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PETER CHANDLER & EUGÉNIA RIBEIRO

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THE SCIAROIDEA (DIPTERA) (EXCLUDING SCIARIDAE) OF THE ATLANTIC ISLANDS (CANARY ISLANDS, MADEIRA AND THE AZORES)

By PETER CHANDLER * & EUGÉNIA RIBEIRO **

With 74 figures, 1 table and 1 map

ABSTRACT. The species of Mycetophilidae, Keroplatidae and Bolitophilidae (Diptera) of the Canary Islands, Madeira and the Azores are revised and discussed in the context of their relationship to the wider Palaearctic fauna, especially to that of the adjacent parts of Europe and North Africa.

The fauna comprises 75 species in 27 genera. These genera and 9 others found in North Africa are keyed. Atlantic islands specimens of 69 species were examined and are described; the likely identity of the remaining 6 species is discussed. Available type material is evaluated, resulting in 29 new synonyms being established, all but 4 of them names based on local types (*Macrocera tyrrhenica* EDWARDS, *Rhymosia exornata* SÉGUY, *Exechia peyerimhoffi* BURGHELE-BALACESCO and *Brevicornu hissaricum* ZAITZEV are synonymised with names based on Canarian types). Seventeen new species are described. Lectotypes are designated for 29 names.

Of the 75 species recognised, 42 are now known from outside the islands although some species of *Mycetophila* MEIGEN and *Phronia* WINNERTZ have local forms, possibly having a subspecific rank. The single Azorean *Phronia* species cannot yet be determined and two other Azorean species not examined (*Exechia atlantis* STORÅ and *Trichonta floresiana* STORÅ) are of doubtful identity, but most of the remaining 30 can be provisionally considered endemic. However, increasing knowledge of Mediterranean faunas may reduce this number. In the individual island groups, the species totals are: Canary Islands, 45 (15 not known elsewhere, 1 in common with Madeira only); Madeira, 35 (9 not known elsewhere) and Azores, 13 (7 not known elsewhere). Fourteen species are in common between Madeira and the Canary Islands, 2 of them also found in the Azores.

There are 19 species known to occur also in North Africa, where the fauna is poorly known but upwards of 60 species now recorded. One Canarian species, *Leia beckeri* LANDROCK, is otherwise known only from Algeria. There are six other species also known from the Mediterranean region but not from other parts of Europe; the remaining 35 species are more widespread in Europe and often other parts of the Palaearctic or Holarctic Regions.

* Weston Research Laboratories Limited, Vanwall Road, Maidenhead, Berkshire SL6 4UF, UK
** Dep de Zoologia e Antropologia, FCUL, Bloco C - 2 - Campo Grande 1700 Lisboa,Portugal

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RESUMO. Relacionadas com a vasta fauna Paleárctica, especialmente das regiões mais próximas da Europa e Norte de África faz-se a revisão e discussão das espécies de Mycetophilidae, Keroplatidae e Bolitophilidae (Diptera) das Ilhas Canárias, Madeira e Açores.

A fauna compreende 75 espécies em 27 géneros. São apresentadas chaves para estes 27 géneros e 9 outros que se encontram no Norte de África. Espécimens pertencentes a 69 espécies das ilhas Atlânticas são examinados e descritos enquanto a existência provável das restantes 6 espécies é discutida. O material tipo disponível é avaliado, tendo como resultado 29 novas sinonímias, sendo 4 desses nomes baseados em locais tipo (Sinonímizados com nomes baseados nos tipos das Canárias são *Macrocera tyrrhenica* EDWARDS, *Rhymosia exornata* SÉGUY, *Exechia peyerimhoffi* BURGHELE-BALACESCO e *Brevicornu hissaricum* ZAITZEV). São descritas dezassete novas espécies. Designam-se lecotipos para 29 nomes.

Quarenta e duas espécies das 75 espécies identificadas também ocorrem no exterior das ilhas, no entanto algumas espécies de *Mycetophila* e *Phronia* têm formas locais, ocupando possivelmente uma posição subespecífica. A única espécie açoreana de *Phronia* não pode ser ainda determinada e outras duas espécies açoreanas não examinadas (*Exechia atlantis* STORÅ e *Trichonta floresiana* STORÅ) são de existência duvidosa, mas a maior parte das restantes 30 podem ser provisoriamente consideradas endémicas. No entanto, este número pode diminuir com o aumento do conhecimento das faunas Mediterrânicas. Os totais das espécies por grupo de ilhas são: 45 para as Ilhas Canárias (15 não conhecidas em qualquer outro local e apenas uma em comum com a Madeira); 35 para a Madeira (9 não encontradas em qualquer outro local) e 13 para os Açores (7 conhecidas apenas deste grupo de ilhas). Na Madeira e nas Ilhas Canárias há em comum 14 espécies, sendo duas delas também encontradas nos Açores.

Em comum com o Norte de Africa há 19 espécies, embora a fauna norte africana, seja ainda mal conhecida com 60 espécies assinaladas. No entanto, uma espécie das Canárias, *Leia beckeri* LANDROCK é apenas conhecida da Argélia. Existem também seis outras espécies só conhecidas da região Mediterrânica e não doutras partes da Europa; as restantes 35 espécies estão mais difundidas na Europa e noutras partes das regiões Paleárctica ou Holárctica.

INTRODUCTION

The composition of the insect fauna of the Atlantic island archipelagoes of the Canary Islands, Madeira and the Azores has been the subject of much intensive study and speculation about its origins and relationships. It early became known that there was a strong endemic element in the faunas of these oceanic islands but the proportion of endemicity varies widely in different insect groups. Views on this are constantly evolving with refinement of taxonomic knowledge and the study of the faunas of adjacent regions.

Knowledge of the Diptera faunas of these island groups was given a firm basis by the successive works of FREY (1937, 1945, 1949) in which complete lists of the species then known were given. Many changes and additions have, however, been

made by subsequent authors working on restricted groups and recent work by MARCOS BÁEZ at the University of La Laguna in Tenerife has resulted in the elucidation of the Canarian fauna of many families of Diptera. In general, recent work has tended to suggest that the more moisture loving groups, largely restricted to the forested habitats of the islands, have developed more endemic species, the thorough revision of the Tipulidae of the Atlantic islands by THEOWALD (1977) particularly suggesting this conclusion. The fauna of the adjacent part of North Africa, especially of the forests of the Atlas Mountains, is however still very poorly known and future work there may lead to a different interpretation.

The Sciaroidea (= Mycetophiloidea of European authors) are represented on these islands by *Bolitophila* MEIGEN (Bolitophilidae), five genera of Keroplatidae and twenty-one genera of Mycetophilidae proper; the Sciaridae are also well represented but have not been studied in the present context. The two remaining families of Sciaroidea occurring in Europe, Ditomyiidae and Diadocidiidae, have not been recorded. Within the Mycetophilidae, the Manotinae have not been found; nine genera of "Sciophilinae" *sensu lato*, including members of each of the four main tribal/subfamiliar groupings, and twelve genera of Mycetophilinae (both tribes) are now known to occur. The generic classification adopted here follows that of EDWARDS (1925), with the exception of the Tribe Exechiini, where the revision by TUOMIKOSKI (1966) is accepted and the Keroplatidae, where the subgenera of *Orfelia* COSTA proposed by EDWARDS (1929, under *Platyura* MEIGEN) are accorded generic status following the recent works of MATILE.

The generic composition of the fauna has not been in doubt although several genera (*Bolitophila* MEIGEN, *Pyratula* EDWARDS, *Coelosia* WINNERTZ, *Anatella* WINNERTZ, *Cordyla* MEIGEN) are recorded here for the first time on the basis of newly found species. However, the precise species composition has been very uncertain and the synonymy established here results in a reduction in the proportion of apparently endemic species. This is largely because many new species were described without reference to their genital structure and subsequent authors have not studied the earlier material.

Now that the European fauna of this group is becoming better known, the time is considered ripe for a review of present knowledge of the fauna of the Atlantic islands. An attempt has therefore been made to study all surviving types and other available material to determine the correct synonymy and nomenclature. A better perspective has thus been provided on the fauna of this region in relation to that of Europe although a true comparison with North Africa cannot yet be made. This assessment also cannot, of course, be considered final; the fauna of the Canary Islands has received far more attention than that of Madeira and the Azores but even here new species have still been added frequently.

This group constitutes a relatively large and significant part of the comparatively small dipterous fauna of these islands, comprising about five per cent of their known species of Diptera. This may appear surprising as they are chiefly moisture loving forest insects, but these islands were of course formerly well forested, especially on the more humid northern slopes of the mountains in the case of the Canary Islands. Now the broad leaved evergreen forest (laurisilva) of the lower slopes on the Canaries has been seriously reduced in extent and most of the streams have been canalised, leaving the original beds of these former torrents dry for most of the year. The more open pine forest on the higher ground is still extensive on some islands, especially La Palma, but provides fewer suitable refuges for these delicate gnats.

The majority of the species found on the Atlantic islands occur in forested habitats and in dry weather they tend to concentrate in moist sheltered situations. Even when the stream beds are dry they still provide a moist microhabitat and the gnats may be found in large numbers involving several species together. Indeed SANTOS ABREU (1920) commented that it was inexplicable that the family had not been cited from the Canary Islands before BECKER's work because "today some of them are so commonly encountered as to be collected in hundreds in suitable localities." They were so concentrated at Agua Garcia and Las Mercedes in Tenerife in April 1973 when thousands of individuals were observed by one of us (PC); these assemblages were dominated by a few species of *Mycetophila* MEIGEN and *Phronia* WINNERTZ but the number of other species represented by a few examples in the samples taken suggest that a larger sample might have included more species.

Of the genera known, *Bolitophila*, some *Macrocera* MEIGEN and most of the Mycetophilidae proper are confined to forest areas. Other Keroplatidae and a few of the Mycetophilidae (especially *Greenomyia* BRUNETTI and *Leia* MEIGEN) occur more often at woodland edge or in open habitats. The early stages have not yet been recorded for any species on the Atlantic islands although the development of many of the species known also from Europe is known. *Bolitophila* and most Mycetophilidae develop as larvae in the fruiting bodies of the larger fungi. The larvae of *Trichonta* WINNERTZ and *Phronia* feed at the surface of wood encrusting fungi and several of the *Mycetophila* species develop internally in lignicolous fungi, including both encrusting fungi and polypores. *Bolitophila* and most Exechiini develop in gill fungi (agarics), often terrestrial species but many of them are polyphagous and may not necessarily be utilising the same food plants on the islands as on the mainland. Most *Cordyla* species develop in Russulaceae but the Canarian *C. styliforceps* BUKOWSKI has recently been established to develop in a subterranean fungus in Spain and this may also be its habit in the Canary Islands. The larvae of most "Sciophilinae" live in mucous webs on the surface of lignicolous fungi and this is probably the habit of at least the *Mycomya* RONDANI and *Sciophila* MEIGEN species on the islands. The

larvae of Keroplatidae also inhabit mucous webs on various substrates but are often partly or entirely carnivorous and less tied to fungi than the sciophiline groups, although some such as *Keroplatus* BOSC itself (not found on the islands) form webs on lignicolous fungi and feed chiefly on the spores.

Some other larval habitats are also possible; *Boletina dubia* MEIGEN has been reared from liverworts and the related Madeiran species may have the same habits. Some *Docosia* WINNERTZ and *Leia* MEIGEN develop in bird's nests although fungal feeders also belong to these genera. Nothing is known of the larval habits of some genera, e.g. *Megophtalmidia* DZIEDZICKI, *Greenomyia* BRUNETTI and *Azana* WALKER.

Historical Review of Studies of Atlantic Islands Sciaroidea

Canary Islands

The Canarian species first became known from the work of THEODOR BECKER (1908), who monographed the Canarian Diptera known to him following two visits he made in December 1900/May 1901 and May/June 1904 to Tenerife, Gran Canaria and La Palma. This study included 12 species of Mycetophilidae and Keroplatidae collected by him on Tenerife (one also on Gran Canaria) and 2 further species obtained by Dr. OSKAR SIMONY on La Palma. All but 2 of these species were described as new.

Shortly after BECKER's work was published, Dr. ELIAS SANTOS ABREU began his industrious work on the Canarian Diptera on which he produced ten family monographs over the period 1918 to 1930 and another which was published posthumously in 1976. The second of these works (1920) was on this group (Mycetophilidae, Keroplatidae). SANTOS lived at Santa Cruz de la Palma and was thus ideally situated for working on the more hygrophilous groups of Canarian Diptera as the island of La Palma was more liberally provided with suitable localities than the more easterly situated islands. In the introduction to his work, SANTOS reviewed earlier work on the group, showing that he had a thorough knowledge of the literature and he indicated that JOHANNSEN's (1909) Genera Insectorum had provided the model for his arrangement of genera and species. SANTOS recognised 40 species and 14 varieties, which were described in great detail, 23 species and 12 varieties being new. As with BECKER's work, the few figures were chiefly of wings and the genitalia were not studied. SANTOS evidently did not have access to European material for comparison and consequently his interpretation of specific limits was not very precise in those groups where examination of genitalia is essential for determination. Since only external characters were studied too much emphasis was placed on variable colour characters.

BECKER had described two new genera, *Helladepichoria* and *Telmaphilus*, which were accepted by SANTOS who added another, *Neoparastemma*. EDWARDS (1925), in his generic revision, placed BECKER's genera in synonymy with *Antlemon* HALIDAY in LOEW and *Phronia* respectively. He also indicated that *Neoparastemma* was probably synonymous with *Megophtalmidia*. In the same paper EDWARDS commented on the wing markings of BECKER's two *Telmaphilus* species which corresponded to the respective sexes of his "*Phronia praecox*." LANDROCK's (1927) treatment of the Canarian species in his keys to the Palaearctic species was of necessity based on the works of BECKER and SANTOS as he had not examined their material. He proposed new names for some of SANTOS' species which were homonyms, and also speculated on the synonymy of *Neoparastemma* but did not come to a definite conclusion.

The basis for modern knowledge of the Canarian Diptera fauna was provided by RICHARD FREY (1937) who based his study on material collected by himself and RAGNAR STORÅ in June to August 1931 when they visited the five outer islands. STORÅ was the author of the section on Mycetophilidae and Keroplatidae in this work. Only 13 species were collected by them, 3 of them described as new; 16 of the remaining species dealt with by SANTOS were also listed as good species, 12 others as doubtful species. FREY in this work discussed the degree of endemicity of the Canarian Diptera and classified them in several groups according to their distribution outside the Canary Islands. Of the 29 species recognised, 1 is listed as Holarctic, 4 as Palaearctic, 1 as Mediterranean and 23 as endemic to the Atlantic islands.

There are few references to the Canarian species in more recent works. GAGNÉ (1974) studied BECKER's Canarian *Phronia* and considered *abbreviata* (BECKER) to be endemic while *biarcuata* was a senior synonym of the European *johannae* STEENBERG (= *praecox* of EDWARDS). MATILE (1978) established that *Leia lucida* (BECKER) correctly belonged to *Greenomyia* BRUNETTI. BÁEZ & SANTOS PINTO (1981) revised the four Canarian species of *Macrocera* and *Antlemon*. GAGNÉ (1981) commented on *Trichonta canariensis* LANDROCK but left it unplaced as he had not then examined it. ZAITZEV (1982) synonymised *Sciophila parviareolata* SANTOS ABREU with *S. hirta* (MEIGEN) but recognised *S. insolita* SANTOS ABREU as a good species, then considered endemic. VÄISÄNEN (1984) described the two *Mycomya* species, recognising both as Canarian endemics.

Little collecting was done in the forty years following the visit by FREY and STORÅ although some material was obtained by J.M. FERNANDEZ in Tenerife and by SANTOS RODRIGUEZ in La Palma. The impetus to the present work was given by the visits of one of us (PC) to Tenerife in April 1973 and to La Palma in May-June 1976 (an account of this latter visit was given by CHANDLER, 1979) and further material collected by ALAN STUBBS who visited Tenerife in February/March 1975.

Also since 1973, MARCOS BÁEZ has collected Mycetophilidae in the course of his general collecting of Diptera and he has obtained material from all the islands, which has added several further species to the Canarian list and considerably increased knowledge of the distribution of this group. Other recent batches of material examined were collected in Tenerife by N. PHILIP ASHMOLE of Edinburgh University, and in Gomera by MICHAEL VON TSCHIRNHAUS of Bielefeld University.

BÁEZ (1988) discussed the fauna of the laurisilva of Tenerife, recording 22 species of Mycetophilidae and Keroplatidae, based on our examination of his material.

In the present work, 45 species are recognised to occur in the Canary Islands, of which 15 are apparently endemic while one member of the *Mycetophila ruficollis* Meigen Group is otherwise known only from Madeira. The other 13 species in common with Madeira (2 of them also with the Azores) have wider distributions.

Madeira

The first Mycetophilidae and Keroplatidae to be recorded from Madeira were collected by Prof. Dr. O. LUNDBLAD in July/August 1935 and were studied by STORÅ (1941) who recognised 14 species, of which 2 were described as new. Five others were also then known only from the Canaries, 1 from the Canaries and Europe, 5 only from Europe and 1 was not identified.

Then a detailed account of Madeiran Diptera (FREY, 1949) followed a visit to the island by FREY, STORÅ and C. CEDERCREUTZ in April/May 1938. The Sciaroidea were again dealt with by STORÅ. They obtained 12 species of which 5 were additions to the earlier list, 2 of them otherwise known from the Canaries and 3 from Europe. The 18 named species accepted as Madeiran were summarised as comprising 1 endemic to Madeira, 4 to Madeira and Canaries, 1 to Madeira and Azores, 3 to all three island groups, while 1 was Holarctic, 7 Palaearctic and 1 Mediterranean in distribution.

NIELSEN (1966) discussed material collected on both Madeira and the Azores by Dr. PER BRINCK and Dr. ERIK DAHL in March/April 1957. This included 3 species from Madeira, all apparent additions to the existing list.

ALAN STUBBS visited Madeira in February 1977 and in February 1990. He collected good numbers of Mycetophilidae (altogether 25 species, 20 species each time) and the first Bolitophilidae from the Atlantic islands (1 species, on both occasions). MICHAEL VON TSCHIRNHAUS referred to us material of 6 species collected by PETER OHM in 1986. MARCOS BÁEZ also visited Madeira in August 1989 and obtained 18 species. One of us (ER) has examined some additional material from Madeira, collected by R. CAPELA in the period 1989-1990, including the first record of the genus *Mycomya* from the island.

In the present work, 35 species are recognised from Madeira, 14 of them (and possibly 2 others) in common with the Canaries, 2 of those (and 1 of the latter) in common with the Azores. Nine species are apparently endemic and one other as indicated above is in common only with the Canaries.

Azores

The Sciaroidea of the Azores first became known by the work of FREY (1945), again based on an expedition by himself and RAGNAR STORÅ to the islands in May/ August 1938. Sciaroidea were collected on six of the nine islands visited. Three species (and one variety) of Keroplatidae and ten species (1 unnamed) of Mycetophilidae were recognised; 3 species and the variety were described as new. Of the 9 species, 5 were only known from the Atlantic islands, the others being European.

NIELSEN's (1966) contribution included 4 species from the Azores, 2 of them described as new and 1 other new to the islands.

While less work has been done on the Azores fauna than on the other Atlantic islands, it is not expected that their fauna of this group will be as rich as Madeira or the Canary Islands, because of their greater distance to the mainland and the more recent origin of the archipelago. However, some suitable sites there have not been surveyed for the group and it is yet possible that further species will be found.

Following the synonymy established here 13 species are known from the Azores, 5 of which are apparently endemic while 5 others (4 not seen during the present study, including two described as new; the fifth, a *Phronia* only known from the female) require confirmation of their identity. Three are found also on Madeira, at least two of them also on the Canaries.

SUMMARY

In the present paper, 75 species are accepted as inhabiting the three island archipelagoes considered; six of these have not been examined, the four Azorean species mentioned, *Rymosia maderensis* STORÅ and *Antlemon halidayi* LOEW, although the identity of the last is accepted following the work of BÁEZ & SANTOS PINTO (1981). The numbers in each island group are indicated above and the distribution on individual islands, as well as the type of distribution of species found elsewhere, is shown in the accompanying Table (Table 1), which omits the undetermined Azorean *Phronia*.

From this analysis it can be seen that there are 35 species widely distributed in Europe, some of them occurring in other parts of the Palaearctic region and 8 of these are known to have a Holarctic distribution (occurring also in North America).

All but one of these, *Orfelia nigricornis* (FABRICIUS) (one of the Azorean species not seen), are known to occur in the Mediterranean region, and 7 other species not reported from other parts of the Palaearctic Region are also found in the Mediterranean region. The known distribution of the 7 latter is as follows:

Macrocera incompleta BECKER	Also known from Corsica
Antlemon halidayi LOEW	Widespread in Mediterranean region
Sciophila insolita SANTOS ABREU	Newly reported here from Mallorca
Leia arsona HUTSON	Malta, North Africa, Israel, St. Helena, Kenya, South Africa, Jersey (probably spread by commerce)
Leia beckeri LANDROCK	Only otherwise known from Algeria
Exechia fulva SANTOS ABREU	Widespread in Mediterranean region
Exechiopsis corona sp. nov.	Also from Naxos (Greece)

Thus 42 species can be confirmed as occurring outside the islands. Of the remaining 32 species, three (*Exechia atlantis* STORÅ, *Rymosia maderensis* STORÅ and *Trichonta floresiana* STORÅ) have not been examined and only *R. maderensis* of these can provisionally be regarded as a good species on the basis of STORÅ's figures. *E. atlantis* may be a synonym of *E. separata* (LUNDSTRÖM), while the type of *floresiana* lacked an abdomen precluding its determination.

Some of the *Mycetophila* and one *Phronia* species formerly thought to be endemic differ in extent of wing markings from the European forms of those species and subspecific status may be warranted but further study of this problem would be desirable.

The relationships of the other 29 apparently endemic species are discussed in the text. The most likely true endemics seem to be in *Rymosia* WINNERTZ and *Mycetophila* (the *spectabilis* WINNERTZ Group); in each case several closely related species are found in different islands, suggesting the possibility of speciation having occurred within the islands. *Megophtalmidia decora* (SANTOS ABREU) (only known from the female) was thought to be a Mediterranean species but it has now been found that at least two closely related species exist in the Mediterranean region and females (belonging to the two species examined) differ in the structure of the ovipositor from *decora*. Similarly the *Pyratula* EDWARDS species was at first thought to be *P. perpusilla* (EDWARDS), described from a British type, but it was then found that at least three further species closely resembling *perpusilla* occur in the Mediterranean region and the Canarian species differs from all of these in details of the aedeagus and gonocoxal structure. Again in *Azana* it has been found that there are several Mediterranean species and *A. palmensis* SANTOS ABREU is distinct from all of these.

The two *Docosia* species described here from Fuerteventura differ from any species previously figured but recent work (unpublished) by PETR LAŠTOVKA has indicated a rich Mediterranean fauna of this genus so it is possible that they will be found to occur in North Africa.

Comparison with the North African fauna

It is also indicated in the Table that 19 species found in the islands are in common with North Africa, but this is undoubtedly an underestimate. There has been no detailed work on the fauna of this region, knowledge being based on casual examination of small collections. Because of the proximity of the Canary Islands to the African coast it is desirable to indicate here what is presently known. Map 1 shows the position of the three archipelagoes in relation to the African coast.

BECKER (1907) recorded 9 species from Algeria, 6 of them described as new. ENDERLEIN (1913) described a genus *Kerteszina* with one species from Tunisia; this was synonymised with *Novakia* STROBL by LANDROCK (1927). LUNDSTRÖM (1916) recorded three species from Tunisia, one of them new. SÉGUY (1941) described a new species of *Rymosia*, based on a single female collected in the High Atlas of Morocco, but this is shown to be an *Exechia* and placed in synonymy in the present paper. BURGHELE-BALACESCO (1966) recorded 8 species, Exechiini and *Bolitophila*, from Algerian caves, two of them new. Then (1972), she mentioned *Leia bimaculata* (MEIGEN) from Algeria. LAŠTOVKA & MATILE (1974) noted two further species from Algeria in their account of the Mongolian fauna. MATILE (1977) cited *Antlemon halidayi* from Algeria. GAGNÉ (1981) recorded *Trichonta vitta* (MEIGEN) from Algeria. VÄISÄNEN (1984a, b) recorded one *Mycomya* species from Algeria, and species of *Leia* and *Grzegorzekia* EDWARDS from Tunisia. BECHEV (1989) described a new *Monocentrota* from Algeria and Bulgaria. There are no records from Libya but EDWARDS (1925) and MADWAR (1935) recorded one *Macrocera* from Egypt.

Altogether only 30 species in 18 genera have been published. However, unpublished material from Morocco and Algeria in Museum collections at Paris and London and a collection by Dr. H. MALICKY of 26 species from Tunisia (NORBERT CASPERS, pers. comm.) has added several further genera and a good number of species, so that more than 60 species in 28 genera are now known to occur in North Africa.

Nineteen genera are in common with the Atlantic islands (17 with the Canaries) and of the 19 species in common, 12 occur in the Canaries, 14 in Madeira and 2 in the Azores.

Since only nine genera and one sub-genus known from North Africa have not been recorded on the Atlantic islands, these are also included in the key to genera

here. It is probable, however, that further work will establish the occurrence of many other European genera in this underworked area.

Material examined and Acknowledgements

BECKER's material is preserved in good condition at the Humboldt Universität zu Berlin and Dr. H. SCHUMANN kindly enabled examination of this material, so that the identity of his species is firmly established.

SANTOS ABREU's material was preserved at Santa Cruz de la Palma by his son and grandson, although the types had already been removed to Tenerife when one of us (PC) visited La Palma in 1976 and met his grandson, ELIAS SANTOS PINTO, who permitted examination of material collected by SANTOS RODRIGUEZ, son of SANTOS ABREU but more detailed examination of this material has not been possible. Since then, through the kindness of MARCOS BÁEZ it has been possible to examine the surviving type material (deposited in the Museo Insular de Ciencias Naturales, Tenerife), mostly in recognisable condition and this has enabled most of SANTOS ABREU's species to be correctly interpreted, some of them for the first time. None of the specimens has any data attached, only bearing numbers relating to a list of localities and dates, which was furnished by MARCOS BÁEZ.

The material assembled by FREY and STORÅ was deposited in the University Museum at Helsinki and it was possible to examine it and have critical material on loan when one of us (PC) visited this Museum in October 1979. For this opportunity we are indebted to BERNHARD LINDEBERG and WALTER HACKMAN. Thus some of STORÅ's types have been examined and their interpretation confirmed but unaccountably some types and some other species recorded, including all those from Madeira and the Azorean Keroplatinae, were not present in the collection and their whereabouts are unknown.

The BRINCK and DAHL material studied by NIELSEN was preserved in alcohol at the Zoological Institute at Lund. ROY DANIELSSON kindly enabled revision of this material.

The previously unpublished material examined has included the batches obtained by PC (Tenerife and La Palma), ALAN STUBBS (Tenerife and Madeira), N. PHILIP and MYRTLE J. ASHMOLE (Tenerife), R. CAPELA (Madeira) and the rich material collected by MARCOS BÁEZ (all islands of the Canaries and Madeira). Dr. BÁEZ also sent some specimens collected by J. M. FERNANDEZ in Tenerife and LOÏC MATILE has loaned specimens from the Paris Museum, collected by A. CABRERA and A. SEYRIG in Tenerife. The types of new species described from MARCOS BÁEZ' material have been deposited in the Museo Insular de Ciencias Naturales, Tenerife (MICN) while those collected by ALAN STUBBS are deposited in the Natural History

Museum, London; his other material is in the PC private collection.

Some of the ASHMOLE material is also to be deposited in MICN and it should be acknowledged that his material was collected in the Teide National Park with the permission and assistance of the Park authorities.

BEE BLACKWELL kindly typed an earlier draft of this paper.

Abbreviations used in text for institutions with Atlantic islands material

HUB	Humboldt Universität, Berlin
MICN	Museo Insular de Ciencias Naturales, Tenerife
MNHN	Museum National d'Histoire Naturelle, Paris
NHML	Natural History Museum, London (formerly British Museum (Natural History)
ZIL	Zoological Institute, Lund
ZMH	Zoological Museum, Helsinki

Key to Genera of Sciaroidea (excluding Sciaridae) known from the Atlantic islands and North Africa)

Fig. 1 shows the notation of wing veins adopted in the text. The distribution of each genus (all are found in Europe) is given as follows: A = Azores; C = Canary Islands; M = Madeira; NA = North Africa.

1 Cross vein tb (the m-Cu of EDWARDS) linking stem of median fork to anterior branch of posterior fork 2

-This cross vein absent because vein tb becomes longitudinal, meeting base of stem of posterior fork, replacing M functionally (= the M before r-m of EDWARDS) 10

2 Cross vein tb (m-Cu) well before r-m (ta), which is distinct. Media with a distinct basal section, running straight as far as the median fork and not fused with R (Bolitophilidae) . . . . . *Bolitophila* MEIGEN (M, NA)

-Cross vein r-m obliterated by a short radio-medial fusion, cross-vein tb close to this junction and basal part of M at most weakly developed (Keroplatidae) 3

3 Veins of posterior fork a little convergent near base, then divergent. Tibial setulae irregular and stronger tibial bristles absent. Tibia 1 with an apical comb, these absent on posterior tibiae. Empodium and pulvilli present (Macrocerinae) . . . . . *Macrocera* MEIGEN (A, C, NA)

-Veins of posterior fork divergent from base. Tibial setulae sometimes in regular rows; stronger tibial bristles present. Tibia 1 without apical comb, at least one comb on posterior tibiae. Empodium and pulvilli absent (Keroplatinae) 4

4 Mouthparts much longer than head, with elongate labrum and reduced palpi set at the base of the proboscis. . . . . *Antlemon* HALIDAY (C, M, NA)

-Mouthparts shorter than head 5

5 Antennae with flagellum compressed. Palpi reduced with one conspicuous swollen segment. Vein R_4 ending in costa. Tibial setulae irregularly arranged . . . . . *Cerotelion* RONDANI (A)

-Antennae with flagellum cylindrical. Palpi more slender with at least three distinct segments. . 6

6 Laterotergites (= pleurotergites of EDWARDS) bristly. Mediotergite (= postnotum) bare. Each tibia with a single spur. . . . . *Monocentrota* EDWARDS (NA)

-Laterotergites bare. Mid and hind tibiae with two spurs. 7

7 Tibial setulae in regular rows throughout 8

-Tibial setulae irregular, sometimes becoming regular near tip. Fork veins setulose. Mesoscutum with bare areas. 9

8 Mediotergite bristly. Veins of median and posterior forks bare. Mesoscutum with uniform setulae. . . . . *Orfelia* COSTA (A,NA)

-Mediotergite bare. Fork veins setulose. Mesoscutum usually with bare areas. . . . . *Isoneuromyia* BRUNETTI (NA)

9 Some erect black hairs behind prothoracic spiracle. Mediotergite bare. . . . . *Neoplatyura* MALLOCH (NA)

-These hairs absent. Mediotergite bare or bristly. . . . . *Pyratula* EDWARDS (C)

10 Eyes nearly or quite connected above antennae by a dorsal "bridge". Base of Rs short and transverse; r-m long and in line with Rs. . . . . Sciaridae (not treated here)

-Eyes rounded or emarginate but without such a "bridge". Base of Rs and r-m usually more or less oblique (Mycetophilidae). 11

11 Microtrichia of wings irregularly arranged (in some Sciophilini only macrotrichia present). Vein Sc usually long (except *Megophtalmidia*, *Azana*). Lateral ocelli usually far removed from eye margins (except some Leiini). Tibial setulae irregular (except *Mycomya*) (Sciophilinae sensu lato) 12

-Microtrichia of wings in more or less definite rows. Vein Sc short (except *Trichonta*). Lateral ocelli touching eye margins. Tibial setulae arranged in regular rows (Mycetophilinae). . 23

12 Only two ocelli, placed close together. Tibial setulae in regular longitudinal rows. Costa ending

abruptly at tip of vein R_5 which reaches the extreme wing tip. Vein R_4 present, ending in R_1 to form a rectangular small cell (Mycomyini). . . . . *Mycomya* RONDANI (C, M,NA)

-Three ocelli present. Tibial setulae irregular. 13

13 Wing membrane clothed with obvious macrotrichia, although microtrichia sometimes absent (Sciophilini). 14

-Wing membrane without macrotrichia (except anal lobe in *Megophtalmidia*) 16

14 Base of posterior fork distinctly proximal to that of median fork. Mediotergite and lateroter--gites bristly. Vein R_4 absent. . . . . *Allocotocera* MIK (NA)

-Base of posterior fork distal to that of median fork or fork absent. 15

15 Median and posterior forks present and complete. Vein R_4 present, ending in R_1 to form a narrow small cell. Vein Sc long, ending in costa. . . . . *Sciophila* MEIGEN (C, NA)

-Median and posterior forks incomplete; M_2 absent; M_3+CuA_1 detached at base from CuA_2. Vein R_4 absent. Vein Sc very short, ending free. . . . . *Azana* WALKER (C, NA)

16 Last section of R_1 several times as long as r-m which is more or less oblique or transverse. Median fork always much longer than its stem. Vein Sc long, ending in costa (Gnoristini). . 17

-Last section of R_1 usually little if any longer than r-m, which is long and nearly longitudinal; R_1 somewhat longer in *Docosia* but then Sc ends in R (Leiini). 19

17 Base of posterior fork well beyond that of the median fork. . . . . *Coelosia* WINNERTZ (C)

-Base of posterior fork before or close to level of base of median fork. 18

18 Vein Sc_2 well beyond middle of Sc. . . . . *Grzegorzekia* EDWARDS (NA)

-Vein Sc_2 near middle of Sc or absent. . . . . *Boletina* STAEGER (C, M)

19 Vein Sc long, distinctly ending in costa. Tibial bristles strong. 20

-Vein Sc shorter, ending free or in R. 21

20 Lateral ocelli remote from eye margins. Posterior fork with anterior branch (M_3+CuA_1) not detached at base. . . . . *Greenomyia* BRUNETTI (C)

-Lateral ocelli nearly touching eye margins. Posterior fork with anterior branch often detached at base. . . . . *Leia* MEIGEN (A, C, M, NA)

21 Vein R_1 very short; cross-vein r-m several times longer than R_1. Lateral ocelli near to eye

margins. . . . . *Novakia* STROBL (NA)

-Vein R_1 not shorter than r-m. 22

22 Lateral ocelli touching eye margins. Hind tibial comb absent. Vein R_1 rather long and stem of median fork shorter than r-m. . . . . *Docosia* WINNERTZ (C, M, NA)

-Lateral ocelli remote from eye margins. Hind tibial comb present. Vein R_1 subequal to r-m and stem of median fork much longer than r-m. . . . . *Megophtalmidia* DZIEDZICKI (C)

23 Mesepimeron (pteropleurite of EDWARDS) with a sharply delimited black spot near fore margin. Antennae short, with a reduced number of flagellar segments, especially in female. Palpi with antepenultimate segment enlarged, especially in male. Mesanepisternum (anepisternite of EDWARDS) bristly (Exechiini). . . . . *Cordyla* MEIGEN (C, M, NA)

-No such black spot present. Antennae normal with 2 + 14 segments and palpi normally developed. 24

24 Mesanepisternum and mesepimeron without strong bristles. Hind coxa with a fairly strong dark bristle at base. Tibial bristles short and weak (Exechiini). 25

-Mesanepisternum bearing strong bristles. If a strong bristle present on hind coxa (some *Trichonta*) it is pale (Mycetophilini). 35

25 Costa distinctly produced beyond tip of R_5. . . . . *Anatella* WINNERTZ (M)

-Costa ending at tip of R_5. 26

26 Base of posterior fork beyond that of the median fork. 27

-Base of posterior fork well before or close to level of that of median fork. 29

27 Mesoscutum without discal bristles. Stem of median fork usually subequal to r-m. Pale abdominal markings when present broadest on hind margins of tergites. Clypeus ovate. . . . . *Pseudexechia* TUOMIKOSKI (C,NA)

-Mesoscutum with discal bristles usually well developed. Clypeus shorter, more rounded. 28

28 Vein Sc ending free. Cross-vein r-m more than twice as long as stem of median fork. Veins R_5 and M_1 divergent apically. Normally 2 to 4 proepisternal (= propleural) bristles. Pale abdominal markings when present are broadest towards bases of tergites. . . . . *Exechia* WINNERTZ (A, C,M,NA)

-Vein Sc ending more or less distinctly in R. Cross-vein r-m at most twice as long as stem of median fork. Veins R_5 and M_1 not apically divergent. One strong proepisternal bristle, a second shorter one sometimes present. Pale abdominal markings broadest on hind margins of tergites. . . . . *Exechiopsis* TUOMIKOSKI (C,NA)

29 Fork veins bearing setulae at least towards tip. 30

-Fork veins bare. 31

30 Vein Sc ending free. Decumbent discal bristles on mesoscutum. . . . . *Brevicornu* subgenus *Stigmatomeria* TUOMIKOSKI (NA)

-Vein Sc ending in R. Erect bristles developed at least posteriorly on mesoscutum. . . . . *Allodiopsis* TUOMIKOSKI (*sensu stricto*) (NA)

31 Vein Sc ending free. Anal vein (An_1) long and distinct. Vein tb (M before r-m of EDWARDS) bare. Pale abdominal markings if present mainly towards bases of tergites. Discal bristles of mesoscutum in two dorsocentral stripes. . . . . *Rymosia* WINNERTZ (A, C, M, NA)

-Vein Sc ending in R. 32

32 Anal vein long and distinct. Cross-vein r-m and tb (M before r-m of EDWARDS) bear setulae. Hind tibiae with several close set curved posterior bristles arranged irregularly near tip. . . . . *Tarnania* TUOMIKOSKI (NA)

-Anal vein weakly developed and faint. Cross vein r-m and tb are bare. Hind tibiae with posterior bristles in a single row or absent. 33

33 Mesoscutum with discal bristles decumbent, more or less evenly dispersed. Three or more proepisternal (propleural) bristles. Hind tibiae with posterior bristles towards tip. Clypeus short, rounded. Female antennal flagellum often more or less swollen basally. . . . . *Brevicornu* MARSHALL *sensu stricto* (A, C, M, NA)

-Mesoscutum with discal bristles in two dorsocentral stripes or absent. Two proepisternals. Hind tibiae without posterior bristles. Clypeus rather long ovate. Antennal flagellum simple (*Allodia* WINNERTZ). 34

34 Discal bristles of mesoscutum absent. Pale abdominal markings when present broader towards hind margins of tergites. Base of posterior fork level with or beyond base of stem of median fork. . . . . *Allodia sensu stricto* (C, M,NA)

-Discal bristles on mesoscutum distinct. Pale abdominal markings when present broader towards bases of tergites. Base of posterior fork usually before level of base of stem of median fork. . . . . *Allodia* sub-genus *Brachycampta* WINNERTZ (M,NA)

35 Mesepimeron (pteropleurite) without bristles. Tibial bristles small and weak, at most a little longer than tibial diameter. 36

-Mesepimeron with bristles. Tibial bristles long and strong. 37

36 Base of posterior fork below or before that of the median fork. Vein Sc rather long and usually

ending in R. . . . . *Trichonta* WINNERTZ (A, C, NA)

-Base of posterior fork beyond that of the median fork. Vein Sc ending free. . . . . *Phronia* WINNERTZ (A, C, M, NA)

37 Posterior fork present, its anterior branch (M_3+CuA_1) slightly divergent from M_2 apically but parallel with or slightly convergent with posterior branch (CuA_2). . . . . *Mycetophila* MEIGEN (A, C, M,NA)

-Posterior fork absent, its anterior branch being lost. 38

38 Vein M_3+CuA slightly divergent from M_2. Pleural structure similar to *Mycetophila* with mesanepisternum and katepisternum of similar size and rectangular. Laterotergites projecting. . . . . *Zygomyia* WINNERTZ (C)

-Vein M_3+CuA convergent with M_2. Mesanepisternum longer than broad, but katepisternum smaller. Laterotergites reduced and not projecting. . . . . *Sceptonia* WINNERTZ (NA)

Descriptions are unless stated otherwise from Atlantic island specimens and key characters are based on these specimens where there is variation from mainland forms.

BOLITOPHILIDAE

Genus *Bolitophila* MEIGEN

Bolitophila MEIGEN, 1818: 220.

This is a rather isolated Holarctic genus of slender bodied gnats with a very uniform appearance. There are 44 described Palaearctic species, several known only from females. Two sub-genera have been recognised based on whether R_4 ends in R_1 or in the costa but they are almost certainly not natural groups. The single species dealt with here falls in *Bolitophila* sensu stricto.

Bolitophila saundersi (CURTIS)

Messala saundersi CURTIS, 1836: 581.

Male. Body mainly brown, grey dusted, with three shining grey mesoscutal stripes. Antennae very slender, a little longer than body, bearing long erect whitish hairs. Halteres with long yellow stalk and dark knob. Wings hyaline; R_4 ends in R_1 and partly included in faint stigma. Vein Sc long, ending in costa near base of R_{4+5},

Sc_2 on basal half. Costa produced a little beyond R_5. Vein r-m short, equal to m-stalk. Base of M_3+CuA_1 near junction of m-Cu with M. Legs long, slender, yellow. Male genitalia, Fig, 2. Wing length 3.7-4.4 mm.

Female. A little more robust. Mesoscutum with more yellowish ground and scutellum yellow. Antennae with short hairs, basal segments more yellowish. Vein Sc longer, ending in costa distinctly beyond base of R_{4+5}. Segments 2-4 of fore tarsi distinctly swollen ventrally, about 3 x long as broad. Wing length 4.1-5.7 mm.

Material studied. Madeira: Corujeira, 18 February 1977, 2 males, 4 females; Ribeiro Frio, 19 February 1977, male; Levada dos Tornos, Romeiros, 5 February 1990, 3 males (A. E. STUBBS). Monte, 27 November 1988, female (R. CAPELA).

Discussion. *B. saundersi* is a common European species and has also been recorded from Algeria (BURGHELE-BALACESCO, 1966) so was perhaps the most likely *Bolitophila* to occur on the Atlantic islands.

KEROPLATIDAE

Genus *Macrocera* MEIGEN

Macrocera MEIGEN, 1803: 261.

Although it has a worldwide distribution, the largest number of species are known from the Holarctic region. About 55 Palaearctic species are currently recognised, although several are poorly characterised and a revision would be desirable. There are generally small differences in male genitalia, the gonostyli of most species being simple with two internal subapical teeth, but a few species are more distinctive, being simply blunt tipped or with three internal teeth. Four species, two of them apparently endemic, can be confirmed from the Atlantic islands, including each of these three forms of gonostyli. BÁEZ & SANTOS PINTO (1981) revised the three Canarian species.

Key to Species

1 Wings with macrotrichia on the membrane. Vein R_4 absent (C). . . . . *incompleta* BECKER

-Wings without macrotrichia on the membrane. Vein R_4 present. 2

2 Vein Sc ends in costa well before level of radio-medial fusion. Wings usually with faint brownish markings including apical quarter (A) . . . . . *azorica* STORÁ

-Vein Sc ends in costa at level of radio-medial fusion. 3

3 Wings with small dark spot linking M_3+CuA_1 and CuA_2 where these veins are approximated. Antennae a little longer than body (male) or subequal (female) (C). . . . . *diversimaculata* SANTOS ABREU

-Wings with at most very faint marking present in this position, but portion of cell basal to it and area over m-Cu whitish hyaline in contrast to greyish membrane. Antennae shorter than body(C) . . . . . *fasciata* MEIGEN

Macrocera incompleta BECKER

Macrocera incompleta BECKER, 1908: 66.
Macrocera defecta SANTOS ABREU, 1920: 10, *nomen nudum*
Macrocera incompleta var. *decipiens* SANTOS ABREU, 1920: 16.
Macrocera incompleta var. *obscurigastris* SANTOS ABREU, 1920: 16.
Macrocera tyrrhenica EDWARDS, 1928: 159, syn. nov.

Male. Head orange brown, darker dorsally. Antennae slender, longer than body (ratio 8:5); basal segments yellow; flagellar segments all slender, dark, 1-4 with very narrow yellow rings at junctions.

Mesoscutum orange brown to yellowish, with three separate reddish brown to dark brown shining stripes, laterals sometimes connected at front end to notopleural spot. Pleura with two dark vertical markings, one covering mesanepisternum and most of katepisternum (except hind margin), the other covering most of laterotergite. Scutellum and broad central band of mediotergite also shining brown. Halteres yellowish with knob darkened.

Wings with macrotrichia on membrane on apical three fifths, also distal to posterior fork and on anal lobe but absent from anterior part of wing basal to r-m fusion. Vein Sc ends in costa opposite or a little beyond base of Rs. Vein R_1 a little swollen apically. Costa slightly produced beyond tip of R_5; R_4 absent. Usually with distinct dark markings: in area between R and fold-like basal part of M; a ± conspicuous central spot from middle of cell r_1 over r-m fusion and m-stalk to broadly reach M_3+CuA_1, becoming ± narrow between M_3+CuA_1 and CuA_2; small shade just behind tip of R_1; entire wing tip faintly darkened to level half way between tips of M_3+CuA_1 and CuA_2. Portions of Rs, M_3 and m-Cu basad of central spot lack pigment. Vein An reaches margin.

Legs yellow, coxae II and to a lesser extent III dark brown externally, dark spot under trochanters. Tibial spurs very small, yellow.

Abdomen mainly brown with tergite 1 narrowly yellow at base, 2-4 with basal half yellow; 5-7 dark brown and only narrowly yellow on hind margin. Genitalia (Fig. 3) yellowish with blackish gonostyli bearing two internal subapical spines.

Wing length 3.0-4.0 mm.

Female. Very similar. Antennae shorter, equal to body length, lighter in colour. Abdomen darker, tergites 1-6 narrowly yellow on fore and hind margins. Ovipositor yellowish brown. Wing length 3.5-4.5 mm.

Type material studied. *Macrocera incompleta* BECKER. Holotype female, Tenerife, Santa Cruz, "47178, II" (HUB). BECKER described the species from this single example. Vein An is defective apically on one wing but faintly reaching the margin on both wings.

Other material examined. Tenerife: Bajamar, 1 March 1975, male; Las Mercedes, early March 1975, male (A. E. STUBBS). Punta del Hidalgo, 24 March 1974, male (M. BÁEZ). La Palma: San Andres y Sauces, 6 June 1964, female (K. M. GUICHARD, NHML). Barranco de las Nieves, 1 June 1976, 2 females; below La Cumbrecita, 29 May 1976, female; east side of Montaña del Fuego, 26 May 1976, 2 males (P. J. CHANDLER). Gomera: La Hermigua, 9 April 1974, female (M. BÁEZ).

Discussion. SANTOS ABREU (1920) recorded specimens from La Palma both as the typical form and also under two varietal names: *decipiens* with fainter wing markings and *obscurigastris* based on a male with the abdomen appearing darker than usual. BÁEZ & SANTOS PINTO (1981) also cited the records from La Palma of these varieties and added a record from Hierro, El Pinar, 30 January 1978, 3 males (M. BÁEZ).

M. incompleta is close to *M. parcehirsuta* BECKER (1907: 232), described from an Algerian male of which the type has been examined. It is similar in coloration and wing markings and agrees in the absence of vein R_4. The distribution of macrotrichia on the wing membrane is similar although they are sparse on the anal lobe. It differs from *incompleta* as follows: antennae distinctly longer, about 2 x body length, yellow almost to tip of basal flagellar segment, rest brown; thorax with three separate shining brown mesoscutal stripes (laterals connected to notopleural spot) and mesanepisternal marking as *incompleta* but laterotergites, scutellum and mediotergite entirely yellow; vein Sc reaches costa nearer to level of r-m fusion than to base of Rs; costa extends well beyond tip of R_5 (0.35 distance to M_1); no dark area between R and basal extension of M but central spot broad, including base of m-fork and extending broadly to CuA_2, apical shade as *incompleta*; R_1 strongly swollen apically with dark shade in cell behind linked by seam to central spot.

EDWARDS (1928) described *M. tyrrhenica* from Corsica on a single male agreeing well with *incompleta*, the supposed differences being due to inaccuracies in BECKER's description. EDWARDS (1928) also recorded *parcehirsuta* on both sexes from Corsica, noting the presence of R_4 in his male and suggesting it might be a small dark form of *M. phalerata* MEIGEN but *phalerata* male has very long antennae (about 3 x body length), the mesoscutum yellow except for dark supraalar

patches and R_4 is normally distinct.

Macrocera fasciata MEIGEN

Macrocera fasciata MEIGEN, 1804: 47.
Macrocera hyalinimaculata SANTOS ABREU, 1920: 16 (syn., BÁEZ & SANTOS PINTO, 1981)

Male. Head dark brown, grey dusted. Antennae slender, shorter than body length (ratio 6:7), yellow to base of first flagellar segment, 2-4 narrowly yellow at base, rest all dark grey brown. Palpi brownish.

Mesoscutum brownish yellow with three dark brown stripes; other markings much as in *incompleta* but more extensive on pleura and mesepimeron also darkened, only sutures yellowish, but metepisternum also all pale yellowish. Halteres yellow.

Wings greyish with dark veins; junction of M_3+CuA_1 and m-Cu without pigment and adjacent part of membrane clear hyaline. Vein Sc reaches costa at level of base of r-m fusion. Vein R_4 present, variable in length, curved to reach costa a little beyond tip of R_5. Costa strongly produced beyond R_5.

Legs yellow, coxae II-III darkened externally, tarsi darker.

Abdomen mainly shining dark brown, segments 1-5 with yellow bands about a third of their length on apical margins, less distinct on 6, 7 and genitalia (Fig. 4) entirely black; gonostyli with two subapical internal spines. Wing length 4.5-5.6 mm.

Female. Very similar. Pleura more extensively yellow, especially on posterior part of katepisternum. Abdomen similarly coloured but ovipositor yellowish. Wing length 5.7-6.3 mm.

Type material studied. *Macrocera hyalinimaculata* SANTOS ABREU. Three syntype males, La Palma, Barranco del Rio (MICN). A lectotype was not designated because of the revision then pending by BÁEZ & SANTOS PINTO, who did not, however, make a designation (1981).

Other material studied. La Palma: Los Tilos, July 1973, female, July 1974, male (M. BÁEZ). Cumbre Nueva, east slope, 29 May 1976, 2 males, female; west slope, 30 May 1976, 2 males; Barranco de las Nieves, 1 June 1976, male, female; Barlovento, 27 May 1976, male; Barranco del Agua, 27 May 1976, female (P. J. CHANDLER).

Discussion. SANTOS ABREU compared *hyalinimaculata* with *fasciata*, but most of the distinctions he gave do not hold good. They are similar structurally and are considered conspecific. The Canarian form, however, has the abdomen more extensively darkened than in European examples, which normally have the apical half of each segment yellow. *M. fasciata* also occurs in Morocco (NHML).

Macrocera diversimaculata SANTOS ABREU

Macrocera diversimaculata SANTOS ABREU, 1920: 20.

Female. Head dark brown, grey dusted. Antennae slender, subequal to body length, yellow to fourth flagellar segment, rest darker.

Mesoscutum yellow with three shining dark reddish brown stripes. Scutellum brownish yellow. Mediotergite brownish dorsally. Pleura yellow with brownish patches. Metepisternum yellow. Halteres dusky yellow.

Wings greyish with a small dark band near base of cell m_3, linking M_3+CuA_1 with CuA_2 where these veins are approximated, a hyaline area basal to the dark band including junction of m-Cu and M_3+CuA_1. Vein Sc ending at level of base of r-m fusion. Vein R_4 present, fairly long. Vein R_5 strongly downcurved apically, costa only produced a little beyond it.

Legs yellow, coxa III brownish externally.

Abdomen mainly brown; tergite 1 yellow at base; segments 2-6 with yellow apical bands, 7-8 black. Ovipositor yellow. Wing length 3.5 mm.

