec, New Hampshire, New York, New Jersey, Maryland, Virginia, Louisiana, Wisconsin, Iowa, Alberta, Alaska, Washington, Oregon, and California. I saw no European specimens, but Mikolajczyk (1970) illustrated the terminalia of a specimen from Poland, and Lindberg (in litt.) certified for me that the...
Trichonta placida Gagné, new species

Adult (male only).—Wing length, 3.3 mm. Body brown except yellow humeral angles of mesoscutum, prothoracic sclerites, and caudal margins of abdominal terga I–IV; male terminalia brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 5 setae along posterodorsal margin and 8 others in dorsal corner. Metepisternum with 3–4 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R, parallel to R for most of length; M forking below Rs; Cu forking based at Rs, Cu petiole setose, Cu2, Cu5, slightly wavy; A strong, setose. Front tarsomeres not swollen. Hind coxa with strong, posterobasal seta. Hind tibial setae: 6 anteriors; 9 dorsals, middorsals slightly longer than width of tibia at midlength; 7 posteriors; 0 anteroventrals and posterovertrals. Male terminalia as in figures 41–43.


Remarks.—T. placida is known only from the holotype. Its closest relative is superba, also known only from its holotype caught in Nepal. The only difference that I noticed between the two species was the much shorter dorsal part of the gonostylus in T. placida. Both species superficially resemble the widely distributed girschneri, but girschneri has one less setose lobe on the gonostylus.

Trichonta salva Gagné, new species

Adult (male only).—Wing length, 3.3 mm. Body mostly brown except yellow prothoracic sclerites; male terminalia brown; legs yellow. Scutellum with 6 setae. Mesanepisternum with 3 setae along posterodorsal margin. Metepisternum with 2 long setae. Wing: Membrane darkish, with darker apical third; anterior edge straight; Sc ending in R, parallel to R for most of length; M forking distad of Rs; Cu forking based at Rs; Cu petiole setose, Cu2, Cu5, slightly wavy; A strong, setose. Front tarsomeres not swollen. Hind coxa with strong posterobasal seta. Hind tibial setae: 6 anteriors; 9 dorsals, middorsals slightly longer than width of tibia at midlength; 7 posteriors; 0 anteroventrals and posterovertrals. Male terminalia as in figures 55–56.

Types.—Holotype, male, 1500’, Lily Pond, Alpine Lake, Marin Co., Calif., in Canadian National Collection.

Remarks.—T. salva is known only from the holotype.

Trichonta secura Gagné, new species

Adult (male only).—Wing length, 3.5 mm. Body mostly brown except yellow on humeral angles of mesoscutum and caudal margins of abdominal terga III–V; male terminalia brown; legs yellow except brown basal half of coxae II–III. Scutellum with 6 large setae. Mesanepisternum with 3 setae along posterodorsal border. Metepisternum with 2 long setae. Wing: Membrane hyaline; anterior edge straight; Sc ending in R although connection weak, parallel to R for most of length; M forking distad of Rs; Cu forking based at Rs, Cu petiole setose, Cu2, Cu5, not sinuous; A moderate, setose. Front tarsomeres not swollen. Hind coxa with strong posterobasal seta. Hind tibial setae: 9 anteriors; 8 dorsals, middorsals not longer than width of tibia at midlength; 8 widely spaced posteriors; 0 anteroventrals and posterovertrals. Male terminalia as in figures 153–155.


Remarks.—T. sedata is known only from the holotype.

Trichonta sedula Gagné, new species

Adult (male only).—Wing length, 3.2–3.4 mm. As for conjungens except absence of posterovertral setae on hind tibia and differences in shape of male terminalia (figs. 79–80).

Types.—Holotype, male, Itasca State Park, Minn., 2–IX–1950. J. L. Laffoon, USNM Type No. 75710. Paratypes: 3 males, 1 each from Itasca State Park, Minn. (ISU), Rockport, Ontario (CNC), and Great Smoky Mts. National Park, N.C. (CNC).