Male (only imperfect example seen). Similar to female. Antennae slender, brownish orange (broken off beyond segment 5); a little longer than body (by analogy to *nigricoxa* WINNERTZ; SANTOS ABREU states 5 mm compared with 4.5 mm body length). Body coloration similar, mainly shining dark orange brown (SANTOS ABREU indicated that the thoracic stripes were fused). Abdomen blackened from segment 6 onwards but genitalia (Fig. 5) brownish yellow. Wing length 4.7 mm.

Type material studied. *Macrocera diversimaculata* SANTOS ABREU. Lectotype designated by BÁEZ & SANTOS PINTO (1981): male, La Palma, Lomo de los Gomeros, near Bermeja spring, 5 May 1908 (E. SANTOS ABREU, MICN).

Other material studied. La Palma: Cubo de la Galga, 2 June 1976, laurel forest, female (P. J. CHANDLER).

Discussion. BÁEZ & SANTOS PINTO (1981) cited a paralectotype with the same data as the lectotype. As SANTOS ABREU suggested, *diversimaculata* is rather close to the European species *nigricoxa* WINNERTZ (= *tusca* LOEW; synonymy established by BECHEV, 1992), the distinctions he gave not holding good. Examination of the genitalia of the lectotype as illustrated by BÁEZ & SANTOS PINTO (1981), however, shows that the gonostyli, which lack internal spines in both species, are differently shaped with an internal apical prolongation in *diversimaculata*. For this reason they are considered distinct species.

Macrocera azorica STORÅ

Macrocera azorica STORÅ, 1945: 12.
Macrocera azorica var. *immaculipennis* STORÅ, 1945: 13, syn. nov.

Male. Head brown. Antennae as long as body, yellow to extreme base of first flagellar segment, rest grey brown. Palpi brownish yellow.

Mesoscutum with three shining dark reddish brown confluent stripes, leaving yellowish humeral areas. Pleura and mediotergite shining brownish yellow. Halteres yellow with brownish knob.

Wings mainly clear yellowish grey with faint brownish markings: a streak before faint basal part of M, adjoining thickened brown part of Rs; a longitudinal streak in middle of cell r_1; a large spot filling the base of cell r_5 along length of m-stalk and also basal part of fork; apical quarter of membrane beyond R_4 vaguely brownish; hind margin and anal lobe also brown tinged. Vein Sc ends distinctly beyond base of Rs but well before level of r-m fusion. Vein R_4 present, long but ending close to R_1. Vein R_5 downcurved apically, costa strongly produced beyond.

Legs dull yellow, coxae not darkened. Fore metatarsus 0.85 x long as its tibia.

Abdomen with segment 1 brownish yellow, 2-5 shining dark brown on basal two thirds, yellow apically; 6-7 and genitalia (Fig. 6) entirely shining dark brown; gonostyli with three internal subapical spines. Wing length 3.8 mm.

Female. Proportions of antennae as in male. Abdomen mainly shining dark brown, segments 2-5 vaguely yellowish on apical third; 6-7 entirely dark brown. Ovipositor yellow. Wing length 4.3 mm.

Type material studied. *Macrocera azorica* STORÅ. Lectotype here designated: male, Azores, Pico, Lagoa da Caiada, 7 July 1938 (R. FREY), labelled "Spec. typ. no. 8326. *Macrocera azorica* STORÅ." (ZMH). The species was described from 14 examples, also including Pico, Silveira, no type being designated. Paralectotypes: male, Azores, São Miguel, Pico da Vara, 27 July 1938; 4 males, 1 female, Azores, São Jorge, Ribeira do Salto, 18-23 June 1938; male, female, Azores, Faial, Caldeira, 4 July 1938 (FREY & STORÅ) (all ZMH).

Discussion. The var. *immaculipennis* was described from a single male from Faial, Caldeira, 4 July 1938 (STORÅ), which has not been examined. It was a small individual with reduced wing markings; the gonostylus figured by STORÅ does not significantly differ from the typical form and it is no doubt conspecific.

M. azorica is close in genital structure and the position of the tip of vein Sc to the European species *anglica* EDWARDS, which differs most strikingly in the male antennae which are 3 x body length (about 1.5 x body length in female); it is also mainly yellow, without darker mesoscutal stripes and in male abdominal segments 1-5 brown only on the basal third, 6-7 and genitalia brown, in female similar with

ovipositor brownish. The wings of *anglica* are mainly clear with faint brown markings before the basal part of M and in cell r_1. The proportions of flagellar segments differ: in *azorica* male, flagellar segment 2 shorter than first, 3 and 4 subequal, slightly longer than 2 but shorter than 1; *anglica* male, 2 subequal to 1, 3 and 4 each proportionally longer than preceding segment; *azorica* female has 2, 3, 4 all shorter than 1, *anglica* female has 3, 4 progressively longer as in its male.

A third species with similar genital and venational characters is *M. nana* MACQUART (= *pusilla* MEIGEN), also widespread in Europe and found in the Mediterranean region. EDWARDS (1925), when describing *anglica*, referred to examples in NHML from Egypt and Iraq, which were similar but darker with a striped mesoscutum, Sc a little longer and female antennae not longer than the body; MADWAR (1935), when describing the larva of *anglica*, also mentioned having seen specimens from Egypt. These have now been established to belong to *nana*, which had in the meantime been found to occur in the British Isles (EDWARDS, 1941, as *pusilla*) and there is an unpublished record from Tunisia (NORBERT CASPERS, pers. comm.). *M. nana* differs from *azorica* in the strong dark mesoscutal stripes and dark markings on the pleura and mediotergite, as well as longer male antennae (about 1.5 x body length) and vein R_1 enlarged apically. It agrees with *anglica* male and *azorica* female in the proportions of the basal flagellar segments.

Genus *Antlemon* HALIDAY in LOEW

Antlemon HALIDAY in LOEW, 1871: 30.
Helladepichoria BECKER, 1907: 237.

MATILE (1977) revised the genus, which includes only 3 Palaearctic species. He maintained two sub-genera on the basis of palpal structure, referring two European species which have the palpi as long as the proboscis to *Antlemonopsis* TOLLET, retaining only *halidayi* LOEW in the nominate sub-genus. *A. halidayi* is a widespread Mediterranean species which occurs in the Canary Islands and Madeira. BÁEZ & SANTOS PINTO (1981) dealt with the island records of this species but only Mediterranean specimens have been examined by us.

Antlemon halidayi LOEW

Antlemon halidayi LOEW, 1871: 29.
Helladepichoria tenuipes BECKER, 1907: 238 (also as sp. n. in 1908: 64).

Male. (described from Greek example). Head rounded, black. Antennae slender, black, a little shorter than proboscis. Proboscis elongate, slender, rigid, as long as

head and thorax; palpi small, dark, at base of proboscis.

Mesoscutum black with short bristles arranged in irregularly pluriserial acrostichal and dorsocentral rows, bare shining areas between. Pleura and mediotergite shining dark brown, bare. Halteres yellow.

Wings narrow, yellowish. Vein R_4 ends in costa nearer to R_1 than to R_5, which is curved apically. Costa prolonged nearly halfway from R_5 to M_1. Vein Sc weak, ending free.

Legs slender, dull yellow, tarsi darker. Tibia II with anterior spur about half length of posterior spur.

Abdomen slender, depressed, dully shining black, segments 2-4 with brownish yellow reflections. Genitalia (Fig. 7) small, black, covered by truncated tergite 9, which has small median emargination. Wing length 2.5 mm (2.1-3.1 mm given by MATILE, 1977).

Female. Similar according to MATILE (1977).

Discussion. *A. halidayi* was recorded from Tenerife, Laguna, June, at spring, one example, by BECKER (1908, as *tenuipes*). SANTOS ABREU (1920) added a record from La Palma, Barranco del Rio, May 1903. STORÅ (1941) cited three examples from Madeira, Caramujo, *Erica* scrub, 17 August 1935 (O. LUNDBLAD). MARCOS BÁEZ has also collected it in Tenerife, La Laguna and Las Mercedes (BÁEZ & SANTOS PINTO, 1981). Although this material has not been examined, there is no reason to doubt the identification. MATILE (1977) gave details of records from Greece, Italy, Yugoslavia, Tunisia and Algeria.

Genus *Pyratula* EDWARDS

Pyratula EDWARDS, 1929: 167.

This small group was one of the taxa segregated from *Platyura* MEIGEN sensu EDWARDS (= *Orfelia* COSTA) by EDWARDS (1929). There were only two Palaearctic species of *Pyratula* known till recently but it was distinguished only on the absence of mediotergal (postnotal) bristling from *Rypatula* EDWARDS, based on 4 species from Chile, Australia and New Zealand. Examination of Mediterranean material has shown that at least three newly recognised species close to *perpusilla* EDWARDS exist there and study of the male genitalia of the Canarian material has shown that it is yet another species of this group. All species are very similar, all having simple apically tapered gonostyli bearing a strong internal subapical spinose bristle; they differ most strikingly in the form of the aedeagus and detail of the distal margin of the gonocoxite. The Canarian *Pyratula* and a Greek species possess mediotergal bristles, suggesting that the validity of *Rypatula*, also comprising small dark species, requires re-evaluation.

Pyratula canariae sp. nov.

Male. Body mainly slightly shining black, faintly grey dusted, with dark hairs and bristles. Antennae entirely greyish black, a little longer than head and thorax, with flagellar segments at least 2 x long as broad. Palpi dark basally, two apical segments more brownish.

Mesoscutum with four bare longitudinal stripes, leaving irregularly uni-biserial acrostichals and dorsocentrals. Pronotal lobes yellowish but prothoracic episterna and pleura dark. Pleura bare. Mediotergite bears 2 short curved central bristles. Halteres yellow.

Wings grey; costa, radial sector, m-Cu and CuA_2 brown, other veins paler. Vein Sc ends just beyond level of base of Rs. Vein R_4 ends in costa twice or more its length from R_1. Costa prolonged 0.3-0.4 distance from R_5 to M_1. M_1, M_2, M_3+CuA_1 and CuA_2 bristled towards their tips. Vein An weak, stopping well short of margin (reaches level of base of m-stalk).

Legs pale yellow, tarsi darker. Tibial setulae rather irregular. Tibial spurs dark, anterior two thirds as long as posterior. Fore metatarsus 0.7 tibial length.

Abdomen black, grey dusted, a little paler towards bases of tergites 2-6, more narrowly on 6. Genitalia (Fig. 8) small, dark coloured. Wing length 2.8-3.2 mm.

Female. Not seen.

Material studied. Holotype male, Tenerife, Mamio, 29 August 1978 (M. BÁEZ, MICN). Paratypes: 2 males, Tenerife, Barranco de Tagara, 6 June 1981 (N. P. ASHMOLE); male, La Palma, Cumbre Nueva, 30 May 1976, east slope in *Castanea* woods (P. J. CHANDLER); male, Gomera, El Cedro, 17 September 1977 (M. BÁEZ).

Discussion. As indicated above, this species is structurally close to *P. perpusilla* EDWARDS, described from Britain. The Mediterranean species of the group are described and *perpusilla* figured for comparison by CHANDLER (in preparation).

Genus *Orfelia* COSTA

Orfelia COSTA, 1857: 448.

One species retained in the restricted concept of *Orfelia*, which includes about a dozen Palaearctic species, was recorded from the Azores by STORÅ (1938), but no island material of the genus has been examined and confirmation of its identity will be necessary.

Orfelia nigricornis (FABRICIUS)

Sciara nigricornis FABRICIUS, 1805: 57.
Platyura nigricornis (FABRICIUS); STORÅ, 1938: 12.

This species is distinguished from other *Orfelia* species by the black abdomen coupled with a partly yellow mesoscutum (black on disc with yellow margins in male, dark markings reduced to stripes or absent in female) and a preapical dark wing band. Its genitalia (Fig. 9) were figured by HUTSON, ACKLAND & KIDD (1980).

STORÅ (1938) recorded *nigricornis* from São Jorge, Pico, Terceira and Faial (FREY & STORÅ).

Several species of *Orfelia*, closely allied to *discoloria* MEIGEN but all dark coloured or with varying extent of yellow coloration, have been found to exist in the Mediterranean region (one of them was described by CASPERS, 1992 and CHANDLER, in preparation, deals with others) and the possibility that the Azorean material belongs to this group rather than *nigricornis* cannot be discounted.

Genus *Cerotelion* RONDANI

Cerotelion RONDANI, 1856: 191.

Since the work of MATILE (1988) transferred *C. humerale* (ZETTERSTEDT) to his new genus *Rocetelion*, *Cerotelion* now includes only two European species, the widespread *lineatum* (FABRICIUS) and the more localised *C. racovitzai* MATILE & BURGHELE-BALACESCO (1969), known from the Balkans and Iran. *C. lineatum* was recorded from the Azores by STORÅ (1938) but, as with *Orfelia*, no Azorean material has been seen. *C. racovitzai*, described more recently, is very similar and is best separated by the structure of the male gonostyli.

Cerotelion lineatum (FABRICIUS)

Tipula lineata FABRICIUS, 1775: 754.

This is a large strongly marked species and there would be no doubt of its identity but for the existence of *C. racovitzai*, which has more extensively yellow pleura, a weaker less extensive median wing spot and the male gonostyli of uniform width but bearing a series of internal teeth (broadened apically and with only the two subapical teeth well marked in *lineatum*) (Fig. 10).

STORÅ (1938) recorded it from São Miguel (Sete Cidades, in woodland, 17 May (FREY); Lagoa do Congro, woodland, 21 May (STORÅ) and São Jorge (Ribeira Funda, 23 June/16 July (FREY)).

MYCETOPHILIDAE

Genus *Mycomya* RONDANI

Mycomya RONDANI, 1856: 194.

A large worldwide genus with numerous species in temperate regions. About 100 Palaearctic species are known and there is a particularly rich fauna in northern Europe. Three species only are known from the Atlantic islands, two Canarian endemics and one widespread Holarctic species found in Madeira. RAUNO VÄISÄNEN, then of the University of Helsinki, revised the Holarctic species of the genus (1984), including the two Canarian species which he had not seen from elsewhere. He divided *Mycomya* into sub-genera but all the Atlantic islands species fall in his *Mycomya* sensu stricto. Only one species, the widespread European species *cinerascens* MACQUART, was recorded from North Africa.

Males of *Mycomya* sensu stricto are clearly separable into two groups on the presence or absence of a long curved anteriorly directed spur on the mid coxa. *M. rivalis* SANTOS ABREU has this spur but is otherwise a rather isolated species. Among the species which lack it there is a well defined group, including 13 Palaearctic species, with short dense erect hairs on the fore coxa of the male (the *ornata* MEIGEN Group) and rather similar genital structure; the other two Atlantic islands species fall in this group. Where known, larvae of *Mycomya* live in webs on the surface of wood encrusting or polypore fungi in damp situations.

Key to Species

1 Thorax with mesoscutal stripes yellow at least anteriorly, darker brown on humeral area and posterior part of stripes. Mediotergite bare. Male mid coxae with spur, fore coxae without dense hairs. (C) ..... *rivalis* SANTOS ABREU

-Thorax with three well marked mesoscutal stripes on yellow ground. Mediotergite bearing some short upturned bristles. Male mid coxae without spur, fore coxae with subapical patch of short dense hairs. 2

2 Parameres of male genitalia long and slender, longer than sternal submedian appendages, which are narrow and elongate but broadened apically (M) ..... *prominens* (LUNDSTRÖM)

-Parameres short and thicker. Sternal submedian appendages short and broad. (C) .....
..... *canariornata* sp. nov.

Mycomya canariornata sp. nov.

Mycomya n. sp. CHANDLER; VÄISÄNEN, 1984: 74.

Male. Head brown, grey dusted. Antennae longer than head and thorax, slender with yellow basal segments, flagellum grey except extreme base of first segment. Palpi slender, yellow.

Mesoscutum thinly grey dusted on yellow ground with three well marked slightly shining brown stripes, narrowly but distinctly separated; median from fore margin narrowed behind to almost reach scutellum, narrowly divided by indistinct yellow median stripe; laterals postsutural, rounded in front, reach scutellum and may extend onto it as brown patches on yellow ground. Bristles dark: short biserial median acrostichals, longer irregularly uni-biserial dorsocentrals between stripes, strong bristles on anterior and lateral margins of mesoscutum, two strong pairs scutellars set close together and weak hairs about and between them. Pleura dark brown, grey dusted, yellowish at sutures; bare. Mediotergite largely brown dorsally, vaguely yellowish in middle and at sides; 1-few short upturned hairs on posterior slope.

Wings clear greyish. Vein Sc ends in costa, nearly reaching middle of wing. Sc_2 present near its tip, level almost with middle of radial cell which is 2.5 x long as broad apically. Median fork longer than its stem. Posterior fork beginning level with Sc_2 and middle of m-stalk.

Legs elongate, mainly yellow, sometimes more brownish on tibia and tarsus 1, vague dark shade externally on coxa III and anteriorly on coxae I-II. Coxa I with oval area near tip internally bearing short dense erect brownish hairs.

Abdomen slender, elongate, largely dark brown with well marked apical yellow band on each segment. Tergites 1-6 and sternites 2-6 have yellow bands subequal (sternite 1 entirely yellow), so occupying less of longer segments 2-4 (only a quarter of 2-3, a little more of 4, a third of other segments). Genitalia (Fig. 11) mainly yellow. Wing length 4.3-4.6 mm.

Female. Generally similar to male in coloration. Thorax with brighter yellow ground colour and pleura mainly yellow, only katepisternum dark brown on lower two thirds, a slight brown tinge on laterotergite and posterior part of mediotergite. Coxa I without dense bristling. Abdomen broader than in male: yellow bands more extensive, occupying posterior half of 2, more than two fifths of 3-5, narrower on 6 and 7. Wing length 5.2 mm.

Type material studied. Holotype male, Tenerife, La Esperanza, 29 December 1978 (M. BÁEZ, MICN). Paratypes: male, Tenerife, Barranco Badajoz, 27 March 1975; female, Tenerife, Barranco Gambuesa, 14 March 1976 (M. BÁEZ).

Discussion. This species was described without name by VÄISÄNEN (1984),

although the name proposed here was cited in the details of material examined. The male genitalia resemble those of *M. lambi* EDWARDS but are distinct from it.

Mycomya rivalis SANTOS ABREU

Mycomya rivalis SANTOS ABREU, 1920: 33.

Male. Head light grey dusted. Antennae as *canariornata*. Palpi brownish yellow.

Mesoscutum mainly brownish yellow, dull yellow on anterior half of lateral stripes and most of median stripe; shining brown on narrow acrostichal stripe, around anterior margin of lateral stripes, along dorsocentral rows and apical part of stripes (half of lateral stripes) linked (in posterior view) with dark postalar patches. Scutellum and mediotergite brownish yellow. Pleura with some dark markings. Bristling as *canariornata* but mediotergite bare.

Wings clear greyish except slight brownish shades at tip of Sc, about Sc_2 and base of radial cell. Sc_2 reaches R a little before middle of radial cell. Posterior fork begins more than length of r-m before base of m-stalk. Legs yellow except dark shade on outer faces of coxae. Each mid coxa bears a long slender yellow anterior spur.

Abdomen with tergites mainly dark brown, narrowly yellow at base and sides with a broader yellow band apically, occupying quarter to third of tergal length. Sternites yellow. Genitalia (Fig. 12) yellow. Wing length 4.7-5.3 mm.

Female. Generally similar to male. Scutellum dark brown on margin and vaguely on disc. Mediotergite vaguely dark in middle, especially anteriorly, yellow laterally and behind. Pleura dark brown, thinly grey dusted, yellowish at sutures. Abdomen broadened apically; tergite 1 more widely yellow at sides and also yellow basally; 1-6 yellow apically as male; 7 narrowly protruding, largely yellow. Ovipositor short, brownish yellow. Wing length 5.8 mm.

Type material studied. *Mycomya rivalis* SANTOS ABREU. Lectotype male, La Palma, Barranco del Rio, April 1911 (E. SANTOS ABREU, MICN) (designated by VÄISÄNEN, 1984: 202, who gave date of capture as 9 April 1901). Paralectotype male, same data as Lectotype.

Other material studied. Tenerife: Aguamansa, 5 April 1973, dry gorge in open pine forest, amongst shaded herbaceous vegetation, male (P.J. CHANDLER). Barranco Añavingo, 14 March 1976, 2 females (M. BÁEZ).

Mycomya prominens LUNDSTRÖM

Sciophila prominens LUNDSTRÖM, 1913: 306.

Male. Head light brown. Antennae brownish; scape, pedicel and base of first segment of flagellum yellow. Palpi yellow.

Mesoscutum light brown, with three well marked dark brown stripes; middle stripe divided by narrow yellow median stripe. Lateral stripes reach scutellum. Strong bristles on lateral margins of mesoscutum. Scutellum yellow with 4 long dark setae. Pleura and mediotergite yellowish to brownish.

Wings greyish. Vein Sc ends in costa, about middle of radial cell. Sc_2 ends in R_1 in the middle of radial cell. Posterior fork beginning at the level of Sc_2. Halteres pale yellowish. Legs yellow except dark shade on outer face of coxae. Coxa I with patch of short dense hairs. Coxa II without spur. Mediotergite with some upturned bristles on disc.

Abdomen elongate with tergites brown, each with a yellow lateral and posterior band, occupying about one third of tergal length. Genitalia (Fig. 13) yellow. Wing length 5.7 mm.

Female. Not seen from Atlantic Islands. European females are very similar to males but lack the dense hairing on coxa I.

Material studied. Madeira: Monte, 27 November 1988, male (R. CAPELA).

Discussion. This species is widespread and frequent in Europe. It resembles *M. canariornata* in external characters, and is reliably separable only on the structure of the male genitalia.

Genus *Sciophila* MEIGEN

Sciophila MEIGEN, 1818: 245.

A mainly Holarctic genus with few species known in the tropics and southern temperate regions. ZAITZEV (1982a) recognised 36 Palaearctic species, which are remarkably uniform structurally but rather variable in coloration. Most species are only reliably separated on the male genital structure, so females cannot be determined unless associated with males. HUTSON (1979) commented on the difficulty in finding structural characters common to both sexes. Most of the known *Sciophila* larvae develop externally in webs on a wide range of fungi, but showing strong host specificity.

SANTOS ABREU (1920) recognised four forms, two based on each sex, from very limited Canarian material. Unfortunately no further examples of *Sciophila* have been collected in the Atlantic islands. From examination of SANTOS ABREU's

specimens, it is confirmed that his males represent distinct species. The females, obtained at the same locality, are probably conspecific with one or other of these males.

SANTOS ABREU described the males as new species but regarded the females as varieties of European species by analogy to the varieties distinguished on colour variation by WINNERTZ (1863) who did not study genital structure. His *S. insolita* has genital structure distinct from any other species for which this has been figured while his *S. parviareolata* which he compared with *hirta* MEIGEN, has genitalia differing little from British examples of *hirta*, with which ZAITZEV (1982a) placed it in synonymy. *S. insolita* was thought to be a Canarian endemic but a specimen from the Balearic Islands has now been examined.

The nomenclature accorded by SANTOS ABREU to his females cannot be maintained. He described *rubida* as a variety of *pilosa* MEIGEN (1838) which is a doubtful species, placed by LANDROCK (1927) as a possible synonym of *hirta*. His var. X was placed under *varia* WINNERTZ, again on arbitrary characters.

LANDROCK (1927) included *insolita* and *parviareolata* in his key on colour characters. Here the salient features of the surviving specimens are described and their male genital structure is figured.

Sciophila insolita SANTOS ABREU

Sciophila insolita SANTOS ABREU, 1920: 24.

The lectotype specimen is in poor condition with wings and legs damaged; the abdomen was, however, intact and the genitalia are figured. In view of the condition of the specimen, the characters given by SANTOS ABREU are summarised:

Male. Face and palpi reddish yellow. Frons shining black. Antenna with basal segments yellow, flagellum brown. Thorax shining reddish brown, with three very faint confluent darker shining stripes; humeral areas orange. Abdomen shining black with orange areas on tergites 3-4; sternites dull brown. Genitalia (Fig. 14. A) shining yellowish brown. Wings almost hyaline; radial cell a little longer than wide. Halteres, coxae and femora pale yellow; trochanters with black spot beneath; tibiae brownish yellow; tarsi brown. Body length 3.0-3.5 mm.

The lectotype has wing length 3.3 mm, bearing both macrotrichia and microtrichia on the membrane, vein Sc_2 before the base of Rs and the radial cell almost quadrate.

Type material studied. *Sciophila insolita* SANTOS ABREU. 1 male, La Palma, Barranco del Rio, 1 April 1913 (E. SANTOS ABREU, MICN). This is here designated as Lectotype as no designation was made by ZAITZEV (1982).

Discussion. A second male of *insolita* has been examined from Mallorca, Gorg

Blan Escorca, 1 September 1969, 400 m (L. MATILE, MNHN).

Sciophila hirta MEIGEN

Sciophila hirta MEIGEN, 1818: 251.
Sciophila parviareolata SANTOS ABREU, 1920: 28 (syn. by ZAITZEV, 1982a: 38).

The characters of the lectotype of *parviareolata* are as follows:

Male. Mainly shining dark reddish brown, thinly grey dusted. Antennae and palpi dark brown; pedicel more orange brown. Flagellar segments about twice as long as broad. Thorax with three shining dark brown mesoscutal stripes, not very distinct from ground colour. Disc of mesoscutum bears short irregular yellow bristling (stronger thoracic bristles including scutellars broken off). Humeral areas more yellowish but sides of mesoscutum and pleura ± shining dark brown, not contrasted in colour with dorsum. Laterotergites with yellow bristling. Legs and halteres pale yellow. Wings yellowish with macrotrichia and microtrichia evenly distributed. Radial cell narrow, shorter than broad. Costa extends 0.2 distance from R_5 to M_1. Abdomen shining dark brown. Genitalia (fig. 14, B-C) yellowish brown. Wing length 2.8 mm.

Type material studied. *Sciophila parviareolata* SANTOS ABREU. 1 male, La Palma, Barranco del Rio, May 1910 (E. SANTOS ABREU, MICN). This is here designated as Lectotype; it was examined by ZAITZEV (1982a) who considered it conspecific with *hirta*. It has lost the ends of the antennae and all but one fore leg; the body and wings are, however, intact.

Discussion. British males of *hirta* have the flagellum darker brown but the pedicel contrasted orange; the prothorax and either a patch on the side of the mesoscutum or the entire mesoscutum and pleura orange yellow. Strong thoracic bristles including scutellars are pale yellow. The legs are yellow except for dark spots under trochanters and normally the tip of the hind femur is dark brown. The radial cell is variable and may be nearly quadrate; the costa extends 0.3 of the distance from R_5 to M_1.

The female *Sciophila* species described by SANTOS ABREU

The example under the name *S. pilosa* var.*rubida* SANTOS ABREU from La Palma, Barranco del Rio, May 1912, is in poor condition but most parts are present. A brief description of this example is given:

Female. Body shining dark brown, with yellow bristles. Legs entirely dull yellow. Antennae dark with orange brown pedicel; flagellar segments longer than broad. Wings yellowish; radial cell almost as long as broad; Sc_2 just before Rs; costa

extends only 0.2 distance from R_5 to M_1. Wing length 3.1 mm.

The specimen under the name "*varia* var. X" is glued to card, with the legs, antennae and one wing missing. It is from La Palma, Barranco del Rio, April 1909. SANTOS ABREU considered that if the corresponding males were found it would show enough characters to constitute a new species. The discernible characters are as follows:

Female. Body mainly dull brownish yellow. Abdomen with irregular dark brown markings towards the posterior margins of tergites. Remaining wing glued to card, with apical part missing. Radial cell quadrate; vein Sc_2 a little beyond Rs.

Genus *Azana* WALKER

Azana WALKER, 1856: 26.

This is a small genus with an uncertain number of species - at least 4 Palaearctic, 1 unnamed Nearctic and 1 Oriental species being known. The Canarian species has genitalia quite distinct from the widespread European species *anomala* (STAEGER) and has not been found to exist elsewhere. Recent examination of Mediterranean material has confirmed that both varieties of *anomala* described by STROBL from that region (*flavohalterata* STROBL, 1909: 129 and *nigricoxa* STROBL, 1900: 653) are also quite distinct species, which are described and figured by CHANDLER (in preparation). Forms of *anomala* itself (with small differences in genital structure from northern European material) have been seen from Algeria and Cyprus. The identity of *altera* BECKER (1907: 234), described from an Algerian female, is uncertain. The life history of this genus is unknown.

Azana palmensis SANTOS ABREU

Azana palmensis SANTOS ABREU, 1920: 45.

Male. Head shining black, grey dusted, with yellow bristles. Proboscis, palpi and basal antennal segments brown; flagellum darker, segments 1.5-2 x long as broad.

Mesoscutum mainly shining black with humeral area sometimes narrowly yellowish brown (Tenerife) or humeral area and sides broadly yellow, leaving three confluent shining dark brown stripes (La Palma, Hierro; Lanzarote example intermediate). Prothorax yellow to brownish yellow; pleura, scutellum and mediotergite dark brown to black. Bristles yellow; laterotergites and posterior part of mediotergite bristled. Halteres pale yellow.

Wings clear, membrane with short macrotrichia. Vein Sc short, ending free. Vein R_1 1.7-2.0 x r-m, reaches 0.4-0.5 distance from h to R_5. Costa produced a little

beyond R_5 but not reaching wing tip. M_{1+2} not forked, distinct for apical 0.6-0.75 of its length but traceable as faint bristled seam to its base. Cross-vein r-m 0.5 length of R_1, in line with R_5 (as in Sciaridae). Vein M_3+CuA_1 free at base, represented by fold parallel with CuA_2, 0.6 length of distinct portion of M_{1+2}. CuA_2 curving towards margin. An near margin, divergent from CuA_2. Postradial veins normally as dark as costa and radius.

Legs mainly yellow with ± dark coxae II-III, trochanters and femora (dorsal and ventral margins in Tenerife examples, only shade beneath base and coxae dark only at base and tip, Hierro & Lanzarote; legs almost entirely orange yellow, La Palma). Tibia II with 5 a, 4-6 p-d, III with 6 a-d, 7-9 p-d.

Abdomen shining black, with yellow hair; in Hierro example, tergite 1 brownish and very narrow pale apical margins to all tergites. Genitalia (Fig. 15) mainly shining dark brown. Wing length 2.5-2.9 mm.

Female. Similar. In Tenerife example, legs a little darker, especially femora. Fore tarsi with segments 2-4 slightly thickened and distinctly shorter than in male. Ovipositor with short yellowish cerci. Wing length 2.7 mm.

Type material studied. *Azana palmensis* SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, February 1911 (E. SANTOS ABREU, MICN). Paralectotype male, same data as Lectotype (MICN). The lectotype has the body and wings intact and one antenna but no complete legs. The other example is glued to celluloid; the body is intact but only one wing, glued down.

Other material studied. Tenerife: Barranco del Agua, 9 February 1984, male (M. BÁEZ). Las Cañadas, 2075 m, lava flow from Navices del Teide, 1-10 April 1984, female (N. P. ASHMOLE). Orotava Forest, 5 April 1973, 3 males, 1 female (P. J. CHANDLER). La Palma: Dehesa, Jardin, 9 December 1934, male; 29 December 1935, male; 16 December 1934, female (SANTOS RODRIGUEZ). Hierro: Frontera, 26 May 1976, male (M. BÁEZ). Lanzarote: Los Valles, 20 February 1979, male (M. BÁEZ).

Discussion. The correct application of nomenclature in this genus is not yet fully resolved but *palmensis* is presently considered endemic. The widespread European species *A. anomala*, apart from the distinct male genitalia, has the body all shining black, halteres with black knob and yellow stem, the legs dark yellowish with darkening on bases of coxae, trochanters and vaguely at tip of hind femora. The venation is similar but R_1 is longer, reaching 0.6 distance from h to R_5; the postradial veins are distinctly lighter.

The other three available names in *Azana* are alluded to briefly above. The most problematic is *altera* BECKER, 1907: 234. The holotype female (not a male as stated by BECKER) from Algeria, "Algier, April 52442", designated lectotype by PAKARINEN in 1970, unpublished. This specimen, wing length 2.6 mm, is shining black, with legs dark yellowish, the coxae II-III darker and dark shades present at the base of

coxa III, beneath bases of femora and tip of femur III. Its halteres are clear yellow; this character and the locality suggested that it might be conspecific with *palmensis* but a male from Algeria, Oued Guejour (MNHN, on slide labelled "182 Institut Pasteur d'Algèrie"; body, head, wing and genitalia mounted separately) has genital structure close to typical *anomala*. This male has the body entirely dark but halteres and legs as in the type of *altera*; its wing (defective at base) is at least 3 mm long and the antennae are longer than in other specimens, with flagellar segments 2.5-3.0 x long as broad. This strongly suggests that *anomala* varies geographically in coloration of halteres.

A. flavohalterata STROBL also has yellow halteres as in *palmensis* but it is considered conspecific with a widespread Mediterranean species with distinctive genital structure. The genital structure of the species identified as *nigricoxa* STROBL, with dark halteres, is even more strikingly different from *palmensis* and *anomala*.

Genus *Coelosia* WINNERTZ

Coelosia WINNERTZ, 1863: 796.

A small but widespread genus, with about 10 known Palaearctic species; closely related to *Boletina* but readily distinguished by the short posterior fork. It was unknown in the Atlantic islands until the recent discovery of *C. silvatica* Landrock in Tenerife by MARCOS BÁEZ.

Coelosia silvatica LANDROCK

Coelosia silvatica LANDROCK, 1918: 109.

Male. Head dark grey dusted, with short pale hair. Antennae with scape brown, pedicel and base of first flagellar segment brownish yellow; rest of flagellum dark grey, segments 5-6 x long as broad. Palpi brownish yellow.

Mesoscutum and scutellum dark brownish yellow, grey dusted, bearing three narrowly separated slightly shining dark brown stripes; median, bisected by very narrow dusted median stripe, is narrowed behind and not reaching scutellum; laterals rounded in front are broad to level of hind edge of median stripe, then narrowed and become vague, not distinctly reaching scutellum, which is entirely dusted. Pleura and mediotergite dark brown, thinly grey dusted. Dusted areas of mesoscutum bear long yellow bristling including biserial dorsocentrals and short uniserial acrostichals. One pair of long yellow scutellars, set near to sides but crossing apically; a series of short dark bristles on apical margin between them.

Pleura and mediotergite bare. Halteres dull yellow.

Wings greyish yellow. Vein Sc yellowish, ending in costa just beyond level of base of median fork. Vein R_1 2.6 length of r-m. Costa reaches two thirds distance from R_5 to M_1. Stem of median fork a little longer than r-m. Posterior fork begins distinctly beyond level of base of median fork, broad with M_3+CuA_1 parallel with M_2 but diverging before reaching margin. Vein An strong, ending just before level of base of median fork. Radial sector bears macrotrichia, other veins bare.

Legs slender, entirely dull yellow, with dark bristling only slightly paler on coxae. Coxa III with posteroexternal bristle near base. Tibia II with 3 a-v, 1 a (just beyond middle), 3 d, 3 shorter p-v. Hind legs longer, tibia III longer relative to its femur, with 1 a-d on basal third, 6 d, 3 p, 6 short v.

Abdomen entirely slightly shining dark brown, segments 1-6 subequal with short pale hair. Genitalia (Fig. 16) a little longer than tergite 6, entirely brownish yellow. Wing length 3.4 mm.

Female (not seen in Canarian material). Very similar to male in European specimens. Ovipositor short, brownish yellow. Wing length 3.5-3.6 mm.

Material studied. Tenerife: Realojo Alta, 19 September 1978, male (M. BÁEZ).

Discussion. *C. silvatica* is a widespread European species, occurring as far north as Finland, but is not common. RIBEIRO (1992) recorded it from Portugal and there are some recent records from the Mediterranean region; MATILE (1977) recorded it from two French Mediterranean districts and ALAN STUBBS has obtained it both in Corsica and Greece; material from Israel has also been examined. Other European *Coelosia* are more northern or eastern in distribution and thus less likely to occur in the Atlantic islands. Its life history is not known.

Genus *Boletina* STAEGER

Boletina STAEGER, 1840: 233.

A large genus of mainly boreal and montane distribution in the Holarctic region, with a few species known from the mountains of the Oriental region. There are about 65 Palaearctic species and two species have been recorded from the Atlantic islands, both of them hitherto incorrectly identified. *B. gripha* DZIEDZICKI is a very widespread European species, occurring on the Canary Islands, while the second species previously recorded from Madeira as *B. plana* (WALKER) is a new species near to *dubia* MEIGEN, presumed to be endemic to this island. Little is known of the life history of the genus, but *B. dubia* is a liverwort feeder as a larva.

Key to Species

1 Laterotergites bare. Postradial veins faint greyish, contrasted with darker radial sector. Claws simple. (C) . . . . . *gripha* DZIEDZICKI

-Laterotergites with long whitish bristling. Postradial veins blackish,not strongly contrasted with radial sector. Claws flattened and combed, anterior longer (as long as half fifth tarsal segment) on each leg, (M) . . . . . *nigravena* sp.nov.

Boletina gripha DZIEDZICKI

Boletina gripha DZIEDZICKI, 1885:9.
Boletina sciarina (MEIGEN); SANTOS ABREU, 1920: 41, nec MEIGEN, 1830: 300.

Male. Body mainly slightly shining black, grey dusted with all hairs and bristles yellowish. Antennae and palpi entirely blackish; flagellar segments 3-4 x long as broad.

Thorax with three slightly shining undusted stripes, the median bisected by acrostichals and bordered by dusted dorsocentral rows, acrostichals and dorsocentrals both biserial. Two pairs scutellars, laterals short. Prothorax bristled but pleura otherwise bare. Halteres yellow.

Wings clear, with costa and radial sector dark, other veins pale. Vein Sc long, ending in costa about opposite base of Rs. Costa produced halfway from R_5 to M_1.

Legs mainly dark yellow but grey dusting on tips of mid coxae and trochanters. Bases of all coxae with shining dark grey patches, occupying about a third to a half length of hind coxae. Coxae and femoral hairs yellow. Tibiae II-III weakly bristled; tibial bristles and setulae dark but tibial spurs dusky yellow.

Abdomen and genitalia (Fig. 17) slightly shining black, grey dusted. Wing length 3.0-3.4 mm.

Female. Very similar in all respects but more robust than male. Ovipositor short, brownish yellow. Wing length 3.6 mm.

Material studied. Tenerife: Orotava Forest, pine/heather, 5 April 1973, 6 males, 1 female (P. J. CHANDLER). Los Gigantes, netted in sea off this point, 15 May 1984, female (N. P. ASHMOLE). La Palma: Cumbre Vieja, December 1903, 2 males, 2 without abdomens (E. SANTOS ABREU, MICN).

Discussion. The Canarian examples agree well with British specimens. The two males in the SANTOS ABREU material named as *sciarina* STAEGER have been dissected and confirmed to be *gripha*. *B. gripha* is a very common European species, occurring equally in open moorland as in wooded habitats, but its larval development is not known.

Boletina nigravena sp. nov.

Boletina plana STORÅ, 1941: 11, nec WALKER, 1856: 34.

Male. Mainly black, partly grey dusted, with all bristles and hairs whitish. Head black, grey dusted. Antennae long, entirely black; flagellar segments at least 4 x long as broad. Palpi dark brown.

Thorax black, grey dusted except on three broad shining dorsal stripes separated by the uniserial dorsocentrals, median stripe bisected by uniserial acrostichals (both dorsocentrals and acrostichals are biserial in *plana* and *dubia*). Many long bristly hairs on sides of mesoscutum, prothorax and laterotergites. Spiracular area yellow. Two pairs of strong scutellars, also many short marginal hairs. Halteres pale yellow.

Wings clear but with veins blackish, both radial sector and rest of venation much darker than in *dubia*, with slight darkening extending onto membrane around base of Rs and below R_5; wing, however, yellowish at base as in *dubia*. Venation very like *dubia* with wavy R_5 and distinctly produced costa but R_5 convergent with M_1 apically and costa reaching nearly halfway from R_5 to M_1. Vein Sc reaches costa a little before level of base of Rs. Cross-vein r-m 1.5 x m-stalk. Vein Sc_2 faintly indicated a little before half length of Sc. Vein M_3+CuA_1 faint at junction with CuA_2 which is darker than other posterior veins.

Legs mainly yellow, progressively darkened on tarsi; trochanters blackish. Coxal and femoral hairs yellow; tibial and tarsal bristles and setulae black; tibial spurs black. Tibia II with 5 a-v, 5 a-d, 5 p-d, 7 weak p (longer near tip), 3 p-v. Tibia III with 4 a-v, 9 a-d, 9 p-d, 9 p-v becoming more p and closer set on apical third. Claws flattened and combed, the anterior longer and half last tarsal segment in length on each leg (this structure similar to *dubia*).

Abdomen mainly shining black. Genitalia (Fig. 18) mainly black, with gonostyli yellowish but covered dorsally by narrow elongate ninth tergite (genitalia including basal half of ninth tergite mainly reddish yellow in *dubia*). Wing length 4 mm, body 5 mm.

Female. Not examined.

Type material studied. Holotype male, Madeira, Corujeira, 18 February 1977 (A. E. STUBBS, NHML).

Other material studied. Male, Madeira, Fajã da Nogueira, 20 February 1990 (R. CAPELA).

Discussion. STORÅ (1941) cited a female of *plana*, collected in Madeira by LUNDBLAD; although this has not been seen, it is considered probable that it was conspecific with the males recorded here. The dark wing veins and dark genitalia most obviously distinguish this species from *dubia*, of which the similar male genital structure is figured for comparison. The Corujeira specimen is figured; that from

Fajã da Nogueira has the gonocoxite apparently differently proportioned but this may be due to distortion.

It is conceivable that *nigravena* has no more than a subspecific relationship to *dubia* but more material would be desirable to establish its correct status.

Genus *Leia* MEIGEN

Leia MEIGEN, 1818: 253.

Leia is a large mainly tropical genus with upwards of 25 species known from the Palaearctic region. MATILE (1978) redefined the limits of the genus in the European fauna, referring some hitherto included species to *Greenomyia* and *Clastobasis* SKUSE. Until recently a single species, *fasciata* STORÅ, which was considered to be endemic to the Atlantic islands, was recorded from all three archipelagoes, but it has now been established to be conspecific with *arsona* HUTSON, a widespread species associated with subtropical cultivation. Now a second species, previously known only from Algeria, has been found on the two islands nearest the African coast. Two other *Leia* species have recently been described as new from the eastern Mediterranean region (CASPERS, 1992; BECHEV, in preparation).

The biology of most species is unknown but some are fungus feeders while others develop in bird's nests.

Key to Species

1 Wings with a strong preapical band extending across M_3+CuA_1 to vaguely reach margin. Cross-vein r-m distinctly longer (at least 1.5 x) than R_1 and m-stalk. Thoracic stripes entirely shining dark brown. Tibial bristles weak, not much longer than tibial diameter. Halteres yellow. (C). . . . . *beckeri* LANDROCK

-Wings with preapical band stopping short of M_3+CuA_1. Cross-vein r-m subequal to R_1 and m-stalk. Thoracic stripes becoming light brown and fainter in front. Tibial bristles strong, up to 2 x tibial diameter. Halteres with dark knob. (C, M, A) . . . . . *arsona* HUTSON

Leia beckeri LANDROCK

Neoglaphyroptera bifasciata BECKER, 1907: 266. A junior secondary homonym of *Leia bifasciata* GIMMERTHAL, 1846: 56.

Leia beckeri LANDROCK, 1940: 69.

Male. Head mainly shining dark brown. Antennae yellow to base of first flagellar segment, rest dark grey. Antenna longer than head and thorax, flagellar segments about 3 x long as broad. Palpi brownish yellow.

Mesoscutum brownish yellow with three well marked shining dark brown stripes, median bisected by narrow yellow stripe and narrowed behind to stop short of scutellum; lateral stripes reach scutellum, which has shining brown median stripe. Separate dark spot above wing base. Prothorax yellow. Pleura and mediotergite mainly shining brown, including more than ventral half of laterotergites. Bristles dark; 4 scutellars, inner pair weaker; laterotergites strongly bristled. Halteres yellow.

Wings dark yellowish; veins brown except yellow Sc. Dark markings include faint spot on r-m, strong brownish mark behind tip of R_1, narrowed in cell r_5, extending across M_3+CuA_1 to faintly reach margin; membrane greyish at wing tip. Vein Sc ends in costa before level of base of r-m, Sc_2 at its apical third. Vein R_1 and m-stalk subequal, r-m about 1.5 x long. Base of posterior fork level with tip of Sc, M_3+CuA_1 unpigmented at base and appearing separate from CuA_2.

Legs mainly yellow. Femur III slightly darkened above base, well marked brown tip. Tibiae II-III with strong black bristles not longer than their diameter: II with 3--4 a, 4 p-d, III with 7 a-d, 6-7 p-d (some weaker among them); several short v on both; spurs yellow.

Abdomen slender. Tergite 1 dark brown (except narrowly at base), 2-6 yellow basally with well marked shining dark brown apical bands, less than apical half of 2-4 and emarginate in middle, apical half or more and only slightly emarginate on 5-6. Sternites and genitalia (Fig. 19) brownish yellow. Wing length 3.1-3.6 mm.

Female. Antennae relatively shorter, flagellar segments not more than 2 x long as broad, shorter apically. Wing markings stronger, that on r-m may be more obvious and preapical band broader. R_1 may be shorter than m-stalk and half or less length of r-m. Abdomen broader, more depressed; tergites 5-6 may have narrower dark bands. Ovipositor brownish yellow. Wing length 3.0-3.8 mm.

Type material studied. *Neoglaphyroptera bifasciata* BECKER. Holotype male, Algeria, Constantine, April, "52456" (HUB). This is considered to be conspecific with the Canarian examples despite some differences discussed below.

Other material studied. Fuerteventura: Betancuria, 12 May 1974, female, 20 February 1980, male; La Asamada, 21 February 1980, 3 females; Valledrón, 21 February 1980, male, female; Villaverde, 21 February 1980, male, 2 females (M. BÁEZ). Lanzarote: Mala, 21 February 1979, female (M. BÁEZ).

Discussion. The Canarian material agreed well with BECKER's description and figure of the wing of his *bifasciata* but examination of BECKER's type has shown that there are small differences, which are summarised as follows:

Antenna thicker with flagellar segments about 2.5 x long as broad. Thoracic stripes broader, no median yellow line and space between stripes narrower, outer stripes converge to scutellum and continuous with median scutellar stripe which is also broader, occupying more than middle third of scutellum. Thoracic bristles yellow, stronger bristles a little darker, median scutellars distinctly longer than outer pair. Wings with brown markings faint, distributed as in Canarian specimens but with additional subapical brown patch between R_5 and M_1. Vein Sc_2 more basal, at 0.6 length of Sc, not much darker than Sc. Base of posterior fork a little beyond level of tip of Sc. Legs entirely yellow, only vague dark shade at extreme tip of femur III. Tibiae II-III with anterior and dorsal bristles distinctly longer than tibial width, v bristles short and weak on both. Tibia II with 3 a, 1 a-d adjacent to last of 4 p-d. Tibia III with 5 strong and 3 short a-d, 4 strong and many short weak d. Abdomen more extensively darkened, tergite 2 brown, other tergites with at least basal two thirds light brown. Genitalia pale yellow with small proportional differences.

This type of colour variation is common in *Leia* species; the extent of black markings varies considerably in the common European and Mediterranean species *bimaculata* (MEIGEN), which also occurs in Algeria.

Leia arsona HUTSON

Leia fasciata STORÅ, 1937: 10, a junior secondary homonym of *Glaphyroptera fasciata* KERTÉSZ, 1902: 574. Syn. nov.
Leia arsona HUTSON, 1978: 123.

Male. Head brownish yellow. Antennae yellow to base of flagellum (variable extent), shorter than head and thorax with nearly quadrate flagellar segments. Palpi yellow.

Mesoscutum brownish yellow with shining dark brown stripes fused behind, nearly or quite reaching scutellum, becoming light brown and indistinct in front; an adjoining black spot above wing base. Pleura mainly brownish yellow, lower part of laterotergites and mediotergite brown. Bristles dark yellowish to black. Halteres yellow with darkened knob.

Wings clear yellowish with vague brown markings over r-m and base of m--stalk, behind CuA_2 (beyond tip of An) and irregular preapical band from costa beyond R_1, nearly reaching M_3+CuA_1. Costa and radial sector brown, other veins yellow (CuA_2 may be darker). R_1, r-m and m-stalk nearly equal. M_3+CuA_1 distinctly but narrowly detached from CuA_2 at its base.

Legs yellow with dark shade beneath base and dark tip to hind femur. Tibiae II-III with moderately strong black bristles, up to 2 x tibial diameter: II with 3 a, 1 a-d beyond, 3 p-d, 1 strong (1-2 weak) v, III with 6-7 a-d (2 median stronger), 4 p-d

(numerous shorter amongst both series).

Abdomen with tergite 1 yellow except small black apical spot, 2-5 yellow with broad black posterior bands, 6 entirely black. Sternites 1-4 yellow, 2-4 with small brown median apical spot, 5 dark brown apically, 6 all dark brown. Genitalia (Fig. 20) brownish yellow. Wing length 3.4-4.0 mm.

Female. Very similar. Mesoscutum may be brownish yellow except shining dark brown central prescutellar spot and spot above wing base. Abdomen broad, depressed, black markings of variable extent; tergite 1 may be entirely yellow, dark bands on other tergites may be produced towards bases in middle; 6 may be obscurely brownish apically to entirely dark; 7 shining dark brown. Ovipositor brownish yellow. Wing length 4.3-4.4 mm.

Type material studied. *Leia fasciata* STORÅ. Syntypes from Gran Canaria (Tafira, 23 June 1931; Atalaya, 25 June 1931), Tenerife (Orotava, 25 July 1931; Tacoronte, 11 July and 29 July 1931) and La Palma (Los Llanos, 8 August 1931) (FREY and STORÅ, ZMH). A Lectotype was not designated.

Leia arsona HUTSON. Paratypes in NHML. The Holotype from South Africa (Natal Museum) has not been examined. It is conspecific with *fasciata* STORÅ, as indicated by the figures of male genitalia by these authors.

Other material studied. Tenerife: El Cantillo, 6 January 1966, male; Santa Cruz, 19 March 1953, female (J. M. FERNANDEZ). Fuerteventura: Betancuria, 20 February 1980, female (M. BÁEZ). Madeira: Funchal, banana plantation, 16 February 1977, 6 males (A. E. STUBBS); Ribeira Brava, 2 May 1938, male (R. FREY). Faial: Horta, 11-14 July 1938, female. Flores: Santa Cruz, 1-15 June 1938, female. São Miguel: Furnas, 22-24 May 1938, male; San Roque, 13-15 May 1938, 3 males. São Jorge: Calheta, 22-28 June 1938, 3 males (FREY & STORÅ).

Discussion. This is evidently frequent in the Atlantic islands, occurring especially in cultivated areas. *L. fasciata* was considered endemic until it was realised that it was the same species as *arsona*, which HUTSON (1978) described from material reared from Brazilian root ginger in a London warehouse; despite the origin of the ginger, other specimens seen by him from South Africa, Kenya and St. Helena indicated an Afrotropical origin but a present distribution probably due to being spread by commerce. The warehouse had been used for banana ripening for some years and the fly was probably already established there. VÄISÄNEN (1984b) recorded it from Tunisia and suggested an association with dates. Several examples from Israel (in material forwarded by AMNON FREIDBERG, Tel Aviv University) and an Algerian male have been seen (MNHN). Several examples from Malta have also been examined, from the collections of S. & J. SCHEMBRI, J. CILIA and MARTIN EBEJER. Another new record is from the Cape Verde Islands, Santo Antão, Cova, 19 January 1985, 3 males, *Pinus* and herbaceous vegetation at edge of crater, 1000--1200 m, and Ribeira Torre, 20 January 1985, 3 males, 1 female, coffee plantation,

700-800 m (P. OHM, via M. VON TSCHIRNHAUS). More surprisingly, a female collected in the open on the Channel Islands, Jersey, La Mielle de Morville, 2 September 1991 by A. C. WARNE has been examined.