Remarks.—T. sedula differs from festa, which is restricted to western North America, in certain striking characters of the gonostylus, mainly in the smaller, distally rounded dorsal section and the size and shape of various parts of the ventral section. The female may resemble that of festa (fig. 180). For further remarks, see under conjungens.
Trichonta serena Gagné, new species

Adult (male only).—Wing length, 3.9 mm. Body mostly brown, yellow on humeral angles of mesoscutum and prothoracic sclerites; male terminalia brown; legs yellow. Scutellum with 6 large setae. Mesoserpisternum with 3 setae along posterodorsal margin. Metepisternum with 2 long setae. Wing (fig. 12): Membrane darkish, especially on distal third; anterior edge straight; Sc ending in R, parallel for most of length; M fork distad of Rs; Cu fork basad of Rs. Cu petiole asetose, Cu, not sinuous; a strong, setose. Front tarsomeres not swollen in male. Hind coxa with strong posterobasal seta. Hind tibial setae: 7 anteriors; 9 dorsals, middorsal setae not swollen in male. Hind coxa with strong posterobasal seta. Hind tibia with 5-8 posterior setae, and genitalic differences. Female terminalia (fig. 170): Tergum VIII rectangular, setose on caudal half; sternum VIII slightly longer than tergum VIII, deeply incised mediocaudally, setose caudally; cercus I bilaterally flattened, sparsely setose; cercus II bilaterally flattened, short, caudal edge straight, setae situated along caudal margin. Male terminalia as in figures 117–118.


Remarks.—T. serena is known only from the holotype.

Trichonta sincera Gagné, new species

Adult (male only).—Wing length, 2.0 mm. Head and mesoscutum yellow orange, remainder of thorax yellow brown, abdomen brown; male terminalia mostly yellow brown, gonostylus yellow; legs yellow except basal half and apical 10th brown. Scutellum with 6 setae. Mesoserpisternum with 4 setae along posterodorsal margin and 2 others in dorsal corner. Metepisternum with 1–2 long setae. Wing: Membrane dark on basal and apical thirds, hyaline in middle third; anterior edge straight; Sc ending free, parallel to R; M forking below Rs; Cu forking slightly distad of Rs, Cu petiole asetose, C2 not sinuous; a weak, setose. Front tarsomeres II–III of male slightly swollen. Hind coxa with strong, posterobasal seta. Hind tibial setae: 6 anteriors; 6 dorsals, middorsals shorter than width of tibia at midlength; 0 posteriors; 0 anteroventrals or posteroventrals. Male terminalia as in figures 150–152.


Remarks.—This species is known from only the holotype and represents the only African Trichonta species south of the Sahara. In general, it hardly resembles a Trichonta with its banded wing and hind leg and its tawny-yellow head and abdomen. The dististylus is especially unique in that the lateral part is fluted caudally.

Trichonta sobria Gagné, new species

Adult (male only).—Wing length, 2.5 mm. As for vitta except whole body brown except legs yellow exclusive of hind coxa and distal fourth of hind femur, Sc ending in R, hind tibia with 5–8 posterior setae, and genitalic differences. Male terminalia as in figures 117–118.


Remarks.—T. sobria is known from only the two specimens listed here. See under vitta for remarks concerning relationships.

Trichonta subfascipennis Edwards

subfascipennis Edwards 1929: 72.

Adult (male only).—Wing length, 3.5 mm. Fits description of bezzii except presence of dark, apical and medial wing clouds and details of terminalia.

Types.—Holotype, male, Balabalsang, Philippines, Ill–1913, in Zoological Museum, Helsinki.

Remarks.—Known only from the holotype, which I was able to study. This species is remarkably similar to bezzii, differing from it in minor details of the male terminalia. The dark wing clouds are distinctive, of course, but the wings of some common species from a given locality may be hyaline or have wing clouds. Terminalia differences are much weaker seta on the ventral corner of the gonostylus, slight differences in shape of the mesal part of the gonostylus, and longer terminal prongs of the aedeagus. One might consider these differences as infraspecific variation, but I do not do so here because the two species are so rare and so widely separated.

Trichonta subsufusca Lundström

subsufusca Lundström 1909: 35.

Adult.—Wing length, 2.3–3.0 mm. As for vitta except wing membrane hyaline, Sc ending in R, hind femur entirely yellow, hind tibia with 5–8 posterior setae, and genitalic differences. Female terminalia (fig. 170): Tergum VIII longest mediolaterally, trianugularly incised caudally, setose on caudal two-thirds; sternum slightly longer than tergum VIII, deeply incised mediocaudally, bare except for strong caudal setae; cercus I bilaterally flattened, sparsely setose; cercus II bilaterally flattened, short, caudal edge straight, setae situated along caudal margin. Male terminalia as in figures 115–116.

Types.—Syntypes, male, female, Kuusto, AB, Finland, VII, Lundström, in Zoological Museum, Helsinki.