When describing *arsona*, HUTSON (1978) noted that it differed from the 22 known African species and belonged to a mainly South American species group; in the Neotropical key it ran to *fasciata* (KERTÉSZ) but of several species under that name in NHML none were conspecific. The genitalia of *fasciata* (KERTÉSZ) have not been figured; it was described from several of both sexes from Peru and Bolivia, but the types deposited in the Hungarian National Museum are presumed to be lost. KERTÉSZ (1902) did, however, figure the wing which is more strongly marked than in *arsona*.

Genus *Greenomyia* BRUNETTI

Greenomyia BRUNETTI, 1912: 87.

This small genus was based on three Indian species by BRUNETTI (1912). The generic characters were fully discussed by LAŠTOVKA & MATILE (1974), when they described two Mongolian species. In addition to the key characters, *Greenomyia* is characterised by the peculiar male genital structure with rounded gonostyli bearing internal combs of black spines. MATILE (1978) referred the European *Leia borealis* (WINNERTZ) and the Canarian *L. lucida* (BECKER) to *Greenomyia*, which is thus widespread in the Oriental and Palaearctic regions. VOCKEROTH (1980) transferred two North American species from *Leia*, ZAITZEV (1982b) added another species from the far east of Russia and SIVEC & PLASSMANN (1982) described two species from Sri Lanka. The larval biology is unknown.

Greenomyia lucida (BECKER)

Neoglaphyroptera lucida BECKER, 1908: 65.
Leia lucida (BECKER); JOHANNSEN, 1909: 78; LANDROCK, 1927: 85.
Glaphyroptera teneriffae SANTOS ABREU, 1920: 41, nomen nudum
Greenomyia lucida (BECKER); MATILE, 1978: 170.

Male. Head shining black, grey dusted on clypeus. Antennae longer than head and thorax, basal segments brownish yellow; flagellum black, segments longer than broad. Palpi pale yellow.

Thorax shining black, with slight grey dusting on humeral area, prothorax, pleura and mediotergite. Strong black bristling on mesoscutum including ± biserial acrostichals and dorsocentrals, prothorax and laterotergites. Two pairs widely separated scutellars, shorter hairs brown. Halteres pale yellow.

Wings with dark brown veins; wing tip darkened on about apical third or a little less, fainter towards hind margin and slight shade behind CuA_2 near tip of An. Sc long, ending in costa opposite base of r-m, which is a little longer than m-stalk. CuA_2 strongly curved beyond junction with M_3+CuA_1.

Legs yellow, with darker tarsi. Coxa III very narrowly dark at base (sometimes faint), several dark posterior bristles just below dark area. Tibia II with 1-2 a-v, 3--4 a, 4-5 p-d (basal short), 3 v. Tibia III with 3-4 a-v, 4 a, 4-5 d (several short interspersed), 4-5 v. Spurs pale yellow.

Abdomen mainly shining black; complete orange yellow apical bands on a third to half length of sternites 2-6 (entire side margins of 3-4), extended onto tergites as widely separated triangles on 2-4, narrow apical bands on 5-6. Genitalia (Fig. 21) black. Wing length 2.8-3.5 mm. Entire male, Fig. 22.

Female. Very similar. Antennae shorter, flagellar segments more quadrate. Yellow abdominal markings may be more restricted. Ovipositor brownish yellow. Wing length 3.3-4.1 mm.

Type material studied. *Neoglaphyroptera lucida* BECKER. Lectotype here designated: male, Tenerife, Port Orotava, May 19, "51299" (T. BECKER, HUB). Lectoparatype female, Tenerife, Laguna, June, "51508" (T. BECKER, HUB). BECKER (1908) stated that it was not uncommon at Port Orotava, Guimar and Laguna in Tenerife from January to June.

Other material studied. Tenerife: Las Cañadas, water trap on lava flow (almost lacking vegetation) from Navices del Teide, 2075 m, 6-20 June 1984, female (N. P. ASHMOLE). Las Mercedes, 10 July 1931, female (R. FREY). Bajamar, 30 December 1904, female (A. CABRERA DIAZ). Teno, 17 December 1978, male; Icod, 12 April 1976, 2 males (M. BÁEZ). El Cantillo, 6 January 1966, male (J. M. FERNANDEZ). Tenerife, La Palma, April 1903, 4 males, 2 females (E. SANTOS ABREU). La Palma: Dehesa, Jardin, male, female (SANTOS RODRIGUEZ). Gran Canaria: Tafira Alta, 8 March 1977, female (M. BÁEZ). Lanzarote: Nazaret, 23 February 1979, male, female; Los Valles, 23 February 1979, female (M. BÁEZ).

Discussion. Apparently endemic to the Canary Islands but, like the *Leia* species, also occurring in the cultivated areas. SANTOS ABREU (1920) took it at windows of houses in December. *G. lucida* has genital structure closest to the Mongolian *flavicoxa* LAŠTOVKA & MATILE (1974), the only other known species with yellow coxae; *flavicoxa* has the hind coxae paler yellow without a dark base and golden yellow posterior bristles. The other Mongolian species *G. mongolica* LAŠTOVKA & MATILE, with dark mid and hind coxae, has been examined from Europe (Croatia and Italy).

Genus *Megophtalmidia* DZIEDZICKI

Megophtalmidia DZIEDZICKI, 1889: 525.
Neoparastemma SANTOS ABREU, 1920: 48.
Megophthalmidia.

This is a small genus of the Holarctic and Neotropical regions; until recently only 2 European species were known but at least four further species have now been found in Mediterranean material. The Canarian species described in *Neoparastemma* possesses the characters of *Megophtalmidia* as defined by EDWARDS (1925). The peculiar male genital structure with the genitalia strongly reflexed is also characteristic of the genus, but only females are available of the apparently endemic Canarian species *M. decora* (SANTOS ABREU). The biology of this genus is unknown.

Megophtalmidia decora (SANTOS ABREU)

Neoparastemma decora SANTOS ABREU, 1920: 49.
Megophthalmidia decora (SANTOS ABREU); LANDROCK, 1927: 88-89.

Female. Head black, grey dusted. Antennae black, short with flagellum strongly thickened, especially on basal half, where segments are less than half as long as broad. Proboscis stout, about half head height. Palpi dark.

Mesoscutum mainly black, grey dusted, more or less brownish on humeral area, with evenly dispersed short dark bristles, longer bristles at sides and prescutellar pair of dorsocentrals. Scutellum black, 2 pairs of strong marginals, shorter bristles between. Prothorax brownish yellow. Pleura dark reddish brown to black, faintly grey dusted. Laterotergites bear 6-7 upwardly directed bristles on crest. Mediotergite shining dark brown. Halteres yellow.

Wings broad, vaguely darkened on apical third, dark shade extended more intensely on fore margin to level of base of m-stalk, almost as far as tip of Sc, leaving posterior basal part of cell R_5 clear. Vein Sc 0.7 length of R_1, distinctly ends in R. R_1 short, subequal to r-m, curved up to costa just beyond level of base of m-fork. Costa reaches two thirds from R_5 to M_1. Fork veins distinct to base, posterior fork begins at level of base of m-stalk. Vein An weak, not exceeding base of posterior fork. Anal lobe bears about 20 scattered macrotrichia.

Legs dark yellowish with all bristles and spurs dark; dark spots at tips of coxae and below trochanters, coxae II-III vaguely darkened on basal half, faint dark shades beneath bases of femora. Tibia II with 3 a, 2-3 d, 4 short p near tip, 3-4 v, III with 12 a, 20-22 close set d and an apical posterointernal comb of about 12 brownish setae.

Abdomen slightly shining black; segments 1-5 with narrow ill defined orange brown apical bands; 6 entirely shining black. Ovipositor (Fig. 23) dark, with small flattened oval cerci. Wing length 2.8 mm.

Type material studied. *Neoparastemma decora* SANTOS ABREU. Lectotype here designated, female, La Palma, Barranco del Rio, August 1912 (E. SANTOS ABREU, MICN). This lacks antennae, one fore and both mid legs but abdomen present and one wing intact. Paralectotype female, same data as Lectotype, glued to card, without abdomen, only part of one wing, only one fore and one mid leg (MICN). Paralectotype female, labelled "Cotype" (NHML).

Other material studied. La Palma: Cumbre Nueva, *Castanea* woods, 29 May 1976, female (P. J. CHANDLER).

Discussion. SANTOS ABREU (1920) described *M. decora* from both sexes but stated that it was fairly rare, citing only Barranco del Rio, 22 August 1902 as the first date of capture although it is presumed that the Lectotype was among the specimens he used to describe the species.

It was considered endemic until similar specimens (also mainly dark coloured with yellow abdominal bands) were found in the Mediterranean region. However, examination of this material has shown that there are at least two species involved, differing in male genital structure. Females of two species (both Greek) have been found to have different ovipositor structure from *decora*; a single male from Cyprus is probably conspecific with one of these species although its genital structure differs in detail. A Corsican female will require re-examination, but at present *decora* can be accepted as endemic pending discovery of males.

Genus *Docosia* WINNERTZ

Docosia WINNERTZ, 1863: 802.

The mainly black species of *Docosia* present a very uniform appearance, with specific differences in leg colour and bristling of the laterotergites. There are 19 described Palaearctic species and a similar number of Nearctic species but an unpublished revision by PETR LAŠTOVKA has increased the number of Holarctic species to more than 100, of which about 30 are European. Otherwise only 2 Neotropical species are known. Of described species, *D. gilvipes* stands apart in its setose and free ending vein Sc but like many other species it has bristled laterotergites. The two species recently discovered in Fuerteventura both have these sclerites completely bare, as do a number of Mediterranean species of the genus.

Key to Species

1 Vein Sc setose and ending free. Laterotergites bear moderately long pale bristling. (M) . . . . . *gilvipes* (HALIDAY)

-Vein Sc bare, ending in R. Laterotergites entirely bare. 2

2 Legs including coxae yellow (C) . . . . . *canaripes* sp. nov.

-Coxae entirely black. (C) . . . . . *fuerteventurae* sp. nov.

Docosia gilvipes (HALIDAY)

Leia gilvipes HALIDAY in WALKER, 1856: 29.

Male. Body slightly shining black. Antennae black except brownish yellow pedicel, as long as head and thorax; flagellar segments less than 2 x long as broad. Palpi dull yellow.

Mesoscutum grey dusted, strongly clothed with yellow bristles except on four narrow shining stripes. Mediotergite and pleura thinly grey dusted. Prothorax and laterotergites with long pale bristling. Halteres yellow.

Wings hyaline, costa and radial sector brown, other veins pale. Vein Sc bears series of strong setulae to level of base of r-m. Vein R_1 3 x length of r-m, which is a little shorter than m-stalk.

Legs mainly yellow, femur III with brown tip and slightly brownish under bases of femora II-III.

Abdomen black, thinly grey dusted. Genitalia (Fig. 24) black; tergite 9 truncated apically with short bristles. Wing length 2.3-2.8 mm.

Female. Similar. Antennae much shorter, flagellum thickened basally and segments not longer than broad. Some strong thoracic bristles and scutellars black. Abdomen broader and depressed. Ovipositor brownish yellow. Wing length 2.7-3.3 mm.

Material studied. Madeira: Funchal, Monte, 30 April-1 May 1938, male (R. FREY, ZMH).

Discussion. A common European species, but only a single example known from Madeira. The description is based on British material.

Docosia canaripes sp. nov.

Male. Body entirely slightly shining black, with pale yellow hairs and bristles. Antennae black except dark yellowish brown pedicel, as long as head and thorax,

flagellar segments at least twice as long as broad. Palpi brownish yellow.

Mesoscutum mainly thinly brownish grey dusted with three shining black stripes, median tapered behind, broadly separated from laterals which converge behind. Scutellum and mediotergite entirely shining. Prothorax with strong upswept bristles touching in middle. Mesoscutal bristles mainly short; some longer prescutellars, half length of scutellars; 3 strong pairs of scutellars, shorter bristles between. Pleura thinly grey dusted, entirely bare. Halteres yellow.

Wings hyaline, costa and radial sector brown, other veins pale. Vein Sc ends in R just before level of base of r-m. Vein R_1 about twice r-m which is a little longer than m-stalk. Costa reaches nearly halfway from R_5 to M_1. Posterior fork begins just before level of base of median fork; An just exceeds its base.

Legs including coxae and spurs entirely yellow. Tibia II with 5-6 a, 4-5 p-d, 2 short weak p near tip. Tibia III with 11-13 short strong a-d, 7-9 p-d on basal three quarters, several short close set p-d on apical quarter.

Abdomen slender, thinly grey dusted, with long whitish yellow bristling. Genitalia (Fig. 25) black. Tergite 9 with slightly emarginate broadly truncated apical margin bearing dense bristling more than half its length. Wing length 2.9 mm.

Female. Not seen.

Type material studied. Holotype male, Fuerteventura, Valledrón, 21 February 1980 (M. BÁEZ, MICN).

Discussion. *D. canaripes* is according to PETR LAŠTOVKA apparently closest to an undescribed Italian species. The described European species with entirely yellow legs have bristled laterotergites. This character was not described for *antennata*, based on the female only from Algeria but Dr. LAŠTOVKA indicated (in litt., June 1980) that he was intending to establish the synonymy of *antennata* with *flavicoxa* STROBL (nec LANDROCK).

Docosia fuerteventurae sp. nov.

Male. Body slightly shining black, thinly grey dusted. Antennae entirely black, including pedicel, longer than head and thorax, flagellar segments almost 3 x long as broad. Palpi brownish yellow.

Mesoscutum grey dusted with median stripe reduced to two narrow stripes of same width as lateral stripes, convergent and fused behind. Scutellum and mediotergite shining. Chaetotaxy similar to *canaripes*, but long prescutellars not apparent. Pleura grey dusted, bare. Halteres pale yellow.

Wings hyaline, venation as *canaripes*. Vein R_1 2.5 x r-m. Costa reaches only a third distance from R_5 to M_1.

Legs with coxae entirely black, III brownish apically. Femora pale yellow, I-II with grey brown ventral margin, broadest at base, III only slightly darkened at

extreme base ventrally. Tibiae darker yellow, tarsi yellow basally, darkened from middle of segment 2. Tibia II with 5 a, 4 p-d, III with 12 a-d, 9 p-d on basal three quarters, several short p-d on apical quarter.

Abdomen as *canaripes* except genital structure (Fig. 26). Tergite 9 smaller, truncate, marginal bristles sparser and about half its length. Wing length 3.2 mm.

Female. Not seen.

Type material studied. Holotype male, Fuerteventura, Tetir, 21 February 1980 (M. BÁEZ, MICN).

Discussion. PETR LAŠTOVKA has indicated (in litt., May 1980) that he knows of no other Palaearctic species close to the present one but there are some rather similar Nearctic species.

Genus *Anatella* WINNERTZ

Anatella WINNERTZ, 1863: 854.

A mainly Holarctic genus with more than 30 Palaearctic species, most of them distinguished by the complex male genital structure and females have been associated for very few species. This group of small slender mainly greyish to blackish gnats is also known from the Nearctic and Oriental regions but has been little studied there. The Madeiran species described here has genitalia distinct from known species.

Anatella atlanticiliata sp. nov.

Male. Body mainly dark grey dusted; pleura and sides of tergites 1-4 slightly paler. Antennae with pedicel and base of first flagellar segment obscurely yellowish, rest grey; flagellum elongate, segments more than 3 x long as broad. Palpi greyish. Halteres dusky yellow.

Wings pale greyish with grey veins. Costa prolonged 0.6 distance from R_5 to M_1. Cross-vein r-m curved, two thirds length of m-stalk. Base of posterior fork distinctly beyond base of median fork.

Legs dusky yellowish. Femur II with long strong p-v fringe, longer basally, a-v fringe shorter and weak. Tibia II with short close set ventral fringe; anterior spur apparently absent. Coxa III without basal bristle. Genitalia, Fig. 27. Wing length 2.3 mm.

Female. Body dark grey dusted, tergites 1-2 pale laterally. Antennae with basal segments yellow. Femur II with only short weak a-v fringe, no p-v fringe present. Tibia II with anterior spur present, about three quarters length of posterior spur.

Costa 0.5-0.6 distance from R_5 to M_1. Wing length 2.2-2.3 mm.

Type material studied. Holotype male, Madeira, Ribeiro Frio, 19 February 1977 (A. E. STUBBS, NHML). Paratypes: Madeira: male, female, between Camacha and Santo da Serra, 21 August 1989; male, Ribeiro Frio, 27 August 1989 (M. BÁEZ); female, Levada do Norte, Campaneano, 7 February 1990 (A. E. STUBBS).

Discussion. In the absence of any indication that more than one species occurs on Madeira, the females are concluded to be conspecific. The presence of the mid femoral fringe and reduction of male anterior mid tibial spur suggest relationship with the European species *ciliata* WINNERTZ but the genital structure is quite distinct.

Genus *Rymosia* WINNERTZ

Rymosia WINNERTZ, 1863: 810.

A mainly Holarctic group with more than 40 Palaearctic species, the Nearctic fauna being poorly known. There are also 2 Afrotropical species, one of them the Mediterranean species *cretensis* LUNDSTRÖM. Unplaced species of the old *Rymosia* sensu lato (prior to the revision by TUOMIKOSKI, 1966) occur in other biogeographical regions. A high proportion of the Palaearctic species have been recorded from the Mediterranean region and many of them are still known from rather few localities. This Mediterranean bias may account for the presence of at least 7 species in the Atlantic islands. One of these, *R. spinipes* WINNERTZ, is widespread in Europe and occurs in both the Canary Islands and Madeira. It belongs to a distinct group of the genus from the other Atlantic species, which are mainly closely related members of the *fasciata* (MEIGEN) group. All are apparently endemic, three to the Canary Islands, two to Madeira and one to the Azores. Where the life history is known, *Rymosia* species develop in soft terrestrial fungi, mainly agarics.

Key to Species

1 Fore metatarsus elongate, 1.7-1.8 x its tibia; segments 4-5 of fore and mid tarsus subequal. Segment 3 of male fore tarsus bearing spinose setae. (C,M) ..... *spinipes* WINNERTZ

-Fore metatarsus less than 1.5 x its tibia; segment 5 of all tarsi shorter than 4. Male fore tarsus without spinose setae. 2

2 Abdomen with complete yellow basal bands on tergites. Fore metatarsus longer than its tibia. 3

-Abdomen with lateral yellow markings, separated dorsally. 4

3 Tarsi without distinctive bristling in male, which has tergites 2-5 with basal yellow bands. Fore metatarsus 1.3-1.4 x its tibia. (C) . . . . . *tenuivittata* SANTOS ABREU

-Male fore tarsi bearing long erect close set oblique bristling up to twice tibial diameter; similar bristling below segments 2-5 of mid tarsus. Male tergites 2-4 with basal yellow bands. Fore metatarsus 1.25 x its tibia. (C) . . . . . *scopulosa* BECKER

4 Fore metatarsus subequal to its tibia. Tarsi without distinctive bristling. (C) *santosi* sp. nov.

-Fore metatarsus distinctly longer than its tibia. 5

5 Male fore tarsi with erect oblique bristling, up to twice tarsal diameter; mid tarsi without bristling longer than tarsal diameter. (A) . . . . . *azorensis* sp. nov.

-Male tarsi without distinctive bristling. (M) . . . . . *lauricola* sp. nov. (*maderensis* STORÅ, which has not been examined, would also run here according to characters in the original description, and only the figures of genital structure serve to separate it from *lauricola*).

Rymosia spinipes WINNERTZ

Rymosia spinipes WINNERTZ, 1863: 813.

Male. Head dark grey brown. Antennae shorter than head and thorax, yellow to base of first flagellar segment; flagellar segments about 1.5 x long as broad, then progressively longer from sixth onwards. Palpi yellow.

Mesoscutum yellowish to reddish brown with obscure darker brown stripes, yellow on side margins. Pleura yellowish with brown markings. Scutellum brown dorsally, yellow at sides. Mediotergite brown. Mesoscutum bears long bristles at sides and complete rows of uniserial dorsocentrals on disc. Pronotal lobe bears 2 long bristles; 1 long downcurved proepisternal; laterotergites with several long bristles; 1 pair strong scutellars. Halteres yellow.

Wings yellowish. Vein R_5 strongly downcurved at tip; r-m is slightly more than twice m-stalk; base of posterior fork distinctly before base of m-stalk.

Legs yellow, femora faintly darkened beneath bases. Tibia II with 4 strong a setae among short bristles, 3 p-d, 10-11 p-v. Tibia III with 5-6 a, 4-5 d, 4 short p near tip, 15-17 p-v. Fore metatarsus 1.7 x its tibia, nearly as long as segments 2-5 together; segment 3 bears 3 long spinose erect p-v bristles, about 3 x width of segment, and dense shorter bristly hairs more ventrally, longest just above bristles (as long as segment width); segment 4 with comb of short thick bristly ventral hairs. Mid metatarsus 1.15 x its tibia, hind metatarsus 0.7-0.75 its tibia. Tarsi II-III with p-v series continued from tibiae. Tibial spurs distinctly less than half metatarsal length.

Segments 4 and 5 of tarsi I and II subequal, those of II enlarged as in female.

Abdomen dark brown with small semicircular yellow markings on bases of tergites 2-4 (restricted to narrow bands on fore margins of 3-4 in Madeiran example), 5-6 shining dark brown. Sternites 1-4 yellow, 5-6 brown. Genitalia (Fig. 28) small, yellow. Wing length 2.7-3.1 mm.

Female. Antennae much shorter than head and thorax. Fore metatarsus 1.8 x its tibia, tarsal structure simple, but segments 4-5 of tarsi I and II short, subequal, slightly thickened and flattened. Abdomen mainly dark greyish brown, narrowly yellow on fore and hind margins of tergites 1-6, most apparent on 3-4 and hind margin of 6; 7 entirely obscure brownish yellow, very slightly produced medially. Ovipositor yellow. Wing length 3.0-3.1 mm.

Material studied. Tenerife: Monte de los Silos, 1000 m, ? date, female (A. SEYRIG, MNHN). La Palma: Barranco del Rio, August 1917, male (E. SANTOS ABREU). Fuencaliente, 27 January 1975, female (M. BÁEZ). Cumbre Nueva, east slope, *Castanea* woods, 29 May 1976, 3 males; west slope, cleared *Pinus* woods, 30 May 1976, female (P. J. CHANDLER). Madeira: Camacha, 27 May 1989, male (R. CAPELA). Corujeira, 18 February 1977, male (A. E. STUBBS).

Discussion. This is a widespread but uncommon European species, also known from Tunisia. The above material has been compared with British males, which are similar but wing length around 3.5 mm and the fore and mid metatarsi being relatively a little longer.

Rymosia tenuivittata SANTOS ABREU

Rymosia tenuivittata SANTOS ABREU, 1920: 110.

Male. Head brown, grey dusted. Antennae coloured as other species, a little longer than head and thorax. Flagellar segments more than twice as long as broad.

Mesoscutum brown, thinly grey dusted, with vague paler yellowish stripes, the median broadly divided in front by darker brown area. Chaetotaxy as *spinipes*.

Wings yellowish grey, more intense in costal cell; m-stalk 0.6 length of r-m; base of posterior fork distinctly before base of m-stalk.

Legs yellow, femora scarcely darkened beneath (faint dark p-v mark on femur III). Tibia II with several short irregular a, 3-4 p-d. Tibia III with 8 a, 5 d, 6 short p near tip. Fore metatarsus 1.3-1.4 x its tibia, segments 2 and 3 together 1.5-1.6 x tibia; tibial spur less than a third metatarsus. Tarsi simple without distinctive bristling.

Abdomen with tergite 1 brown, 2-5 with broad yellow basal band occupying less than half on 2, about half on 3, a little more on 4-5, narrowed dorsally and ventrally, that on 5 narrowly divided on dorsal mid line, 6 entirely dark brown. Sternites also

yellow basally, brown apically. Genitalia (Fig. 29) large, yellow with brownish appendages. Wing length 3.0-3.4 mm.

Female. (Described from lectotype: antennae, one fore leg and parts of all other legs missing). Base of posterior fork level with base of m-stalk. Fore metatarsus 1.3 x its tibia (other tarsal segments missing). Abdomen with segments 2-6 with basal yellow markings, complete bands on 2-4, half length of segment on 3-4, almost complete on 5, small yellow patches on 6. Ovipositor brownish yellow; cerci broad, rounded and not much tapered apically in lateral view.

Type material studied. *Rymosia tenuivittata* SANTOS ABREU. Lectotype here designated: female, La Palma, Fuente de los Aduares, May 1917 (E. SANTOS ABREU, MICN) (preparation of entire insect made as it was encrusted). SANTOS ABREU did not state the type locality.

Other material studied. Tenerife: Barranco Badajoz, 27 March 1975, male (M. BÁEZ). Monte Mercedes, 1 October 1967, male (J. M. FERNANDEZ). Las Cañadas, lava flow from Navices del Teide, 2075 m, 1-10 April 1984, male (N. P. ASHMOLE).

Discussion. The males are associated on the basis of similarity in external characters and confirmation that they are conspecific is necessary. This species is evidently close to the Mediterranean species, *beaucournui* MATILE (1963) (known from Tunisia and Morocco) and to other species with complete abdominal bands such as *fasciata* (MEIGEN), *cottii* TOLLET (1959) and *tolleti* BURGHELE-BALACESCO (1965); the last two have not been examined but are distinct according to the published figures.

Rymosia scopulosa BECKER

Rymosia scopulosa BECKER, 1908: 68.
Rymosia arcuatipes SANTOS ABREU, 1920: 110, nomen nudum.

Male. Head shining dark reddish brown. Antennae with yellow basal segments (flagellum broken off in both examples).

Mesoscutum shining dark reddish brown, thinly grey dusted, with brighter more yellowish stripes (most apparent in anterior view). Chaetotaxy as *spinipes*. Halteres yellow.

Wings yellowish, more brownish yellow in costal cell; m-stalk 0.6 length of r-m; base of posterior fork distinctly before base of m-stalk.

Legs pale yellow. Tibia II with very short a series, 3 p-d. Tibia III with 8-10 a, 4--5 d, 5 short strong p near tip, 0 p-v. Fore and mid tarsi, Fig. 30. Fore metatarsus 1.25 x tibia, spur a little less than half its length; fore tarsi slender with dense dark ventral bristling up to 2 x tarsal width. Mid tarsi with dense fine pale erect hair below segments 2-5, as long as tarsal width. Mid and hind tibial spurs very long and

slender, more than half metatarsal length. Mid metatarsus slightly longer than tibia, hind metatarsus 0.75 tibia.

Abdomen dark brown except yellow basal markings on tergites 2-4, which may occupy basal half or more (especially on 4). Genitalia (Fig. 31) yellow. Wing length 3.0 mm.

Female. Not certainly recognised (see under discussion).

Type material studied. *Rymosia scopulosa* BECKER. Holotype male, Tenerife, Laguna, June (T. BECKER, HUB).

Other material studied. La Palma: Barranco del Rio, August 1917, male (E. SANTOS ABREU, MICN).

Discussion. The two males under *scopulosa* in the SANTOS ABREU material comprised one *scopulosa* and one *spinipes*, but his description best fits *scopulosa*. The date August 1917 is associated with both examples and with the two females under *scopulosa* but SANTOS ABREU mentioned only August 1897 as the date of his first capture of the species.

These females are brown, grey dusted, yellowish at sides of thorax, the abdomen with large yellow patches on anterior margin of tergites 2-6 (less than half length of segments, largest on 3-4), tergite 7 and ovipositor yellowish brown, legs and wings yellowish and venation as male. Wing length 2.7 and 2.8 mm respectively.

R. scopulosa has distinctive male genital structure, not suggestive of close relationship to any known species.

Rymosia santosi sp. nov.

Male. Head dark yellowish brown. Antennae much longer than head and thorax; flagellar segments more than twice as long as broad, coloured as *spinipes*. Palpi yellow.

Mesoscutum dark yellowish brown, light grey dusted, with faintly indicated darker brown stripes; the median bisected by a narrow lighter line in front, strongly narrowed behind; lateral stripes, broadly rounded in front, are much vaguer; dorsocentrals set on narrow yellow lines between stripes. Chaetotaxy as *spinipes*. Halteres yellow.

Wings yellowish grey, more yellowish near costa. R_5 downcurved at tip, costa scarcely produced beyond; r-m about 1.6 x m-stalk; posterior fork begins close to or before level of base of m-stalk.

Legs yellow, femora faintly darkened beneath bases. Tibia II with irregular close set short a series, 3 p-d. Tibia III with 5-6 a, 3 d, 5-9 p mostly near tip, 0 p-v. Fore metatarsus subequal to 1.1 x its tibia, segments 2 and 3 together 1.35 x tibia. Mid and hind tibial spurs more than half their metatarsal length. Tarsi simple, without any distinctive bristling.

Abdomen dark brown, grey dusted, except basal semi-circular yellow areas on tergites 2-5, all less than half tergal length, narrowly separated dorsally (more broadly on 5), 6 entirely shining dark brown or with small triangular yellow patch in lateral anterior corner. Genitalia (Fig. 32) yellow, appendages brownish. Wing length 2.8-3.7 mm.

Female. Antennae almost as long as head and thorax, flagellar segments 2 x long as broad. Tibia I subequal to its metatarsus. Tarsus I with segments 4-5 slender, 5 distinctly shorter than 4. Abdomen mainly shining brown with indistinct orange yellow semicircular areas on sides of tergites 2-6, broadest on 3-5, smaller on 2 and 6; 7 and ovipositor all brownish yellow. Wing length 2.8-3.4 mm.

Type material examined. Holotype male, Hierro, El Binto, 29 May 1976 (M. BÁEZ, MICN). Paratypes: 2 males, 2 females, Hierro, El Binto, 29 May 1976; female, Hierro, Jinamar, 30 May 1976; 2 females, Tenerife, Las Lagunetas, 9 December 1978; female, Tenerife, Los Chupadelas, 23 May 1976; female, Tenerife, Monte de Icod, 19 January 1974; male, Tenerife, Monte de Erjos, 1 December 1973; male, Tenerife, Barranco Añavingo, 14 March 1976 (M. BÁEZ).

Discussion. This species has similar male genital structure to the Mediterranean species *cretensis* LUNDSTRÖM and *pseudocretensis* BURGHELE-BALACESCO (both figured by BURGHELE-BALACESCO, 1966; the latter described from Algeria) and to the species described here from Madeira and the Azores. These species differ in small details of the stylomeres and of the apical ventral margin of the gonocoxite.

Rymosia azorensis sp. nov.

Rymosia maderensis; STORÅ, 1945: 10, nec STORÅ, 1941: 4, misident.

Male. Head reddish brown, grey dusted. Antennae coloured as other species, about twice as long as head and thorax; flagellar segments at least 3 x long as broad.

Mesoscutum reddish brown without distinct stripes. Prothorax more yellowish. Halteres yellow.

Wings greyish yellow; m-stalk 0.6 length of r-m; base of posterior fork begins distinctly before level of base of r-m.

Legs yellow without dark shades under femora. Tibia II with 19 short a in close set series on apical two thirds, 4 p-d, 4 short weak p. Tibia III with 6 a, 4 d, 5 short p near tip. Fore metatarsus 1.2 x its tibia; tarsus with relatively long oblique hairs on ventral surface (longer and up to twice width of segments). Mid metatarsus subequal to tibia, hind metatarsus 0.75 tibia. Tibial spurs less than half metatarsal length.

Abdomen largely dark brown. Tergite 1 narrowly yellow apically, 2-5 with lateral yellow patches on fore margins, broadly separated dorsally and occupying less than

half tergal length on 2-3 and 5, about half on 4; 6 almost entirely dark, only narrowly yellow in extreme anterolateral corner. Genitalia (Fig. 33) yellow; ventral stylomere slightly brownish, broad at base, narrowed apically. Wing length 2.9 mm.

Female. Not seen.

Type material studied. Holotype male, Azores, São Miguel, Furnas, 22-24 May 1938 (R. FREY, ZMH).

Discussion. This species was identified as *maderensis* by STORÅ but does not agree with his figure of that species from the Madeiran types, and is also distinct from the related species described here as *lauricola*.

Rymosia lauricola sp. nov.

Male. Head reddish brown, thinly grey dusted. Antennae coloured as other species, longer than head and thorax; flagellar segments more than twice as long as broad. Palpi yellow.

Mesoscutum dark brown, thinly grey dusted with stripes scarcely indicated, slightly darker from some aspects. Pleura brown with yellow sutures. Chaetotaxy as *spinipes*. Halteres yellow.

Wings greyish, more yellowish in costal cell; m-stalk about 0.6 length of r-m; base of posterior fork level with base of r-m.

Legs yellow, slight dark shades above and below femora II-III but no distinct dark markings beneath bases of femora. Tibia II with close set series of short a, 3 p-d. Tibia III with 6 a, 3 d, 5 short p near tip, 0 p-v. Fore metatarsus 1.2 x tibia, segments 2 + 3 = 1.45 x tibia. Tarsi simple without distinctive bristling.

Abdomen brown with tergite 1 narrowly yellow apically, 2-5 with yellow lateral markings near fore margin, narrowly separated dorsally, on 3-5 also narrowly separated from fore margin except at extreme lateral corner, that on 2 less than half tergal length, on 3 about half, on 4-5 progressively a little more than half but that on 5 more broadly separated dorsally; 6 entirely dark. Sternites 2-5 also yellow anteriorly. Genitalia (Fig. 34) yellow with brownish appendages; ventral stylomere narrow, a little produced laterally at tip (less so than in *tenuivittata*). Wing length 2.7 mm.

Female. Madeiran females can only provisionally be regarded as this species on the basis of common locality in view of the existence of *maderensis*. These have the following characters:

Similar to male. Flagellar segments about twice as long as broad, or a little less. Halteres yellow with knob a little brownish. Legs pale yellow, very faint dark markings beneath femora, in one example femur III narrowly dark apically. Fore metatarsus 1.1-1.15 x tibia, spur less than half its length. Mid metatarsus subequal to tibia. Posterior fork begins before level of base of m-stalk (or in one specimen at

level of basal third of m-stalk). Abdomen dark brown, tergite 1 with narrow yellow apical margin, 2-6 with yellow lateral patches on fore margins (half tergal length on 3, less on other segments, progressively more broadly separated dorsally on 4-6); 7 all brown, grey dusted; ovipositor brownish yellow. Wing length 2.6-2.8 mm.

Type material studied. Holotype male, Madeira, Ribeiro Frio, 3 May, "3663" (R. STORÅ, ZMH). Paratypes: Madeira: male, Levada da Serra (Balcões), 2 February 1989; male, Camacha, 27 May 1989 (R. CAPELA); 3 males, between Camacha and Santo da Serra, 21 August 1989 (M. BÁEZ).

Female material studied. Madeira: Ribeiro Frio, 19 February 1977, 2 females (A. E. STUBBS).

Discussion. This species cannot be *maderensis* STORÅ if STORÅ's figure is accurate. Its relationships are suggested under *azorensis* above. STORÅ (1945) only referred to the LUNDBLAD material and did not mention the male collected by him which is the holotype of *lauricola*.

Rymosia maderensis STORÅ

Rymosia maderensis STORÅ, 1941: 4.

This species has not been examined. A translation of STORÅ's description is given:

Male. Antennae slender, almost twice head and thorax together, basal segments and flagellum brownish. Mesoscutum brownish, without dark stripes. Pleura brown. One erect proepisternal. Scutellum and mediotergite brownish yellow. Abdomen brown with yellow semicircular side spots on bases of segments 3-5. Segment 6 entirely dark brown (5-6 stated but contradicts previous statement). Legs yellow. Extreme tip of hind tibia and tarsi dark brown. Fore tibia shorter than metatarsus (33:41). Wing clear with brownish yellow veins. Vein Sc said to end in R (ends free in *Rymosia*). R_5 distinctly downcurved at tip. Genitalia large, yellowish brown. Ventral stylomeres of gonostyli with a tooth-like internal prolongation in middle, then curved and rounded apically. Body length 5 mm.

Type material not studied. Syntypes: 3 males, Madeira, Rabaçal, 21 July-24 July 1935 (O. LUNDBLAD, preserved in alcohol).

Discussion. The whereabouts of the type series is unknown. STORÅ's figures indicate relationship to the Canarian species *santosi* sp. nov. in genital structure and, except in the broad rounded apices of the ventral stylomeres of the gonostyli to the new species described here from Madeira and the Azores.

Genus *Exechia* WINNERTZ

Exechia WINNERTZ, 1863: 879.

This is a large worldwide genus. There are nearly 60 known Palaearctic species (nearly 40 of them European) and some others described in *Exechia* which have yet to be assigned to the taxa segregated from *Exechia* by TUOMIKOSKI (1966). There are many Nearctic species and several are already known to be Holarctic in distribution; 17 Oriental species have been described but *Exechia* is poorly known from other regions. Known larvae develop in soft fungi, *E. fusca* (MEIGEN) being recorded from many terrestrial agarics.

Twelve species and two varieties have been recorded from the Atlantic islands, but examination of type material has resulted in the need to place most of them in synonymy, including one correctly belonging to *Pseudexechia*. At present it appears that there may be only two *Exechia* in the Canary Islands, one a widespread European species also occurring in Madeira, the other a mainly Mediterranean species. There is one other species, apparently endemic, in Madeira. From the Azores two new species have been described, each based on a single male; of these *E. brinckiana* NIELSEN is near to *confinis* WINNERTZ but apparently a good species while *atlantis* STORÅ (which has not been examined) may be conspecific with *separata* LUNDSTRÖM.

Key to Males (external characters variable, examination of genitalia essential)

1 Mesoscutum yellow on sides and humeral area. Abdomen entirely dark except yellow genitalia.(not seen) (A) ..... *atlantis* STORÅ

-Mesoscutum mainly dark brown, grey dusted, at most narrowly yellow on fore margin .. 2

2 Flagellar segments 3 x long as broad. Abdomen all dark except genitalia. Legs entirely yellow. (A) ..... *brinckiana* NIELSEN

-Flagellar segments not more than twice as long as broad. Abdomen sometimes with ± obscure yellow markings on tergites 2-3. 3

3 Fore metatarsus distinctly longer than its tibia (1.15-1.2 x) (C, M) ..... *fusca* (MEIGEN)

-Fore metatarsus subequal in length to its tibia. 4

4 Femora II-III with dark basal marking ventrally (as *fusca*) (C) ..... *fulva* SANTOS ABREU

-Femur III with at most a slight shade above and below basally. (M). . . *cinctiformis* STORÅ

Key to Known Females

1 Tergites with lateral pale yellow markings, that on 4 forming a complete band basally. (M). ..... *cinctiformis* STORÅ

-Tergites all with yellow basal lateral triangles, none forming a complete band..... 2

2 Fore metatarsus 1.15-1.2 x long as its tibia ..... *fusca* (MEIGEN)

-Fore metatarsus subequal to its tibia ..... *fulva* SANTOS ABREU

Exechia fusca (MEIGEN)

Mycetophila fusca MEIGEN, 1804: 91.
Exechia fungorum (DE GEER) sensu SANTOS ABREU, 1920: 81.
Exechia tenuimaculata SANTOS ABREU, 1920: 71, syn. nov.
Exechia pseudocontaminata SANTOS ABREU, 1920: 74, syn. nov.
Exechia pseudocontaminata var. *rubella* SANTOS ABREU, 1920: 77, syn. nov.
Exechia fungorum var. *griseicollis* SANTOS ABREU, 1920: 84, syn. nov.

Male. Head grey dusted. Antennae yellow to base of first flagellar segment, as long as head and thorax, flagellar segments 1.5 to nearly 2 x long as broad. Palpi yellow.

Mesoscutum slightly shining grey dusted, with three vague fused darker stripes. Prothorax brownish yellow. Pleura and mediotergite grey dusted, sutures brownish yellow. Short hair pale in some lights, strong bristles dark including uniserial dorsocentrals. Two proepisternals. Halteres yellow, sometimes with dusky knob.

Wings yellowish grey. Vein r-m long, m-stalk a third to 0.4 its length. Legs dull yellow, grey shades on coxae and femora II-III usually with well marked brown patches below bases. Fore metatarsus 1.25 x its tibia. Mid metatarsus equal to its tibia. Tibia II with close set short a, 3 p-d, 6-7 p. Tibia III with 7-8 a, 3-5 p-d, 4-8 short p near tip.

Abdomen mainly dark grey dusted; sometimes vague pale triangles in basal corners of tergites 2-3 (-4); more extensive vague brownish orange patches on sides of these tergites in some Canarian examples. Genitalia (Fig. 35) small, brownish yellow. Wing length 3.1-3.5 mm.

Female. Antennae shorter than head and thorax. Abdomen with large ± obscure yellow basal triangles on sides of tergites, almost reaching hind margin laterally. Ovipositor elongate, brownish yellow. Wing length 2.9-3.6 mm.

Type material studied. *Exechia tenuimaculata* SANTOS ABREU. Lectotype here designated: male, La Palma, Fuente Juan Alvarez, August 1917 (E. SANTOS ABREU) (1907 given as date of first capture by SANTOS ABREU) (MICN). Comprising body, bases of antennae, left legs and damaged wings; the abdomen is dark brown, partly translucent. It is a male of *fusca* (MEIGEN). Paralectotypes: male and female, same

data as lectotype, both in poor condition.

Exechia pseudocontaminata SANTOS ABREU. Lectotype here designated: male, La Palma, Bosques de Tagoja, September 1910 (MICN). Comprising body, antennal bases, left legs, right hind leg and wings; there are obvious but ill defined orange brown spots on sides of tergites 2-3. It is a male of *fusca* (MEIGEN). Paralectotypes: 1 male, 2 lacking abdomen, 6 females, all same data as Lectotype (MICN). SANTOS ABREU stated that he had collected *pseudocontaminata* about many ravines on La Palma throughout the year.

Exechia pseudocontaminata var. *rubella* SANTOS ABREU. Lectotype here designated: female, La Palma, Bosques de Tagoja, September 1912 (MICN). Comprising head, thorax, first abdominal segment, mid legs, one hind leg and one wing. The thorax is brownish grey, yellowish at sides and the base of the abdomen translucent brownish. SANTOS ABREU's description in which he gives the ground colour of the abdomen as reddish yellow, suggests that the specimen was a teneral female of *fusca*.

Exechia fungorum var. *griseicollis* SANTOS ABREU. Lectotype here designated: male, La Palma, Fuente Juan Alvarez, August 1912 (MICN). Comprising body, antennae, parts of all legs, damaged wings; a yellow patch is present on base of tergite 3. This too is a male of *fusca* (MEIGEN). Paralectotypes: female, in poor condition and one without abdomen, with slightly more greyish than usual fore margin of thorax as described for this variety, same data as lectotype (MICN). SANTOS ABREU commented that *griseicollis* was uncommon, giving only the above locality and Barranco del Rio, June 1900.

Other material studied. Tenerife: Monte los Silos, 12 March 1985, 5 males; Ijuana, 7 June 1985, male; Zapota, 12 November 1985, female (M. BÁEZ). Agua Garcia, 11 July 1931, 27 males, 11 females, swarming in rainy weather at base of rock faces (R. FREY); 6 April 1973, 2 males, female (P.J. CHANDLER). Las Mercedes, late February 1975, female (A.E. STUBBS). La Palma, Gomera, barrancos, May 1909, 3 males, 3 females, 1 without abdomen (E. SANTOS ABREU, under *fungorum*, males with yellow abdominal markings only a little less extensive than in those referred to *pseudocontaminata*). La Palma: Barranco del Rio, 1 August 1974, female (M. BÁEZ). Cubo de la Galga, 2 June 1976, 3 males (P.J. CHANDLER). Gomera: Mora Gaspar, 12 September 1977, without abdomen; Agua los Llanos, 15 September 1977, male (M. BÁEZ). El Cedro, 25 March 1985, male (M. VON TSCHIRNHAUS). Madeira: Ribeiro Frio, 19 February 1977, 2 males, 2 females; Levada do Norte, Campaneano, 7 February 1990, male (A.E. STUBBS). Levada da Serra (Balcões), 2 March 1989, 4 males, 8 females (R. CAPELA).

Discussion. A common Holarctic species, known to occur in Tunisia and Algeria. European males normally have almost no pale abdominal markings although specimens with yellow patches on sides of tergites 2-3 occasionally occur. The variation

in this respect in Canarian material evidently led to the proliferation of names by SANTOS ABREU.

Exechia fulva SANTOS ABREU

Exechia lateralis (MEIGEN) *sensu* SANTOS ABREU, 1920: 84.
Exechia fulva SANTOS ABREU, 1920: 87.
Rhymosia exornata SÉGUY, 1941: 26, syn. nov.
Exechia peyerimhoffi BURGHELE-BALACESCO, 1967: 330, syn. nov.

Male. Very similar to *fusca*. Antennae shorter than head and thorax, flagellar segments a little-1.5 x long as broad. Two-three proepisternals. Fore metatarsus subequal to tibia. Mid metatarsus a little shorter than its tibia. Abdomen mainly blackish brown but large roughly triangular lateral yellow areas often present on fore margin of tergites 2-3, occupying up to half tergal length and height; a small yellow patch may also be present in basal corner of tergite 4. Genitalia (Fig. 36) yellowish brown. Wing length 2.9-3.3 mm.

Female. Similar. Antenna distinctly shorter than head and thorax. Flagellar segments quadrate -1.5 x long as broad. Fore metatarsus subequal to its tibia. Abdominal markings similar to those of *fusca*. Wing length 3.0 mm.

Type material studied. *Exechia fulva* SANTOS ABREU. Lectotype here designated: male, La Palma, Fuente Bermeja, September 1916 (MICN). Comprising body, part of one wing, all legs except right fore, antennae missing. Paralectotypes: 2 defective examples without abdomen, antennae or most legs (MICN). Dissection of the lectotype showed that the genitalia were defective with the outer portions of the gonostyli mainly broken off. The surviving structures resemble *peyerimhoffi* and the proportions of the fore leg, with the metatarsus a little shorter than the tibia also suggests this identification. The lectotype has the thorax brown, grey dusted, abdomen brownish, legs yellow and wings yellowish. The paralectotypes have the thorax yellowish brown, darker on the disc. It appears to have been based on teneral examples.

Rhymosia exornata SÉGUY. Holotype female, Morocco, Dj. Toubkal (not Toukbal given by SÉGUY), Tachdirt, 2500 m, 15-31 August 1938 (R. PAULIAN, A. VILLIERS) (MNHN). Labelled "Type" and "Rhymosia exornata E. SÉGUY vid. Typ". This is a female with the fore metatarsus and tibia subequal and a preparation of its abdomen has confirmed that its ovipositor agrees structurally with *peyerimhoffi*. SÉGUY gave no details of wing venation other than vein Sc being short and free and there is nothing in his description to explain why he assigned the species to *Rymosia*, but he suggested that it was close to *acta* DZIEDZICKI and *ducta* DZIEDZICKI, with which he compared it.

Other material studied. La Palma: Fuente de Juan Alvarez, September 1918, male (E. SANTOS ABREU, under *lateralis*) (MICN). La Cumbrecita, 29 May 1976, female (P.J. CHANDLER).

Discussion. The type material of *peyerimhoffi*, from five cave sites in Algeria, has not been examined but the genitalia figures ensure that it is correctly identified. The description of the male given here is based mainly on Greek examples in view of the condition of available Canarian specimens. Some Spanish examples have the abdomen with smaller yellow patches or entirely dark. The Canarian male described by SANTOS ABREU as *lateralis* has the abdomen entirely dark while his *fulva* may have been based on teneral specimens as indicated above. Under the name *peyerimhoffi* this species has been recorded commonly in the Mediterranean region, including Corsica and southern France in addition to the countries cited above, and RIBEIRO (1990, 1991) recorded it from Portugal.

Exechia brinckiana NIELSEN

Exechia brinckiana NIELSEN, 1966: 6.

Male. Similar to above species. Most flagellar segments at least 3 x long as broad (original description inaccurate). Thorax dark brown (now appears almost brownish yellow, possibly due to preservation in alcohol). Wings yellowish, venation as *fusca*. Halteres and legs yellow, without any dark markings apparent. Tibia II with close set short a, 4 p-d, 4 p. Tibia III with 6 a, 5 p-d, 5 short p near tip. Fore metatarsus very little longer than its tibia. Abdomen and genitalia (Fig. 37) uniformly light yellowish brown. Wing length 2.6 mm.

Female. Unknown.

Type material studied. *Exechia brinckiana* NIELSEN. Holotype male, Azores, São Miguel, Lagoa do Congro, 16 March 1957, loc. 34, among *Cryptomeria* and ferns (BRINCK & DAHL) (ZIL). This was preserved in alcohol; the genitalia were in a separate tube to the insect but are now mounted in euparal.

Discussion. Only the holotype is known. Its genital structure most closely resembles that of the European species *confinis* WINNERTZ, but the apical lobe of the outer stylomere of the gonostylus is relatively longer than the basal bristled part and there are small differences in the other appendages.

Exechia cinctiformis STORÅ

Exechia cinctiformis STORÅ, 1941: 2.
Exechia sp. STORÅ, 1941: 3.

Exechia dahli NIELSEN, 1966: 8, syn. nov.

Male. Head light grey dusted. Antennae yellowish brown to base of first flagellar segment, a little longer than head and thorax, flagellar segments about twice as long as broad. Palpi yellowish brown.

Mesoscutum light grey dusted, narrowly yellow on anterior margin; brown stripes separated by dorsocentral series are very faintly indicated. Prothorax brownish yellow. Pleura brown, thinly grey dusted. Two proepisternals. Halteres yellow, slightly brownish on knob.

Wings yellowish grey with brown veins (especially radial sector and costa); m--stalk less than half length of r-m.

Legs dull yellow, coxae II-III brownish towards tip, femur III may appear slightly brownish above and below base from some aspects. Fore metatarsus subequal to tibia. Mid metatarsus 0.9 tibial length. Tibia II with close set anterior series on apical three quarters, 3 p-d, 7-9 p on apical three quarters. Tibia III with 8 a, 4-5 p-d, 4--6 short p near tip.

Abdomen almost entirely black, grey dusted, 1-2 more brownish, tergites 1-2 vaguely yellowish near suture, 2-3 may have vague brownish yellow patches near side margins. Genitalia (Fig. 38) brownish yellow. Wing length 2.4-3.2 mm.

Female. Head and thorax similar. Hind margin of mesoscutum and sides of scutellum yellowish. Fore metatarsus 1.1 x tibia. Mid metatarsus subequal to tibia.

Abdomen dark brown (more blackish on 4-6) with yellowish or whitish markings: tergite 1 narrowly on side margin; 2 on side margin; 3 with large triangular anterior lateral patch, narrowly separated dorsally on fore margin, nearly reaching hind margin; 4 with complete basal band, less than half length dorsally, enlarged laterally with scalloped hind margin to two thirds length on side margin; 5 with lateral anterior triangle about half as large as that on 3; 6 with narrow triangle on entire side margin; 7 all brown with rounded emargination on hind margin; sternites yellow (yellow markings on 2-3 sometimes very narrowly extended dorsally on fore margin; that on 6 sometimes reduced to small basal patch; band on 4 sometimes not broadened laterally). Ovipositor broad, depressed, brownish yellow. Wing length 2.5-3.2 mm.

Type material studied. *Exechia dahli* NIELSEN. Holotype male, Madeira, Casa das Queimadas, 880 m, 24 April 1957, loc. 122 (BRINCK & DAHL) (ZIL). Allotype female and paratypes, 2 males, same data as holotype. Two other paratypes, 1 male, 1 female, were cited by NIELSEN (1966).