Remarks.—I saw no types of subsufusca, but Lundström’s original figures of the male terminalia are diagnostic. T. subsufusca is widespread in North America and Europe. I examined 44 North American specimens from 33 collections made in 24 localities in Alaska, Northwest Territories, British Columbia, Alberta, Idaho, Oregon, California, Colorado, Ontario, Quebec, and Georgia. From Europe I saw 204 specimens from 86 collections in 69 localities in Norway, Sweden, Finland, Scotland, England, Belgium, Spain, Hungary, and Rumania. See under vitta for remarks concerning related species.

Trichonta submaculata (Staeger)

submaculata Staeger 1840: 251 (Myceotophilia); Edwards 1924a: 17 (syn. of vitta). Restored name.

Adult.—Wing length, 2.6–3.0 mm. As for vitta except wing membrane hyaline, Sc ending in R, hind tibia with 5–6 posterior setae, and genitalic differences. Female terminalia (fig. 171): Tergum VIII rectangular, setose on caudal half; sternum VIII slightly longer than tergum VIII, deeply incised mediocaudally, setose caudally; cercus I cylindrical,
slightly bilaterally flattened; cercus II elongate-ovoid, setae strongest on caudal margin. Male terminalia as in figures 113–114.

Types.—Lectotype here designated, male, Fredriksburg, Denmark, in Universitets Zoologiske Museum, Copenhagen. Paralectotypes: 17 males and 6 females, same data as lectotype. 1 female a submaculata, all others vitta Meigen.

Remarks.—T. submaculata is uncommon but fairly widespread in Europe. I examined 27 specimens from 17 collections made in 15 localities in Finland, Denmark, England, Belgium, France (Corsica), Hungary, and Romania.

I have fixed as lectotype of submaculata the male of the pair of 22 syntypes that did not belong to vitta. Staeger (1840) described a typical variety and varieties b, c, and d on the basis of body color, which is rather variable within species. One of the non-vitta syntypes was in the typical variety, the other in variety c. See under vitta for remarks about related species.

Trichonta superba Gagné, new species

Adult (male only).—Wing length, 3.5 mm. As for sobria except shape of gonostylus (fig. 44).

Types.—Holotype, male, 27° 00' N, 85° 00' E, 9900', Nepal, 26–V–1967, Canadian Nepal Expedition, in Canadian National Collection.

Remarks.—T. superba is known only from the holotype. It appears to be closely related to the Mexican placida. For further remarks concerning affinities, see under placida.

Trichonta terminalis (Walker)

terminalis Walker 1866: 21 (Mycetophila), funebris Winnertz 1863: 852; Edwards 1913: 369 (syn. terminalis).

Adult.—Wing length, 3.0–3.4 mm. Body mostly brown, humeral angles of mesoscutum and prothoracic sclerites occasionally yellow; male terminalia brown; legs yellow. Scutellum with 6–8 large setae. Mesanepisternum with 3–4 setae along posterodorsal border only and 2–3 in dorsal corner or along anterodorsal border. Metepisternum with 2–3 long setae. Wing (fig. 7): Membrane darkish; anterior edge straight; Sc ending in R, parallel to R for most of length; M fork distad of Rs; Cu fork basad of Rs, Cu petiole setose, Cu数码 slightly sinuous; A moderate, with or without setae. Front tarsomeres not swollen. Hind coxa with 1 (occasionally 2) strong, posterobasal seta. Hind tibial setae: 6–9 anteriors; 7–10 dorsals, mid-dorsals longer than width of Tibia at midlength; 9–12 closely spaced posteriors; 0 anterodorsals and posterodorsals. Female terminalia (fig. 179): Tergum VIII rectangular, setose on caudal half; sternum VIII longest medially, deeply incised medio-caudally, setose on caudal half; cercus I cylindrical, longest medio-ventrally, uniformly setose; cercus II ovoid, uniformly setose. Male terminalia as in figures 93–95.

Types of names in this taxon:

T. terminalis: Type(s), England, lost (A. M. Hutson, pers. commun.).
T. funebris: Type(s), Germany, destroyed during World War II, but genitalia of a male type illustrated by Dziedzicki (1915, fig. 149).


This species is closely related to the much rarer facilis. Their terminalia are different from those of other Trichonta.

Trichonta trivittata Lundström

trivittata Lundström 1916: 74.

Adult.—Wing length, 2.2–2.6 mm. As for vitta except wing membrane with dark band at midlength and dark apically, male terminalia mostly brown, Sc ending in R, front tarsomeres not swollen in female, and genitalia differences. Male terminalia as in figures 122–123.


Remarks.—T. valida is known from only the two Mexican localities given here. For further remarks about relationships, see under vitta.

Trichonta venosa Staeger


Adult.—Wing length, 3.7–5.5 mm. Body yellow to mostly light brown with brown longitudinal stripes on mesonotum and saddle-shaped markings on abdominal terga; legs yellow; male terminalia yellow except brown on distal third of gonocoxite and lateral part of gonostylius. Scutellum with 8 setae. Mesanepisternum with 4–7 setae along posterodorsal border and 0–2 in dorsal corner. Metepisternum with 3–5 long...
Trichonta vitta (Meigen)

*Trichonta* vitta Meigen 1830: 300 (*Micetophila*). *submaculata* Staeger 1840: 251 (*Micetophila*), in part; Edwards 1924a: 17 (syn. of *vitta*). Restored elsewhere in this paper.


*diffissa* Johansson 1912: 305. New synonym.


**Adult.**—Wing length, 2.1–2.6 mm. Body mostly brown, humeral angles of mesoscutum and prothoracic scintents yellow, abdomen usually brown, occasionally some yellow basally; male terminalia usually yellow, light brown in some specimens; legs yellow except brown on distal fourth of hind femur, costellum with 6 setae. Mesepisternum with 3–5 setae along postero dorsal edge and 1–3 setae anteriarid of that row. Metepisternum (fig. 4) with 1–2 short setae. Wing (fig. 9): Membrane hyaline, apical third sometimes darkened; anterior edge convex; Sc slightly convergent to R, ending free; M forked distal of Rs; Cu forked basad of Rs, petiole asetose, Cu, not sinuous; A weak, asetose. Front tarsomeres II–IV slightly swollen in female. Hind coxa (fig. 4) asetose posterobasally. Hind tibial setae: 7–12 anterior; 7–11 dorsals, middorsals no longer than width of tibia at midlength; 0 posteriors; 0 anteroven trals. Male terminalia as in figures 106–108.

**Types of names in this taxon:**

*T. vitta*: No data given with original description, presumably from Denmark. In Universitetes Zoologiske Museum, Copenhagen.


**Remarks.**—I saw no type specimens of these names, but the terminalia are so distinctive that I trust Edwards' (1925a) identification of *venosa* as *spinosa*, itself well illustrated by Lundstrom (1905). Shaw’s (1940) figure is clearly of *venosa*.

Close relatives of this species are not apparent, but I suppose they would be found among other species with posteroventral tibial setae and large, yellow and brown patterned male terminalia. *T. venosa* is widespread. From North America I saw 54 specimens from 51 collections made in 40 locations in Alaska, Northwest Territories (as far north as Axel Heiberg I!), British Columbia, Alberta, Saskatchewan, Idaho, Montana, Colorado, Ontario, Quebec, Maine, New Hampshire, New York, and North Carolina; from Europe, 442 specimens from 89 collections in 42 localities in Norway, Sweden, Finland, Scotland, England, Belgium, France, Switzerland, Italy, Austria, and Rumania.


**Remarks.**—*T. vitta* is a common, widespread Holarctic species. From North America I have examined 134 specimens, including the type of *diffissa* Johannsen, from 78 collections made in 58 localities in the following territories, Provinces, and States: Yukon Territory, Northwest Territories, British Columbia, Alberta, Washington, Oregon, California, Colorado, Manitoba, Ontario, Wisconsin, Iowa, Indiana, Michigan, Quebec, Maine, New Hampshire, New York, Pennsylvania, Maryland, North Carolina, Tennessee, Florida, and Durango in Mexico; from the Palaearctic region, 245 specimens from 95 collections in 86 localities in Norway, Sweden, Finland, Scotland, England, Belgium, France (incl. Corsica), Germany, Switzerland, Austria, Italy, Hungary, Rumania, and Algeria.

Edwards (1924a) placed *submaculata* Staeger in synonymy under *vitta*. Most of the syntypes of *submaculata* do belong to *vitta*, but two do not. One of the latter group is designated lectotype elsewhere in this bulletin and thus *submaculata* is taken out of synonymy. The type of *nigritula* is lost, but Edwards (1925b) figures of the terminalia could pass for those of *vitta*. Nothing in Edwards’ description precludes *nigritula* from being placed under *vitta*, and there, flood Se and lack of posterior (“inner”) hind tibial setae confirm the placement. Edwards differentiated the two species on the basis of a completely hyaline wing in *nigritula* (some *vitta* have no wing cloud) and a Sc shorter in *nigritula* than in *vitta*, a subjective difference.