Other material studied. Madeira: Ribeiro Frio, 27 August 1989, 3 males (M. BÁEZ). Ribeiro Frio, 19 February 1977, 37 males, 55 females; Corujeira, 18 February 1977, male; Levada dos Tornos, Romeiros, 5 February 1990, male; Fajã da

Nogueira, 8 February 1990, 3 males, 5 females; Levada do Norte, Campaneano, 7 February 1990, female (A.E. STUBBS). Fanol, 14 June 1988, 3 males, 2 females; Levada da Serra (Balcões), 2 February 1989, 12 males, 11 females; Camacha, 27 May 1989, 2 males, 5 females; Ribeiro Frio, 18 June 1989, male; 20 February 1990, 2 males, 4 females; 22 February 1990, male (R. CAPELA).

Discussion. STORÅ (1941) recorded 14 males and 1 female from Madeira, Rabaçal, but did not designate types. Although his material has not been examined, his figure of the lateral view of the genitalia confirms the identity of *cinctiformis* with *dahli*. HACKMAN (1988) placed *cinctiformis* in the sub-genus *Xenexechia* TUOMIKOSKI of *Exechiopsis*, although placing *dahli* in *Exechia*, but without justification. STORÅ's "*Exechia* sp. female" (1 from same locality) is also evidently the same species, which is apparently an endemic although common species in Madeira. Its genitalia bear some resemblance to the Holarctic species *parva* LUNDSTRÖM and *repanda* JOHANNSEN; the sternal margin is similar to that of *parva* but the stylomeres are shaped more as in *repanda*.

Exechia atlantis STORÅ

Exechia atlantis STORÅ, 1945: 9.

This species is known only from STORÅ's type, which has not been examined. HACKMAN (1988) also placed this species in *Xenexechia*, but again without explanation. STORÅ's figure of the male genitalia resembles *Exechia separata* LUNDSTRÖM (1912: 34) and it may be closely related or even conspecific. *E. separata* is widespread in Europe; it has also been recorded from Algeria and Tunisia.

STORÅ's description of *atlantis* may be summarised as follows:

Male. Head black, grey dusted. Mesoscutum slightly shining brownish with sides, fore margin and humeral area yellow. Pleura brown, silvery grey dusted. Scutellum and mediotergite brown, grey dusted. Two proepisternals. Halteres yellow. Antennae as long as head and thorax, yellow to first flagellar segment. Wings greyish yellow, strongly yellow towards costal margin, r-m 3 x long as m-stalk. Legs yellow with femora bearing small dark brown spot beneath base, tibia III brownish at tip. Fore metatarsus a little longer than tibia. Abdomen unicolorous dark brown. Genitalia yellow, the outer parts of the gonostyli black. Dimensions not stated.

Type material (not studied): male, Azores, São Miguel, Lagoa do Congro, 19 May 1938, male (R. FREY).

Doubtful *Exechia* species

Exechia intermedia SANTOS ABREU, 1920: 78.

SANTOS ABREU based this species on the male only, which he stated was rare and was taken in La Palma, Barranco del Rio, 27 June 1910. No specimen under this name was present among the Santos Abreu material we have examined and it must be considered a *nomen dubium*.

The abdomen was described as being slightly shining black, with side of tergite 2 and subtriangular marking on tergite 3 yellow, the genitalia reddish yellow and differing from "*fungorum*" (i.e. *fusca*) in its form. It was said to be near "*fungorum*" and *confinis* WINNERTZ. Its short fore metatarsus suggests that it too was probably based on *peyerimhoffi* and it would have page priority over *fulva*.

Genus *Exechiopsis* TUOMIKOSKI

Exechiopsis TUOMIKOSKI, 1966: 177.

This is a mainly Holarctic genus with nearly 60 described Palaearctic species in two sub-genera. The single Canarian species, which belongs to the sub-genus *Exechiopsis* sensu stricto, was discovered by PHILIP ASHMOLE, but it had already been identified as a new species from a Greek male by NORBERT CASPERS, who has generously allowed us to describe the species here, using the figures he drew of the Greek specimen, with which the Canarian specimen agrees well.

Exechiopsis corona sp. nov.

Male. Head brownish. Antennae with basal segments and basal part of first flagellar segment yellow, the rest darkened; flagellar segments 2.5 x long as broad.

Mesoscutum brownish with three darker stripes, the median tapered posteriorly and not reaching the scutellum, the lateral ones leaving only small humeral areas and sides of dark yellow colour. Scutellum brown. Mediotergite brown with only the anterior outer parts a little brighter in colour. Prothorax yellowish but pleura uniformly brown. Discal bristles well developed. One long and one much shorter proepisternals.

Wings clear. Sc ends in R. R_5 distinctly downcurved near tip. Stalk of median fork 0.6-0.8 length of r-m.

Legs brownish. Mid tibia with 18-20 a bristles, close set especially near tip, 2-3 p-d, 7-8 p, 0 v. Hind tibia with 8 a, 2-5 p-d, 3-7 short p near tip, 0 v.

Abdomen with tergites uniformly brown, only the very posterior margin of tergites 2-4 distinctly yellow. Genitalia (Fig. 39) brownish yellow. Wing length 3.0 mm (Naxos), 4.5 mm (Tenerife).

Female. Not seen.

Type material studied. Holotype male, Tenerife, Las Cañadas, water trap on lava flow from Navices del Teide, almost lacking vegetation, 2075 m, 10-20 April 1984 (N.P. ASHMOLE, MICN). Paratype male, Greece, Naxos, near Koronis, close to spring brook, light trap, 26-28 October 1980 (H. MALICKY).

Discussion. *E. corona* belongs to the group of species including *distendens* (LACKSCHEWITZ), *dryaspagensis* CHANDLER, *furcata* (LUNDSTRÖM), *oltenica* (BURGHELE-BALACESCO), *triseta* (TOLLET) and *vizzavonensis* (EDWARDS). Of these it appears closest to *furcata* and *triseta*, the most obvious distinctions lying in the shape of the dorsal stylomeres of the gonostyli, which are rounded while they are bifurcate in these other species.

Genus *Pseudexechia* TUOMIKOSKI

Pseudexechia TUOMIKOSKI, 1966: 180.

This is a small well defined genus of which CHANDLER (1978) discussed the Holarctic species. There are 9 Palaearctic species, 6 of them European; 2 Nearctic and 5 Afrotropical species are also known. One common European species can be recorded from the Canary Islands and Madeira. It has recently been reared in Britain from species of *Panaeolus* and *Psathyrella* and has been found around *Coprinus* species, in which it probably also develops. Another common European species, *trisignata* EDWARDS, has been found in Tunisia.

Pseudexechia trivittata (STAEGER)

Mycetophila trivittata STAEGER, 1840: 261.
Exechia pulchrigastris SANTOS ABREU, 1920: 90, syn, nov.

Male. Head grey dusted. Antennae yellow to base of first flagellar segment. Palpi yellow.

Mesoscutum with three brown stripes, the median cleft in front where it broadens, ground colour grey and yellowish at sides. Scutellum brownish grey. Prothorax

entirely yellow. Pleura partly brown, yellowish at sutures. One strong proepisternal. One pair of strong scutellars. Halteres yellow.

Wings greyish with R_5 very slightly downcurved at tip. Posterior fork about 2 x length of m-stalk beyond base of median fork.

Legs yellow.

Abdomen dark brown with ± distinct yellow triangles on apical margins of all tergites. Genitalia (Fig. 40) large, yellow except black sternal process. Wing length 3.2 mm.

Female. Very similar. Abdomen with all tergites more or less yellow on apical margin. Ovipositor brownish yellow with single segmented cerci. Wing length 3.0 mm.

Type material studied. *Exechia pulchrigastris* SANTOS ABREU. Lectotype here designated: female, La Palma, Barranco del Rio, June 1913 (E. SANTOS ABREU, MICN). In relatively good condition, only one antenna and one fore leg incomplete and wings damaged. Although SANTOS ABREU stated that his specimen was a male, describing the genitalia as dull reddish brown, this female of *trivittata* otherwise fits his description and it is considered that the sex was misinterpreted. It is a possibly teneral example with dull brown stripes on a reddish ground.

Other material studied. Tenerife: Las Mercedes, 4 April 1973, male (P.J. CHANDLER). Madeira: Monte, 27 November 1988, male (R. CAPELA).

Discussion. A common and widespread European species. Variable in colour and darker examples without any yellow on the thorax and greyish shades on the legs are frequent.

Genus *Allodia* WINNERTZ

Allodia WINNERTZ, 1863: 826.

This genus comprises two distinct groups recognised as sub-genera by TUOMIKOSKI (1966), both included in the key to genera above. *Allodia sensu stricto* includes 10 Palaearctic species, some of them very widespread, others more boreal in distribution and 5 of them also Nearctic. The sub-genus is little known outside the Holarctic region but there are some Oriental species. Only the common European species *A. ornaticollis* (MEIGEN) can be confirmed from the Atlantic islands, although SANTOS ABREU (1920) introduced other names to the Canarian fauna. Like other allied species it develops in a wide range of agarics.

The sub-genus *Brachycampta* WINNERTZ (1863: 833) includes more than 20 Palaearctic species, two of them also Nearctic, but is otherwise unconfirmed from other regions. One European species also occurs in Madeira; it is known to develop

in Ascomycete cup fungi.

The females cannot presently be recognised for most species within the sub--genera and identification relies on the male genital structure.

Allodia (sensu stricto) ornaticollis (MEIGEN)

Mycetophila ornaticollis MEIGEN, 1818: 269.

Male. Head grey dusted. Antennae yellow to base of first flagellar segment, rest grey; much longer than head and thorax. Palpi brownish yellow.

Mesoscutum black, broadly yellowish to grey dusted on sides and humeral area, leaving 3 darker slightly dusted fused stripes; bearing short dark setulae, strong bristles restricted to margins. Prothorax yellow. Pleura grey brown, upper part of katepisternum yellow. Scutellum and mediotergite grey dusted. Halteres yellow with darker knob.

Wings greyish yellow; r-m a little to 1.5 x long as m-stalk; posterior fork begins a little beyond level of base of r-m.

Legs yellow except tips of coxae and spot under trochanters brown.

Abdomen black, grey dusted, with apical yellow triangles on sides of tergites 2--4. Genitalia (Fig. 41) yellowish brown. Wing length 3.0-3.2 mm.

Female. Slight dark shade beneath bases of femora. All tergites with some yellow on hind margins, best developed on 2-3. Ovipositor yellowish, partly grey dusted. Wing length 2.8-3.7 mm.

Material studied. Tenerife: Barranco Ijuana, 4 October 1984, male, 7 June 1985, male; Anaga, 25 May 1974, male (M. BÁEZ). Las Mercedes, 4 April 1973, female (P.J. CHANDLER). Madeira: Corujeira, 18 February 1977, male; Ribeiro Frio, 19 February 1977, female; Quinta do Palheiro, 5 February 1990, male; Levada dos Tornos, Romeiros, 5 February 1990, 4 males, 2 females; Fajã da Nogueira, 8 February 1990, female (A.E. STUBBS). Fajã, 22 August 1989, male; Ribeiro Frio, 27 August 1989, 3 males (M. BÁEZ).

Discussion. The record of *lugens* (WIEDEMANN, 1817: 68) from Tenerife (Laguna) by BECKER (1908) probably refers to *ornaticollis* as the specific characters of the species of *Allodia* sensu stricto were not appreciated until the work of EDWARDS (1921, 1925). The same applies to the nomenclature used by SANTOS ABREU (1920) but the only surviving material under *Allodia* in his collection comprise three females of a *Brevicornu* species under the name *lugens*. These do not, however, conform to SANTOS ABREU's description of *lugens* which fits *ornaticollis* and cannot be his original specimens. He considered the species common on La Palma and Gomera. He also described some specimens as varieties of *lugens* under

the names *ornaticollis* and *grata* (MEIGEN, 1830: 303). Both evidently refer to material of *Allodia* sensu stricto, while the true *grata* is a *Brachycampta*. The material recorded by STORÅ (1941, 1949) from Madeira, Rabaçal and Ribeiro Frio has not been examined.

Allodia (Brachycampta) pistillata (LUNDSTRÖM)

Brachycampta pistillata LUNDSTRÖM, 1911: 399.

Male. Head grey. Antennae yellow to base of first flagellar segment. Palpi yellow.

Mesoscutum with three fused greyish brown stripes leaving yellow humeral area and side margins; bearing pale hairs and scattered black discal bristles. Prothorax and pleura mainly pale yellow. Mesepimeron, laterotergites and mediotergite brownish grey. Scutellum greyish brown. Halteres yellow.

Wings pale greyish yellow. R_5 slightly downcurved at tip; r-m a little longer than m-stalk; posterior fork begins well before level of base of r-m.

Legs pale yellow, with dark spot on trochanters and dark shade beneath bases of femora II-III.

Abdomen with tergites dark brown dorsally, yellow at sides, broadly on 2-5 and extended dorsally on fore and hind margins to form very narrow sutural bands dorsally, expanded as basal triangles on 3-4. Genitalia (Fig. 42) large, pale yellow. Wing length 3.2-3.3 mm.

Female. Not examined.

Material studied. Madeira: Corujeira, 18 February 1977, 2 males (A.E. STUBBS).

Discussion. *A. pistillata* was recorded on 1 male from Madeira, Rabaçal by STORÅ (1941) and a further male from Funchal by STORÅ (1949). It is rather uncommon but widespread in Europe, and has been found in Tunisia (NORBERT CASPERS, pers. comm.).

Genus *Brevicornu* MARSHALL

Brevicornu MARSHALL, 1896: 306.

TUOMIKOSKI (1966) revived this name, founded on a New Zealand species, for a well defined group of small gnats previously included in *Allodia* WINNERTZ. He recognised the sub-genus *Stigmatomeria* for one rather widespread distinctive species (and some other dubious species, probably synonymous with it) and referred the remainder to *Brevicornu* sensu stricto. VOCKEROTH (1980) raised *Stigmatomeria* to generic rank but this has not yet been generally recognised. About 40 Palaearctic

species are known and some others currently assigned to *Allodia* will probably be transferred when better known. Most are variable in colour and chaetotactic characters but in general present a very uniform structural appearance. Examination of the male genitalia is essential for identification and the females are not yet well associated. Outside the Palaearctic region, a few Nearctic, Neotropical and New Zealand species are presently known. The biology of the genus is little known but some species have been reared from small terrestrial agarics.

Four species are present on the Atlantic islands, all of them widespread European species, although one of them has only recently been distinguished and a SANTOS ABREU name has priority for this species. The key given here is only a rough guide and male genitalia must be studied for certain determination.

Key to Species

1 Femur III more or less distinctly dark tipped. 2

-Femur III entirely yellow or only darkened about base. 3

2 Femur III broadly darkened on apical quarter to third. Posterior fork begins level with half or little more length of m-stalk. (C, M) . . . . . *intermedium* (SANTOS ABREU)

-Femur III only narrowly dark tipped. Posterior fork begins at level of base of m-stalk or sometimes beyond it. (M) . . . . . *sericoma* (MEIGEN)

3 Posterior fork begins at level only a little before base of median fork. (C, M, ? A) . . . . . *verralli* (EDWARDS)

-Posterior fork begins near (a little before or beyond) the level of the base of the m-stalk. (C, M, A) . . . . . *griseicolle* (STAEGER)

Brevicornu griseicolle (STAEGER)

Mycetophila griseicollis STAEGER, 1840: 358.
Brachycampta flavicornis SANTOS ABREU, 1920: 94, syn. nov.
Brachycampta circumdata SANTOS ABREU, 1920: 96, syn. nov.
Brachycampta fontinalis SANTOS ABREU, 1920: 104, syn. nov.
Allodia variabilis STORÅ, 1937: 12, syn. nov.

Male. Head grey dusted. Antennae long, slender, 1.5-1.7 x head and thorax, yellow to base of first flagellar segment, rest grey; flagellar segments more than 2

x long as broad.

Mesoscutum slightly shining brown, grey dusted, yellowish on humeral area and sides, bearing yellow hair and scattered dark bristles, long dark bristles on margins. Prothorax yellow, pleura yellowish brown. Scutellum and mediotergite brown. One pair strong scutellars, very short pair lateral to them. Three strong proepisternals. A few bristles on laterotergites. Halteres pale yellow.

Wings faintly yellowish. Costa and radial sector dark, other veins yellow; m-stalk slightly longer than r-m; posterior fork begins in vicinity of level of base of m-stalk.

Legs pale yellow; a dark spot on trochanters and faint dark shade beneath bases of femora. Tibia II with 6-8 a, 3 p-d, 6-7 weaker p. Tibia III with 7-9 a, 3-4 p-d, 2--4 short p near tip.

Abdominal tergites 1-4 dull dark brown with a conspicuous yellow patch of variable extent on sides of 2-4, broadest on 3, not reaching hind margin of 4, may be extended dorsally narrowly along sutures, sometimes narrowly reaching hind margin of 4 on side margin. Apical part of tergite 4 and 5-6 more shining darker brown. Genitalia (Fig. 43) small, yellow or brownish yellow. Wing length 1.8-2.4 mm.

Female. Antennae short, slightly thickened at base of flagellum, segments shorter than broad. Coloration similar except of abdomen. Tergites 1-6 mainly light to dark brown but broadly yellow at sides, extended narrowly as complete bands on apical margin. Tergite 7 brownish basally. Sternites and ovipositor yellow. Wing length 2.2-2.5 mm.

Type material studied. *Brachycampta flavicornis* SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, February 1905 (E. SANTOS ABREU, MICN). A preparation has been made as it was encrusted. It was found to be a male although SANTOS ABREU described it as a female but his description otherwise fits the specimen and it is concluded that the sex was misinterpreted. It has the body mainly pale yellow, including the antennae and legs (the thorax was described as dull with three faint dark stripes); abdominal tergites 1-4 mainly pale yellow, 4 slightly brownish on apical half and dorsally. Genitalia with damaged stylomeres but considered to be *griseicolle*.

Brachycampta circumdata SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, April 1912 (E. SANTOS ABREU, MICN). Paralectotype male, same data as lectotype (MICN). These are more typical examples of *griseicolle*.

Brachycampta fontinalis SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, El Ancon, August 1910 (E. SANTOS ABREU, MICN). The mesoscutum has three fused brown grey dusted stripes on a yellow ground; tergites 1-4 are mainly yellow with 1-2 brownish dorsally. The genitalia agree with *griseicolle*.

Allodia variabilis STORÅ. Lectotype here designated: male, Tenerife, Agua Garcia, 11 July 1931 (R. FREY), labelled "Spec. typ. 4873. *Allodia variabilis* STORÅ" (ZMH). This was intact with wings rolled up and the genitalia in a preparation. Paralectotypes: 3 males, 3 females, same locality as lectotype (ZMH). These are *griseicolle*. It was described from 6 males and 11 females taken among numerous other swarming gnats.

Other material studied. Tenerife: Los Chupadelos, 23 May 1976, male; Monte del Agua, 27 August 1973, male, 2 females; Icod, 12 April 1976, female (M. BÁEZ). Aguamansa, 5 April 1973, female; Orotava Forest, 5 April 1973, 2 males; Las Mercedes, 4 April 1973, female (P.J. CHANDLER). La Palma: Cumbre Nueva, 30 May 1976, 2 males; Cubo de la Galga, 2 June 1976, male, female (P.J. CHANDLER). Madeira: Encumeada, 20 August 1989, male; Ribeiro Frio, 27 August 1989, 2 males; between Camacha and Santo da Serra, 21 August 1989, 2 males (M. BÁEZ). Levada do Norte, Campaneano, 7 February 1990, 2 males; Levada dos Tornos, Romeiros, 5 February 1990, male (A.E. STUBBS). Terceira: Santa Barbara, 7 June 1938, male (without abdomen) (R. STORÅ). São Miguel: Lagoa do Congro, 21 May 1938, male (R. STORÅ).

Discussion. This species has also been recorded as *variabilis* by STORÅ (1941, 1949) from Madeira, Rabaçal and Caramujo. The records given by STORÅ (1945) from the Azores also include one from Faial.

Although STORÅ (1937) commented that *variabilis* was near *foliatum* (EDWARDS), the genital structure is much closer to the common European species *griseicolle* (STAEGER) and small differences in Atlantic islands specimens from the European examples of the species are not considered to indicate any specific distinction, resulting in the synonymies established here.

Brevicornu sericoma (MEIGEN)

Mycetophila sericoma MEIGEN, 1830: 302.

Male. Head brown, yellowish above eyes. Antennae yellow to base of first flagellar segment, rest grey; flagellar segments more than twice as long as broad.

Mesoscutum brownish yellow, with three indistinct darker stripes; thinly grey dusted, yellowish on fore and side margins. Yellow hairs and scattered dark bristles. Prothorax and pleura brownish yellow. Scutellum and mediotergite dark brown. One pair strong apical scutellars; laterals weak, less than half length of apicals. Three strong proepisternals. Several bristles on pronotal lobe; scattered bristles on laterotergite. Halteres pale yellow.

Wings faintly yellowish. Costa and radial sector dark, other wing veins yellowish; m-stalk a little shorter than r-m. Posterior fork begins level with base of m-stalk or

distinctly beyond it.

Legs yellow, femur III with narrow dark brown tip, tibia III also brownish near tip. Tibia II with 6 a, 3 p-d, 5 p. Tibia III with 6-8 a, 3-4 p-d, 3-4 short p near tip.

Abdomen with tergites dark brown, with broad yellow markings on tergites 1-4, occupying all of sides and extended dorsally as triangles interrupted in middle on hind margins, 5-6 all dark brown. Sternites 1-4 yellow, 5-6 brown. Genitalia (Fig. 44) brownish yellow. Wing length 2.2-2.3 mm.

Female. (Not recognised in Madeiran material).

Material studied. Madeira: between Camacha and Santo da Serra, 21 August 1989, male (M. BÁEZ). Ribeiro Frio, 5 September 1986, male (P. OHM, via M. VON TSCHIRNHAUS).

Brevicornu verralli (EDWARDS)

Allodia verralli EDWARDS, 1925: 610.

Male. Head reddish brown, more or less strongly grey dusted. Antennae 1.6-2.0 x head and thorax together, coloured as above species; flagellar segments 2.0-2.5 x long as broad. Palpi yellow.

Mesoscutum yellow on humeral area and sides, ± grey dusted on disc but no distinct stripes. Chaetotaxy as *griseicolle*. Halteres yellow.

Wings faintly yellowish; m-stalk subequal to 1.5 x long as r-m; posterior fork begins only a little before base of median fork or at same level.

Legs yellow. Tibia II with 6-9 a, 3 p-d, 5-7 short p. Tibia III with 10 a, 3 p-d, 5 short weak p near tip.

Abdomen with tergites 1-4 largely yellow, only dark brown on a narrow dorsal stripe, which is expanded laterally on tergite 5 to leave anterior, lateral and sometimes posterior margins yellow; 6 entirely shining dark brown. Genitalia (Fig. 45) small, brownish yellow with broadly rounded outer stylomeres. Wing length 2.5--2.6 mm.

Female. Not certainly recognised.

Material studied. Tenerife: Monte los Silos, 12 March 1985, female (M. BÁEZ). La Palma: La Cumbrecita, 29 May 1976, male; Cubo de la Galga, 2 May 1976, male (P.J. CHANDLER). Barranco del Rio, August 1974, male (M. BÁEZ).

Discussion. *B. verralli* was recorded from Madeira, Rabaçal, one example, by STORÅ (1949) and there is no reason to doubt his identification. It is a widespread European species. British examples (wing length 2.3-3.0 mm) have the thorax more strongly grey dusted on the disc and femur III slightly brownish apically. ZAITZEV (1985) figured a male from Korea as *verralli*; his figures show some differences from European and Canarian material examined but these may be within the range

of variation, the patch of dense bristling on the internal surface of the outer stylomeres of the gonostyli being characteristic of the species and separating it from the *fissicauda* (LUNDSTRÖM) Group including the following species.

Brevicornu intermedium (SANTOS ABREU)

Brachycampta intermedia SANTOS ABREU, 1920: 100.
? *Allodia obscuripennis* SANTOS ABREU, 1920: 118.
Allodia obscuripennis SANTOS ABREU sensu STORÅ, 1937: 11.
Brevicornu hissaricum ZAITZEV, 1985: 41, syn. nov.

Male. Head grey dusted. Antennae 1.3-1.6 x head and thorax; flagellar segments about twice as long as broad.

Mesoscutum broadly yellow on sides and humeral areas with three distinct grey brown stripes. Chaetotaxy as above species. Halteres yellow.

Wings faintly yellowish; m-stalk a little longer to 1.5 x long as r-m; posterior fork begins level with half or a little beyond length of m-stalk.

Legs yellow, with femur III brownish on apical quarter to third. Tibia II with 5--8 a, 3 p-d, 5-7 p. Tibia III with 4-8 a, 3-5 p-d, 3-4 short p near tip.

Abdomen with tergites 1-4 largely yellow with a narrow dorsal brown stripe, 5 with basal third yellow on lateral two thirds. Genitalia, Fig. 46. Wing length 2.3-2.7 mm.

Female. Antennae short, slightly thickened flagellum, similar to *griseicolle*. Coloration similar to male except abdomen, which is mainly yellow, paler on 1-3 and lower part of 4, with dark brown dorsal patches on tergites 1-4 (fainter on 5), leaving hind margins yellow. Ovipositor yellow. Wing length 2.2-2.4 mm (in Madeiran example, wing length 2.7 mm, thoracic stripes fused and abdomen shining dark brown with tergites 1-4 yellow laterally extended as apical triangles to form narrow posterior bands on 2-4, narrow yellow posterior bands only on 5-6, ovipositor brownish).

Type material studied. *Brachycampta intermedia* SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, August 1915 (E. SANTOS ABREU, MICN). The mesoscutal stripes are fused, grey dusted, leaving broadly yellow humeral areas and sides; tergites 1-5 brown dorsally, broadly yellow at sides. It is considered to be conspecific with *hissaricum* ZAITZEV and thus has priority.

Other material studied. Tenerife: Aguamansa, 17 July 1931, male; Agua Garcia, 11 July 1931, 2 males, 2 females (R. FREY) (named as *obscuripennis*). Monte los Silos, 17 September 1985, 2 males, 1 female, 16 October 1984, male (M. BÁEZ). Gomera: peak of Garajonay, 1487 m, edge of *Pinus* forest, 25 March 1985, male (M. VON TSCHIRNHAUS). La Palma: Cubo de la Galga, 2 June 1976, male, female (P.J.

CHANDLER). Madeira: Corujeira, 18 February 1977, female (A.E. STUBBS).

Discussion. STORÅ (1937) identified his material as *obscuripennis* SANTOS ABREU because of the dark tip to the hind femur described for this species. No material named as *obscuripennis* was present in the SANTOS ABREU material examined and its identity cannot be confirmed, but at present *intermedium* is the only known Atlantic species with this femoral pattern. However, *A. obscuripennis* was described as having the wings brownish grey from the bases of the forks and hyaline at the base (in contrast to the yellowish wings of *Brevicornu* species). The male, said to be rare, from La Palma, Barranco del Rio, 20 May 1907, had the thorax brownish yellow, abdomen shining black with whitish sutures, genitalia reddish brown, legs whitish yellow with only femur III dark apically.

B. hissaricum was described from a male from Tadzhikistan; the type has not been examined but ZAITZEV's figures showing the elongate bifid sternal process of the gonocoxite permit recognition of the species. However, much European material previously determined as *fissicauda* (LUNDSTRÖM) has been found to be conspecific with it; the hind femoral coloration is a guide to recognition as *fissicauda* generally has the hind femur entirely yellow. It is especially frequent around the Mediterranean region; PLASSMANN (1990) has already recorded it from Spain along with a third species of the group, *B. subfissicauda* ZAITZEV (described from North America), and it has also been found to have been confused with *fissicauda* in the British Isles, although less common there. Now *B. intermedium* has been shown to be conspecific, distribution is extended to the Atlantic islands. The genitalia of these species are very similar, differing obviously in the form of the median sternal process of the gonocoxite.

Genus *Cordyla* MEIGEN

Cordyla MEIGEN, 1803: 263.

There are nearly 20 European species and about 10 described Nearctic species. A revision (unpublished) by PETR LAŠTOVKA will add further European species. The genus is unknown outside the Holarctic region but the closely related *Neoallodia* EDWARDS (2 Neotropical species), with normal antennal and palpal structure, links it with other Exechiini.

The palpi have the second segment strongly swollen in the male (less so in the female) while the short antennae have a reduced number of flagellar segments, normally fewer in the female but the number varies between species. The two species newly recorded here for the Atlantic islands differ in the number of flagellar segments in the male but both have 9 in the female. Both may have M_2 reaching the wing margin, while it is normally abbreviated in most other species. A rearing record of *styliforceps* is cited below; several European species, including *crassicornis*

MEIGEN develop in the terrestrial fungi of the genus *Russula*.

Key to Species

1 Male antennae with 2 + 12 segments. Vein M_2 weak apically and not reaching margin (Canarian material; reaching margin in Spanish examples). Hind tibia subequal to its femur. (C) ..... *styliforceps* (BUKOWSKI)

-Male antennae with 2 + 11 segments. Vein M_2 reaching margin. Hind tibia a little longer than its femur (1.2 x in Madeiran example). (M) ..... *crassicornis* MEIGEN

Cordyla styliforceps BUKOWSKI

Cordyla styliforceps BUKOWSKI, 1934: 186.

Male. Head grey dusted. Antennae short, 0.6 x head and thorax, basal segments yellowish brown, flagellum dark; 12 segments, mainly less than half as long as broad (basal segments only a third). Palpi with large oval segment black, a little longer than height of eye; two succeeding segments cylindrical, pale yellow.

Mesoscutum shining black, bearing fine setulae, longer bristles restricted to margins. Mesanepisternum, laterotergites and metepisternum bristly. One pair of strong scutellars, weak laterals little more than half their length. Halteres yellow.

Wings clear. Cross-vein r-m little more than a third length of m-stalk. M_2 abbreviated from margin. Posterior fork begins level with half length of m-stalk.

Legs yellow with brown shades at tips of femora II-III (a fifth of their length) and tibiae; tarsi darker. Coxa III with 2 equally developed postero-external bristles near base, one above other. Fore legs rather short, with tibia 0.75 femur, metatarsus 0.75 tibia. Tibia II nearly as long as its femur, with 5 short a, 2-4 rather short p-d, 2 short weak p near tip. Tibia III subequal to femur, with 6-8 a, 3-5 p-d, 2 short p near tip.

Abdomen black. Genitalia (Fig. 47) brownish yellow. Wing length 2.5 mm.

Female. Similar but body reddish brown rather than black (possibly teneral). Head grey dusted. Mesoscutum darker than abdomen. Antennae shorter than in male, scarcely longer than head height; yellowish basal segments, 9 flagellar segments, apical longer than 2 preceding together. Palpi with large black segment spindle shaped, 2 succeeding segments as male. Legs entirely yellow without dark tips to femora. Wing length 2.3 mm.

Material studied. Tenerife: Orotava Forest, 5 April 1973, male, female (P.J. CHANDLER). Mount Teide, in snow at 3500 m, 15 February 1984, male; Volcan Chinyero, recent lava flow at 1500 m, 27-31 May 1984, male; Las Cañadas, 1-12 May 1984, male; 12-27 May 1984, 8 males, 1 female; 27 May - 6 June 1984, 8

males, 6 females; 6-20 June 1984, 26 males, 5 females; 20 June - 2 July 1984, 3 males, 2 females; 2-18 July 1984, 2 males, 1 female (N.P. ASHMOLE).

Discussion. The genitalia agree well with BUKOWSKI's figure of *styliforceps*, described from the Ukraine (Crimea). Material of *styliforceps* from Spain has been examined, including a series reared from larvae found in a subterranean fungus (*Rhizopogon* species), found in sand under stone pines in December 1979 by Dr. HUGH KLEMPERER (2 males, 1 female and 3 larvae examined). These males have M_2 reaching the margin and one male has the posterior fork beginning level with half of the m-stalk. The female is mainly black, the hind margins of tergites 2-4 with narrow yellowish patches laterally and M_2 is abbreviated. The fore femur is also darkened beneath in the Spanish examples and the brown tips to femora II-III are more intense.

Cordyla crassicornis MEIGEN

Cordyla crassicornis MEIGEN, 1818: 275.

Male. A smaller darker species than *styliforceps*. Antennae 0.8 x head and thorax, with 2 + 11 segments, flagellar segments little more than half as long as broad, but last segment elongate. Palpi with large black segment a little longer than height of eye, similar to *styliforceps*.

Mesoscutum entirely sooty black, grey dusted, chaetotaxy as *styliforceps*. Halteres yellow.

Wings greyish yellow. Vein r-m short, m-stalk nearly 4 x long. Posterior fork beginning a little before base of median fork. M_2 reaching margin.

Legs mainly yellow with coxae darkened basally. Femora II-III (especially III) darkened at tips; tarsi darkened. Tibia I nearly as long as femur. Tibia III 1.2 x femur. Chaetotaxy as *styliforceps*.

Abdomen black, light grey dusted. Genitalia (Fig. 48) brownish yellow. Wing length 2.2-2.5 mm.

Female. Antennae much shorter than in male, little longer than height of head; 2 + 9 segments. Palpi with enlarged segment spindle shaped. Wing length 2.6-2.9 mm.

Material studied. Madeira: Corujeira, 18 February 1977, male; Levada do Norte, Campaneano, 7 February 1990, male; Levada dos Tornos, Romeiros, 5 February 1990, 2 males, 1 female; Quinta do Palheiro, 5 February 1990, female (A.E. STUBBS). Funchal (Jardim Botânico), 12 March 1988, male (R. CAPELA).

Discussion. *C. crassicornis* is a common European species and has been seen from Morocco (MNHN). The male agrees with British examples of *crassicornis* in most respects, although some have r-m almost a third m-stalk and the posterior fork beginning level with the middle of the m-stalk. The hind tibia may be only 1.1 x its

femur. LANDROCK (1926) recognised a variety *nigrifemur* with the above leg coloration while the typical form had the legs yellow except the dark tip to femur III. Many British examples, however, have strongly darkened legs and femur II is normally dark apically so *nigrifemur* is probably not a valid taxon. EDWARDS (1925) incorrectly gave 2 + 12 segments for the male antenna.

Genus *Trichonta* WINNERTZ

Trichonta WINNERTZ, 1863: 847.

There are 56 described Palaearctic species of which 46 were studied by GAGNÉ (1981) and there are a high proportion of Holarctic species (at least 28), especially those of a more boreal distribution. Outside the Holarctic region, there are a few Oriental species and some Australian and Chilean species, although the latter have been considered a possible sister group to the Northern Hemisphere species of *Trichonta* and *Phronia* together. There are at least three species in the Canary Islands. The genus is unknown in Madeira but one species has been described from the Azores; this was based on a single defective male which has not been located and its identity cannot be confirmed although it is close to if not conspecific with the Canarian form of *vitta* (MEIGEN). Some *Trichonta* larvae develop in bark encrusting fungi; *T. apicalis* STROBL has been reared in Britain from the club fungus *Calocera cornea*.

Key to Species

1 Wings unmarked. Body mainly dark coloured. Tibia III with 4 short weak posterior bristles. (C) . . . . . *apicalis* STROBL

- Wings with brown shade apically. Body with extensive yellow markings. 2

2 Tibia III without posterior bristles. (C) . . . . . *vitta* (MEIGEN)

-Tibia III with 6-8 posterior bristles. (C) . . . . . *laura* sp. nov.

Trichonta apicalis STROBL

Trichonta apicalis STROBL, 1898: 286.
Trichonta vernalis LANDROCK, 1913: 88 (syn. by GAGNÉ, 1981).

Male. Head grey dusted. Face and antenna to base of first flagellar segment

yellow. Antenna otherwise grey, more than 2 x head and thorax; flagellar segments more than 3 x long as broad. Clypeus grey. Palpi yellow.

Mesoscutum brown, grey dusted, with three indistinct blackish stripes. Prothorax brownish yellow. Scutellum, pleura and mediotergite brown, grey dusted. All hairs and bristles yellow. Halteres pale yellow.

Wings grey; costa and radius brown, other veins more greyish brown. Vein Sc long, ending in R 0.7 distance to Rs; m-stalk very little longer than r-m. Vein R_5 downcurved apically, costa produced a little beyond it. Posterior fork begins just before level of median fork.

Legs long, slender, dull yellow. Coxa III mainly shining grey brown, without basal bristle. Femur III slightly brownish apically. Tarsi darker. Tibia II with 2-3 a, 2 d, 4 short weak p. Tibia III with 4 a-d, 4 p-d, 4 short p on apical third. Stronger bristles little more than tibial diameter in length.

Abdomen slender, tergites 1-4 shining dark grey brown, 5-6 more blackish. Genitalia (Fig. 49) with gonocoxite shining black, but gonostylus dull pale yellow. Wing length 2.9 mm.

Female. Not examined.

Material studied. Tenerife: La Esperanza, 21 December 1975, male (M. BÁEZ).

Discussion. This is a widespread European species. The humeral angle of the mesoscutum may also be yellow.

Trichonta vitta (MEIGEN)

Mycetophila vitta MEIGEN, 1830: 300.
Trichonta trivittata SANTOS ABREU, 1920: 122, syn. nov. A junior primary homonym of *Trichonta trivittata* LUNDSTRÖM, 1916: 74.
Trichonta canariensis LANDROCK, 1925: 182, nom. nov. for *trivittata* SANTOS ABREU, syn. nov.

Male. Head grey dusted. Antennae yellow to base of first flagellar segment, longer than head and thorax; flagellar segments about 2.5-3.0 x long as broad. Palpi yellow.

Mesoscutum and scutellum mainly grey dusted, with three broad ± confluent slightly shining grey dusted stripes, but broadly yellow on humeral areas and side margins. Prothorax yellow, pleura and mediotergite brown. Halteres yellow.

Wings with dark shade on apical third, distal to the tip of CuA_2, most strongly marked on fore margin and in radial sector. Vein Sc long, indistinctly ending in R_1; m-stalk about 1.5 x r-m. Costa not produced beyond R_5. Base of posterior fork slightly beyond base of median fork.

Legs yellow with dark spots at tip of coxae and on trochanters, a dark shade under femora, dark apical third to femur III and narrow dark tip to tibia III. Tibia II with

2 a, 2-3 d, 4-6 very short p. Tibia III with 7-10 a-d, 5-7 p-d (both series longer than tibial diameter), 0 p.

Abdomen mainly shining dark brown but yellow on sides of tergites 1-4, narrowly extended dorsally on fore and hind margins of 2-4. Genitalia (Fig. 50) mainly pale yellow. Wing length 2.0-2.8 mm.

Female. Grey brown mesoscutal stripes more restricted and separated by narrow yellow dorsocentral stripes, lateral stripes narrowed behind and ending well short of scutellum. Dark markings of legs may be more restricted. Abdomen largely shining dark brown, with yellow markings at junctions of tergites 1/2, 2/3 and 3/4 broadened laterally but not linked on side margins; segment 7 and ovipositor yellow. Wing length 2.3 mm.

Type material studied. *Trichonta trivittata* SANTOS ABREU. Lectotype here designated: male, La Palma, Barranco del Rio, 4 November 1907 (without an abdomen but fore/mid legs and one hind leg present) (E. SANTOS ABREU, MICN). Paralectotype male, same data as lectotype, without abdomen and only one fore leg present (MICN).

Other material studied. Tenerife: Las Mercedes, late February 1975, 2 males, 1 female (A.E. STUBBS). Gomera: El Cedro, 17 September 1977, male, female (M. BÁEZ).

Discussion. The Canarian material is very like European *vitta* except in the extent of the brown wing marking, which is restricted to cell r_1 in European material. It was examined by RAYMOND GAGNÉ, who confirmed the synonymy; he was not able to see it before the publication of his revision of the genus (GAGNÉ, 1981), in which he recorded *vitta* from Algeria.

Trichonta laura sp. nov.

Male. (Specimen headless).

Mesoscutum coloured as *vitta* with three separate brown stripes on yellow ground. Scutellum, pleura and mediotergite yellow with slight brown shades. Halteres pale yellow.

Wings brownish with veins strongly marked. Costa and radial sector darker. Apical third brown tinged, broadest in cell r_1 and part of cell r_5, including apical half of posterior fork, vaguer towards An; also brownish mark in base of cell r_5 reaching from r-m along m-stalk and basal part of M_1, a little into base of median fork. R_5 slightly downcurved apically, costa scarcely produced beyond it.

Legs mainly yellow; dark shade on tips of coxae and trochanters, coxa III with brownish shade externally. Femur III almost entirely yellow. Tibiae more slender than in *vitta* with shorter bristling, about equal to tibial diameter. Tibia II with 4 a, 5 p-d, about 10 short p. Tibia III with 8 a-d, 7 p-d, 8 p on apical two thirds.

Abdomen shining dark brown including genitalia (Fig. 51). Wing length 3.2 mm.

Female. Head grey dusted, antennae as in *vitta*. Palpi brownish yellow. Wing with apical third more strongly brownish than in male. Femur III narrowly brown at tip. Tibiae with shorter bristling, less than tibial diameter. Tibia II with 5 a, 6 p-d, 6 short p. Tibia III with 8-10 a-d, 8 p-d, 6-7 p on apical half. Abdomen shining dark brown with tergites 3-5 vaguely brownish yellow towards base; sternites yellowish brown. Ovipositor brown. Wing length 3.6 mm.

Type material studied. Holotype male, Tenerife, Las Yedras, 10 September 1984 (M. BÁEZ, MICN). Paratype female, Tenerife, Las Mercedes forest, 4 April 1973 (P.J. CHANDLER).

Discussion. RAYMOND GAGNÉ has examined the female but did not identify it with any species known to him. The male, which has genitalia differing in detail from all the species figured by GAGNÉ (1981), is considered likely to be conspecific and the species as yet only known from Tenerife.

Doubtful *Trichonta* species

Trichonta floresiana STORÅ, 1945: 11.

A single male, wing length 2.5 mm, collected in the Azores (Flores, Vales, 28 June) was described under this name. It lacked genitalia but was considered distinctive enough to describe as a new species because of the darkened wing tip. The description, however, agrees very well with the Canarian form of *T. vitta* but no mention was made of the chaetotaxy of its tibiae. Since the type specimen has not been traced the probable synonymy with *vitta* cannot be confirmed.

Genus *Phronia* WINNERTZ

Phronia WINNERTZ, 1863: 857.
Telmaphilus BECKER, 1908: 66.

A large mainly Holarctic genus with a few Afrotropical species. GAGNÉ (1975) revised the Nearctic fauna, recognising 49 species, 33 of them Holarctic in distribution. There are nearly 80 described Palaearctic species, the southern species groups in both regions having fewer Holarctic members than the more boreal groups.

Two species are common in the Canary Islands, one of them endemic while the other, *biarcuata* (BECKER) is a widespread European species also occurring in Madeira and North Africa. On both archipelagoes it has similar wing markings in both sexes while the European form has the central marking reduced in the male, thus resembling in distribution the wing markings of the other Canarian species *abbreviata* (BECKER). SANTOS ABREU (1920) described several varieties of these species and also three further full species. Although type material of the latter is in poor condition, it seems likely that there is a clear winged Canarian *Phronia* but no such species has been obtained in the islands recently.

In Madeira the genus is represented by at least five species, two others like *biarcuata* also occurring in Europe, one of these, *exigua* (ZETTERSTEDT) Holarctic in distribution. The remaining two species are considered possibly endemic. One of them (*maderina* sp. nov.) is close to the species of the Holarctic "*tarsata* (STAEGER)" Group in the form of its outer stylomeres, but females considered conspecific with it have slender fore tarsi unlike the other species of this Group. CHANDLER (1992) has recognised four species of this Group, three of them occurring in Europe but *maderina* most closely resembles a Nearctic species (the "*bicolor*" of GAGNÉ, 1975, described as *gagnei* sp. nov. by CHANDLER, 1992).

From the Azores only one species has been recorded under the name *tarsata* (STAEGER), a name regarded as a nomen dubium by GAGNÉ (1975) because only a female in its type series can be identified with the name. Only a female (with thickened fore tarsi) has been seen from the Azores and its identity remains to be confirmed.

Where known, *Phronia* larvae develop on the surface of wood encrusting fungi and are short bodied larvae often constructing protective cases. The larva of *biarcuata* was studied in detail under the name *johannae* by STEENBERG (1924).

Key to Species

1 Wings with distinct brown markings, including dark wing tip and a central marking at least behind CuA_2. Tibia III without ventral bristles. 2

-Wings unmarked (or only brownish near costa on apical half). 4

2 Wings with complete median band of same tint as wing tip (in both sexes of Canarian form, female only in Europe). (C, M) . . . . . *biarcuata* (BECKER)

-Wings with median marking from CuA_2 to hind margin only. 3

3 Apical third of wing (beyond tip of CuA_2) entirely dark and dark shade under CuA_2 filling space between vein and margin. Veins faint behind radial sector. Mesoscutum broadly yellow at sides. (C) . . . . . *abbreviata* (BECKER)

-Brown area at wing tip including oval clear area on wing tip behind vein R_5 and dark spot from CuA_2 to margin leaves small clear spot below tip of CuA_2. Veins distinctly brown. Mesoscutum mainly dark. (M) . . . . . *maderopulchra* sp. nov.

4 Hind tibia with ventral series of bristles. Almost entirely shining dark grey. Legs yellow without dark tip to hind femur. (M) . . . . . *exigua* (ZETTERSTEDT)

-Hind tibia without ventral bristles. Body partly yellow. Hind femur with dark tip 5

5 Mesoscutum only yellow on humeral area or narrowly at sides. Abdomen with segments 1--3 largely yellow, 4-6 mainly dark. Coxae all yellow. Postradial veins relatively faint. Female fore tarsi with segments 2-3 enlarged. (M) . . . . . *nitidiventris* (VAN DER WULP)

-Mesoscutum broadly yellow on sides. Abdomen mainly dark with only narrow yellow patches on hind margins of 1-3 (male) or bands at sutures, broader on fore margins (female). Mid and hind coxae greyish brown externally. Wings brownish near costa on apical half. Postradial veins brown. Female fore tarsi slender. (M) . . . . . *maderina* sp. nov.

Phronia biarcuata (BECKER)

Telmaphilus biarcuatus BECKER, 1908: 67.
Telmaphilus humeralis SANTOS ABREU, 1920: 57, syn. nov. A junior secondary homonym of *Phronia humeralis* WINNERTZ, 1863: 869.
Coelosia bifasciata SANTOS ABREU, 1920: 65, nomen nudum
Telmaphilus biarcuatus BECKER var. *flavidus* SANTOS ABREU, 1920: 66, syn. nov.
Phronia johannae STEENBERG, 1924: 20.
Phronia praecox (WINNERTZ MS) EDWARDS, 1925: 626.
Phronia insularis LANDROCK, 1927: 145, nom. nov. for *humeralis* SANTOS ABREU
? *Telmaphilus ochraceus* SANTOS ABREU, 1920: 55.

Male. Head grey dusted on frons; face and clypeus yellow. Antennae yellow to base of first flagellar segment, rest grey; flagellar segments about 1.5-2.0 x long as broad. Palpi yellow, dark brown basally.

Mesoscutum yellow to grey brown with three fused or narrowly separated shining grey dusted stripes; area in front of lateral stripes may be yellow or grey, leaving only side margins yellow; bearing decumbent yellow hairs and long dark bristles on

sides and in dorsocentral rows, ending in strong prescutellar pair. Prothorax yellow, 2 proepisternals. Pleura and mediotergite dark brown. Mesanepisternum with 2-3 bristles. Scutellum yellowish brown, slightly grey dusted, 2 pairs scutellars. Halteres pale yellow.

Wings with entire tip light brown including tips of R_1 and M_3+CuA_1, almost reaching CuA_2; a broad central band of same tint basad to CuA_2, across bases of forks to costa, leaving base of median fork clear. Central wing band may be joined to apical marking on hind margin.

Legs yellow, with coxae II-III, shade beneath femora II-III, and tip of femur III brown, tibia III slightly darkened at tip. Spurs dark yellow. Tarsi darkened. Tibia II with 3-4 a, 3-5 d, 6-8 p, 12-15 p-v. Tibia III with 7-9 a, 11-18 d, 8-10 short p on apical half.

Abdomen mainly shining dark brown; a yellow patch on side of tergite 1 extending across 2 to base of 3, which may occupy all but dorsal mid line of 1-2 or may be reduced to obscure lateral patch. Genitalia (Fig. 52) small, brown. Wing length 3.0--3.3 mm.

Female. Similar colour variation to male. Some examples with thorax more widely darkened. Abdomen with yellow marking extended widely onto tergite 3 in a few examples, more often reduced to obscure patch on 1 and base of 2 (entirely dark in Madeiran examples). Wing markings may be a little more intense or approach each other more closely, in a few examples coalescent on hind margin and in radial sector. Ovipositor brown. Wing length 3.2-3.3 mm.

Type material studied. *Telmaphilus biarcuatus* BECKER. Lectotype male, Tenerife, Laguna, "51506", June, also labelled "T. biarcuatus B. det BECKER", "Phronia nitidiventris VAN DER WULP" and "Lectotype desig. GAGNÉ 1973-4" (designated by GAGNÉ, 1974: 454) (HUB). Syntype male, same data as lectotype, labelled "Paratypus" and "Phronia biarcuatus" (HUB). BECKER took several examples in damp woodland at Laguna.

Telmaphilus humeralis SANTOS ABREU. Lectotype here designated: female, La Palma, Fuente Bermeja, September 1910 (locality correct but date given as 1 February 1913 by SANTOS ABREU, 1920) (E. SANTOS ABREU, MICN). Comprising body, bases of legs, wings badly discoloured; body was encrusted but genitalia now dissected, confirming the synonymy with *biarcuata*.

Telmaphilus biarcuatus var. *flavidus* SANTOS ABREU. Lectotype here designated: male and two paralectotypes, lacking abdomen, La Palma, Barranco del Rio and Barranco del Carmen, July 1916 (E. SANTOS ABREU, MICN). SANTOS ABREU (1920) said found rarely in same places as the typical form; the lectotype is conspecific with *biarcuata*.

Telmaphilus ochraceus SANTOS ABREU. Lectotype here designated: ? sex, with-

out abdomen, La Palma, Barranco del Rio, August 1912 (given as 1902 by SANTOS ABREU, 1920) (E. SANTOS ABREU, MICN). Comprising only head, thorax, front coxae and one wing, which has faintly darkened tip and central band vague. Ground colour of thorax, described as yellow with three dark stripes by SANTOS ABREU, is brownish grey but specimen discoloured. Very probably synonymous with *biarcuata*.

Other material studied. Tenerife, La Palma, barrancos, May 1910, 2 males, 4 females, 1 without abdomen (E. SANTOS ABREU, MICN). Tenerife: Agua Garcia, 11 July 1931, 7 males, 1 female (R. FREY), 6 April 1973, 3 females; Las Mercedes, 4 April 1973, 2 males, 3 females (P.J. CHANDLER), late February 1975, 2 males, 7 females (A.E. STUBBS). La Palma: Los Tilos, 25 May 1976, male; Barlovento, 27 May 1976, female; Cumbre Nueva, *Castanea* woods, 30 May 1976, male; Cubo de la Galga, 2 June 1976, male, 3 females (P.J. CHANDLER). Gomera: Mora Gaspar, 12 September 1977, female (M. BÁEZ). La Laguna Grande, 27 March 1985, female, meadow in laurel forest; between Garajonay and Garabato, *Laurus* and *Erica* forest, 27 March 1985, male (M. VON TSCHIRNHAUS). Madeira: Casa das Queimadas, 880 m, 24 April 1957, male, 4 females (BRINCK & DAHL; NIELSEN, 1966). Ribeiro Frio, 19 February 1977, 4 males, 2 females (A.E. STUBBS). Ribeiro Frio, 27 August 1989, male; between Camacha and Santo da Serra, 21 August 1989, female (M. BÁEZ).