*T. vitta*: ipenicola, lycina, pulchra, sobria, subfuscus, *submaculata*, and valida form a monophyletic group. They share the following synapomorphies: The general structure of the aedeagus with two lateral prongs, each connected to one side of a hemispherical base, and a ventromedial prong; the same
general conformation of the gonostylus; the curved anterior wing edge; the Sc convergent to R; and the absence of a strong posterobasal hind coxal seta. Another group of species has a generally similar aedeagus (see *melanura*), and other species lack a strong hind coxal posterobasal seta, but no other *Trichonta* species have the wing characters of this group.

*T. vitta* differs from the other seven species listed here by the characters outlined in the key and the distinctive male genitalia, notably the long but apically blunt dorsal part of the gonostylus. The female terminalia are similar to those of *sublusca* except tergum VIII is longest laterally.

*Trichonta vulcani* (Dziedzicki)


**Adult.**—Wing length, 2.3–3.0 mm. Body brown except yellow humeral angles of mesoscutum, prothoracic sclerites, and usually caudal margins of abdominal terga; male terminalia yellow to brown; legs yellow. Scutellum with 4 large setae. Mesepisternum with 2–3 setae along posterodorsal border. Metepisternum with 2 short setae. Wing (fig. 10): Membrane hyaline; anterior edge straight; Sc ending in R, slightly convergent toward R along most of length; M fork distal of Rs; Cu fork considerably distal of Rs and M petiole; Cu petiole asetose, Cu, not sinuous; A moderate, asetose. Front tarsomeres not swollen in males, apex of I and entire II–III swollen in female. Hind coxa with strong posterobasal seta. Hind tibial setae: 6–8 anteriors; 6–9 dorsals, middorsals subequal to width of tibia at midlength; 7–13 posteriors spaced along most of tibial length, long except distal 4–5 distinctly shorter than others; 0 anteroventrals and posteroventrals. Female terminalia (fig. 186): Tergum VIII incised mediodistally; Sc joining R and the presence of a posterobasal seta on the hind coxa refer the species without doubt to *Trichonta*.

*Trichonta vulgaris* Loew


**Adult.**—Wing length, 2.9–3.9 mm. Body mostly brown, yellow on humeral angles of mesoscutum, prothoracic sclerites, and usually caudal margins of abdominal terga II–V; male terminalia dark brown; female terminalia light brown except sternum X dark brown; legs yellow. Scutellum with 6–8 setae. Mesepisternum with 4–6 setae along posterodorsal border and 2–4 cephalid of that row. Metepisternum (fig. 1) with 2–3 long setae. Wing (fig. 5): Membrane darkish; anterior edge straight; Sc ending in R, parallel with R for most of length; M fork distal of Rs; Cu fork basad of Rs, Cu petiole asetose, Cu, sinuous; A weak, asetose. Front tarsomeres II–III slightly swollen in female. Hind coxa (fig. 1) with 1 strong, posterobasal seta. Hind tibial setae: 7–10 anteriors; 8–13 dorsals, middorsals longer than width of tibia at midlength; 7–11 posteriors; 0 anterodorsals or posterodorsals. Female terminalia of specimens probably this species (fig. 182): Tergum VIII incised caudodistally, setose on caudal half medial to incision; sternum VIII slightly longer than tergum VIII, bare externally, dark brown in striking contrast to lighter remainder of terminalia, with strong seta caudally along margin and on inner surface; cercus I cylindrical, evenly setose, some setae strong; cercus II ovoid, some setae strong. Male terminalia as in figures 31–34.

**Types of names in this taxon:**

*T. vulgaris*: Lectotype here designated, male, Washington, D.C., MCZ #1203, in Museum of Comparative Zoology, Cambridge, Mass. Paralectotype, male, same data as lectotype. Loew (1869) described the male and female of this species, but only 2 male synonyms in the MCZ.