Discussion. GAGNÉ (1974) examined BECKER's types of *biarcuatus* and *abbreviatus*. He found that *biarcuata* differed from the widespread European species *johannae* (= *praecox*) only in the shape of the lateral portion of the gonostylus (his telomere), which is shorter and lacking a row of uniformly strong setae along the caudal edge in the Canarian lectotype of *biarcuata*. He, therefore, considered them only geographical forms of the same species. Specimens from Morocco (MNHN) agree with the European form in wing markings.

Phronia abbreviata (BECKER)

Telmaphilus abbreviatus BECKER, 1908: 67.
Coelosia incompleta SANTOS ABREU, 1920: 69, nomen nudum.
Telmaphilus abbreviatus BECKER var. *obscuripes* SANTOS ABREU, 1920: 69, syn. nov.
Telmaphilus abbreviatus BECKER var. *abdominalis* SANTOS ABREU, 1920: 70, syn. nov.

Male. Head coloration as *biarcuata*. Mesoscutum grey dusted on disc with entire side margins yellow. Scutellum grey dusted. Coloration and chaetotaxy of thorax otherwise as *biarcuata*.

Wings with dark apical third, beyond tip of CuA_2 and extended a little basad in radial sector; dark shade filling area between posterior fork and margin.

Legs yellow with coxae II-III (especially latter) externally, shades beneath femora, apical third of femur III brown, tibiae II-III slightly darkened at tips. Tibia II with 2-4 a, 2-3 d, 7-9 p, 7-9 short p-v. Tibia III with 7-8 a, 10-12 d, 6-11 short p on apical half.

Abdomen mainly shining reddish brown to dark brown with tergites 1-3 yellow on side margins, extended dorsally on fore and hind margins (usually more extensive triangular areas on fore margins but sometimes only yellow at sutures); 4 with narrow yellow triangle on basal margin, hind margin sometimes obscurely yellow. Genitalia (Fig. 53) brownish yellow. Wing length 2.2-3.1 mm.

Female. Very similar. Some variation in intensity of dark markings on wings and legs and yellow abdominal markings, often more restricted to sutures and extreme side margins than in male. Wing length 2.5-3.3 mm.

Type material studied. *Telmaphilus abbreviatus* BECKER. Lectotype male, Tenerife, Laguna, 17 January 1903, also labelled "49610", "T. abbreviatus B. det BECKER" and "Lectotype desig. GAGNÉ, 1973-4" (designated by GAGNÉ, 1974: 452) (HUB). BECKER mentioned several examples from Tenerife and Gran Canaria, collected in January and May.

Telmaphilus abbreviatus var. *obscuripes* SANTOS ABREU. Lectotype here designated: male, and paralectotypes: male, 3 females, La Palma, Barranco del Rio and Barranco Quintero, August 1909 (E. SANTOS ABREU, MICN). As with other SANTOS ABREU specimens no locality data is attached to the specimens as received by us. SANTOS ABREU (1920) gave both the above localities and Fuente Bermeja. The lectotype is typical *abbreviata* in good condition but greased and appearing dark. The paralectotype male is in poor condition, with legs missing.

Telmaphilus abbreviatus var. *abdominalis* SANTOS ABREU. Lectotype here designated: male and paralectotypes, 3 males, La Palma, Fuente Bermeja, August 1912 (E. SANTOS ABREU, MICN). SANTOS ABREU said that it was not rare with the typical form; it was based on specimens with more extensive yellow abdominal markings.

Other material studied. Tenerife, La Palma, Gran Canaria, August 1908, male, female (E. SANTOS ABREU, MICN). Tenerife: Agua Garcia, 11 July 1931, 60 males, 62 females (R. FREY), 6 April 1973, male, 4 females (P.J. CHANDLER). Las Mercedes, 17 August 1931, 2 males (R. FREY), 4 April 1973, 2 males, 6 females (P.J. CHANDLER), late February - early March 1975, 10 males, 5 females (A.E. STUBBS). Cruz de Afur, 4 April 1973, male (P.J. CHANDLER). Barranco Gambuesa, 14 March 1976, male; Las Yedras, 10 September 1984, 3 males; Monte Aguirre, 10 September 1984, male; Puerto de Erjos, 16 October 1984, male; Palo Blanco, 15 May 1985,

female; Monte los Silos, 17 September 1985, female, 12 March 1985, 4 males, 2 females; Ijuana, 7 June 1985, female (M. BÁEZ). Gomera: east of Valle Gran Rey, garden terrace, 19 March 1985, female (M. VON TSCHIRNHAUS). El Cedro, 13 April 1975, 2 males; Los Infantes, 21 August 1977, male (M. BÁEZ). La Palma: Cubo de la Galga, 27 May 1976, male, female, 2 June 1976, 7 males, 9 females; Cumbre Nueva, *Castanea* woods, 29 May 1976, female (P.J. CHANDLER). Barranco del Rio, 1 August 1974, male (M. BÁEZ).

Discussion. GAGNÉ (1974) remarked that *abbreviata* was unique in *Phronia* in possessing a setose median sternal process of the gonocoxite (his basimere). The record of *abbreviata* from Madeira, Ribeiro Frio by STORÁ (1949) probably relates to the next species (the specimen has not been located).

Phronia maderopulchra sp. nov.

Male. Head grey. Face, clypeus, palpi, antennae to most of first flagellar segment yellow; rest of flagellum grey, segments about 1.5 x long as broad.

Mesoscutum and disc of scutellum mostly grey dusted, only narrowly brownish yellow at sides. Prothorax yellow, 2 proepisternals. Pleura brownish, 2 bristles on mesanepisternum. Hairs and bristles mostly dark, paler on laterotergites. Halteres pale yellow.

Wings with dark brown veins. Apical third mainly brown, the irregular proximal edge of this marking including tips of R_1 and M_3+CuA_1, nearly reaching CuA_2 but an oval clear area on wing tip in cell r_5. A dark patch between posterior fork and margin, leaving small pale spot below tip of CuA_2.

Legs yellow except dark shades on outer face of coxae II-III, beneath basal half of all femora, dark apical third of femur III, dorsal margin and tip of tibiae II-III and fore tarsi. Tibia II with 4 a, 4 d, 9 p, 8-9 v. Tibia III with 8-9 a, 7 d, 7 short p near tip.

Abdomen mainly shining dark brown with pale hair. Tergites 1-3 with yellow side margins extending dorsally on fore and hind margins. Genitalia (Fig. 54) moderate sized, brown, with yellowish gonostyli. Wing length 3.0 mm.

Female. Clypeus more greyish; flagellum dark almost to base. Prothorax with brown shades. Only 1 bristle on mesanepisternum. Wing markings similar but pale spots larger, that at wing tip extending from tip of R_5 into cell m_1. Abdomen mostly shining dark brown, tergites 1-5 narrowly yellow on side, fore and hind margins; hair darker. Ovipositor brownish yellow. Wing 3.4 mm.

Type material studied. Holotype male, Madeira, Ribeiro Frio, 19 February 1977 (A.E. STUBBS, NHML). Paratypes: female, same data as holotype; male, Ribeiro

Frio, 27 August 1989 (M. BÁEZ); female, Levada dos Tornos, Romeiros, 5 February 1990 (A.E. STUBBS).

Discussion. This species differs from other *Phronia* with distinct wing markings in the rather small simple lateral portion of the gonostylus, which is much smaller than in *abbreviata*; the caudal margin of the gonocoxite is also simple.

Phronia exigua (ZETTERSTEDT)

Mycetophila exigua ZETTERSTEDT, 1852: 4246.

Male. Almost entirely shining dark grey with halteres and legs pale yellow. Base of palpi, antennal pedicel and base of first flagellar segment brownish yellow; flagellar segments more than 2 x long as broad. All hairs and bristles of body, coxae and femora pale yellowish. Wings clear. Tibia II with 4-5 a, 5-6 d, 6-8 p, 5-10 v. Tibia III with 7-8 a, 6-9 d, 6-7 short p on apical half, 4-5 v. Abdomen with pale sutures between tergites 2 and 3, 3 and 4. Genitalia (Fig. 55) large, dark. Wing length 3.1 mm.

Female. Very similar. Antennal scape brownish yellow like pedicel. Some strong thoracic bristles a little darker. Fore tarsi slender. Ovipositor greyish yellow. Wing length 3.3-3.6 mm.

Material studied. Madeira: Ribeiro Frio, 18 February 1977, female; Corujeira, 18 February 1977, 2 males, 1 female; Levada do Norte, Campaneano, 7 February 1990, 2 males; Quinta do Palheiro, 5 February 1990, 2 males (A.E. STUBBS).

Discussion. *P. exigua* is a common Holarctic species, easily recognised by its distinctive genital structure with a large median process of the gonocoxite and the large rounded bristly lateral portion of the gonostylus.

Phronia nitidiventris (VAN DER WULP)

Mycetophila nitidiventris VAN DER WULP, 1858: 181.

Male. Head dark brown. Antennae yellow to base of first flagellar segment, rest brown. Mesoscutum brown, grey dusted; humeral area narrowly or sometimes entire sides yellow; prothorax brownish yellow. Short hair pale, stronger bristles black. Wings clear yellowish grey, postradial veins faintly brownish. Legs yellow with femur and tibia III brownish apically. Fore tarsi simple. Tibia II with 3-4 a, 4-5 d, 9-10 short p, 0 v. Tibia III with 8-10 a-d, 9-12 p-d, 4-6 p on apical half. Abdomen dark brown with tergites 1-3 (in British examples) extensively yellow at sides, only

narrowly brownish dorsally (sometimes yellow reduced to apical yellow triangles reaching fore margin laterally, this the case in Madeiran examples), 4 narrowly yellow on side margin (all black in Madeiran examples); sternites 1-3 yellow. Genitalia (Fig. 56) small, brownish yellow. Wing length 2.6-3.0 mm.

Female. Thorax dark yellowish brown with yellow spiracular area and pleural sutures. Wings yellowish. Legs coloured as male. Fore tarsi modified: metatarsus 0.9 tibial length, slender but enlarged at extreme tip, segments 2-3 distinctly enlarged, together equal to metatarsus in length, 2 is more than 2 x medial width of metatarsus, 3 more slender than 2, 4 and 5 short and slender. Abdomen mainly dark brown but tergite 2 largely yellow (only brownish dorsally), 1 and 3 yellow laterally; 4 very narrowly yellow laterally; sternites 1-3 also yellow. Ovipositor short, brownish yellow. Wing length 3.0 mm.

Material studied. Madeira: Terreiro da Luta, 850 m, at stream, 20 April 1957, female (BRINCK & DAHL). Between Camacha and Santo da Serra, 21 August 1989, male (M. BÁEZ). Levada do Norte, Campaneano, 7 February 1990, 2 males, 2 females; Quinta do Palheiro, 5 February 1990, male; Levada dos Tornos, Romeiros, 5 February 1990, male (A.E. STUBBS).

Discussion. The BRINCK and DAHL specimen examined was taken with a male, but this was not present in the same tube. NIELSEN (1966) also recorded another pair from Ribeiro da Lapa, 27 April 1957. The ovipositor agrees well with DZIEDZICKI's (1915) figure of *squalida* WINNERTZ identified with *nitidiventris* by HACKMAN (1970). The male genital structure of *nitidiventris* is very distinctive and the original determination is confirmed by the more recently collected material.

Phronia maderina sp. nov.

Male. Head grey. Antennae brownish yellow at base; flagellum grey, segments about twice as long as broad. Palpi greyish yellow.

Mesoscutum shining greyish brown dorsally, broadly yellow on sides. Pleura mainly yellowish brown. All hairs and bristles dark. Mesanepisternum with 2 bristles. Halteres pale yellow.

Wings greyish, especially on apical half. Postradial veins lighter than radial sector but distinctly brown and darker than in species of "*tarsata*" Group.

Legs mainly yellow with vague grey brown markings at tip of coxa I, outer faces of coxae II-III, beneath bases of femora, tips of femur and tibia III. Tibia II with 4 a, 4 d, 8 p, 7 v. Tibia III with 7 a, 18 d, 5 p.

Abdomen mainly shining dark brown with narrow yellow patches on hind margins of 1-3, largest on 1. Genitalia (Fig. 57) small, grey brown. Wing length 3.4 mm.

Female. Very similar. Mesanepisternum with 2-3 bristles. Coxa I may be entirely

yellow. Tibia II with 5 a, 4-7 d, 8-10 p, 10-13 v. Tibia III with 8-10 a, 12-13 d, 6--8 p. Fore tarsi not noticeably thickened. Abdomen mainly shining dark brown but with sternites, narrow side and hind margins and usually broader fore margins of tergites yellow. Ovipositor yellowish brown. Wing length 3.6-3.7 mm.

Type material studied. Holotype male, Madeira, Corujeira, 18 February 1977 (A.E. STUBBS, NHML). Paratypes: 3 females, Madeira, Ribeiro Frio, 19 February 1977; male 4 females, Fajã da Nogueira, 8 February 1990 (A.E. STUBBS); male, Ribeiro Frio, 27 August 1989; male, between Camacha and Santo da Serra, 21 August 1989 (M. BÁEZ).

Discussion. The structure of the gonostyli is similar to species of the "*tarsata*" Group. The gonocoxite, however, has a simple straight caudal margin and the female fore tarsi are not thickened, suggesting that *P. maderina* is not closely related to the species of this Group.

Doubtful *Phronia* species

Phronia tarsata (STAEGER, 1840: 264) sensu STORÅ, 1937: 14.

Two examples were recorded from the Azores (São Miguel and Terceira) under this name by STORÅ (1945). One female in the ZMH collections has been examined, confirming that it has enlarged fore tarsi. Examination of males from the Azores will be necessary to establish the identity of this species.

Phronia abreui LANDROCK, 1927: 141, nom. n. for *Telmaphilus bicolor* SANTOS ABREU, 1920: 60, a junior secondary homonym of *Phronia bicolor* DZIEDZICKI, 1889: 510.

Lectotype here designated: female, La Palma, Fuente Bermeja, September 1910 (E. SANTOS ABREU, MICN). Comprising head, thorax, one fore leg and both wings.

SANTOS ABREU (1920) described this species from a single female. It has the head and thorax dark brown, grey dusted, the fore leg yellow with slender tarsi, the wings brownish yellow and apparently without darker markings, length 3 mm. SANTOS ABREU stated that the dull dark brown thorax had the fore margin and humeral area yellowish; the abdomen was slightly shining brownish yellow with dark sutures. This example is not identifiable but the apparently unmarked wings suggest that it may belong to a third Canarian *Phronia* species.

Genus *Zygomyia* WINNERTZ

Zygomyia WINNERTZ, 1863: 901.

Poorly represented in the Holarctic region with only 16 Palaearctic species known, a small number in the Nearctic and one Oriental species, but a much larger number of species occur in New Zealand and South America. The single Atlantic species was considered endemic but is here placed in synonymy with the widespread Palaearctic species *Z. valida* WINNERTZ.

Zygomyia valida WINNERTZ

Zygomyia valida WINNERTZ, 1863: 902.
Zygomyia planitarsata BECKER, 1908: 65, syn. nov.

Male. Head black, grey dusted. Antennae with basal segments yellow to brown, flagellum grey. Palpi yellow to brown.

Thorax mainly black, grey dusted, narrowly yellow on humeral area (more broadly in BECKER's type). Bristles dark; 2 proepisternals, 4 mesepimerals. Halteres yellow.

Wings with central dark spot over r-m and dark shade on apical two fifths from costa to M_1, these markings varying in intensity.

Legs orange yellow with coxae II-III dark at tip, also trochanters beneath, shade beneath bases of femora, entire dorsal margin and tip of femur III darkened (BECKER's type has coxae all yellow, femur III dark above and at tip but rest yellow). Tibial spurs brown. All bristles and setulae dark. Tibia II with 1-2 a-d, 4-5 p-d, 1--3 p near tip, 1-2 (shorter basal) v. Tibia III with 5-7 a-d, 5-6 d.

Abdomen entirely dark brown, blacker on 5-6. Genitalia (Fig. 58) brownish yellow. Wing length 2.4-2.8 mm.

Female. Very similar, but yellow humeral spot a little more extensive than usual in male. Fore tarsi with segments 2-4 enlarged ventrally towards their tips. Wing length 2.6-2.8 mm.

Type material studied. *Zygomyia planitarsata* BECKER. Lectotype here designated: male, Tenerife, Laguna, June, labelled "Teneriffe, 51353, June" and "Typus". Paralectotype female, same data as lectotype, labelled "Teneriffe, 51354, June" and "Typus" (HUB). BECKER stated that he had taken a pair at Laguna in June.

Other material studied. Tenerife: Agua Garcia, 11 July 1931, male (R. FREY), 6 April 1973, male, female; near Cruz de Afur, 4 April 1973, 2 females; Orotava Forest, 5 April 1973, male (P.J. CHANDLER); Las Mercedes, late February - early

March 1975, male, 2 females (A.E. STUBBS). La Palma: Cumbre Nueva, west slope, 30 May 1976, male; Barranco de las Nieves, 1 June 1976, male (P.J. CHANDLER). Gomera: Barranquillos, 18 September 1977 (M. BÁEZ). El Carmen, laurel forest, 23 March 1985, female (M. VON TSCHIRNHAUS).

Discussion. The more intense wing markings than are typical of *valida* led BECKER and subsequent authors to consider the Canarian form a distinct species. STORÅ in FREY (1937) figured the genitalia but still maintained *planitarsata* as a good species. In European examples the thorax is usually entirely dark, the wing markings very faint (sometimes practically absent) and the legs brighter orange yellow with less darkening on coxae and femora than in most Canarian examples. The material recorded from Madeira, Rabaçal, by STORÅ (1941) has not been examined but his figure suggests that it is probably also *valida*.

Genus *Mycetophila* MEIGEN

Mycetophila MEIGEN, 1803: 263.

This is a large worldwide genus with about 150 Palaearctic species currently recognised. LAFFOON (1956) provided a thorough revision of the Nearctic species, recognising 96 species of which only 24 have been considered Holarctic although there are many instances of closely related species in the two regions. There are also numerous species in the south temperate and Neotropical regions. The few species known from the Old World tropics, however, are mainly confined to mountainous areas and are usually either conspecific with Palaearctic species or belong to the *ruficollis* MEIGEN Group. The latter group has evidently undergone extensive recent speciation and its numerous species are distinguished by relatively small differences; the Palaearctic members were dealt with by LAŠTOVKA (1972) and LAŠTOVKA & KIDD (1975).

Mycetophila is the largest genus of fungus gnats in the Atlantic islands, with at least 15 species present. The *ruficollis* Group exists in all the islands; the occurrence of *M. britannica* LAŠTOVKA & KIDD (hitherto only recorded from the British Isles but seen widely from the Mediterranean region) is of interest; the other species of the group appears endemic. The closely related *fungorum* (DE GEER) Group, of which LAFFOON (*op. cit.*) recognised 3 Nearctic species has now been critically examined in European material and two species have been recognised. Both are widely distributed but the species more common in Mediterranean material, *M. perpallida* CHANDLER is the species recorded as *fungorum* from Madeira.

Most other *Mycetophila* in the islands are widespread European species. Some are, however, apparently endemic. The material recorded from the Azores as *continens* BECKER (FREY, 1945) is here described as a new species of the *pictula* MEIGEN Group, while *pictula* MEIGEN itself occurs on Madeira. Most remarkable is the presence of a distinct species on each island group related to the widespread European species *spectabilis* WINNERTZ; curiously, the Madeiran species is the most distinct and less closely allied of these, although some females found there may be conspecific with the Canarian species or represent a further species of the group. The apparent restriction of each to a single archipelago is suggestive that they are indeed endemic to the islands.

The other seven species occurring each represent distinct species groups. Five of them were described as new species from Canarian material but these are here placed in synonymy. In three instances, *ocellus* WALKER, *edwardsi* LUNDSTRÖM and *vittipes* ZETTERSTEDT, the island form has wing markings differing in extent from the corresponding European form and this evidently led to their description as new species. As with the island forms of some *Phronia* and *Trichonta*, this may indicate subspecific status or incipient speciation.

Several of the island species have been reared in Europe. Of these *M. vittipes* is a specialist on Myxomycetes, while the larvae of *M. ocellus*, *M. trinotata* STAEGER, *M. pictula* and *M. pumila* WINNERTZ develop in a range of more or less tough lignicolous fungi. *M. britannica* and *M. perpallida* develop in soft fungi, including both terrestrial and lignicolous agarics as well as soft polypores.

Key to Species

1 Mid tibia with 1 or more ventral bristles. Hind tibia usually with posterior bristles restricted to a few near tip, if more numerous *(nigromadera)* mid tibia with a-d bristle. 2

-Mid tibia without ventral or a-d bristles. Hind tibia with numerous posterior bristles on at least apical half; without a-d bristles. 13

2 Mid and hind tibiae without a-d bristles. 3

-Mid tibia with at least 1 a-d bristle. Vein tb (= "M before r-m" of LAFFOON) bare. 5

3 Vein tb with several setulae near tip below. Wing tip broadly brown but including large clear area beyond the more intensely brown area around tip of R_1. Central wing spot reaches costa. Hind femur dark at tip and along dorsal margin. Mid tibia with 2 ventral bristles (C) . . . . . *vittipes* ZETTERSTEDT

-Vein tb bare. If wing tip with large clear area, hind femur not entirely dark dorsally. 4

4 Mid tibia with only 1 ventral bristle. Wing tip dark, especially towards costa, including only small (usually oblong but sometimes small, more rounded) clear spot in contact with R_5. Central brown spot small but reaching costa. Hind femur narrowly dark dorsally but only narrowly dark at tip. (C, M) . . . . . *ocellus* WALKER

-Mid tibia with 3 ventral bristles. Wing with a well marked preapical band broadly involving R_1, extended to hind margin but leaving large clear area(s) before wing tip. Central spot large but not entering costal cell. Hind femur broadly dark at tip but otherwise yellow. (C, M) . . . . . *edwardsi* LUNDSTRÖM

5 Hind tibia with 1-2 strong a-d bristles. Wing with central spot not entering costal cell. Conspicuous preapical band touching tip of R_1. (M) . . . . . *trinotata* STAEGER

-Hind tibia without a-d bristles. 6

6 Hind tibia with anterior setulae other than first row below anterior bristles all yellow. Small central wing spot usually present but may be faint or indistinct; wing otherwise unmarked. (C) . . . . . *unicolor* STANNIUS

-Hind tibia with all anterior setulae dark brown. 7

7 Preapical wing spot distinctly extending basad of tip of vein R_1. Female cerci one-segmented 8

-Preapical wing spot if present entirely apical to tip of R_1; if in contact with R_1 then thorax entirely black. Female cerci two segmented. 9

8 Central wing spot extending to costa. Apical third of wing mainly brown with clear area at wing tip usually rather small. Thorax mainly shining reddish brown, vaguely yellowish on humeral area but mesoscutal stripes not distinct. Female fore tarsi with segments 2-4 slightly swollen. (A) . . . . . *storai* sp. nov.

-Central wing spot not extending into costal cell. Broad preapical wing band but large clear area at wing tip more distinct. Thorax brownish yellow with three shining dark brown stripes. Female fore tarsi with segments 2-4 strongly swollen. (M). . . . . *pictula* MEIGEN

9 Wing with broad preapical band, sometimes in contact with tip of R_1. Thorax (also abdomen in male) shining blackish brown. Genitalia pale yellow. Male with row of strong setae on distal margin of gonocoxite. Female fore tarsi with segments 2-3 swollen ventrally. (M) . . . . . *madocella* sp. nov.

-Wing with preapical spot, if present, always apical to tip of R_1. If body predominantly black, genitalia not contrasted yellow. 10

10 Wing often only with small central spot, not entering costal cell; if a preapical spot present, only small faint shade about tip of R_5. Body mainly shining dark brown except broadly yellow humeral areas and yellow genitalia. Female fore tarsi with segments 2-4 swollen. (C, M) . . . . . *pumila* WINNERTZ

-Wing with well marked brown preapical band (sometimes faint in *atlantica* NIELSEN). Body coloration differs. Female fore tarsi simple. 11

11 Central wing spot reaching costa and extended as faint band to hind margin. Preapical band also broadly linked with dark hind margin and border to wing tip, enclosing rather small clear areas in cells r_5 and m_1. Body mainly shining dark brown. (M) . . . . . *nigromadera* sp. nov.

-Central wing spot not extending into costal cell. 12

12 Mesoscutum mainly uniform dark brown with stripes vaguely indicated, only narrowly yellow on humeral area. Wing markings rather light brown and relatively faint. Halteres with brownish knobs. (A) . . . . . *atlantica* NIELSEN

-Mesoscutum brownish yellow with three more or less separated shining dark brown stripes. Wing markings dark brown and well defined. Halteres clear yellow. (C, ? M) . . . . . *parvifasciata* (SANTOS ABREU)

13 Vein tb bare. Wing clear yellowish without any brown spot. (M) . . . . *perpallida* CHANDLER

-Vein tb with 10 or more setulae below. Wing with central brown spot. 14

14 Palpi with segments 2-3 broad, the third as broad as second. Wing with brown shade near costa on apical half. (C, M) . . . . . *suffusala* sp. nov.

-Palpi with segments 2-3 relatively slender, the third narrower than second. Wing clear yellowish except central spot. (A, M, ? C) . . . . . *britannica* LAŠTOVKA & KIDD

Mycetophila ocellus WALKER

Mycetophila ocellus WALKER, 1858: 95.
Mycetophila fenestratula BECKER, 1908: 62, syn. nov.
Fungivora fenestratula var. *rubiginosa* SANTOS ABREU, 1920: 145, syn. nov.
Mycetophila bifenestrata SANTOS ABREU, 1920: 145, nomen nudum.

Male. Head grey dusted. Antennae with basal segments yellow, rest grey. Palpi yellowish brown.

Mesoscutum varying from brownish to reddish yellow ground with three ± distinct, ± fused darker brown stripes, the whole light grey dusted. Thorax otherwise brown, light grey dusted. Thoracic hairs and bristles dark; 3 proepisternals, 3-4 mesepimerals. Halteres yellow.

Wings with dark brown central spot extended as faint shade to costa and behind to base of posterior fork, linked behind M_2 to light brown apical two fifths of wing which is more intense towards costa and encloses a centrally placed oblong clear spot (smaller, more rounded in some Madeiran examples) in the anterior half of cell

r_5 (in contact with vein R_5).

Legs mainly dark yellow. Femora II-III with dark shades on dorsal margins and at tip; tip of tibia III dark. Tibial setulae all dark. Tibia II with 3-4 a, 5 d, 4-6 p on apical half, 1-2 v. Tibia III with 7 a, 4 strong d (8 short interspersed bristles).

Abdomen entirely black, grey dusted, with dark hair. Genitalia (Fig. 59) small, yellowish brown. Wing length 2.2-3.3 mm.

Female. Similar to male. Ovipositor brownish. Wing length 2.7-3.5 mm.

Type material studied. *Mycetophila fenestratula* BECKER. Holotype female, Tenerife, Laguna, June, labelled "51505" and "*fenestratula*" (T. BECKER, HUB). This is the form described here and considered to be conspecific with *ocellus*.

Other material studied. La Palma: Barranco de Aguacencio, May 1911, 2 males (E. SANTOS ABREU, MICN). Cubo de la Galga, laurel forest, 27 May 1976, female, 2 June 1976, female; Los Tilos, 25 May 1976, male (P.J. CHANDLER). Gomera: Agua los Llanos, 15 September 1977, male (M. BÁEZ). Tenerife: Las Mercedes, late February - early March 1975, 2 males, 7 females (A.E. STUBBS), 4 April 1973, female; Agua Garcia, 6 April 1973, 2 males (P.J. CHANDLER). Madeira: Ribeiro Frio, 19 February 1977, 35 males, 34 females; Corujeira, 18 February 1977, 9 males, 11 females; Levada dos Tornos, Romeiros, 5 February 1990, female; Quinta do Palheiro, 5 February 1990, female; Fajã da Nogueira, 8 February 1990, 10 males, 9 females; Levada do Norte, Campaneano, 7 February 1990, male (A.E. STUBBS). Ribeiro Frio, 27 August 1989, 8 males; between Estreito and Sarachico, 15 August 1989, female (M. BÁEZ). Queimadas, laurel forest, 10-11 September 1986, female (P. OHM, via M. VON TSCHIRNHAUS). Levada da Serra (Balcões), 2 February 1989, 3 males, 1 female; Santana, 26 May 1989, female; Camacha, 27 May 1989, 17 males, 19 females; Ribeiro Frio, 18 June 1989, female; 20 March 1990, female; Fajã da Nogueira, 20 March 1990, male, 2 females (R. CAPELA).

Discussion. The material recorded from Madeira, Rabaçal, as *fenestratula* by STORÄ (1941) has not been examined. *M. ocellus* is evidently frequent in the Canary Islands and Madeira, a similar form occurring in both archipelagoes. European specimens differ principally in more restricted wing markings; the central spot does not extend into the costal cell and is isolated from the apical shade, which does not extend distinctly beyond M_2. It is a widespread Holarctic species and LAFFOON (1957) commented that some Nearctic examples lacked any apical dark wing marking. European material also varies in thoracic coloration, which is frequently darker (when mid and hind coxae are also dark externally) but examples with yellow ground colour and yellow coxae also occur.

The different wing markings led BECKER to describe *fenestratula*, which he compared with *ocellus*, as new. SANTOS ABREU (1920) followed BECKER, indicating that he had previously given it the manuscript name of *bifenestrata*. His variety,

rubiginosa, with thorax tawny red and abdomen brownish red, obtained at La Palma, Fuente de Juan Alvarez, 12 September 1906, may have been a teneral specimen. He had collected the typical form from spring to autumn in many barrancos on La Palma and Gomera.

Mycetophila vittipes ZETTERSTEDT

Mycetophila vittipes ZETTERSTEDT, 1852: 4191.
Mycetophila continens BECKER, 1908: 83, syn. nov.
Mycetophila fratercula SANTOS ABREU, 1920: 151, nomen nudum.

Male. Head grey dusted. Base of antennae brownish yellow. Palpi brown.

Thorax mainly brown, with humeral area of mesoscutum narrowly yellow. Fine hairs yellow, with interspersed dark hairs on mesoscutum, stronger bristles dark; 3 proepisternals, 4 mesepimerals. Halteres yellow.

Wings with conspicuous dark brown markings: irregular central spot reaching costa, where it extends a little basad, and also broadened to hind margin as faint shade; apical third of wing mainly dark, preapical fascia begins well before tip of R_1, fills end of cell r_1, is intense to middle of cell r_5, extending more faintly to hind margin, where it extends broadly from just basad to M_3+CuA_1 almost or quite to tip of R_5, enclosing a large clear area from R_5 to M_2. Vein tb bears 4-6 setulae near tip below.

Legs yellow except brown posteroexternal shade on coxa I, entire outer face of coxae II-III, dorsal and ventral margins of femur II, dorsal margin and most of apical third of femur III. Tibial setulae all dark. Tibia II with 2-3 a, 5 d (basal short), 2-3 p, 2 v. Tibia III with 7-8 a, 5-6 d (basals weak), 4 short p near tip.

Abdomen dark brown, slightly grey dusted, with pale hair. Genitalia (Fig. 60) small, brownish yellow. Wing length 2.5-3.1 mm.

Female. Similar to male. Ovipositor brownish yellow. Wing length 2.6-3.2 mm.

Type material studied. *Mycetophila continens* BECKER. One wing mounted on a card, labelled "*continens* det. BECKER" (HUB). It agrees with his illustration of the wing and with the material here identified as *vittipes* and is considered to belong to the female type from La Palma, collected by SIMONY.

Other material studied. Tenerife: Monte los Silos, 1000 m. (A. SEYRIG, MNHN). Las Mercedes, 4 April 1973, male (P.J. CHANDLER), late February 1975, female; Bajamar, 1 March 1975, male (A.E. STUBBS). La Esperanza, 29 December 1978, 2 females (M. BÁEZ). La Palma: Fuente de Aduares, May 1913, male, female (E. SANTOS ABREU, MICN, under *continens*). Barlovento, 27 May 1976, male; Barranco de las Nieves, 1 June 1976, female (P.J. CHANDLER). Gomera: Mora Gaspar, 12 September 1977, female (M. BÁEZ).

Discussion. *M. vittipes* is a widespread European species, belonging to a group of closely related species in the Holarctic region. The Palaearctic species were studied in detail by LAŠTOVKA (1963). The Canarian form agrees well with *vittipes* in genital structure and is considered conspecific despite the differences in coloration and more extensive wing markings. European examples have the central spot small, not extended into costal cell or to hind margin; the preapical band only reaches M_1 and is not connected with the faint shade on the hind margin from R_5 to CuA_2. The bases of the antennae, palpi and all coxae are yellow, femur III less broadly darkened apically but strongly darkened dorsally.

SANTOS ABREU (1920) stated that *continens* was fairly common for most of the year on La Palma; he had given it the manuscript name of *fratercula*. His description, however, fits *edwardsi* better than *vittipes* although his wing figure follows BECKER and the specimens under *continens* in his collection are *vittipes*.

Mycetophila edwardsi LUNDSTRÖM

Mycetophila edwardsi LUNDSTRÖM, 1913: 316.
Mycetophila santosiana STORÄ, 1937: 13, syn. nov.

Male. Head grey dusted. Antennae with basal segments brown, base of first flagellar segment yellow, rest dark grey. Palpi brownish yellow.

Mesoscutum mainly slightly shining dark brown with large yellow humeral patches; narrow fore margin, small postalar spot and basal corner of scutellum yellow. Thorax otherwise brown, faintly grey dusted. Fine hairs yellow, stronger bristles dark; 3 proepisternals, 4 mesepimerals. Halteres yellow.

Wings strongly marked: a large dark brown often rectangular central spot from R_1 to M_2, level with this a fainter shade from M_3+CuA_1 broadened to hind margin; a dark brown preapical band including tip of R_1, filling end of cell r_1, contracted to M_3+CuA_1, continued more faintly to hind margin in posterior fork, extended as seams along M_1, M_2 and wing margin to leave 2-3 clear areas (often only large clear area in cell r_5 obvious).

Legs yellow except dark apical third of femur III and faint dark patch beneath bases of all femora. Tibial setulae all dark. Tibia II with 3 a, 5 d (first very short), 2 p, 3 v. Tibia III with 7 a, 4 strong d (several shorter interspersed), 2 short weak p near tip.

Abdomen slightly shining black, with pale hair. Genitalia (Fig. 61) small, brownish yellow. Wing length 2.3-2.7 mm.

Female. Very similar. Segments 2-3 of fore tarsi slightly thickened. Ovipositor pale yellow. Wing length 2.3-2.7 mm.

Type material studied. *Mycetophila santosiana* STORÅ. 2 males, Tenerife, Las Mercedes; 3 males, 3 females, Tenerife, Agua Garcia (FREY, STORÅ, ZMH). Two of the males from Agua Garcia are labelled Types. STORÅ did not designate a type, only indicating that the type series comprised 4 examples from Las Mercedes and 6 examples from Agua Garcia. A male from Agua Garcia (R. FREY) is designated lectotype.

Other material studied. Tenerife: Monte Aguirre, 11 June 1985, male; El Pijaral, 25 September 1985, male; Ijuana, 7 June 1985, male (M. BÁEZ). Monte los Silos, 12 March 1985, male, female (G. ORTEGA). Agua Garcia, 6 April 1973, 1 male, 2 females; Las Mercedes, 4 April 1973, 5 males, 5 females (P.J. CHANDLER), late February -early March 1975, 4 males, 3 females (A.E. STUBBS). La Palma: Barlovento, 27 May 1976, 2 males; Cumbre Nueva, east side, *Castanea* woods, 29 May 1976, 3 males; Cubo de la Galga, 2 June 1976, 5 males (P.J. CHANDLER). Hierro: Jinamar, 30 May 1976, male (M. BÁEZ). Gomera: Mora Gaspar, 12 September 1977, male (M. BÁEZ). Between San Sebastian and Garajonay, *Erica arborea* forest, 24 March 1985, 2 males (M. VON TSCHIRNHAUS). Madeira: Levada dos Tornos, Romeiros, 5 February 1990, male (A.E. STUBBS).

Discussion. European specimens are structurally similar, differing most obviously in the more restricted wing markings; both main markings are narrower, the preapical band including only extreme tip of R_1 and the seams on fork veins and wing margin less obvious reducing the ocellate effect. The shade from the base of M_3 to the hind margin is also fainter and narrower. The yellow humeral spot may be smaller and the legs slightly darker. The number of short spines on the lobes of the ventral stylomere of the gonostylus is also variable in these island forms.

STORÅ, who figured the genitalia of *santosiana*, compared it only with *fenestratula*, and *edwardsi* was not considered. As suggested under *vittipes*, SANTOS ABREU probably confused both species under *continens*. *M. edwardsi* is apparently commoner than *vittipes* in the Canary Islands; STORÅ (1941, 1949) recorded *santosiana* from Madeira but these specimens have not been seen. STORÅ (1941) remarked that the central wing spot reached the costa (only reaching R_1 in Canarian specimens).

Mycetophila pumila WINNERTZ

Mycetophila pumila WINNERTZ, 1863: 922.
Mycetophila fluctata BECKER, 1908: 62, syn. nov.
Mycetophila ornaticollis SANTOS ABREU, 1920: 135, nomen nudum

Male. Head grey dusted. Antennae with basal segments and base of first flagellar segment yellow. Palpi yellow.

Thorax mainly dark brown, shining on mesoscutum. Humeral area conspicuously yellow, narrow fore margin and prothorax yellow. Fine hairs yellow, stronger bristles dark; 3 proepisternals, 3 mesepimerals. Halteres yellow.

Wings with distinct dark central spot over r-m, m-stalk, base of median fork and base of R_5; faint dark shade may be present in apical part of cell r_1, extending just beyond R_5.

Legs yellow, except femur III darkened on most of apical third. Tibia II with 2 a, 1 a-d, 4-5 d, 2 p, 2 v. Tibia III with 7 strong a, 4 strong d (3-5 shorter interspersed), 2-3 short p near tip, all setulae dark.

Abdomen entirely shining black, yellow haired. Genitalia (Fig. 62) small, yellow. Wing length 2.2-2.7 mm.

Female. Very similar. Segments 2-4 of fore tarsi slightly enlarged ventrally. Ovipositor short, yellow. Wing length 2.3-2.8 mm.

Type material studied. *Mycetophila fluctata* BECKER. Holotype male, Tenerife, Laguna, June (T. BECKER, HUB). This specimen labelled "Laguna 51509 June" is a male, not a female as stated by BECKER who evidently mistook the small oval yellow ventral stylomeres for female cerci. This led LANDROCK (1927) to separate *fluctata* from *pumila* as having simple female fore tarsi.

Other material studied. Tenerife: Las Mercedes, 4 April 1973, 2 males (P.J. CHANDLER), 17 August 1931, female; Agua Garcia, 11 July 1931, female (R. FREY). La Palma: Barranco del Rio, 30 September 1907, 1 male, 3 females (E. SANTOS ABREU). Barranco de las Nieves, 1 June 1976, female (P.J. CHANDLER). Los Tilos, 21 July 1974, female (M. BÁEZ). Madeira: Levada dos Tornos, Romeiros, 5 February 1990, male, female (A.E. STUBBS). Fajã, 27 August 1989, male (M. BÁEZ).

Discussion. A widespread European species. British examples agree well, although the dark tip to the hind femora is more extensive (always more than apical third); they have 3 proepisternals (not 2 stated by LANDROCK for *pumila*). SANTOS ABREU followed BECKER, stating that he had previously used the manuscript name *ornaticollis*.

Mycetophila unicolor STANNIUS

Mycetophila unicolor STANNIUS, 1831: 15.
Mycetophila fusconitens BECKER, 1908: 63, syn. nov.
Fungivora similis SANTOS ABREU, 1920: 135, syn. nov.
Mycetophila nitida SANTOS ABREU, 1920: 129, nomen nudum.

Male. Head, thorax and abdomen all mainly shining black. Base of antennae, including most of first flagellar segment and palpi yellow.

Thorax may have small yellow humeral spot. Fine hairs yellow, stronger bristles

dark; 3 proepisternals, 2 mesepimerals. Halteres pale yellow.

Wings yellowish, especially near costa. A small light brown spot, often rather faint or even absent, over base of Rs and base of median fork.

Legs yellow, but femur III often narrowly dark at tip. Tibia II with 3 a, 1 a-d, 5 d, 3 p, 2 long v; anterior setulae dark brown. Tibia III with 7-8 a, 6 d (first short), 2 short weak p near tip; first row of anterior setulae dark brown, otherwise all yellow.

Abdomen shining black except small brownish yellow genitalia (Fig. 63). Wing length 2.5-3.2 mm.

Female. Very similar. Segments 2-4 of fore tarsi very slightly thickened. Ovipositor yellow. Wing length 3.0-3.2 mm.

Type material studied. *Fungivora similis* SANTOS ABREU. Three males (labelled 41, 42) from La Palma, Barranco del Rio, May 1901 are *unicolor* (MICN). One of those labelled 41 has been selected as lectotype.

Other material studied. Tenerife: Las Mercedes, 10 July 1931, 2 males, 1 female (FREY & STORÅ, as *fusconitens*, stated to be 3 females by STORÅ, 1937); 4 April 1973, male (P.J. CHANDLER); late February 1975, male, female (A.E. STUBBS). La Palma: Fuente de los Risquitos, July 1917, male, female (E. SANTOS ABREU, as *fusconitens*, MICN). Los Tilos, 21 July 1974, male (M. BÁEZ). Barranco del Agua, 27 May 1976, male, female; Cumbre Nueva, *Castanea* woods, 29 May 1976, male; Barranco de las Nieves, 1 June 1976, 2 males; Cubo de la Galga, laurel forest, 2 June 1976, 5 males, 2 females (P.J. CHANDLER).

Discussion. A widespread Palaearctic species, also seen from Sri Lanka. European examples do not appreciably differ from the Canarian material. Only a few Canarian examples seen have no vestige of a dark wing marking and conform to *fusconitens*. BECKER's types, two females collected on La Palma by SIMONY, are apparently lost, but there is no doubt that they were *unicolor*. SANTOS ABREU included his material under *unicolor*, *fusconitens* and *similis* according to variation. He considered *fusconitens* common on La Palma and cited his manuscript name *nitida* as a synonym; his specimens, lacking any wing marking, are confirmed as *unicolor*. His *similis*, distinguished from *unicolor* on the position of the posterior fork (the base of which may be opposite or a little beyond base of median fork), was also said to be common at the Barranco del Rio, while *unicolor* itself was uncommon at the same locality. His material placed under *unicolor* has not been seen but the types of *similis* are typical *unicolor*.

Mycetophila trinotata STAEGER

Mycetophila trinotata STAEGER, 1840: 242.

Male. Head dark brown, grey dusted. Antennae yellow to base of first flagellar segment, rest dark brown. Palpi yellow.

Mesoscutum with orange ground bearing three ± fused shining dark brown stripes, leaving humeral area and sides broadly yellow; yellow prescutellar spot. Scutellum mainly yellow, dark brown basally and laterally. Prothorax, pleura and mediotergite dark brown, grey dusted. Bristles brown; 3 proepisternals, 3-5 mesepimerals.

Wings with well marked central spot from R to base of median fork and preapical band touching tip of R_1 or distinctly beyond it, filling end of cell r_1, contracted basad in cell r_5 and reaching beyond M_1, sometimes disconnected from faint brown patch over M_2, which may extend to M_3+CuA_1; also vague brown patch beyond CuA_2.

Legs yellow, with femur III brown apically, all femora with brownish shade below bases. Tibia II with 3 a, 1 a-d (2 a-d in one example), 5 d (basal weak), 2-3 p (basal weak) on apical third, 1-2 v. Tibia III with 7 a, 2 strong a-d (at basal and apical thirds, i.e. before fourth and sixth a), 4 strong d (3 weaker interspersed), 3-5 short p near tip.

Abdomen mainly shining dark brown; tergites 2-4 narrowly yellow apically, 3-4 also basally; tergite 6 yellow on apical third dorsally. Genitalia (Fig. 64) yellowish brown. Wing length 3.3-3.7 mm.

Female. Thoracic coloration similar but mesoscutal stripes completely separate in some examples. Tibia III with only 1 a-d at apical third (as usual in both sexes in European examples). Abdomen with tergites 2-5 narrowly yellow on hind margins; tergite 6 yellow on apical half dorsally, narrowed laterally. Ovipositor brownish yellow. Wing length 3.4-3.8 mm.

Material studied. Madeira: Corujeira, 18 February 1977, female; Quinta do Palheiro, 5 February 1990, male; Levada dos Tornos, Romeiros, 5 February 1990, male, female (A.E. STUBBS). Between Camacha and Santo da Serra, 21 August 1989, male (M. BÁEZ).

Discussion. The Madeiran examples are very similar to European material except that the male seems to normally have 2 a-d on tibia III; there is only a single bristle in both sexes of European examples and this may be situated nearer the fourth anterior bristle. The abdomen may be more extensively yellow, with yellow hind margins of tergites broadened laterally or sometimes entirely dark except apical part of tergite 6; the preapical wing band is sometimes narrower and not reaching back to R_1. *M. trinotata* is a common Holarctic species.

Mycetophila pictula MEIGEN

Sciara bimaculata FABRICIUS, 1805: 57. A junior secondary homonym of *Mycetophila bimaculata* MEIGEN, 1804: 92 (now in *Leia*).
Mycetophila pictula MEIGEN, 1830: 297.
Mycetophila bimaculata (FABRICIUS); STAEGER, 1840: 240.

Male. Head brown, grey dusted, yellowish above eyes; clypeus light grey. Antennae yellow at base, including underside of flagellar segments 1-6, rest dark brown. Palpi yellow.

Mesoscutum brownish yellow with three broadly separated slightly shining dark brown stripes; median stripe may be more reddish brown in front, sometimes all stripes obscure reddish; stripes converge behind, fused in front of scutellum, which is dark brown on disc, with small basal spot and margins yellow. Prothorax yellowish brown, rest of pleura and mediotergite dark brown with yellowish sutures and spiracular area. Most hairs and bristles yellow, stronger bristles on mesoscutum and scutellum dark brown and scattered short dark bristles on mesoscutum; pleural bristles including 4 proepisternals and 4 mesepimerals yellow. Halteres yellow.

Wings yellow with conspicuous dark brown central spot from R to base of median fork and preapical band enclosing tip of R_1, filling end of cell r_1, extending strongly to M_1, then weakly to hind margin in posterior fork.

Legs yellow with conspicuous dark brown tip to femur III, sometimes extreme tip of femur II. Tibia II with 3 a, 1 a-d, 6 d (last 4 strong), 1 long and 1 weak (basal to it) p on apical third, 2-3 long v (2 shorter among them). Tibia III with 7 a, 4 strong d (a few short among them), 0 p; setulae all dark. Coxa III with a few short pale hairs near tip.

Abdomen mainly shining dark brown with large irregular yellow patch covering sides of tergites 2-3, narrowly linked dorsally on hind margins; hair yellow. Sternites brown except 2-3 yellow. Genitalia (Fig. 65) yellowish brown. Wing length 3.1-3.6 mm.

Female. Similar. Yellow on antenna may be restricted to basal segments and base of first flagellar. Fore tarsi with segments 2-4 strongly swollen ventrally, brownish. Abdomen dark brown, usually extensively yellow; tergites 2-5 yellow at sides, narrowly linked dorsally on hind margins (more broadly on 5), 6 entirely yellow. Ovipositor brown; cerci one segmented, elongate oval. Wing length 3.3-3.8 mm.

Material studied. Madeira: Corujeira, 18 February 1977, 6 males, 4 females; Levada dos Tornos, Romeiros, 5 February 1990, 9 males, 7 females; Levada do Norte, Campaneano, 7 February 1990, 5 males; Fajã da Nogueira, 8 February 1990, 2 males (A.E. STUBBS). Campaneano, 15 August 1989, 2 males, 1 female; Encumeada, 20 August 1989, male; between Camacha and Santo da Serra, 21 August 1989, female (M. BÁEZ).

Discussion. The record of *bimaculata* from Funchal by STORÅ (1949) no doubt refers to this species. It is a frequent Holarctic species, seen from Morocco (MNHN). British examples vary in thoracic coloration from almost entirely dark to broadly yellow on humeral areas and sometimes sides of mesoscutum but stripes are usually fused. In Corsican material, however, the male is coloured as in Madeiran

specimens and the female has the thorax almost entirely orange with only the hind part of the stripes vaguely brownish. Similar variation occurs in Nearctic material according to LAFFOON (1957).

Mycetophila storai sp. nov.

Mycetophila continens BECKER *sensu* STORÅ, 1945: 12.

Male. Head reddish brown, thinly grey dusted, yellow above eyes. Antennae yellow to base of first flagellar segment, rest dark brown. Palpi slender, yellowish brown.

Mesoscutum brownish yellow with three broad fused dark yellowish brown stripes, leaving humeral area and narrow side margins yellow (in one example only narrowly yellow on humeral area). Scutellum and mediotergite brown. Prothorax yellow, pleura brownish yellow to brown. Bristles dark brown; 3 proepisternals, 3--4 mesepimerals, 2 bristles on mesanepisternum in line with them. Halteres yellow.

Wings greyish except large light brown markings; central spot broadly extends from costa over base of median fork; preapical band broadly includes tip of R_1, filling end of cell r_1, only intense before M_1 but broadened to reach hind margin from behind CuA_2 as far as tip of M_2 or even M_1 to leave relatively small clear apical area in cell r_5 and sometimes anterior part of cell m_1. Membrane also vaguely brownish from CuA_2 to hind margin. Vein R before Rs bears 8-9 setulae below; vein tb ("M before r-m" of LAFFOON) bare.

Legs yellow, except brown apical quarter to third of femur III, brownish tip to tibia III. Tibial setulae dark brown. Tibia II with 4 a on basal two thirds, 1 a-d beyond them level with last d, 5 progressively longer d, 4 p on apical half (2 basal short and weak), 2 long v. Tibia III with 7 a (fourth and/or fifth shorter), 4 strong d (6-19 shorter interspersed), 2 short weak p near tip. Coxa III with external apical but no posterointernal hairs apparent.

Abdomen entirely slightly shining dark brown. Genitalia (Fig. 66 A-B) yellow. Wing length 2.4-2.7 mm.

Female. Similar. Fore tarsi with segments 2-4 slightly enlarged. Two examples with 2-3 a-d on one tibia II, 1 on other; 1 example has fifth anterior bristle level with a-d on tibia II. Abdomen mainly shining dark brown; tergites 2-6 yellow laterally, yellow extended onto hind margin of 6; 7 entirely yellow. (One example has sides broadly yellow, extended dorsally on hind margins of all tergites). Sternites yellow. Ovipositor (Fig. 66 C) brownish yellow with elongate brownish single segmented cerci. Wing length 2.6-3.2 mm.

Type material studied. Holotype male, Azores, São Miguel, Lagoa do Congro, 21

May 1938 (R. FREY, ZMH). Paratypes: male, 2 females, São Miguel, Lagoa do Congro, 21 May 1938 (R. STORÅ); male, São Miguel, Sete Cidades, 17 May 1938 (R. FREY); female, Terceira, Bagacina, 17 July 1938 (R. STORÅ) (all ZMH) (both paratype males lack abdomen).

Discussion. According to a label attached to this series, STORÅ had initially considered them a new species before referring them incorrectly to *continens*. *M. storai* belongs to the *pictula* Group characterised by male genital structure and the combination of one segmented cerci and thickened fore tarsi in the female. The preapical wing marking also touches or includes the tip of R_1. CHANDLER (1977) discussed the four British species of the group; only *pictula* is Holarctic and LAFFOON (1957) recognised two related Nearctic species. Few other Palaearctic species belong to the group. *M. storai* has genitalia nearest to *pictula* among the known species.

Mycetophila madocella sp. nov.

Male. Head dark brown. Antennae with basal segments and base of first flagellar segment yellow, rest brown; flagellar segments about three times as long as broad; antennae as long as abdomen.

Thorax mainly slightly shining dark blackish brown; narrow humeral and posthumeral angles and prothoracic spiracle yellow; 3 proepisternals, 3-4 mesepimerals. Shorter bristles yellowish, stronger bristles black, including 4 strong scutellars. Halteres yellow.

Wing clear yellowish with large brown central patch from R across Rs, r-m to base of median fork. Preapical patch lighter brown, broad, irregular edged from around or just beyond tip of R_1, to near tip of R_5 (sometimes less extensive, not including tip of cell r_1), extended without much contraction across M_1 and ending just beyond M_2.

Legs pale yellow, hind femora dark on apical quarter. Tibia II with 3 a, 1 a-d, 5 d, 2 short p near tip, 3 strong v. Tibia III with 4 strong and some shorter d, 5-6 a, 1--3 weak p near tip. Anterior setulae of tibiae II-III black.

Abdomen black with yellowish bristling. Genitalia (Fig. 67) brownish yellow. Wing length 2.7-3.2 mm.

Female. Similar to male. Antennae shorter, two thirds abdominal length. Fore tarsi with segments 2-3 enlarged a little ventrally. Abdomen with side margins of tergites yellow. Ovipositor yellow, cerci two segmented. Wing length 2.8-3.3 mm.

Type material studied. Holotype male, Madeira, Ribeiro Frio, 27 August 1989 (M. BÁEZ, MICN). Paratypes: Madeira: male, same data as holotype (MICN); male, Fajã, 27 August 1989; 6 males, between Camacha and Santo da Serra, 21 August

1989; male, Monte Levada, Tornos, 17 August 1989 (M. BÁEZ).

Other material studied. Madeira: Levada do Norte, Campaneano, 7 February 1990, 14 males, 1 female; Levada dos Tornos, Romeiros, 5 February 1990, 6 males, 10 females; Fajã da Nogueira, near Ribeiro Frio, 8 February 1990, male (A.E. STUBBS). Ribeiro Frio, laurel forest, 5 September 1986, 2 males, 1 female (P. OHM, via M. VON TSCHIRNHAUS).

Discussion. This species is close to *occultans* LUNDSTRÖM, a widespread European species, but differs in the presence of strong wing markings and details of the genitalia.

Mycetophila parvifasciata (SANTOS ABREU) stat. nov.

Mycetophila interrupta BECKER, 1908: 61. A junior primary homonym of *Mycetophila interrupta* ZETTERSTEDT, 1852: 4240 (= *Exechia bicincta* (STAEGER, 1840)).
Fungivora interrupta (BECKER) var. *parvifasciata* SANTOS ABREU, 1920: 148.
Mycetophila pseudolunata SANTOS ABREU, 1920: 148, nomen nudum.

Male. Head shining dark brown. Antennae yellow to base of first flagellar segment, rest dark grey. Palpi yellow.

Mesoscutum brownish yellow with three narrowly separated shining brown stripes. Scutellum yellow in middle, brown at sides. Prothorax yellow; pleura and mediotergite brown. All hairs and bristles dark; 3 proepisternals, 4 mesepimerals. Halteres yellow.

Wings yellowish with conspicuous dark brown markings: a large central spot from R to M_2 and a sinuous broad preapical band entirely beyond tip of R_1, filling end of cell r_1, nearly reaching M_3+CuA_1, sometimes connected to narrow clouding on hind margin from R_5 to CuA_2, M_1 and M_2 may be narrowly clouded; also dark shade from CuA_2 to hind margin.

Legs pale yellow, coxae vaguely darkened apically, apical sixth of femur III and tip of tibia III brown. All setulae dark. Tibia II with 3-4 a, 1 a-d, 5-6 d, 2-5 p (only last 1-2 strong), 3 v. Tibia III with 7-8 a, 4 strong d (7-8 shorter interspersed), 2-3 short p near tip.

Abdomen shining dark brown with narrow ± obscurely yellow apical margins on tergites 2-6, extended onto side margins as narrow triangles especially on tergites 2--3. Genitalia (Fig. 68, A-C) small, yellowish brown. Wing length 3.2-4.1 mm.

Female. Very similar. Yellow abdominal bands a little brighter. Thorax may be brighter with narrower stripes, sometimes darker and almost fused. One example from Agua Garcia has preapical wing band smaller, narrower, only distinct to M_1. Wing length 3.3-4.3 mm.

Type material studied. *Mycetophila interrupta* BECKER. One male, labelled

"Teneriffe 46746 December", "*M. interrupta* det BECKER"; genitalia mounted and a pencil written label "*Mycetophila spectabilis* WINNERTZ" attached (HUB). One female, labelled "Laguna 51503 June", ovipositor mounted (HUB). BECKER described *interrupta* from several males and females taken at Laguna in June; both are labelled "Typus" but only the female agrees with BECKER's precise data and is selected as lectotype.

Other material studied. Tenerife: Guimar, 13 March 1907, female (? collector, NHML). Monte los Silos, 12 March 1985, male (G. ORTEGA). Agua Garcia, 11 July 1931, 76 males, 83 females (FREY & STORÅ), 6 April 1973, 2 males, 3 females (P.J. CHANDLER). Las Mercedes, 10 July 1931, 5 males (R. STORÅ), 4 April 1973, 3 males, 5 females (P.J. CHANDLER), late February - early March 1975, 3 males, 2 females (A. E. STUBBS). Tacoronte, 2 females (R. STORÅ). Orotava Forest, 5 April 1973, 2 females; near Cruz de Afur, 4 April 1973, female (P. J. CHANDLER). Monte los Silos, 17 June 1976, male; Monte del Agua, 27 August 1973, female; Las Yedras, 10 September 1984, 2 males, 1 female (M. BÁEZ). La Palma: Cubo de la Galga, 27 May 1976, 6 males, 5 females; 2 June 1976, 2 males, 6 females (P. J. CHANDLER). La Palma, Gomera, woods, May 1912, 2 males, 1 female (E. SANTOS ABREU, MICN). Gomera: El Cedro, 10 August 1974, female; Monte Aguirre Cueva, 15 July 1979, female (M. BÁEZ).

Discussion. The three SANTOS ABREU specimens examined, although not precisely localised, are typical. SANTOS described var. *parvifasciata* with reduced wing markings from La Palma, Lomo de los Gomeros, 5 May 1908. Although the type of this variety has not been seen it is considered conspecific and the name is therefore available for *interrupta* BECKER, which falls as a homonym as indicated above.

The genital structure is very similar to that of *spectabilis* WINNERTZ, a widespread European species frequent in the Mediterranean region and to *atlantica* NIELSEN. *M. spectabilis* is usually a smaller species (wing length 2.9-3.9 mm) with more restricted and less intense wing markings than in *parvifasciata*. The genital differences between these species are small but constant (as shown for comparison in Fig. 68 D-F).

Some females from Madeira (Santana, 26 May 1989, R. CAPELA; between Camacha and Santo da Serra, 21 August 1989, M. BÁEZ) have the characters of this species but associated males will be necessary to confirm whether they are conspecific. STORÅ (1941, 1949) recorded *interrupta* from Madeira, Rabaçal and Funchal, Monte, but the material has not been examined so it cannot be confirmed whether it is the same species as the Madeiran females seen or alternatively could be *nigromadera* sp. nov.

Mycetophila atlantica NIELSEN

Mycetophila interrupta BECKER *sensu* STORÅ, 1945: 11.
Mycetophila spectabilis WINNERTZ *sensu* NIELSEN, 1966: 10.
Mycetophila atlantica NIELSEN, 1966: 12.

Male. Head dark brown; clypeus yellowish. Antennae yellow to base of first flagellar segment, rest brown. Palpi brownish yellow.

Mesoscutum uniformly dark brown with three darker stripes only vaguely indicated. Prescutellar spot and median area on scutellum yellow. Humeral area narrowly and prothorax brownish yellow. Pleura, sides of scutellum and mediotergite dark brown, grey dusted. All bristles dark; 3-4 strong proepisternals, 4 weak bristles above them, 5 mesepimerals. Halteres with yellowish stems and brown knobs.

Wings yellowish, with central spot from R stopping short of M_2 and preapical band entirely beyond R_1, filling end of cell r_1, intense to middle of cell r_5 or to M_1, sinuous and vaguely reaching M_2, sometimes extends more vaguely across posterior fork; vaguely brownish between CuA_2 and margin. All markings less intense than in *parvifasciata*.

Legs yellow, femora with brownish shades beneath, femur and tibia III slightly brownish apically. All setulae brown. Tibia II with 3-4 a, 1 a-d (beyond a), 6 progressively stronger d (basal weak), 5-7 p on apical half (last 2 strong), 3 v. Tibia III with 7-8 a, 4 strong d (7-9 shorter interspersed), 4-6 short p near tip.

Abdomen shining dark brown; side of tergite 2 may be narrowly yellow and sides of succeeding tergites may be more narrowly yellow. Sternites usually yellow (may be brown if tergites entirely brown). Genitalia (Fig. 69) yellowish brown. Wing length 3.6-4.2 mm.

Female. Similar. Abdomen dark brown with segments 2-6 more or less yellow on sides and hind margins (sometimes reduced to apical margin of 6). Sternites, segment 7 and ovipositor brownish yellow. Wing length 3.8-3.9 mm.

Type material studied. *Mycetophila atlantica* NIELSEN. Holotype male, Azores, São Miguel, Caldeira das Sete Cidades, at Lagoa Azul, 21 March 1957, loc. 50 (P. BRINCK & E. DAHL, ZIL) (in alcohol).

Other material studied. São Miguel: Lagoa do Congro, 16 March 1957, loc. 34, wet arboreal ferns, male (P. BRINCK & E. DAHL, det as *spectabilis* by NIELSEN, ZIL); 21 May 1938, 25 males, 25 females (R. STORÅ, ZMH). Furnas, 22-24 May 1938, 2 males, 1 female (R. STORÅ). São Jorge: Ribeira Funda, 16-23 June 1938, 2 males, 3 females (R. FREY). Terceira: Bagacina, 17 July 1938, 2 males, 1 female (R. STORÅ); Achada, 3-4 June 1938, female (R. FREY) (ZMH).

Discussion. The specimen determined as *spectabilis* by NIELSEN has genital

structure identical with his *atlantica* type. The other type specimens of *atlantica* have not been examined. The FREY and STORÅ material from the Azores identified as *interrupta* is conspecific. The differences in genital structure from *parvifasciata* and *spectabilis* suggest that *atlantica* is a good species endemic to the Azores.

Mycetophila nigromadera sp. nov.

Male. Head dark brown above, face brownish yellow, clypeus grey dusted. Antennae brownish yellow to base of first flagellar segment, rest dark brown. Palpi brownish yellow.

Mesoscutum slightly shining dark brown except small yellow prescutellar spot. Scutellum dark brown except yellow central area, narrowed behind but reaching yellow underside of margin between apical scutellars. Pleura and mediotergite dark brown, only spiracular area yellow. All hairs and bristles dark; 3-4 proepisternals (last short), 4-7 mesepimerals (first weak). Halteres yellow, greyish on knob.

Wings yellowish with conspicuous dark brown markings: a large central spot intense over base of Rs and base of cell r_5, extended more weakly and broadly to costa and to hind margin; broad sinuous preapical band not quite reaching tip of R_1, filling end of cell r_1, broadened basad in cell r_5 and separated by clear area from lighter brown apical margin, beyond M_1 fainter but confluent both with apical marking (only small clear area in cell m_1) and central band. Vein R before Rs with 7-9 setulae below apical part, tb (= "M before r-m" of LAFFOON) bare.

Legs mainly dull yellow with slight dark shades on coxae II-III, narrowly dark brown tips to femora II-III; all setulae dark. Tibia II with 4 strong a, 1 strong a-d (just beyond last a), 7 progressively stronger d (last 2 a little more p-d), 6 short p on apical half (last 2 as strong as d), 3 strong v. Tibia III with 7 strong a, 3-4 strong d (1-2 shorter basally and several weaker interspersed), 5-8 short erect p. Coxa III with several short weak bristles on internal edge near tip.

Abdomen mainly dark brown. Tergites narrowly brownish yellow on sides, extending more onto hind margins of posterior tergites; sternites brownish yellow. Genitalia (Fig. 70) small, brownish yellow. Wing length 3.8-4.7 mm.

Female. Similar to male. Tibia II with 4 a, 6 d (last 2 more p-d), 7 p (last 2 strong as d), 3 strong v. Tibia III with 7-8 a, 4 strong and several weak d. Abdomen mainly dark brown; tergites narrowly yellow on hind margins, ± broadly on sides. Ovipositor brownish yellow. Wing length 4.1-5.0 mm.

Type material examined. Holotype male, Madeira, Corujeira, 18 February 1977 (A.E. STUBBS, NHML). Paratypes: male, same data as holotype. 6 males, 7 females, Madeira, Fajã da Nogueira, 8 February 1990; female, Levada dos Tornos, Romeiros, 5 February 1990; 2 females, Levada do Norte, Campaneano, 7 February 1990 (A.E.

STUBBS).

Discussion. This species shows relationships with *spectabilis*, *parvifasciata* and *atlantica* but has marked differences in genital structure, especially in the bilobed ventral stylomere of the gonostylus. *M. nigromadera* is an overall darker species and the known examples are mostly larger than these other species. The records of *interrupta* from Madeira by STORÅ (1941, 1949) are discussed under *M. parvifasciata*.

Mycetophila perpallida CHANDLER

Mycetophila fungorum (DE GEER); STORÅ, 1941: 5 and 1949: 12.
Mycetophila perpallida CHANDLER, 1993: 6.

Male. Head brown, thinly grey dusted. Antennae brownish yellow basally, flagellar segments 1-6 dark brown above, rest dark brown. Palpi brownish yellow; segments 2-4 all broad, subequal in length, 3 broadest.

Mesoscutum brownish yellow with three separate dark brown stripes, median stopping short where laterals converge to reach scutellum, which has two brown areas on disc corresponding to them. Prothorax, pleura and mediotergite brown, yellow at sutures, thinly grey dusted. Fine hair of mesoscutum pale, other bristling dark; 4 strong proepisternals, 4 weak bristles above them, 4-5 strong mesepimerals. Halteres yellow.

Wings entirely yellow. Vein R before Rs with 11-14 setulae below; tb (= "M before r-m" of LAFFOON) bare.

Legs entirely yellow with all setulae dark. Tibia II with 4 a (basal weak), 4-5 d (basal weak), 7-9 p (last 1-2 strong) on apical half. Tibia III with 5-6 a, 4-5 d (basal weak), 9-14 short p on apical two thirds. Coxa III with 4 short erect posterointernal hairs.

Abdomen mainly dark brown with obscure irregular yellow markings on sides of tergites 1-3 (which are dark dorsally, 2-3 also dark on side margins), very vague on 4-5 and much of 6 (which is dark dorsally and on basolateral triangle). Sternites and genitalia (Fig. 71) brownish yellow. Wing length 3.3-4.8 mm.

Female. Similar. Palpi narrower than in male. Abdomen mainly yellowish brown, tergites 1-4 dark brown dorsally and narrowly on side margins; segment 7 and ovipositor brownish yellow. Wing length 3.8-4.8 mm.

Type material studied. Holotype male, Montenegro; 6 paratype males from Slovenia, Spain and France (Corsica) (all NHML).

Other material studied. Madeira: Corujeira, 18 February 1977, 5 males, 9 females; Ribeiro Frio, 19 February 1977, male, female; Santa Cruz, 21 February 1977, male; Levada do Norte, Campaneano, 7 February 1990, male, 2 females;

Quinta do Palheiro, 5 February 1990, female; Fajã da Nogueira, 8 February 1990, male (A.E. STUBBS). Funchal, 30 April 1938, female (R. FREY). Ribeiro Frio, 5 September 1986, male (P. OHM, via M. VON TSCHIRNHAUS); 27 August 1989, male, female (M. BÁEZ). Santana, 26 May 1989, 3 males, 12 females (R. CAPELA).

Discussion. The records of *fungorum* by STORÅ (1941, 1949) from Madeira, Rabaçal and Funchal, probably relate to this species. The Madeiran examples agree well with European specimens and are referred to *perpallida* on the basis of the male genital structure. No other constant differences from *fungorum* (DE GEER) have yet been found.

Mycetophila suffusala sp. nov.

Fungivora lineola MEIGEN *sensu* SANTOS ABREU, 1920: 129.
Fungivora lineola MEIGEN var. *lateralis* SANTOS ABREU, 1920: 132. A junior secondary homonym of *Mycetophila lateralis* MEIGEN, 1818: 266 (= *Exechia fusca* (MEIGEN)).

Male. Head brownish yellow, thinly grey dusted; clypeus more strongly grey dusted. Antennae brownish yellow basally, sometimes to flagellar segments 2-3, rest grey dusted; second flagellar segment is 1.8-2.0 x long as broad. Palpi yellow, segments 2-3 broad, 4 slender; thinly silvery grey dusted and dark bristled externally, short pale hair internally.

Mesoscutum mainly dull dark brown, thinly grey dusted; narrowly brownish yellow at margins, very vaguely on narrow dorsocentral stripes and small prescutellar spot. Scutellum largely dark brown, with narrow yellow spot basally and narrow yellow margins. Prothorax, pleura and mediotergite dark brown except yellow sutures and spiracular area. Bristles dark; 5 strong proepisternals, first in line with weaker upper series; 4-7 mesepimerals. Halteres yellow.

Wings yellow with strong irregular brown central spot from R to base of median fork and vague (sometimes faint) brown shade in apical two thirds of cell r_1 and of anterior half of cell r_5. Vein R before Rs with 8-15 setulae below. Vein tb (= "M before r-m" of LAFFOON) with 18-22 setulae below on apical four fifths.

Legs dull yellow with setulae dark. Tibia II with 3-4 a (last 2 strong), 5-6 d (last 4 strong), 8-9 p on apical half (last 2 strong). Tibia III with 6-7 strong subequal a, 6 progressively stronger d (2 basal short), 10-18 short close set subequal p on apical two thirds. Coxa III with several short posterointernal hairs.

Abdomen mainly dull dark brown, tergites with broad sublateral band (especially on 2-4) and narrow apical margins more or less distinctly yellow (brighter examples in Canarian material). Genitalia (Fig. 72) brownish yellow; structure very like

britannica, dorsal stylomere of gonostylus more sharply narrowed apically and narrow apical portion relatively longer. Wing length 3.7-4.8 mm.

Female. Similar. Palpi with segments 2-3 subequal, distinctly narrower than in male, 4 slender and elongate; long fine hair internally not dense. Mesoscutal stripes more apparent on yellowish brown ground in some Canarian examples. Abdomen mainly dark brown, with sublateral yellow band ± indicated and tergites 2-6 narrowly yellowish on hind margins; 7 partly brownish yellow. Ovipositor brownish yellow. Wing length 4.2-5.1 mm.

Type material studied. Holotype male, Madeira, Ribeiro Frio, 19 February 1977 (A.E. STUBBS, NHML). Paratypes: 5 males, 7 females, same data as holotype; 5 males, 3 females, Madeira, Corujeira, 18 February 1977 (A.E. STUBBS).

Other material studied. Madeira: Fajã da Nogueira, 8 February 1990, male, 2 females (A.E. STUBBS). Ribeiro Frio, 5 September 1986, 2 females; Queimadas, 10--11 September 1986, 2 males (P. OHM, via M. VON TSCHIRNHAUS). Tenerife: Las Mercedes, early March 1975, male (A. E. STUBBS). La Esperanza, 28 October 1979, female; Palo Blanco, 15 May 1985, female (M. BÁEZ). West of Las Cañadas, water trap, 2075 m, 1-10 April 1989, female; near top of north west ridge at Izaña, 2350 m, 29 March 1984, 6 males, 9 females, large numbers flying southwestwards 1 metre from ground, presumed migration (N.P. ASHMOLE). Gran Canaria: Las Lagunetas, 22 July 1931, 3 males, 2 females (R. FREY & R. STORÅ). Gomera: El Cedro, 17 September 1977, male; Laguna Grande, 9 September 1977, male (M. BÁEZ). La Palma: Barranco de la Galga, 27 January 1975, male (M. BÁEZ).

Discussion. Two examples named as *lineola* from SANTOS ABREU's collection have been examined; these included one male and one without the abdomen, both from La Palma, Barranco del Rio, October 1910 (MICN). These agree with *suffusala* and dissection of the male confirmed their identity. SANTOS ABREU also described var. *lateralis*, on differences in body coloration, from La Palma, Barrancos del Rio and de Quintero. It is concluded that this variety is also conspecific with *suffusala*. PETR LAŠTOVKA examined Madeiran specimens and confirmed that they represent a member of the *ruficollis* Group previously unknown to him, close to *ruficollis* MEIGEN itself on palpal structure and resembling both *ruficollis* and *britannica* in genital structure,differing from both in the larger size and dark shade on the apical part of the wing.

Mycetophila britannica LAŠTOVKA & KIDD

Mycetophila lineola MEIGEN *sensu* STORÅ, 1945: 11; NIELSEN, 1966: 10.
Mycetophila britannica LAŠTOVKA & KIDD, 1975: 203.

Male. Similar to *suffusala*. Antennae brownish yellow to base of first flagellar segment, rest brown; second flagellar segment 1.5 x long as broad, succeeding segments progressively longer. Palpi yellow, segments 2-3 subequal, narrower and more parallel sided than in *suffusala*; 4 slender.

Mesoscutum with yellow ground bearing three dark brown, grey dusted, stripes, the median tapered to a point behind, where laterals converge to stop short of scutellum; stripes confluent or very narrowly separated by yellowish dorsocentral stripes. Scutellum brown on disc, yellow on margin. Prothorax yellow. Pleura mainly dark brown, often with posterodorsal half (cut off diagonally) of katepisternum (sometimes also of mesanepisternum) and lower half of mesepimeron yellow; 4-5 proepisternals, first in line with weak upper series.

Wings yellowish with strong central brown spot from R to base of median fork, otherwise unmarked. R before Rs bears 10-15 setulae below; tb bears 13-22 setulae on apical three quarters.

Legs yellow. Tibia II with 4 a, 6 d (2 basal weak), 6 p on apical half (last 2 strong). Tibia III with 6 a, 6 d (2 basal small), 9-11 p on apical half.

Abdomen entirely dark brown or tergites (especially 2-3) narrowly yellow on hind margins. Genitalia (Fig. 73) brownish yellow. Wing length 2.9-4.3 mm.

Female. Similar. Abdomen mainly dark brown; tergites 2-5 with vaguely yellowish bands on hind margin, 4-6 with irregular sublateral brownish yellow band; 7 and ovipositor brownish yellow. Wing length 3.1-4.1 mm.

Material studied. Madeira: Ribeiro Frio, 3 May 1938, female (R. FREY); 19 February 1977, 5 males, 1 female; Corujeira, 18 February 1977, 12 males, 19 females; Levada dos Tornos, Romeiros, 5 February 1990, 11 males, 2 females; Levada do Norte, Campaneano, 7 February 1990, 3 males; Quinta do Palheiro, 5 February 1990, male, female; Fajã da Nogueira, 8 February 1990, male (A.E. STUBBS). Ribeiro Frio, 27 August 1989, male; between Camacha and Santo da Serra, 21 August 1989, 7 males, 4 females (M. BÁEZ). Levada da Serra (Balcões), 2 February 1989, 2 males, 1 female; Santana, 26 May 1989, female; Camacha, 27 May 1989, 2 males, 3 females; Ribeiro Frio, 20 February 1990, female (R. CAPELA). São Miguel: Ribeira Quente, 11 March 1957, male; 3 km east of Ribeirinha, on wet rock in ravine, 25 March 1957, male (BRINCK & DAHL). Furnas, 22-24 May 1938, 26 males, 19 females; Lagoa do Congro, 21 May 1938, 5 males, 3 females; Ponta Delgada, 14-16 May 1938, male (FREY & STORÅ). Terceira: Bagacina, 17 July 1938, 4 males, 3 females; Achada, 3-4 June 1938, 3 males, 3 females (FREY & STORÅ).

São Jorge Calheta, 22-28 June 1938, male; Ribeira Funda, 16-23 June 1938, 9 males, 1 female (FREY & STORÅ). Pico: ? locality, 26 July 1929, male (J. BALFOUR-BROWNE, NHML); Silveira, 7 July 1938, male (FREY & STORÅ). Flores: Vales, June 1938, 5 females (FREY & STORÅ).

Discussion. *M. britannica* was recorded initially from the British Isles, where it is common, but Mediterranean material of the *ruficollis* Group has been found to consist predominantly of *M. britannica* which evidently has a southern and western distribution in Europe, also occurring in Morocco (MNHN). The material from the Atlantic islands agrees well with European examples; PETR LAŠTOVKA has confirmed that the Madeiran material is *britannica*. NIELSEN (1966) recorded "*lineola*" from three other sites in São Miguel.

The records of "*lineola*" from Madeira (Rabaçal, Caramujo, Ribeiro Frio) by STORÅ (1941, 1949) could relate either to *britannica* or to *suffusala*. Females possibly of *britannica* have been found in the Canary Islands but the examination of associated males would be desirable to confirm their identity. These are from Gran Canaria (Las Lagunetas, 22 August 1931, 2 females, FREY & STORÅ), Tenerife (Las Mercedes, 4 April 1973, 4 females; Agua Garcia, 6 April 1973, female, P.J. CHANDLER) and Gomera (Lomo de Carreton, 20 March 1985, female, M. VON TSCHIRNHAUS).

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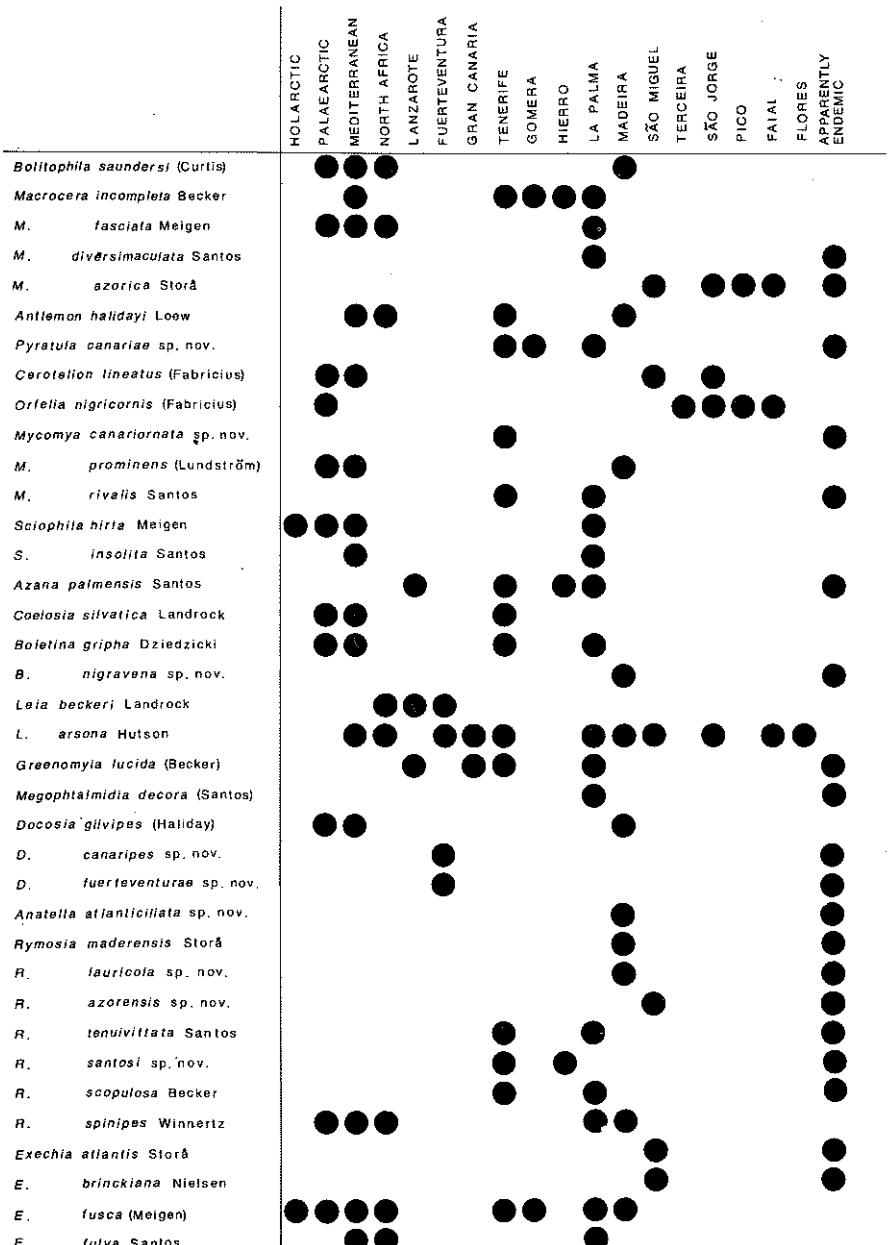


Table 1. The distribution by island and types of external distribution of Atlantic Island Sciaroidea.

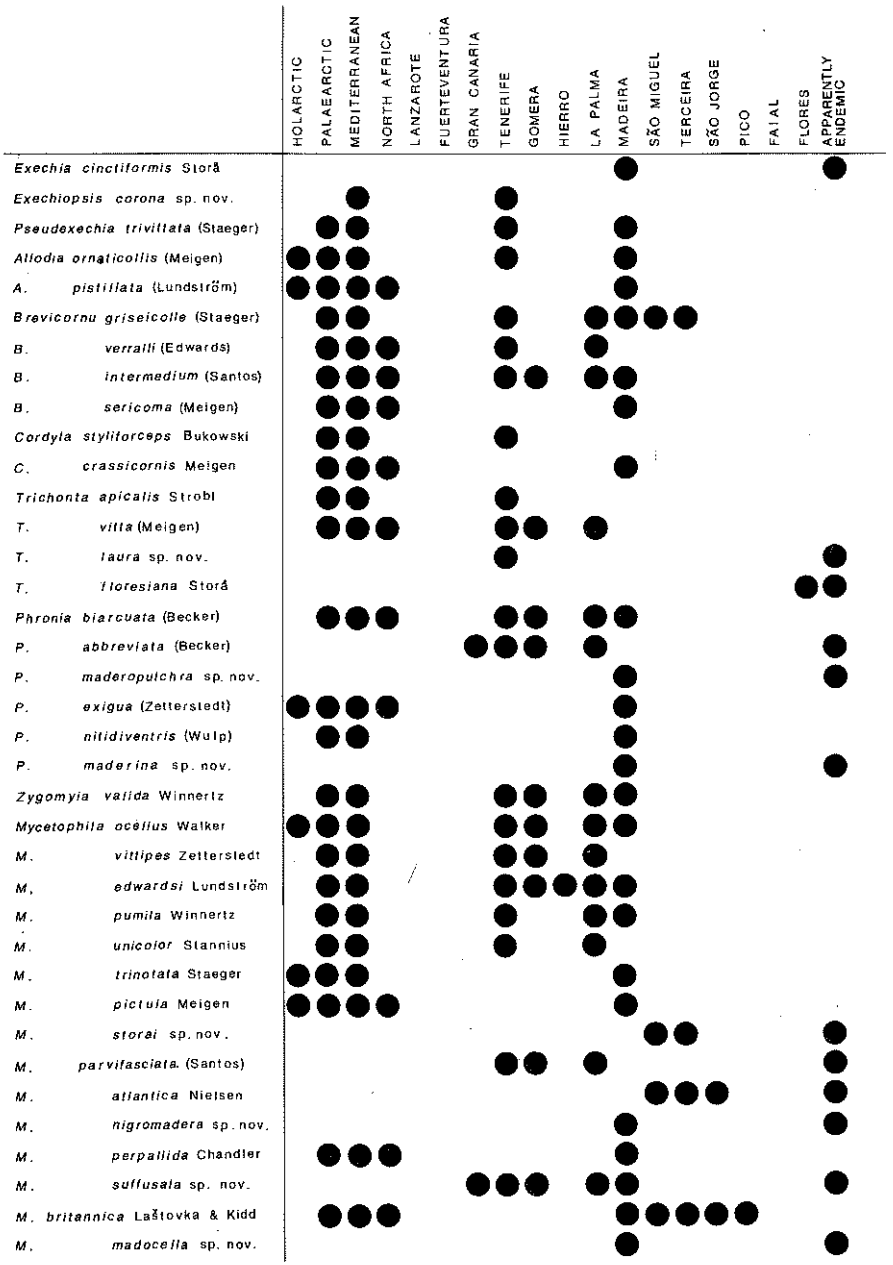
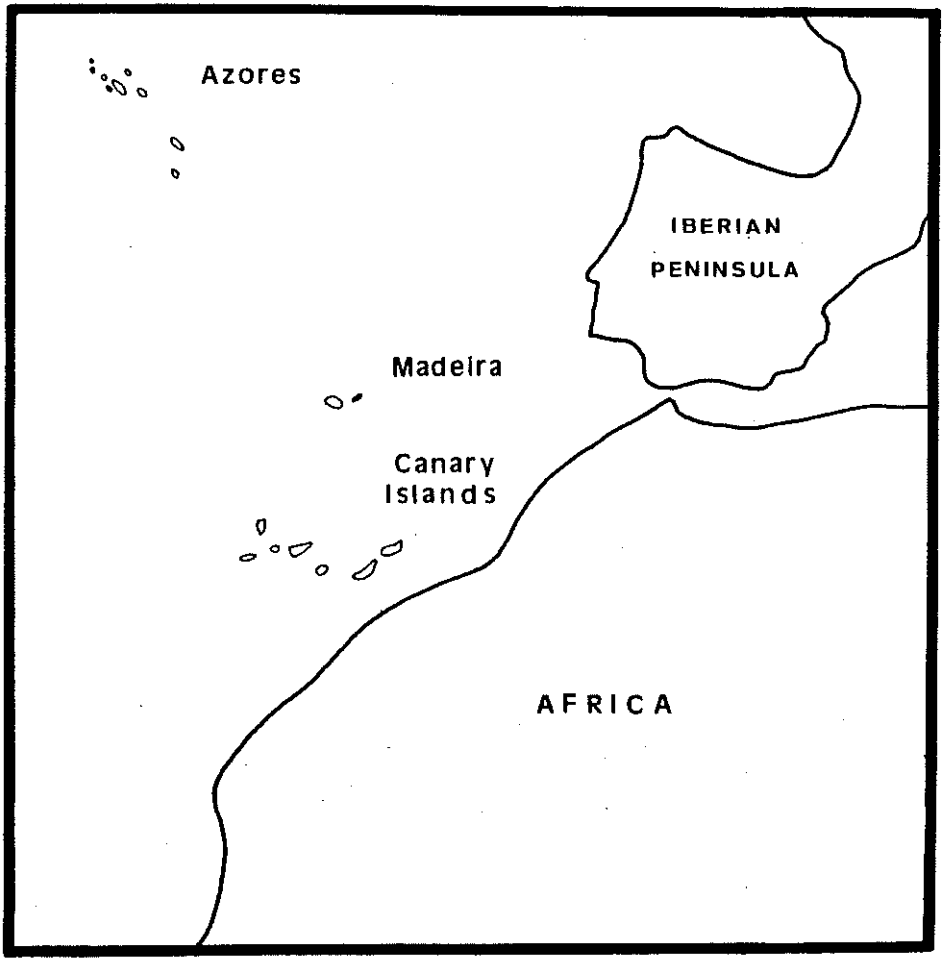


Table 1 (Cont.). The distribution by island and types of external distribution of Atlantic Island Sciaroidea.



Map 1. The Atlantic Island archipelagoes, showing their position relative to the African coast.

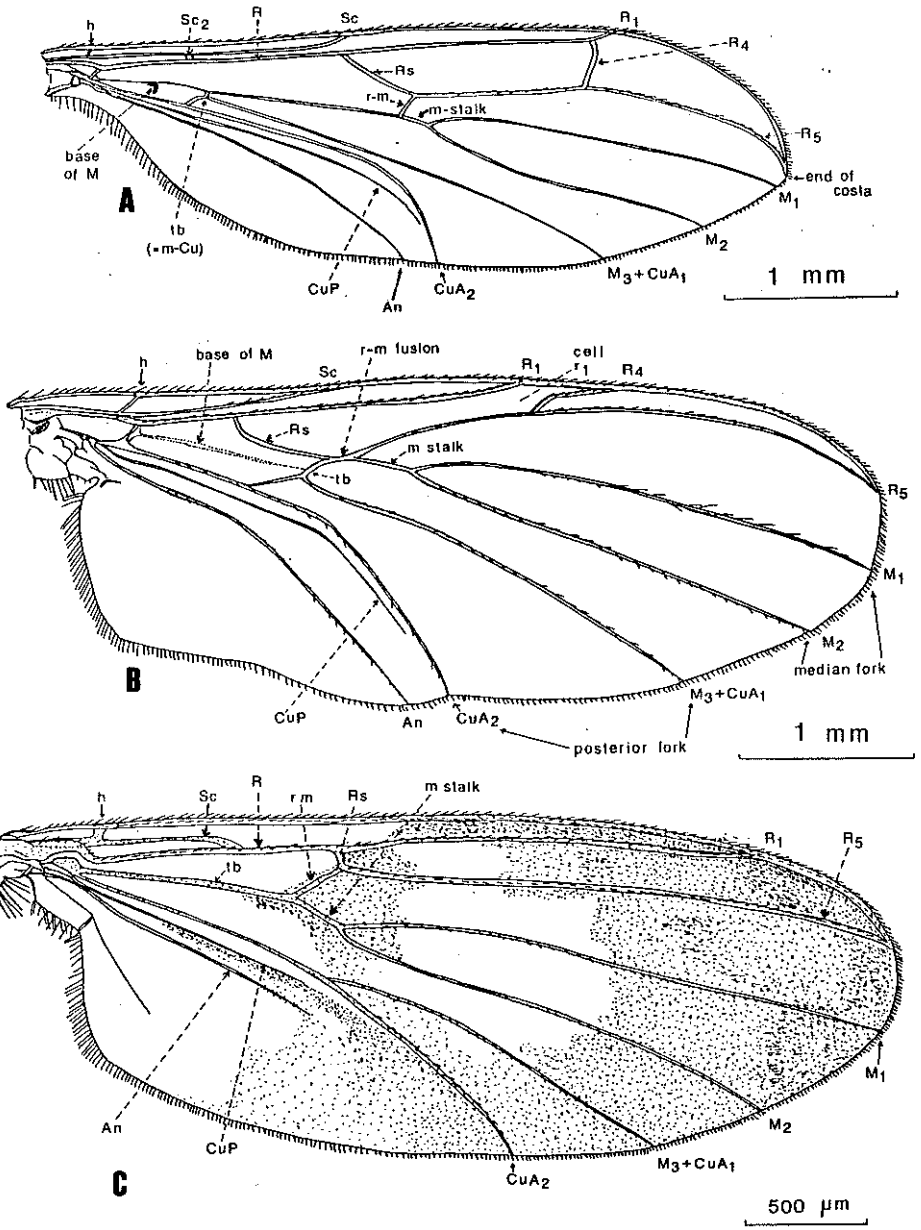


Fig. 1. Examples of wings of the three families to show notation of veins adopted in the text. A. *Bolitophila saundersi* Curtis (Bolitophilidae). B. *Macrocera fasciata* Meigen (Keroplatidae). C. *Trichonta laura* sp. nov. (Mycetophilidae).

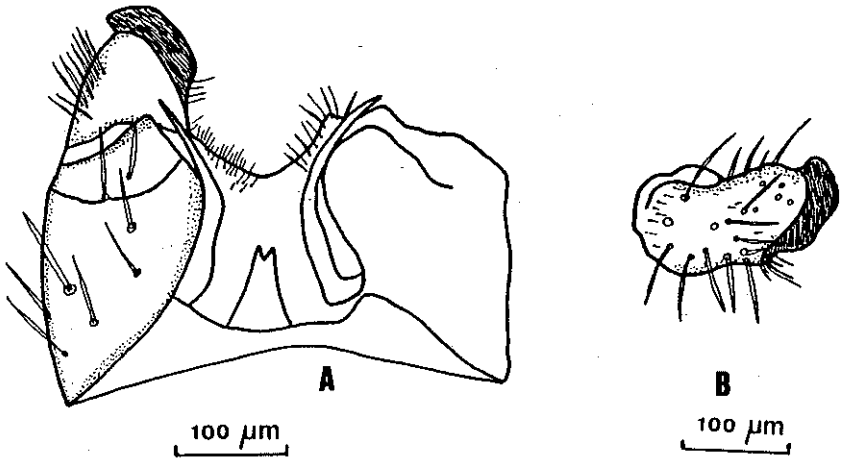


Fig. 2. Male genitalia of *Bolitophila saundersi* (Curtis). A. Ventral view of gonocoxite and gonostylus. B. Gonostylus.

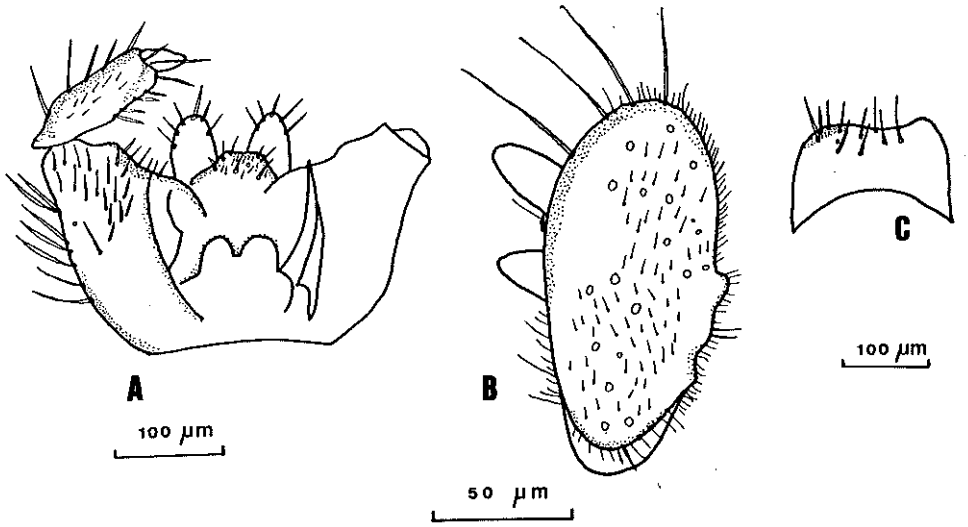


Fig. 3. Male genitalia of *Macrocera incompleta* Becker. A. Ventral view of gonocoxite and gonostylus. B. Gonostylus. C. Dorsal view of tergite 9.

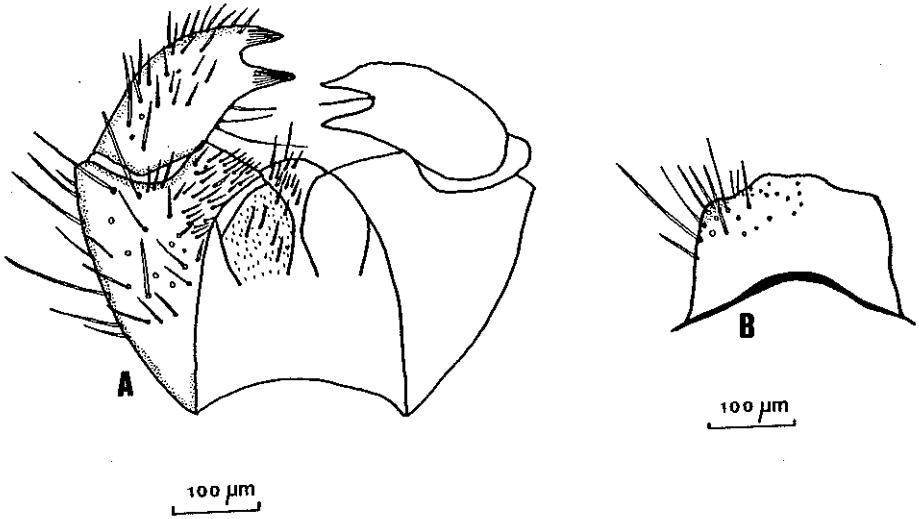


Fig. 4. Male genitalia of *Macrocera fasciata* Meigen. A. Ventral view of gonocoxite and gonostylus. B. dorsal view of tergite 9.

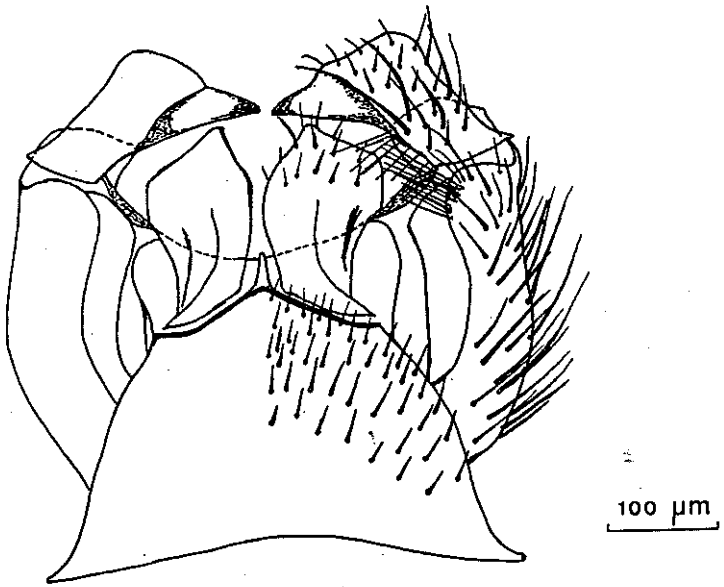


Fig. 5. Male genitalia of *Macrocera diversimaculata* Santos Abreu: dorsal view including tergite 9 and cerci.

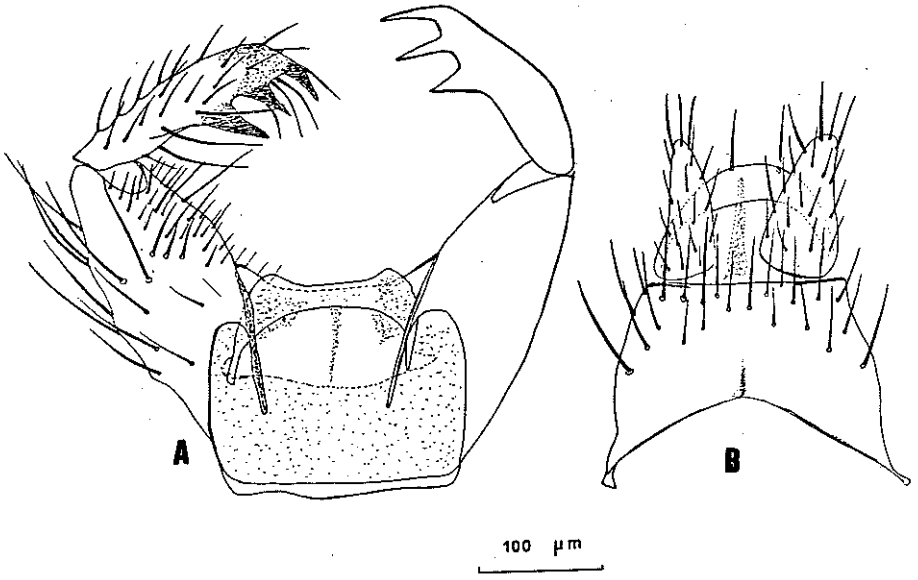


Fig. 6. Male genitalia of *Macrocera azorica* Storå. A. Dorsal view with tergite 9 and cerci removed. B. Tergite 9 and cerci.

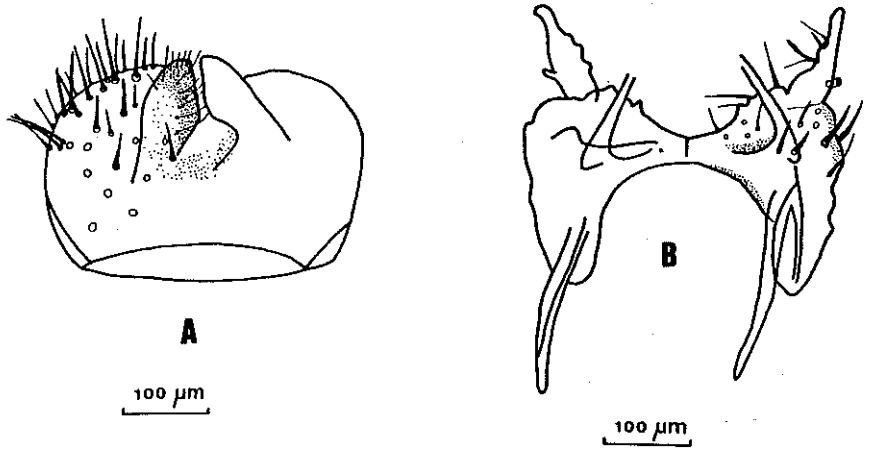


Fig. 7. Male genitalia of *Antlemon halidayi* Loew. A. Tergite 9 and cerci. B. Gonocoxite and gonostyli.

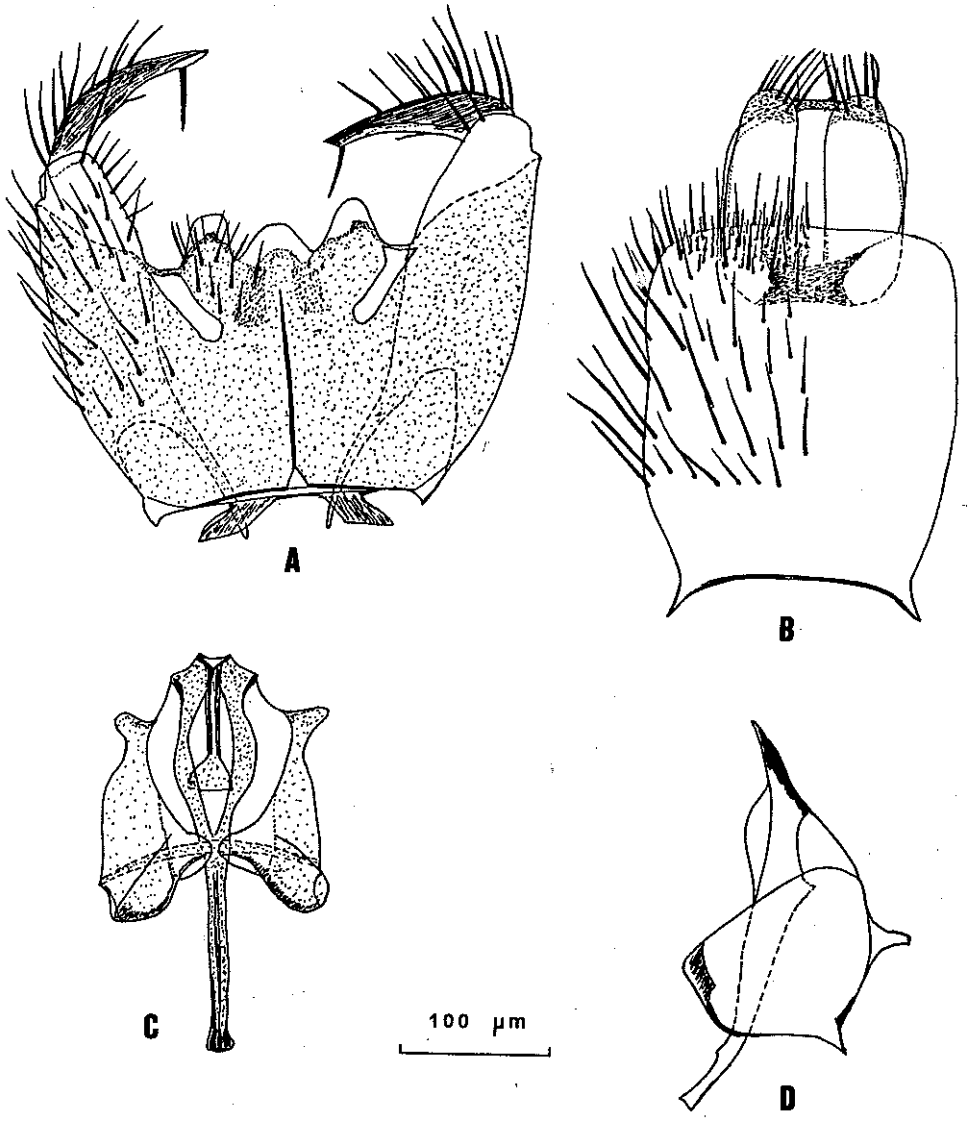


Fig. 8. Male genitalia of *Pyratula canariae* sp. nov. A. Ventral view of gonocoxite and gonostyli. B. Dorsal view of tergite 9 and cerci. C. Aedeagus, dorsal view. D. Aedeagus, lateral view.