**Remarks.**—*T. vulgaris* is common and widespread. I examined 143 North American specimens (only males counted) from 70 collections made in 43 localities in Alaska, Yukon Territory, Northwest Territories, Alberta, Saskatchewan, Ontario, Quebec, New York, Vermont, Pennsylvania, Maryland, Washington, D.C., Virginia, North Carolina, Indiana, and Colorado. From Europe I saw 316 specimens (only males) from 40 collections in 27 locations in Finland, Switzerland, Hungary, and Ru-

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Six species are included here for various reasons. Three should be recognizable when the types are studied, assuming they are in good condition. T. cincta, obesa, and floresiana are true incertae sedis because they lack abdomens and cannot otherwise be keyed to species. The type of floresiana is also probably lost.

**Trichonta canariensis** Landrock 1925b: 182

trivittata Santos Abreu 1920: 122, preocc.
Lundström (1916), replaced with new name, canariensis, by Landrock (1925b).

A 3½-page original description, mostly of color characters, in Santos Abreu (1920) gives little more meaningful information other than that the species is a *Trichonta*. The type, unavailable for loan at present, must be examined before this species can be identified.

Syntypes, males, Barranco del Río, La Palma, Canary Is., 4–XI–1907, in the care of Santos Abreu’s heirs.

**Trichonta cincta** Johanssen 1912: 303

The type lacks the abdomen and hind legs beyond the coxae and consequently cannot be identified with certainty.


**Trichonta floresiana** Storá 1945: 11

The type, originally deposited in the Zoological Museum, Helsinki, is apparently lost (Lindeberg, in litt.), but it might not be identifiable because the postabdomen is lost. Two items in the original description, the darkened wing apex and the brown distal section of the hind femur, indicate that floresiana might belong to *vitta* or to a close relative.

Holotype, sex unknown ("hypopygium broken off"), Vales, Flores, Azores, 28–VI, Storá, originally deposited in Zoological Museum, Helsinki.

**Trichonta genitalis** (Brunetti) 1912: 104 (*Rhymosia*)

*T. genitalis* was transferred from *Rhymosia* to *Trichonta* by Edwards (1924b). The type is now in the Zoological Survey of India in Calcutta. The specimen is very fragile and partly damaged (P. T. Cherian, in litt.). It is probably best left in Calcutta until someone can study it there.


**Trichonta obesa** Winnertz 1863: 854

The type of *obesa* is one of the few Winnertz types that are extant because it was not part of his collection and was returned after study to the Schiner collection in Vienna, its original depository. Since the type, a female, lacks an abdomen and hind tibiae, it probably cannot now be referred to any known species. Mik (1880) identified specimens of *venosa* Staeger as alleged males of *obesa*, but the two species are not identical. The type of *obesa* has narrow front tarsomeres, whereas in *venosa* females they are strongly dilated. The identification of a Greenland specimen as *obesa* by Lundbeck (1898) was the source of the listing in Laffoon (1965) through Johanssen (1912). Since that identification was based on Mik (1880), the specimen may have belonged to *venosa*.

Holotype, female, Austria, in Schiner collection, Naturhistorisches Museum, Vienna.

**Trichonta pilicauda** Bukovsky 1949: 409

This name is probably a synonym of *atrauda* or *melanura*, but one cannot determine which one from the illustration accompanying the original description of *pilicauda*. An inquiry I made about the type to the Zoological Museum in Leningrad has so far been unanswered.

Holotype, male, Crimea, U.S.S.R., presumably deposited in the Zoological Institute, Leningrad.

**Unrecognized or Unidentified Species**

mania. In addition, the type of *exigua* is from Latvian S.S.R.

*T. exigua* is the only *vulgaris* synonym for which I did not see a type, but Lackschewitz’s figures of the male terminalia satisfy me that *exigua* is a synonym of *vulgaris*.

Six other *Trichonta* species—amica, bilida, brevicauda, clemens, generosa, and merita—resemble *vulgaris* closely and can be separated only on differences of the male terminalia as outlined in couplets 22–27 of the key and as illustrated in figures 31–40. Females are probably similar in general aspect to that described here for *vulgaris*. Synapomorphies of the seven species comprise the sinuous Cu₂; the dark female sternum VIII, striking next to the lighter apomorphies of the seven species com-
vulgaris.

Syn-

lustrated in figures 31-40. Females are probably similar in general aspect to that described here for *vulgaris*. Synapomorphies of the seven species comprise the sinuous Cu₂; the dark female sternum VIII, striking next to the lighter apomorphies of the seven species com-
vulgaris.

Syn-

lustrated in figures 31-40. Females are probably similar in general aspect to that described here for *vulgaris*. Synapomorphies of the seven species comprise the sinuous Cu₂; the dark female sternum VIII, striking next to the lighter apomorphies of the seven species com-
vulgaris.