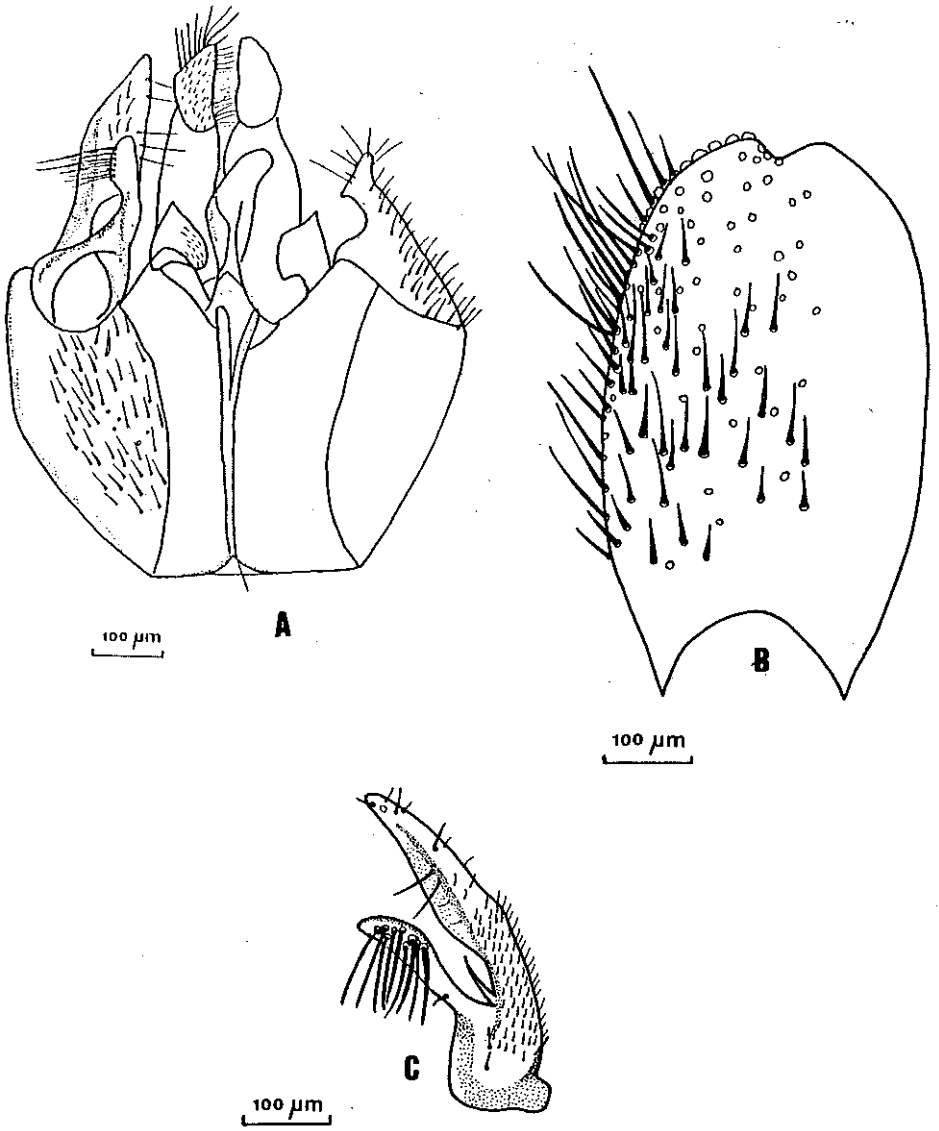


Fig. 9. Male genitalia of *Orfelia nigricornis* (Fabricius). A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of tergite 9. C. Lateral view of gonostylus.

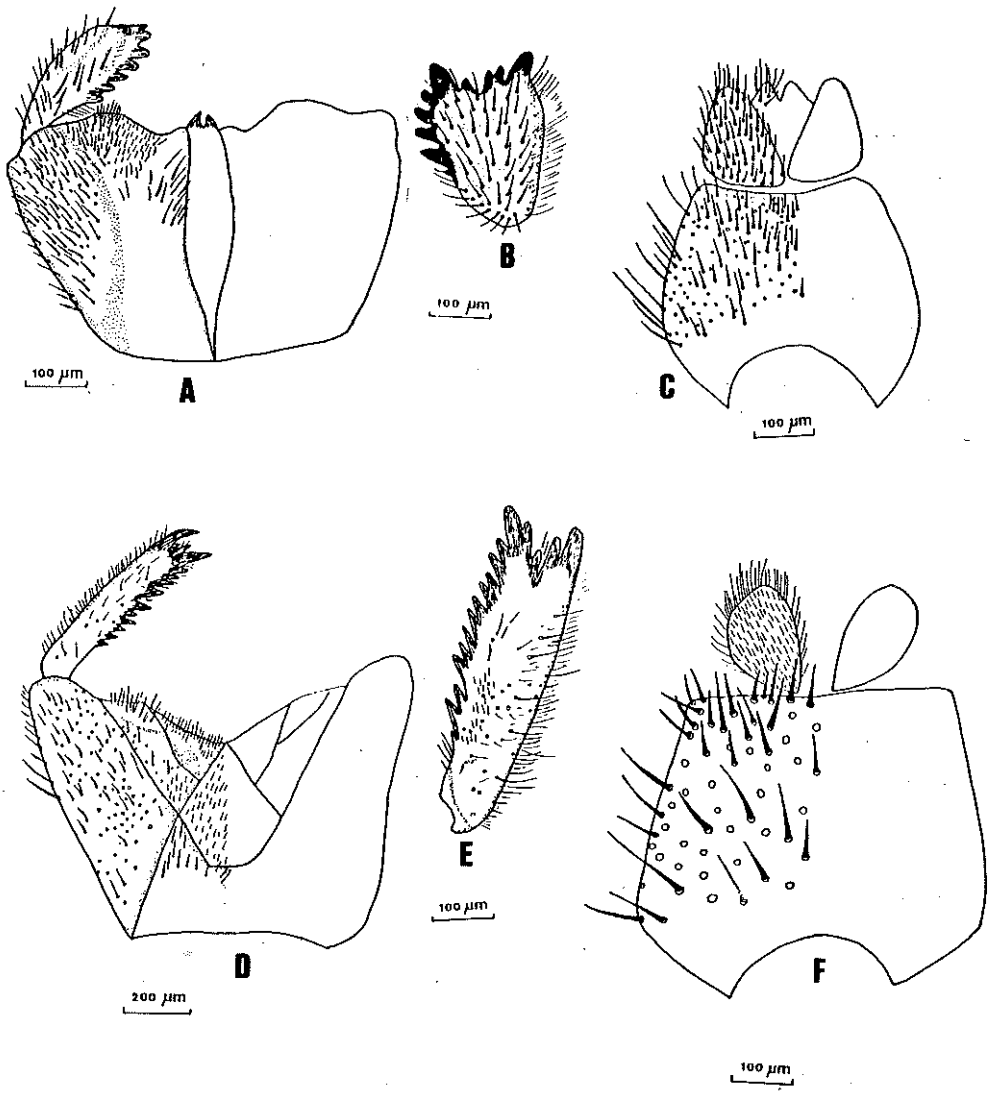


Fig. 10. Male genitalia of *Cerotelion* species. A-C. *lineatum* (Fabricius). D-F. *racovitzai* Matile & Burghele-Balacesco. A. D. Ventral view of gonocoxite and gonostylus. B. E. Gonostylus. C. F. Dorsal view of tergite 9 and cerci.

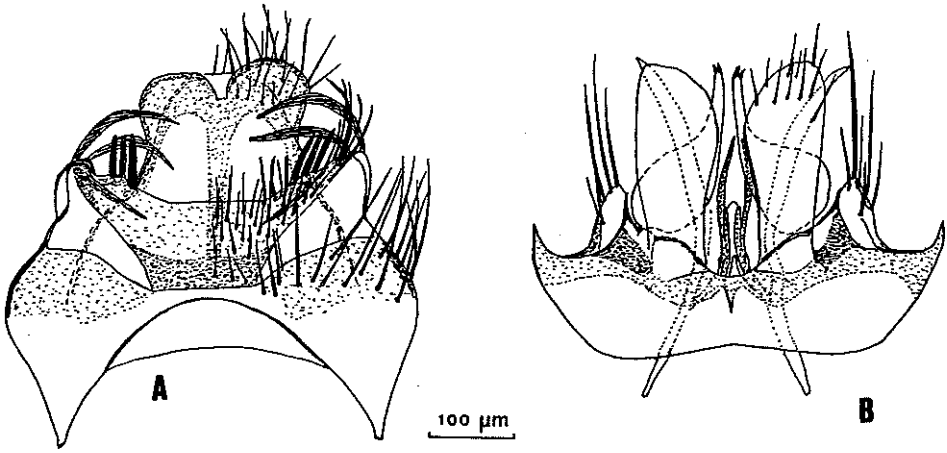


Fig. 11. Male genitalia of *Mycomya canariornata* sp. nov. A. Tergite 9 and cerci. B. Ventral view of gonocoxite and gonostylus.

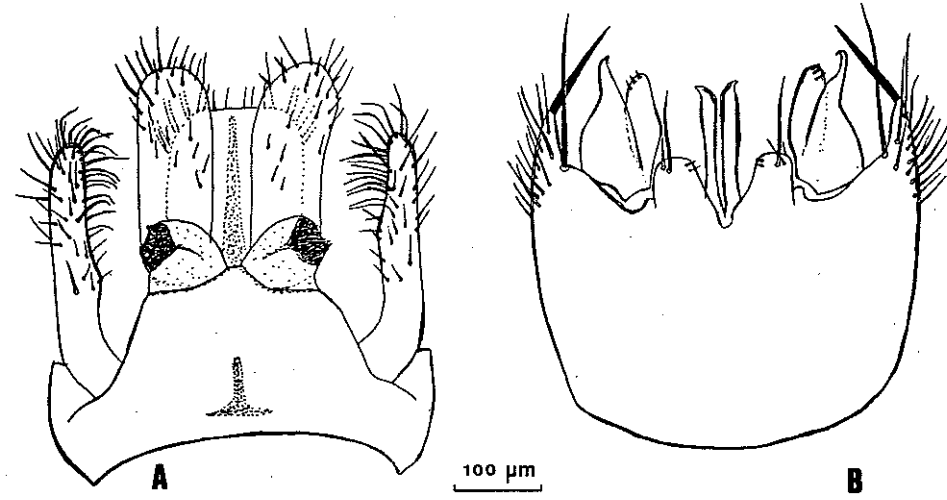


Fig. 12. Male genitalia of *Mycomya rivalis* Santos Abreu. A. Tergite 9 and cerci. B. Ventral view of gonocoxite and gonostylus.

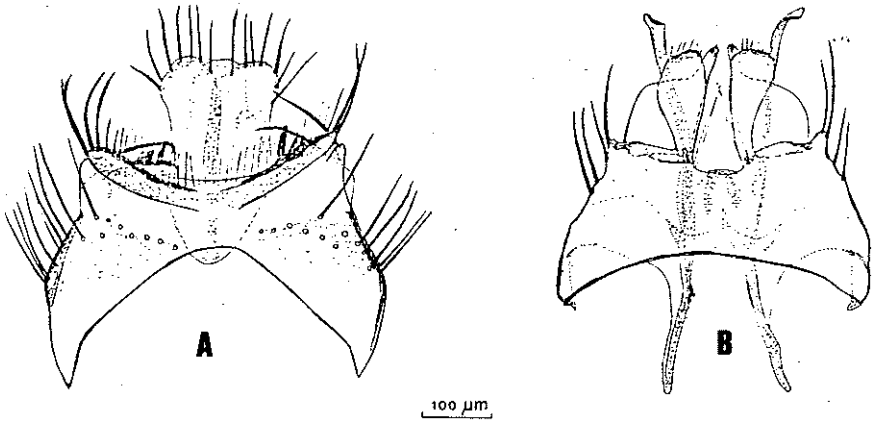


Fig. 13. Male genitalia of *Mycomya prominens* Lundström. A., Tergite 9 and cerci. B., Ventral view of gonocoxite and gonostylus.

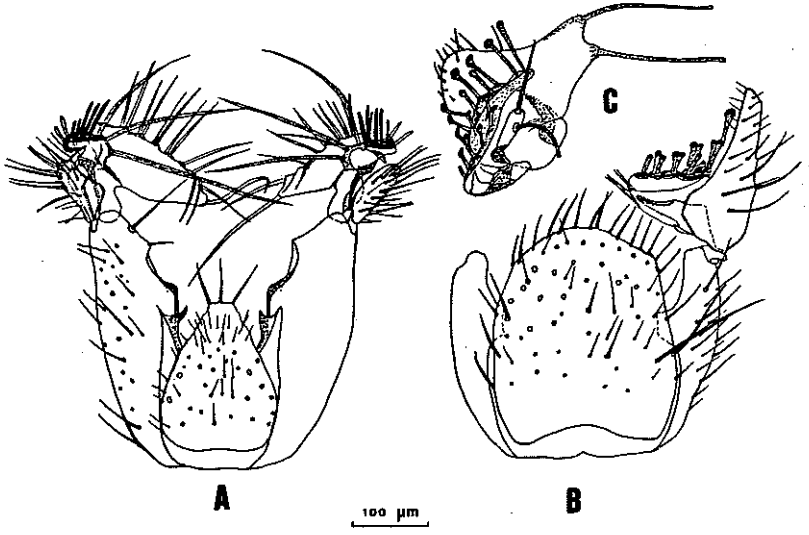
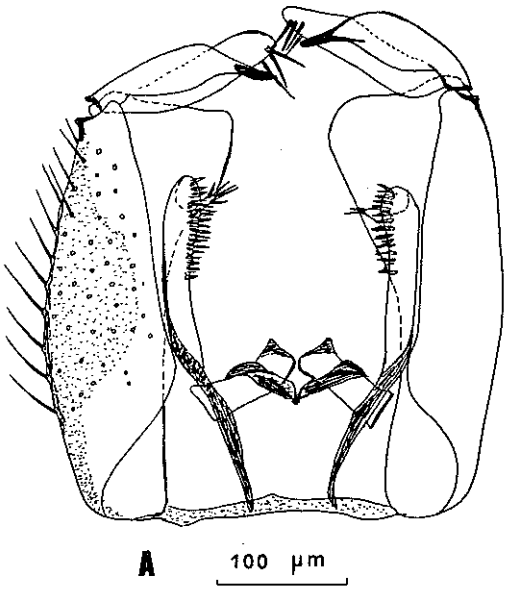
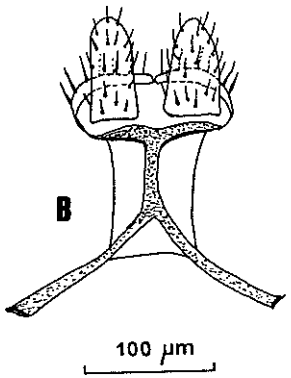
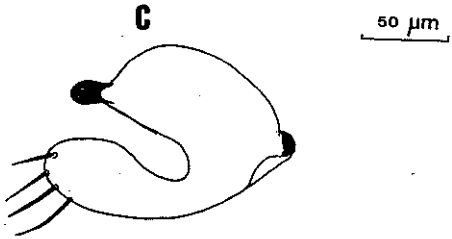


Fig. 14. A., Male genitalia of *Sciophila insolita* Santos Abreu. Dorsal view of male genitalia (with tergite 9 in situ). Male genitalia of *Sciophila hirta* Meigen. B., Dorsal view with tergite 9 in situ. C., Internal view of gonostylus.







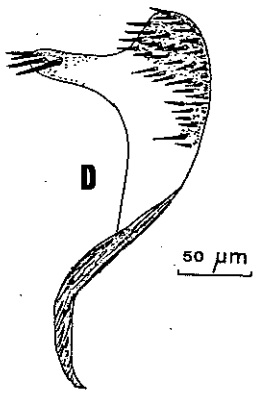


Fig. 15. Male genitalia of *Azana palmensis* Santos Abreu. A. Dorsal view, with tergite 9 and cerci removed. B. Tergite 9 and cerci. C. Internal view of gonostylus. D. Internal view of aedeagal paramere.

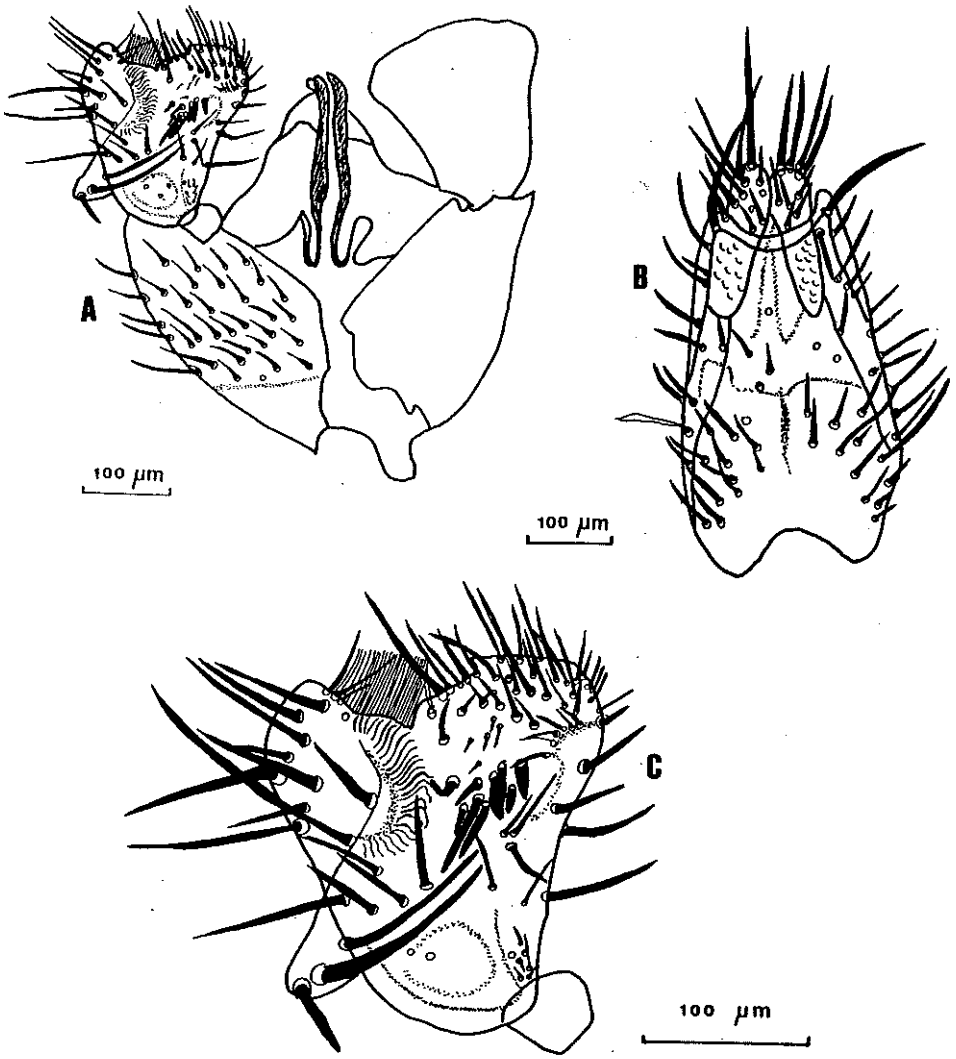


Fig. 16. Male genitalia of *Coelosia silvatica* Landrock. A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of tergite 9 and cerci. C. Lateral view of gonostylus.

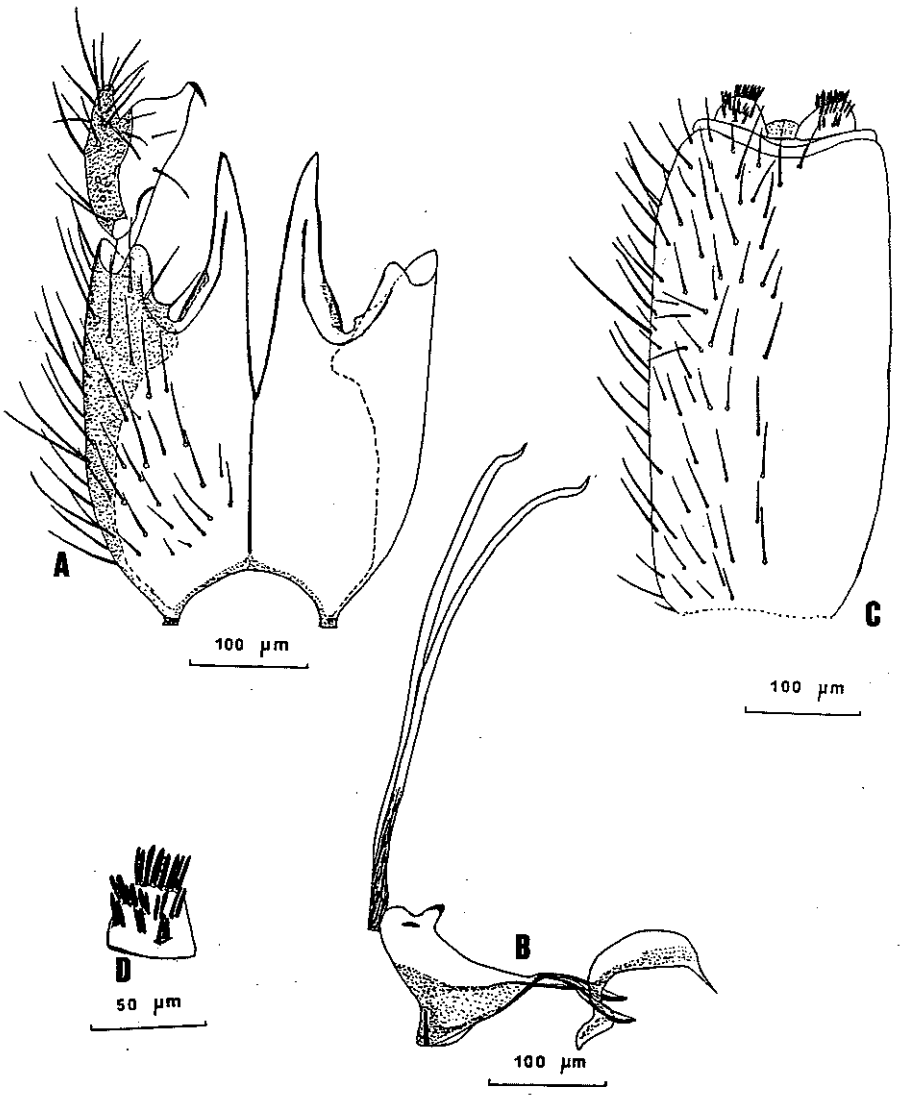


Fig. 17. Male genitalia of *Boletina gripha* Dziedzicki. A. Ventral view of gonocoxite and gonostylus. B. Lateral view of aedeagus. C. Tergite 9 and cerci. D. Right cercus.

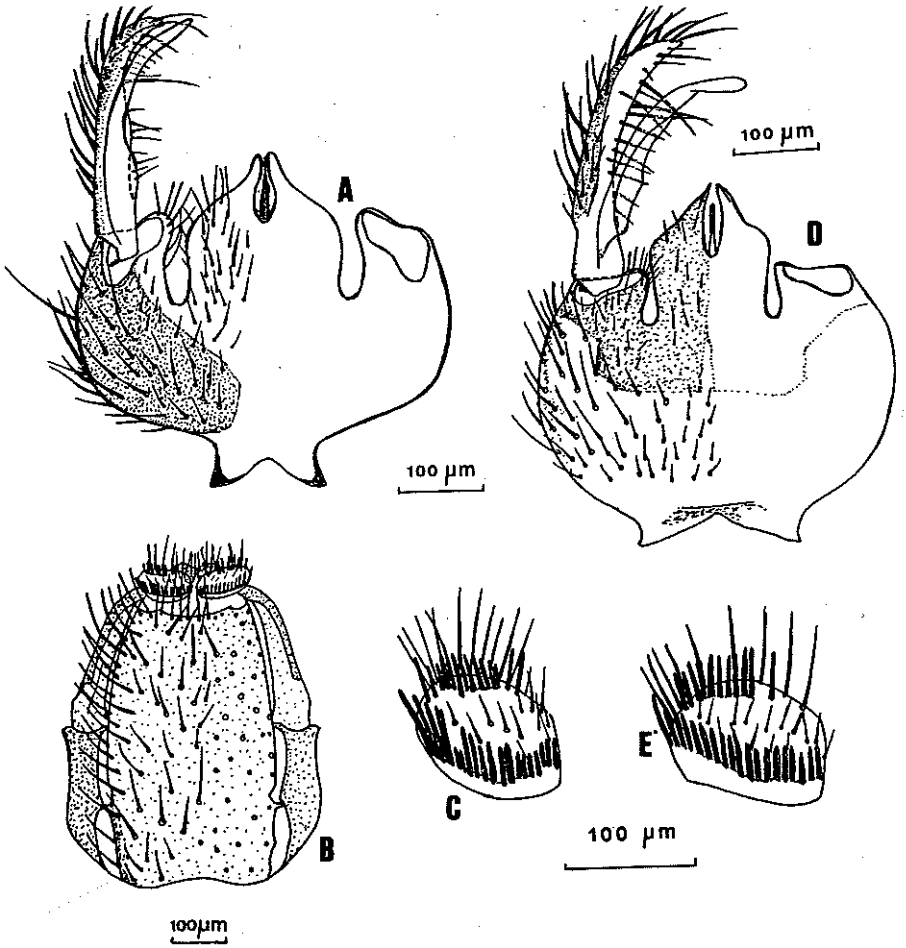


Fig. 18. Male genitalia of *Boletina* species. A-C. *B. nigravena* sp. nov. D-E. *B. dubia* Meigen. A. D. Ventral view of gonocoxite and gonostylus. B. Dorsal view, including tergite 9 and cerci. C. E. right cercus.

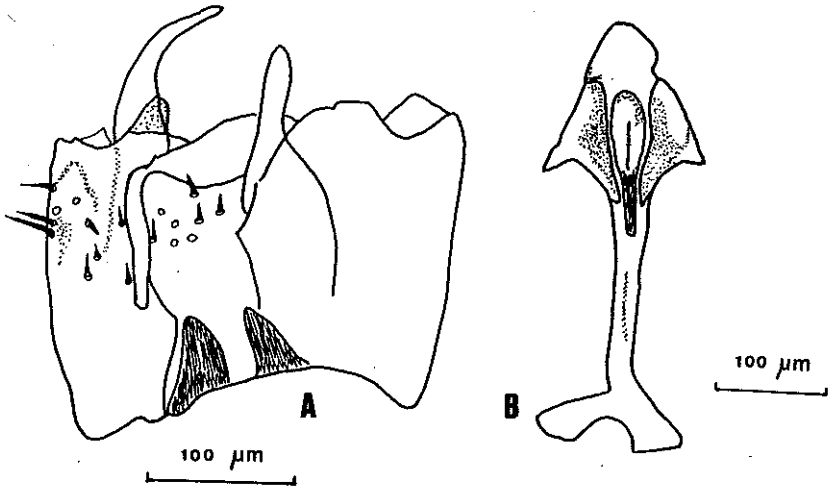


Fig. 19. Male genitalia of *Leia beckeri* Landrock. A. Ventral view of gonocoxite and gonostylus. B. Aedeagus.

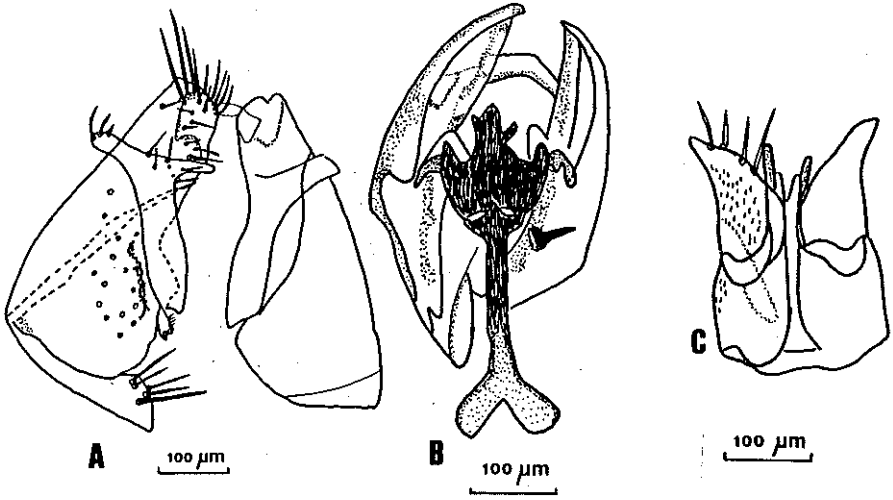


Fig. 20. Male genitalia of *Leia arsona* Hutson. A. Posterior view. B. Aedeagus. C. Dorsal view of tergite 9 and cerci.

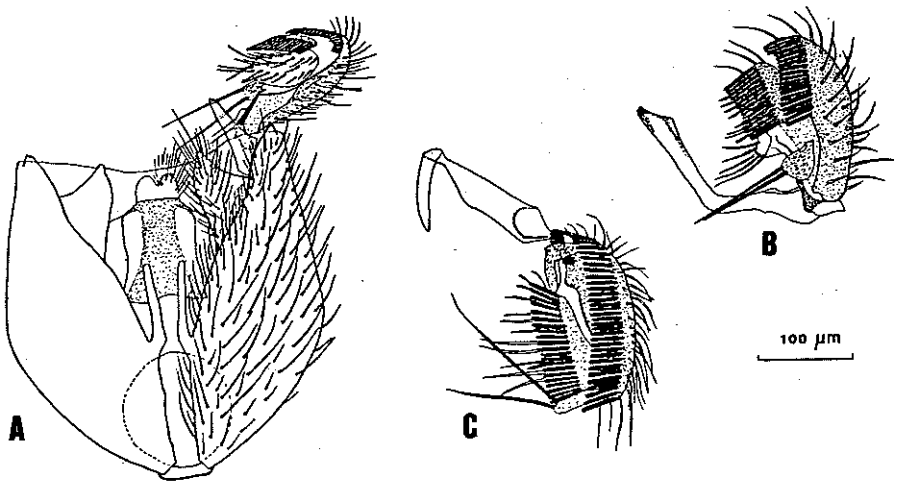


Fig. 21. Male genitalia of *Greenomyia lucida* (Becker). A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of left gonostylus. C. Posterior view of gonostylus.

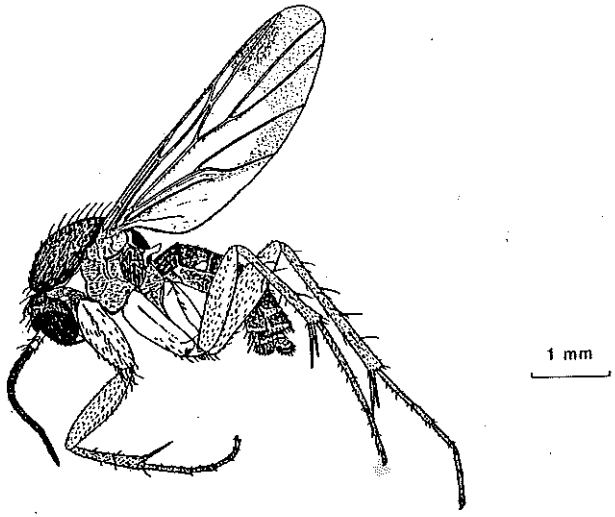


Fig. 22. Lateral view of male *Greenomyia lucida* (Becker).

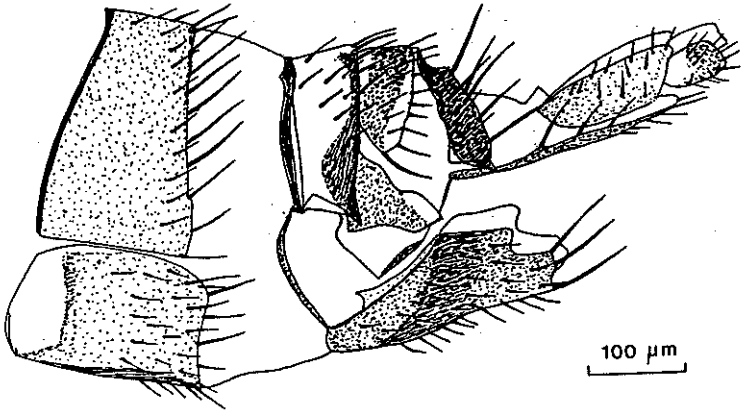


Fig. 23. Lateral view of ovipositor of *Megophtalmidia decora* (Santos Abreu).

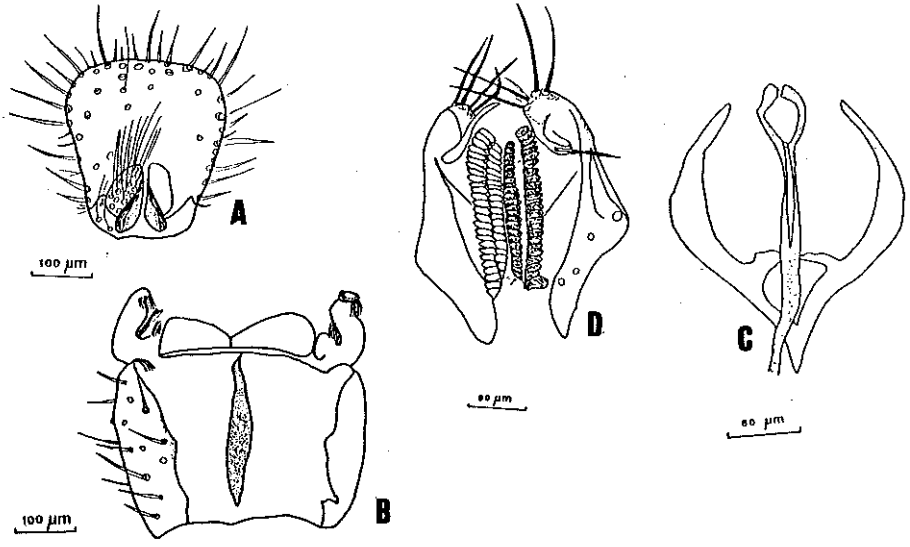


Fig. 24. Male genitalia of *Docosia gilvipes* (Haliday). A. Dorsal view of tergite 9 (setose lobes are on ventral surface). B. Ventral view of gonocoxite and gonostylus. C. Aedeagus. D. Cerci.

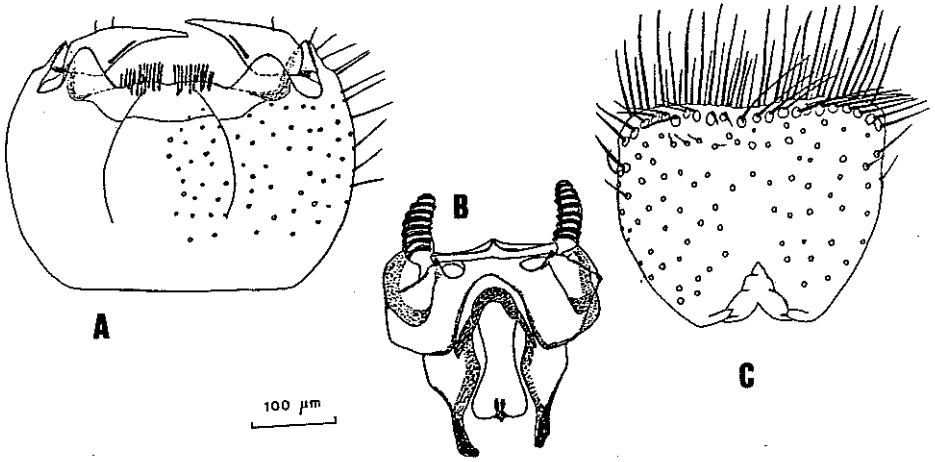


Fig. 25. Male genitalia of *Docosia canaripes* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Aedeagus and cerci. C. Tergite 9.

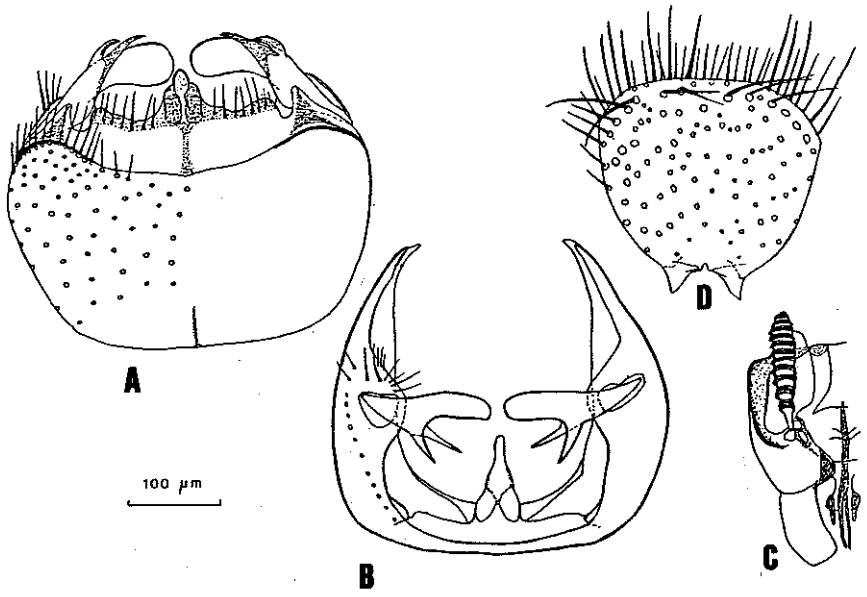


Fig. 26. Male genitalia of *Docosia fuerteventurae* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Posterior view of same. C. Aedeagus and cerci. D. Tergite 9.

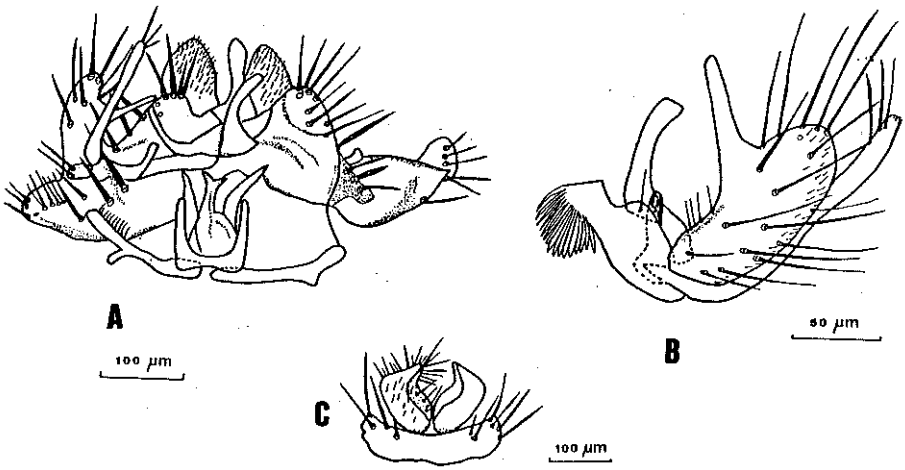


Fig. 27. Male genitalia of *Anatella atlanticiliata* sp. nov. A. Posteroventral view. B. Lateral view of gonostylus. C. Tergite 9 and cerci.

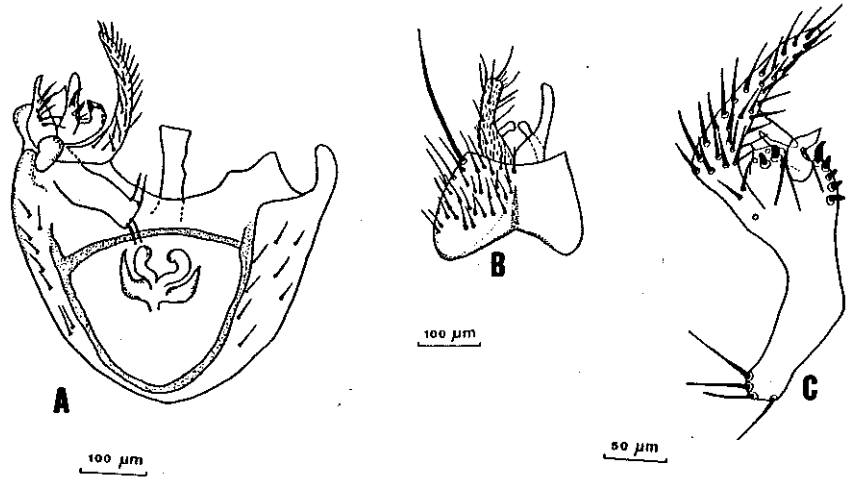


Fig. 28. Male genitalia of *Rymosia spinipes* Winnertz. A. Ventral view of gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

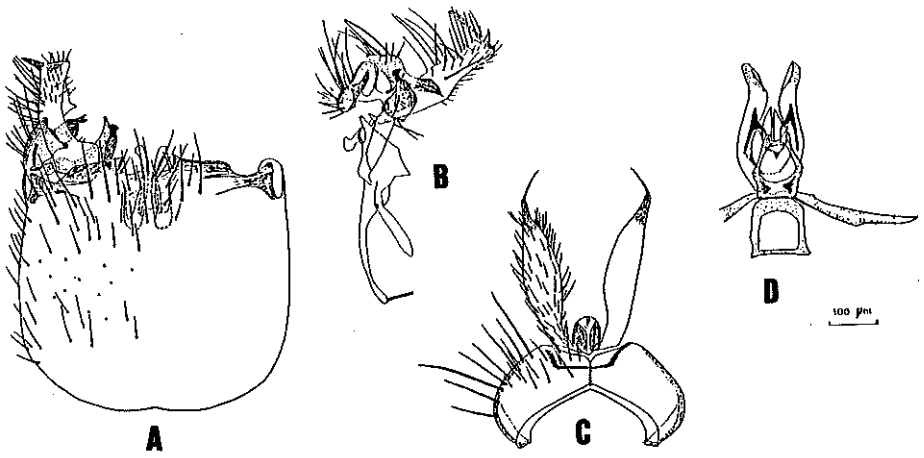


Fig. 29. Male genitalia of *Rymosia tenuivittata* Santos Abreu. A. Ventral view of gonocoxite and gonostylus. B. Lateral view of gonostylus. C. Tergite 9 and cerci. D. Aedeagus.

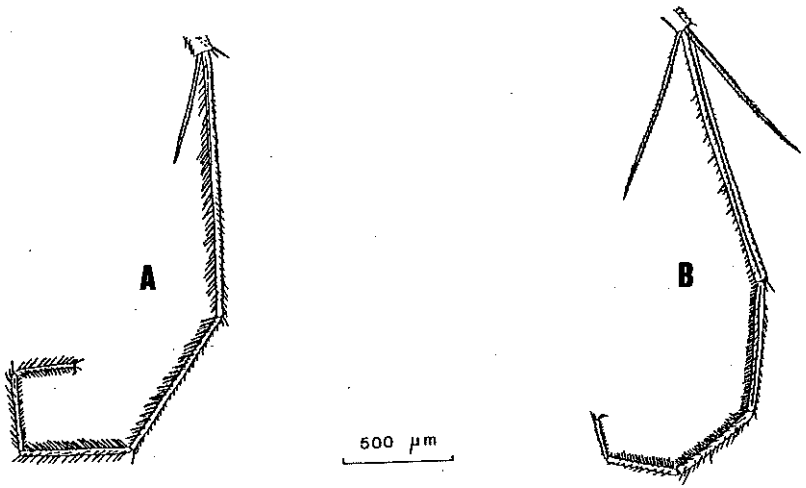


Fig. 30. Fore and mid tarsi of male *Rymosia scopulosa* Becker. A. Left fore tarsus. B. Left mid tarsus.

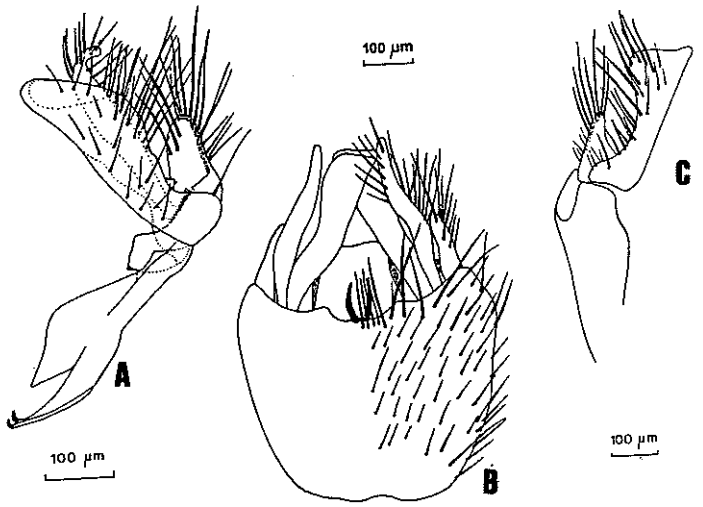


Fig. 31. Male genitalia of *Rymosia scopulosa* Becker. A. Internal view of gonostylus. B. Ventral view of gonocoxite and gonostyli. C. Dorsal view of gonostylus in situ.

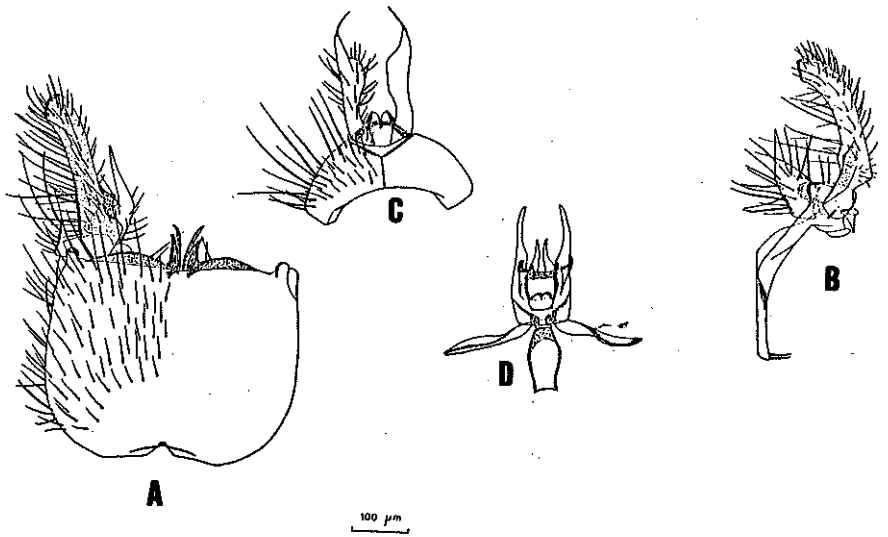


Fig. 32. Male genitalia of *Rymosia santosi* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Lateral view of gonostylus. C. Tergite 9 and cerci. D. Aedeagus.

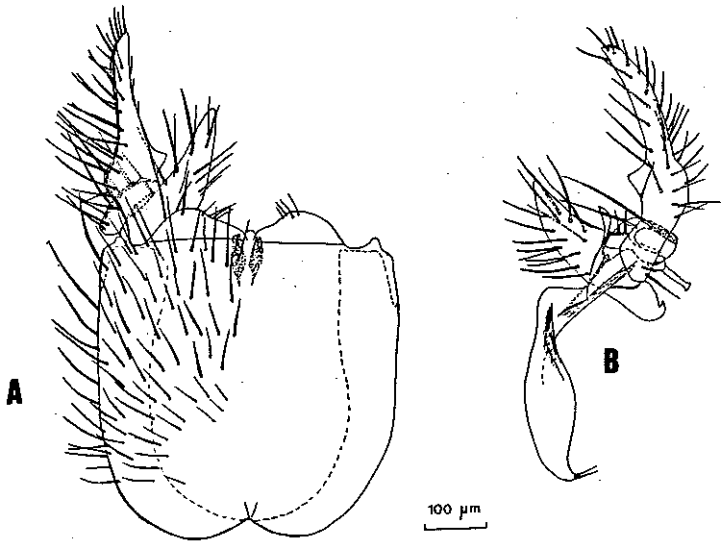


Fig. 33. Male genitalia of *Rymosia azorensis* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Lateral view of gonostylus.

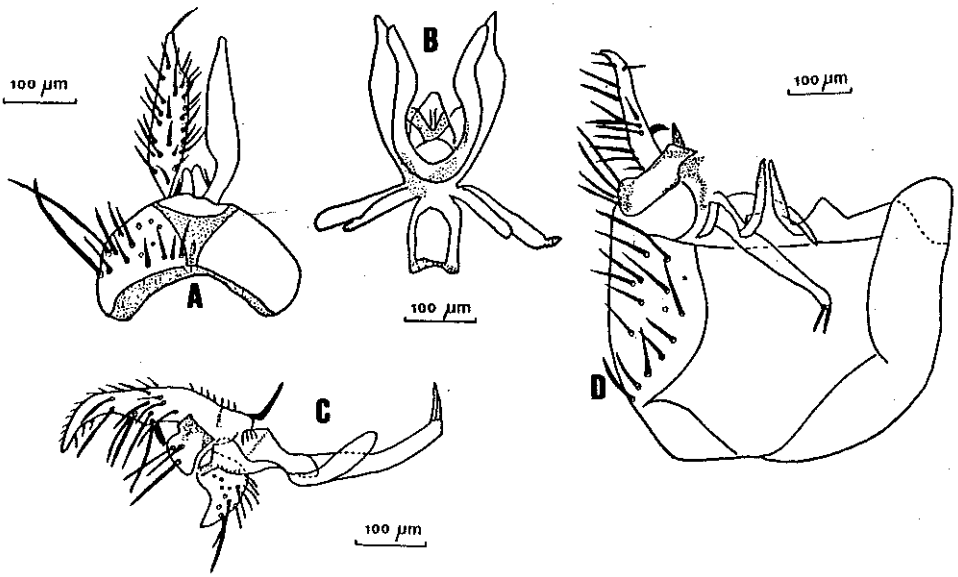


Fig. 34. Male genitalia of *Rymosia lauricola* sp. nov. A. Tergite 9 and cerci. B. Aedeagus. C. Lateral view of gonostylus. D. Gonocoxite and gonostylus.