Syn-

lustrated in figures 31-40. Females are probably similar in general aspect to that described here for *vulgaris*. Synapomorphies of the seven species comprise the sinuous Cu₂; the dark female sternum VIII, striking next to the lighter apomorphies of the seven species com-
vulgaris.

Syn-

lustrated in figures 31-40. Females are probably similar in general aspect to that described here for *vulgaris*. Synapomorphies of the seven species comprise the sinuous Cu₂; the dark female sternum VIII, striking next to the lighter apomorphies of the seven species com-
vulgaris.

Syn-
[Valid names are in roman and synonyms and unidentified names in italic]

aberrans Lundström 1911
dunca Edwards 1924, syn. atricauda
fascians Dziedzicki 1915, syn. falcata
amica Gagné 1979
apicalis Strobl 1897
atricauda (Zetterstedt) 1852 (Mycetophila)
beata Gagné 1979
bellula Johannsen 1912, syn. vulgaris
bezzii Landrock 1913
bicicolor Landrock 1912
bilida Lundström 1909
brachycamptiles (Meunier) 1904 (Palaeotrichonta); fossil
brachycamptoides Meunier 1904; fossil
brevicauda Lundström 1906
canamensis Landrock 1925, unidentified
canora Landrock 1925, syn. falcata
clavicornis Lundström 1913
clavigerata Lundström 1912
clavina Lundström 1909
clavula Johannsen 1912, syn. vitta
cocula Lundström 1912
comica Gagné 1979
comis Gagné 1979
concina Gagné 1979
conjungens Lundström 1909
tenita Johannsen 1912
entula Johannsen 1912, syn. vitta
excisa Lundström 1916
exigua Lackschewitz 1937, syn. vulgaris
eximia Gagné 1979
facilis Gagné 1979
falcata Lundström 1911
fasciata Freeman 1951; Chile
costa Gagné 1979
fidelis Gagné 1979
fissicauda (Zetterstedt) 1852 (Mycetophila)
flavicuda Lundström 1914
flebilis Gagné 1979
floresiana Storå 1945, unidentifiable
foeda Loew 1869
fragilis Gagné 1979
funebris Winnertz 1863, syn. terminalis
funerea Freeman 1951; Chile
fusca Landrock 1918
fusciventris Van Duzee 1928
fuscochi Gagné 1979
generosa Gagné 1979
guinalis Brunetti 1912 (Rhymosia), unidentified
ghentilis Gagné 1979
ghirshneri Landrock 1912
hamata Miy 1880
hansoni Shaw 1840, syn. venosa
hungrana Landrock 1926
icenica Edwards 1925
illaetabilis Skuse 1888; Australia
justa Gagné 1979
languida Gagné 1979
largolamelata Landrock 1918, syn. flavicauda
lobata Bukovsky 1935, syn. ghirshneri
longinivis (Freeman) 1951 (Phronia)
lucida Gagné 1979
lyrica Gagné 1979
major Freeman 1951; Chile
mediastinalis Lundström 1906 (Rhymosia), syn. perspicua
melanopyga (Zetterstedt) 1852 (Mycetophila), syn. melanura
melanura (Staeger) 1840 (Mycetophila)
merita Gagné 1979
nigricauda Lundström 1906, syn. vulgaris
nigrita Edwards 1925, syn. vitta
nubilipennis Freeman 1951; Chile
obesa Winnertz 1913, unidentifiable
paratella (Walker) 1866 (Leila), syn. atricauda
patens Johannsen 1912
perspicua Wulp 1881
phronioides Lundström 1913, syn. apicalis
pilicauda Bukovsky 1949, unidentified
placida Gagné 1979
pulchra Gagné 1979
saga Shaw 1840, syn. hamata
salva Gagné 1979
serrata Gagné 1979
serrata (Ostroverkhova) 1970 (Phronia), syn. vulcani
similis Freeman 1951; Chile
sincera Gagné 1979
sobria Gagné 1979
spinifera Freeman 1951; Chile
spinosa Lundström 1906, syn. venosa
stereana Edwards 1925, syn. foeda
subfuscipennis Edwards 1929
subfusca Lundström 1909
submaculata (Staeger) 1840 (Mycetophila)
superba Gagné 1979
terminals (Walker) 1856 (Mycetophila)
triangularis Johannsen 1912, syn. perspicua
trifida Lundström 1909, syn. vulcani
trivittata Lundström 1916
trivittata Santos Abreu 1920, preocc., replaced
by cananensis
trossula Winnertz 1863, syn. vitta
umbra Winnertz 1863, syn. vitta
valida Gagné 1979
vegeta Skuse 1888; Australia
venosa (Staeger) 1840 (Mycetophila)
vernis Landrock 1913, syn. apicalis
vitta (Meigen) 1830, (Mycetophila)
vulcani (Dziedzicki) 1889 (Phronia)
vulgaris Loew 1869

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List of Names in Trichonta

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VAN DUZEE, M. C.

WALKER, F.

WINNERTZ, J.

WULP, F. M. VAN DER.

ZETTERSTEDT, J. W.

FIGURES 1–4.—1. Thorax and coxae, T. vulgaris. 2–4, Metepisterna and coxae: 2, T. perspicua; 3, T. beata; 4, T. vitta.

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Technical Bulletin 1638, U.S. Dept. of Agriculture

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FIGURES 25–30.—Male terminalia.  
*T. clavigera* (Brockenhurst, England): 25, gonopod; 26, gonostylus; 27, tergites IX–X.  
*T. beata* (Redding, Conn.): 28, gonopod; 29, gonostylus; 30, tergites IX–X.
FIGURES 48-54.—Male terminalia. *T. bicolor* (Candlewood Lake, Conn.): 48, Gonopod; 49, gonostylus. *T. canora* (Kitee, Finland): 50, Gonostylus (ventral view); 51, same (dorsal view). *T. fissicauda* (Mt. Rainier, Wash.): 52, Gonopod (dorsal view); 53, gonostylus (caudal view); 54, tergites IX-X.
FIGURES 55-60.—Male terminalia. *T. salva* (Alpine Lake, Calif.): 55, Gonopod; 56, gonostylus. *T. melanura* (Moscow, Idaho): 57, Gonopod; 58, gonostylus; 59, aedeagus; 60, tergites IX-X.
FIGURES 68–73.—Male terminalia. *T. delicata* (Glacier Park, Mont.): 68, Gonopod. *T. patens* (Slade Park, Colo.): 69, Gonopod; 70, gonostylus (lateral view). *T. comica* (Berkeley, Calif.): 71, Gonopod; 72, gonostylus; 73, tergites IX–X.
FIGURES 74-78.—Male terminalia.  
T. concinna (Oltenia, Rumania): 74, Gonopod; 75, gonostylus; 76, tergites IX-X.  
T. contenta (Nepal): 77, Gonopod; 78, gonostylus.

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FIGURES 90–95.—Male terminalia. *T. perspicua* (Montgomery Co., Md.): 90, gonopod; 91, gonostylus; 92, tergites IX–X. *T. terminalis* (Teller, Alaska): 93, gonopod; 94, gonostylus (caudal view); 95, tergites IX–X.

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FIGURES 137–141.—Male terminalia. T. serena (Penticton, Brit. Col.): 137, gonocoxite; 138, gonopod and tergites IX–X. T. flavicauda (Mt. Baker, Oreg.): 139, Gonopod; 140, gonostylus; 141, tergites IX–X.
FIGURES 142-147.—Male terminalia.  *T. excisa* (Durango, Mexico): 142, Gonopod; 143, gonostylus; 144, tergites IX–X.  *T. chaoi* (Moscow Mt., Idaho): 145, Gonopod; 146, gonostylus; 147, tergites IX–X.

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FIGURES 159–163.—Male terminalia. *T. bezzi* (Lockeport, Nova Scotia); 159, gonopod; 160, gonostylus. *T. girschneri* (Glacier Park, Mont.): 161, gonopod; 162, gonostylus; 163, tergites IX–X.
FIGURES 169–174.—Female terminalia: 169, T. vitta (Knowlton Landing, Quebec); 170, T. subfusca (Elkwater, Alberta); 171, T. submaculata (Lupsa Valley, Rumania); 172, T. fusciventris (Willamette Natl. Forest, Oreg.); 173, T. fissicauda (Terrace, Brit. Col.); 174, T. chaoi (Moscow Mt., Idaho).
FIGURES 175–180.—Female terminalia: 175, T. falcata (Highlands, N.C.); 176, T. foeda (type, "Middle States"); 177, T. clara (Clear Creek, N.C.); 178, T. girschneri (Boone Co., Iowa); 179, T. terminalis (Ninette, Manitoba); 180, T. festa (Victoria, Brit. Col.).

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