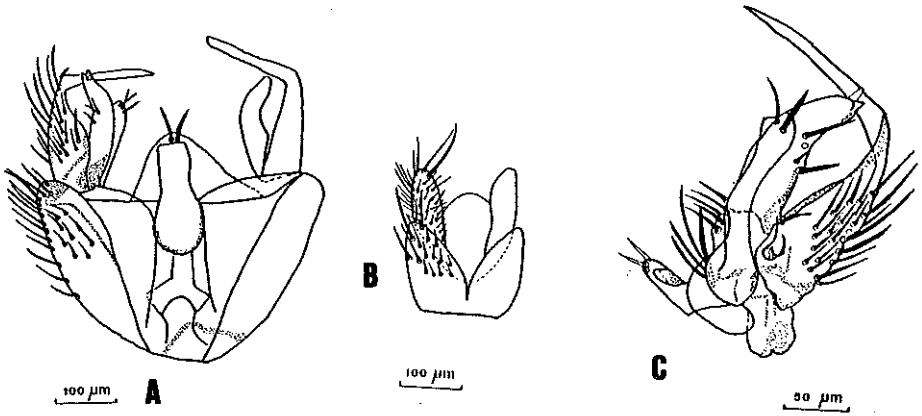


Fig. 35. Male genitalia of *Exechia fusca* (Meigen). A. Gonocoxite and gonostyli. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

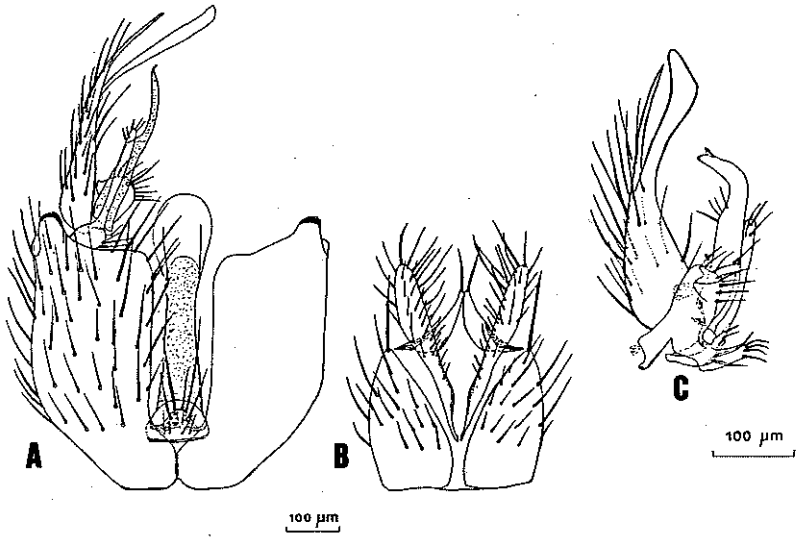


Fig. 36. Male genitalia of *Exechia fulva* Santos Abreu. A. Ventral view of gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Internal view of gonostylus.

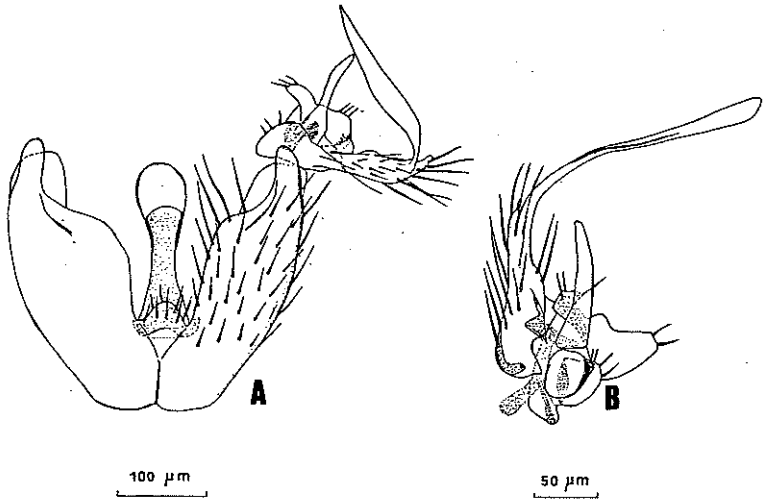


Fig. 37. Male genitalia of *Exechia brinckiana* Nielsen. A. Ventral view of gonocoxite and gonostylus. B. Internal view of gonostylus.

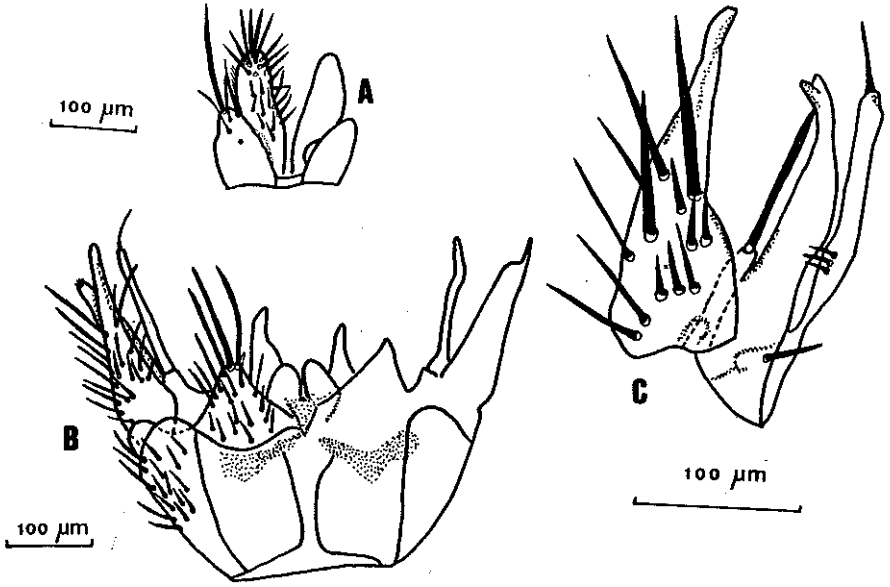


Fig. 38. Male genitalia of *Exechia cinctiformis* Storå. A. Tergite 9 and cerci. B. Gonocoxite and gonostyli. C. Lateral view of gonostylus.

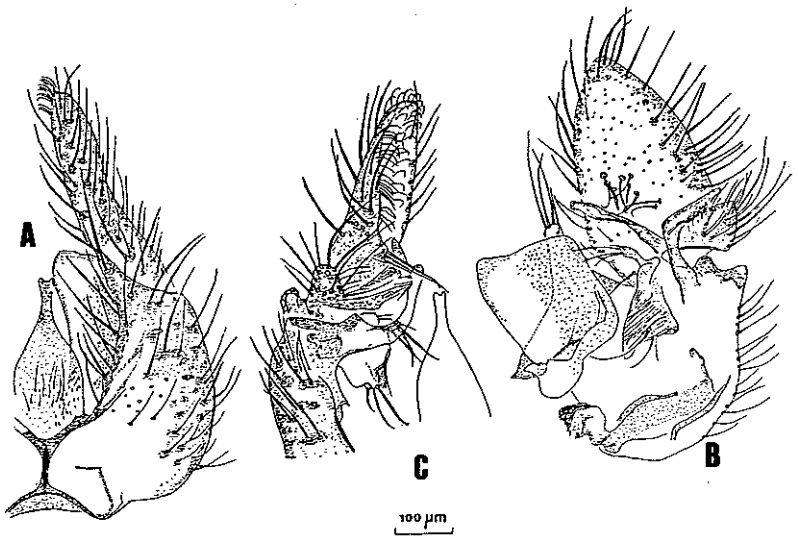


Fig. 39. Male genitalia of *Exechiopsis corona* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Internal view of gonostylus. C. Dorsal view of gonostylus in situ.

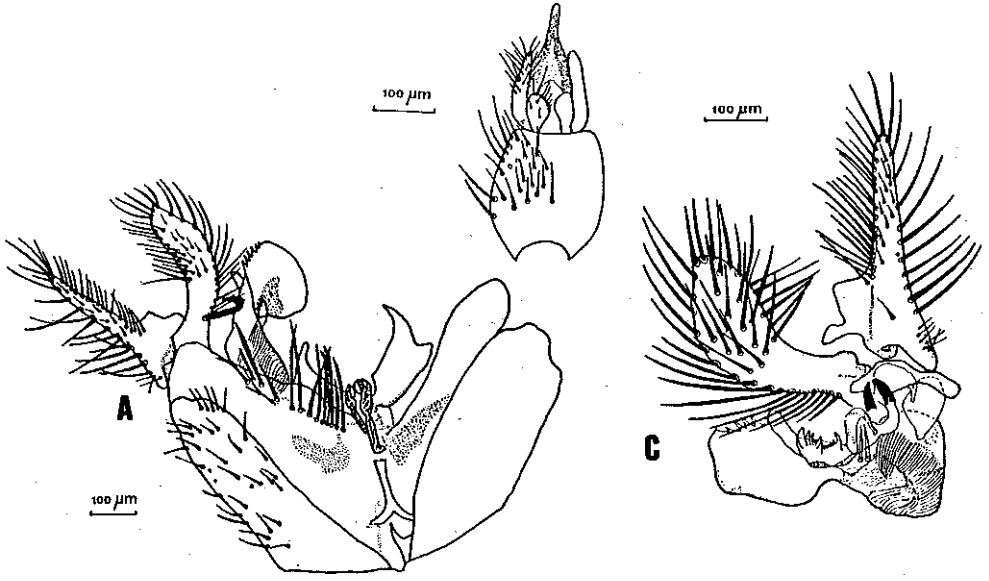


Fig. 40. Male genitalia of *Pseudexechia trivittata* (Staeger). A. Ventral view of gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

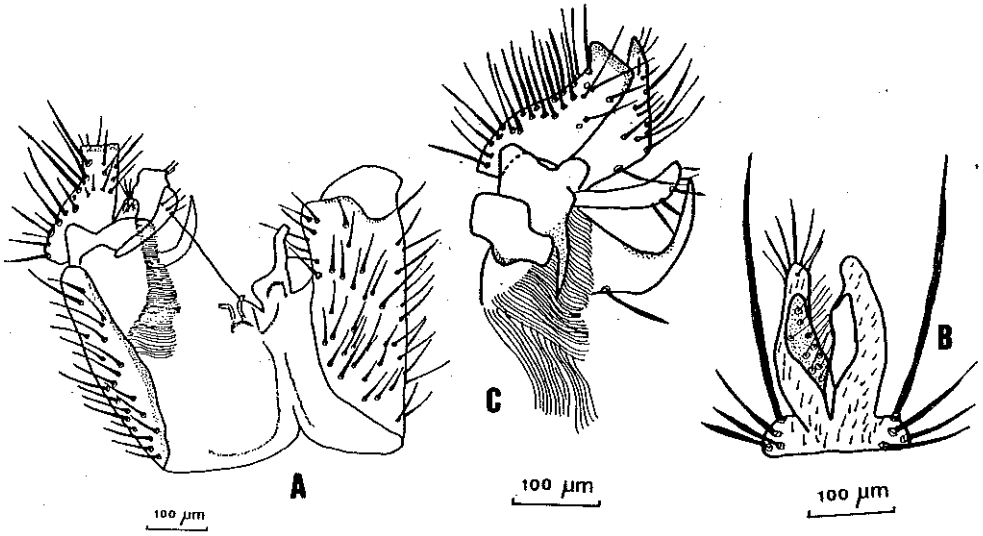


Fig. 41. Male genitalia of *Allodia ornaticollis* (Meigen). A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

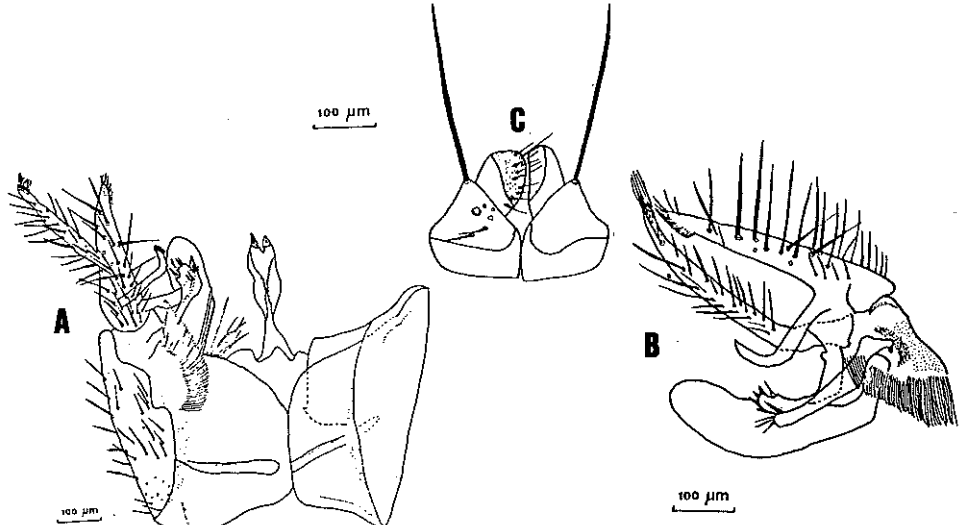


Fig. 42. Male genitalia of *Allodia pistillata* (Lundström). A. Gonocoxite and gonostylus. B. Lateral view of gonostylus. C. Tergite 9 and cerci.

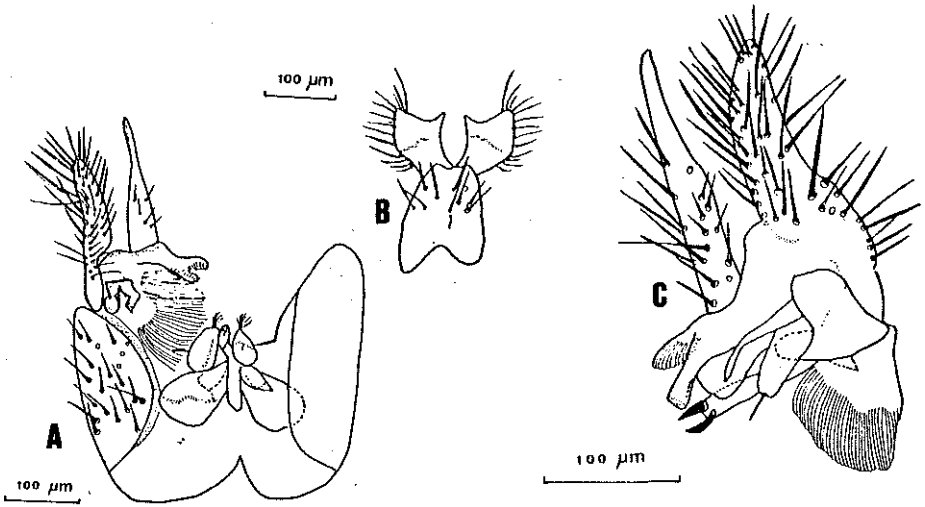


Fig. 43. Male genitalia of *Brevicornu griseicolle* (Staeger). A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

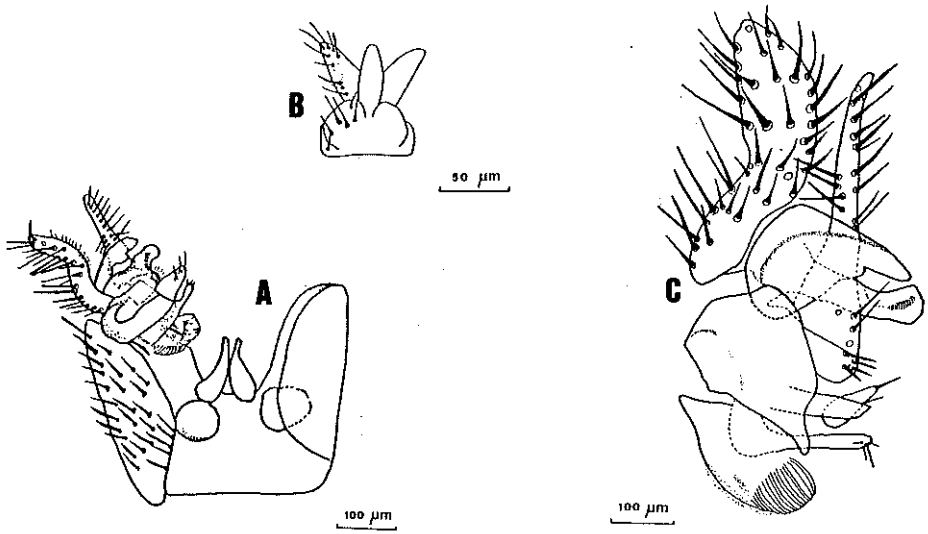


Fig. 44. Male genitalia of *Brevicornu sericoma* (Meigen). A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

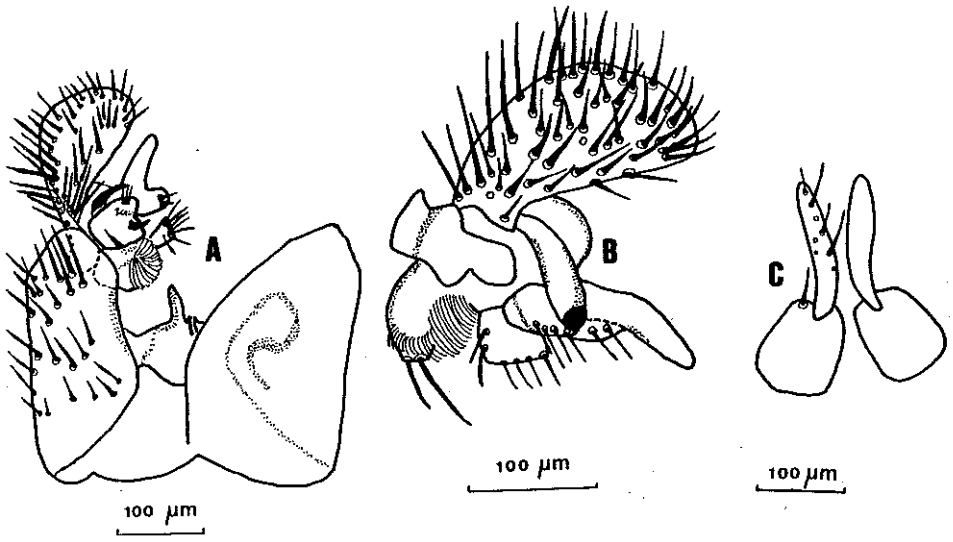


Fig. 45. Male genitalia of *Brevicornu verralli* (Edwards). A. Gonocoxite and gonostylus. B. Lateral view of gonostylus. C. Tergite 9 and cerci.

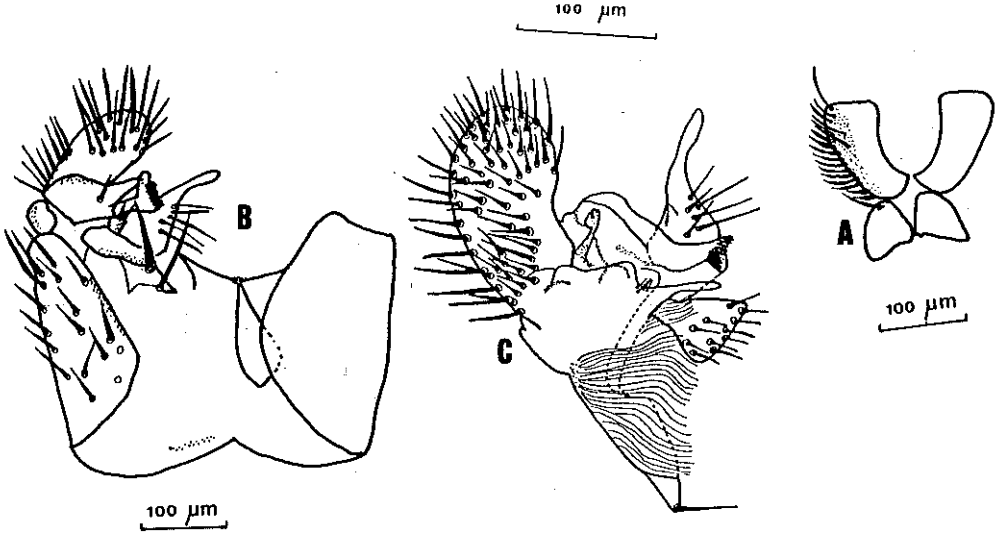


Fig. 46. Male genitalia of *Brevicornu intermedium* (Santos Abreu). A. Tergite 9 and cerci. B. Gonocoxite and gonostylus. C. Lateral view of gonostylus.

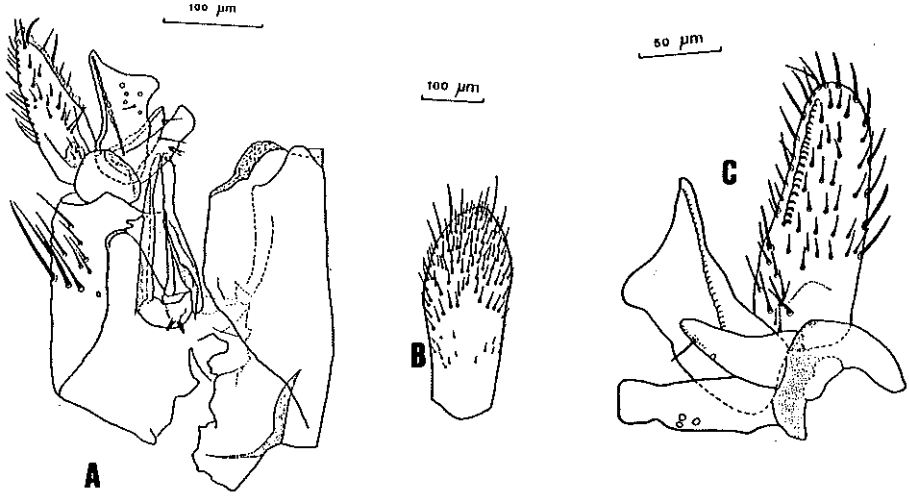


Fig. 47. Male genitalia of *Cordyla styliforceps* (Bukowski). A. Gonocoxite and gonostylus. B. Sternite 8. C. Lateral view of gonostylus.

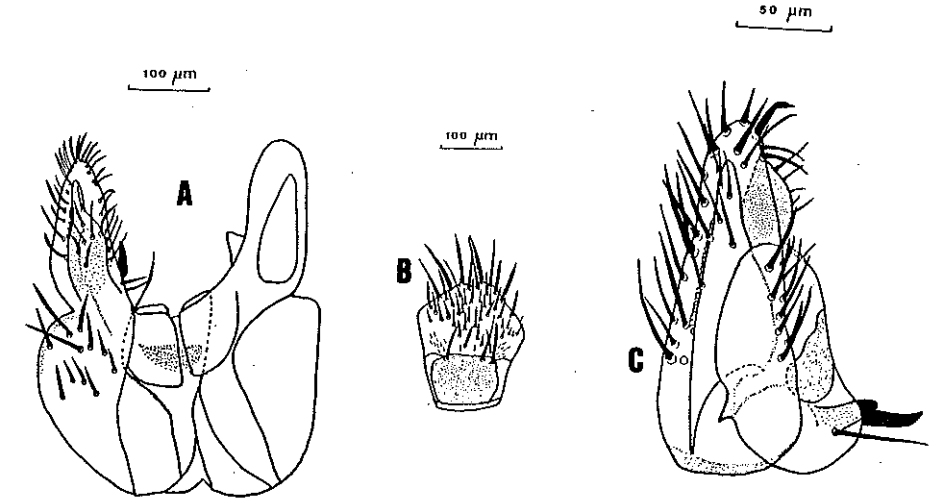


Fig. 48. Male genitalia of *Cordyla crassicornis* Meigen. A. Gonocoxite and gonostylus. B. Sternite 8. C. Lateral view of gonostylus.

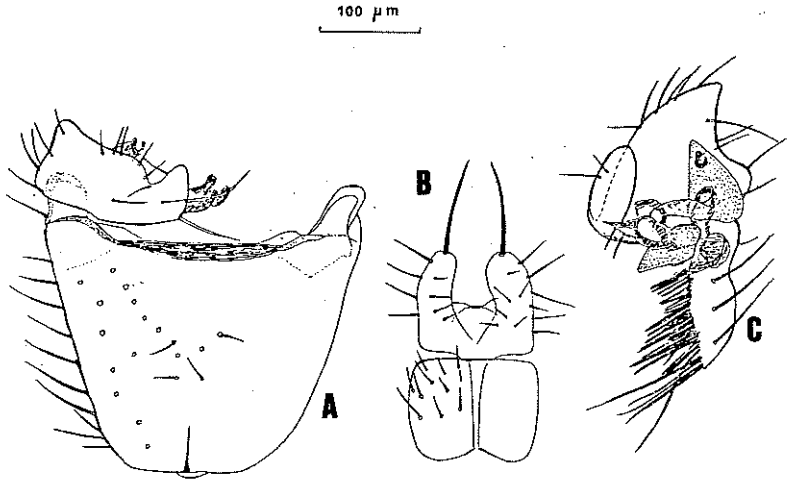


Fig. 49. Male genitalia of *Trichonta apicalis* Strobil. A. Ventral view of gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Dorsal view of gonostylus.

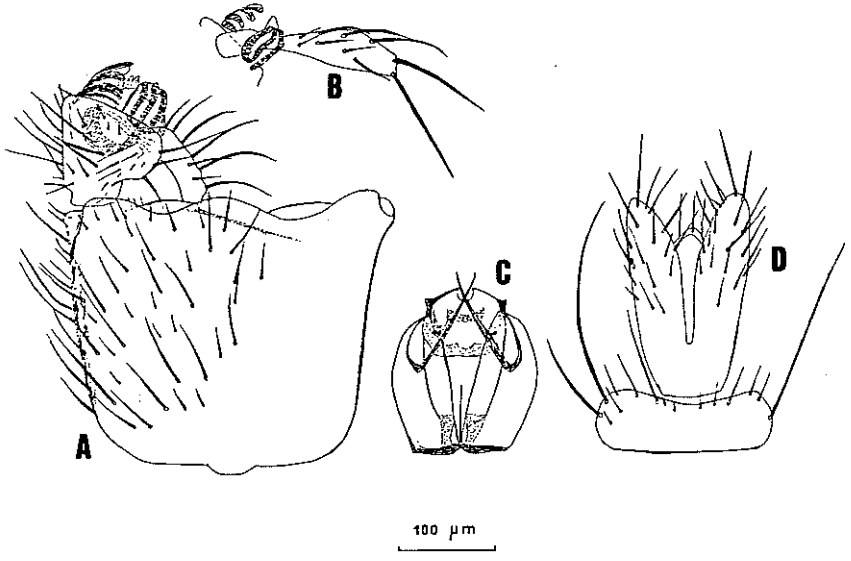


Fig. 50. Male genitalia of *Trichonta vitta* (Meigen). A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of gonostylus. C. Aedeagus. D. Tergite 9 and cerci.

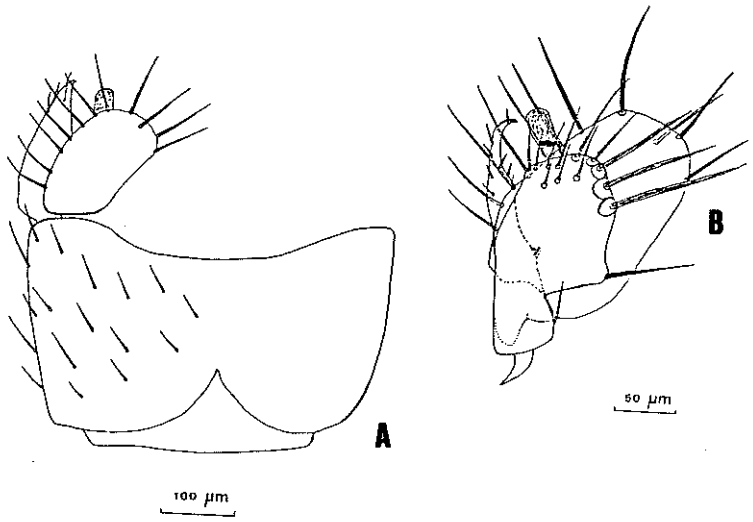


Fig. 51. Male genitalia of *Trichonta laura* sp. nov. A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of gonostylus.

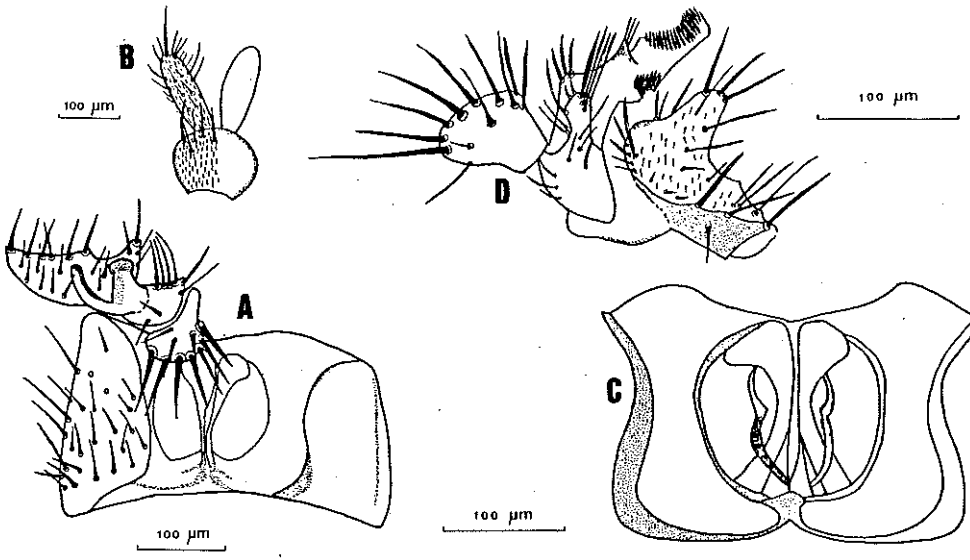


Fig. 52. Male genitalia of *Phronia biarcuata* (Becker). A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Aedeagus. D. Lateral view of gonostylus.

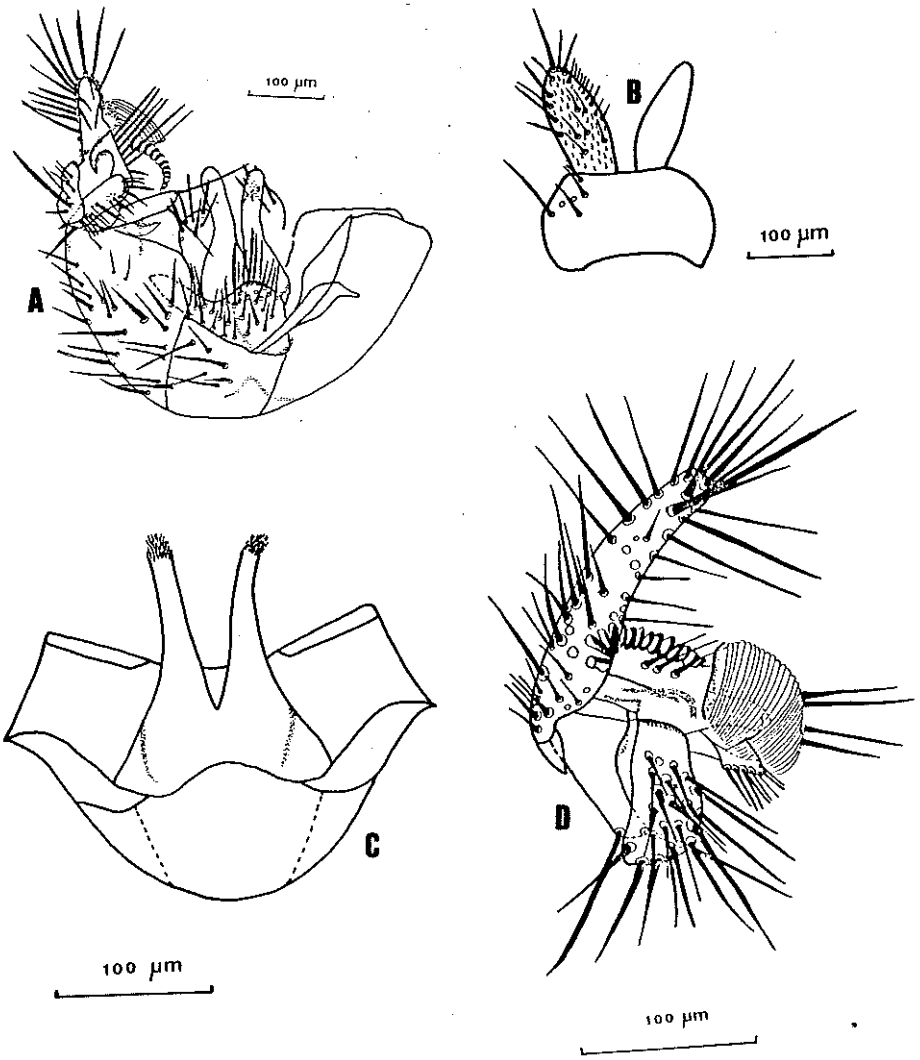


Fig. 53. Male genitalia of *Phronia abbreviata* (Becker). A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Aedeagus. D. Lateral view of gonostylus.

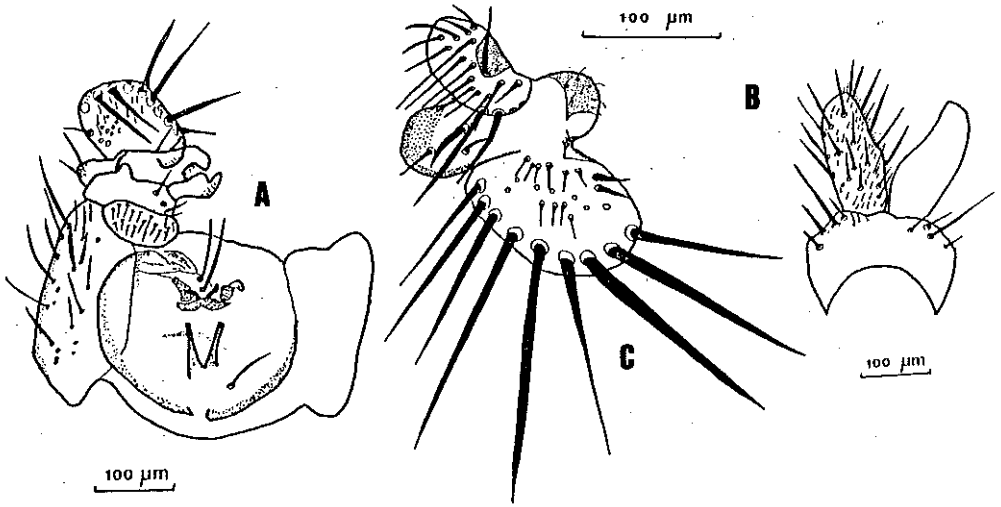


Fig. 54. Male genitalia of *Phronia maderopulchra* sp. nov. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

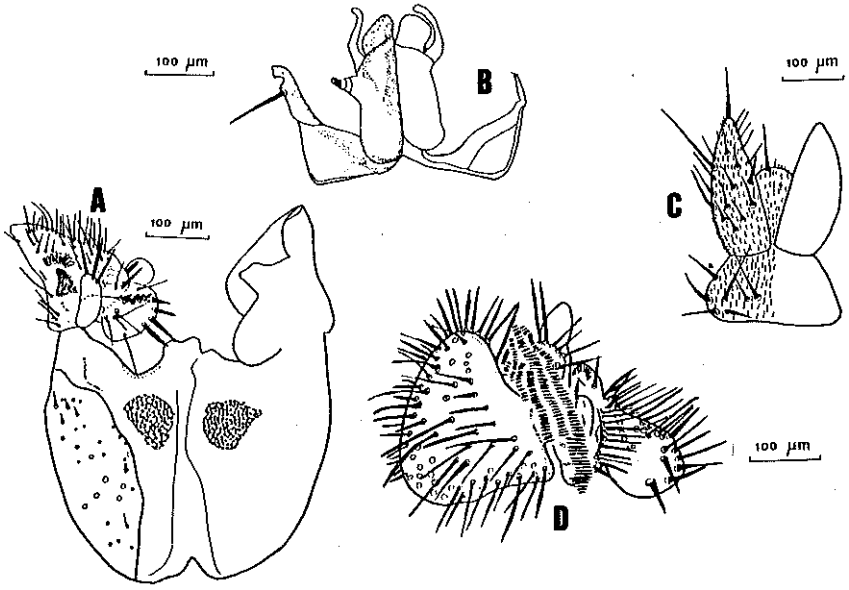


Fig. 55. Male genitalia of *Phronia exigua* (Zetterstedt). A. Gonocoxite and gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Lateral view of gonostylus.

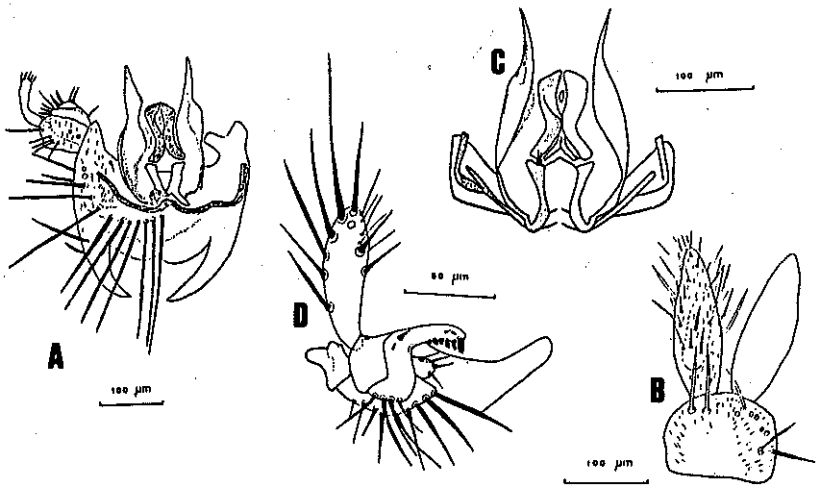


Fig. 56. Male genitalia of *Phronia nitidiventris* (van der Wulp). A. Posteroventral view of gonocoxite and gonostylus (also showing aedeagus). B. Tergite 9 and cerci. C. Aedeagus. D. Lateral view of gonostylus.

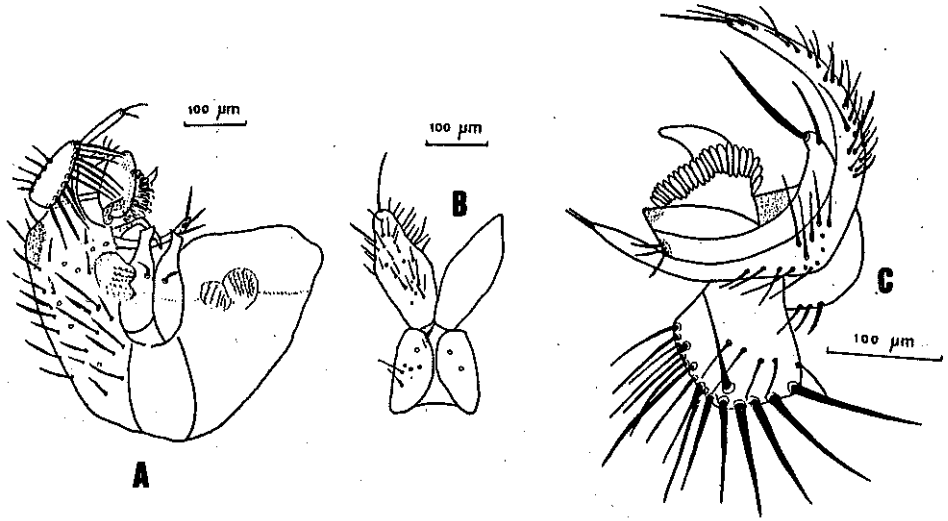


Fig. 57. Male genitalia of *Phronia maderina* sp. nov. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

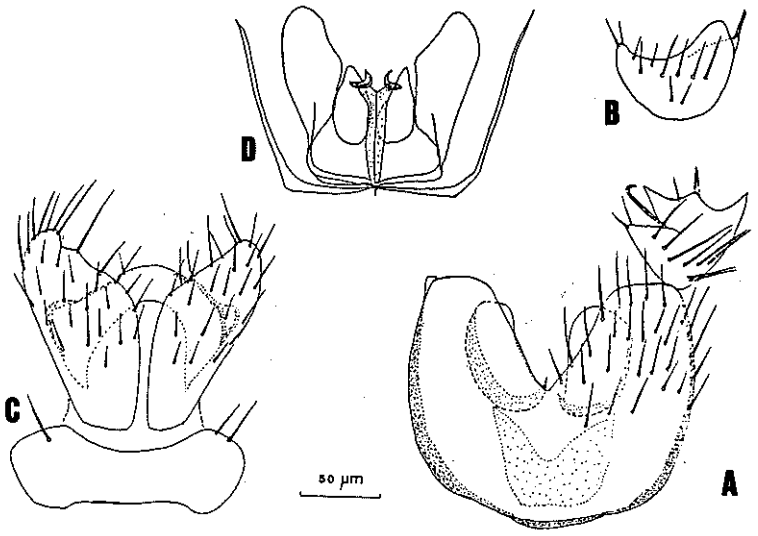


Fig. 58. Male genitalia of *Zygomyia valida* Winnertz. A. Ventral view of gonocoxite and gonostylus. B. Lateral view of gonostylus. C. Tergite 9 and cerci. D. Aedeagus.

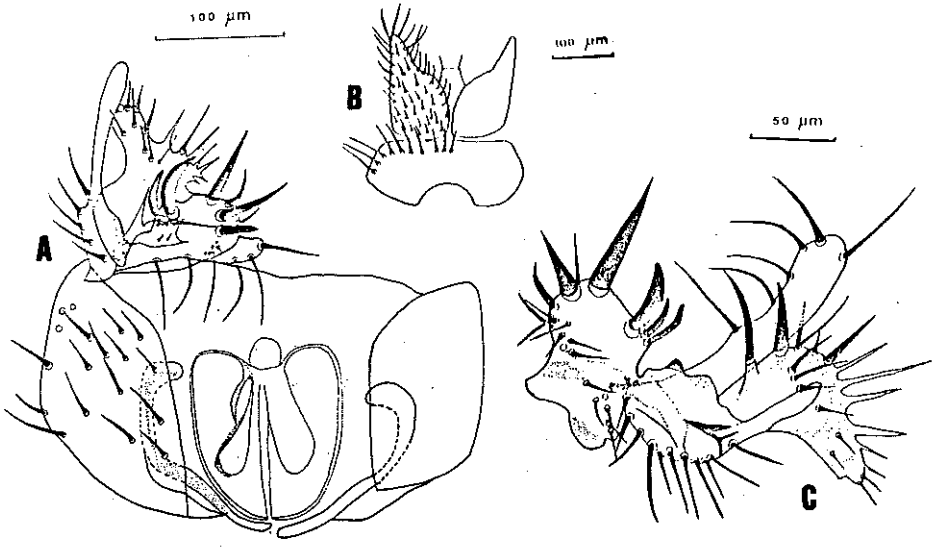


Fig. 59. Male genitalia of *Mycetophila ocellus* Walker. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

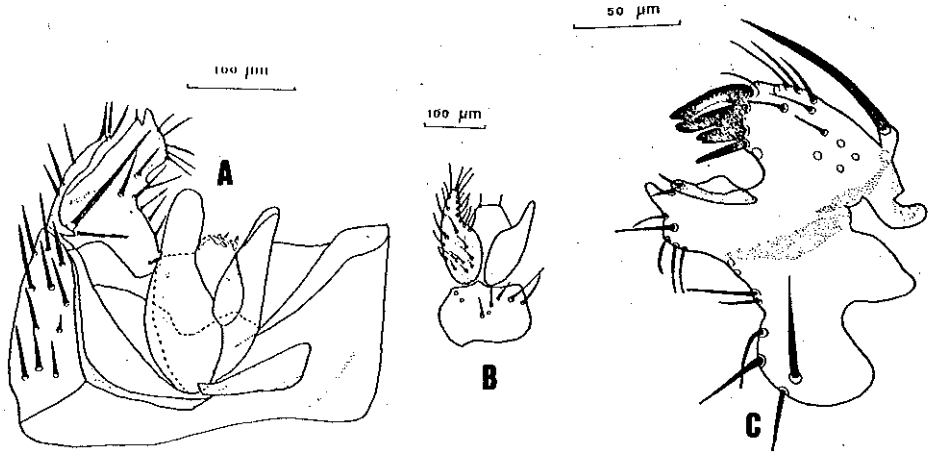


Fig. 60. Male genitalia of *Mycetophila vittipes* Zetterstedt. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

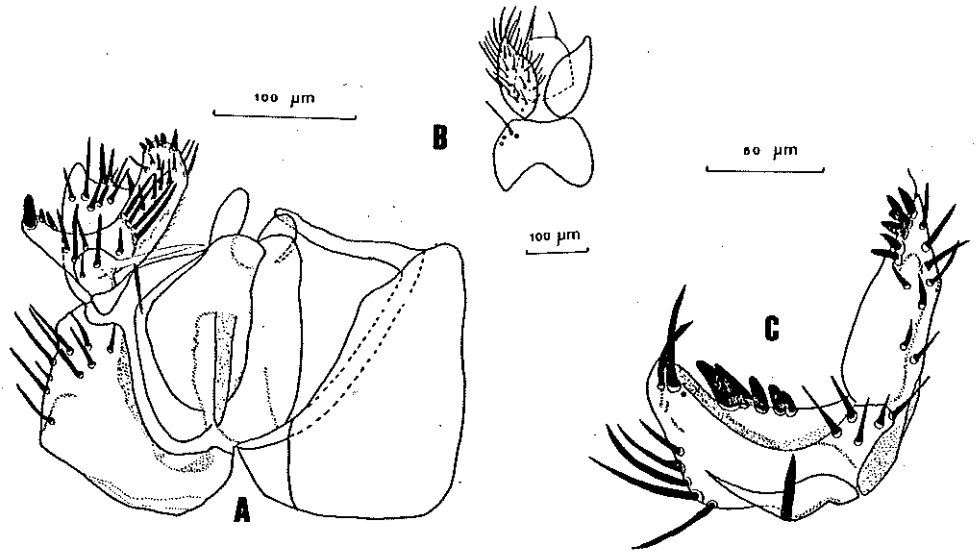


Fig. 61. Male genitalia of *Mycetophila edwardsi* Lundström. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

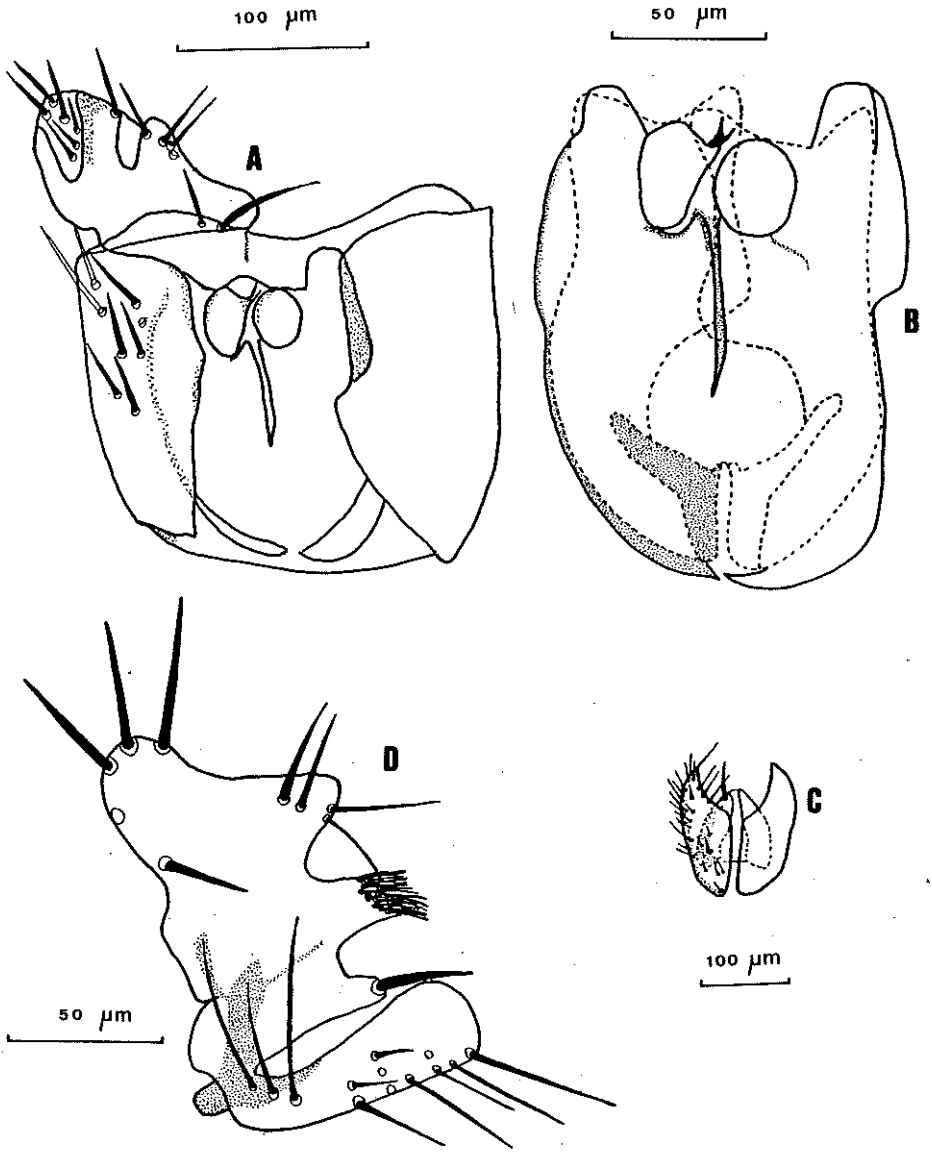


Fig. 62. Male genitalia of *Mycetophila pumila* Winnertz. A. Gonocoxite and gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Lateral view of gonostylus.

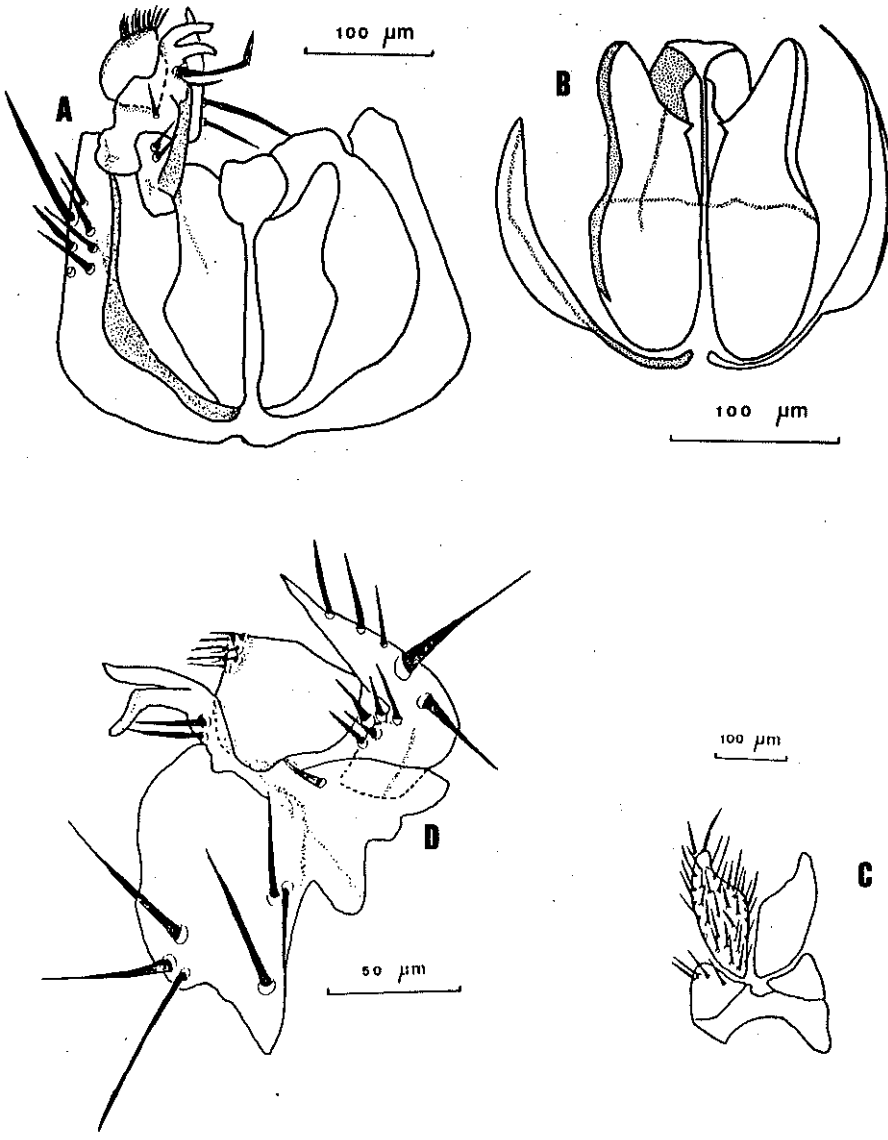


Fig. 63. Male genitalia of *Mycetophila unicolor* Stannius. A. Gonocoxite and gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Lateral view of gonostylus.

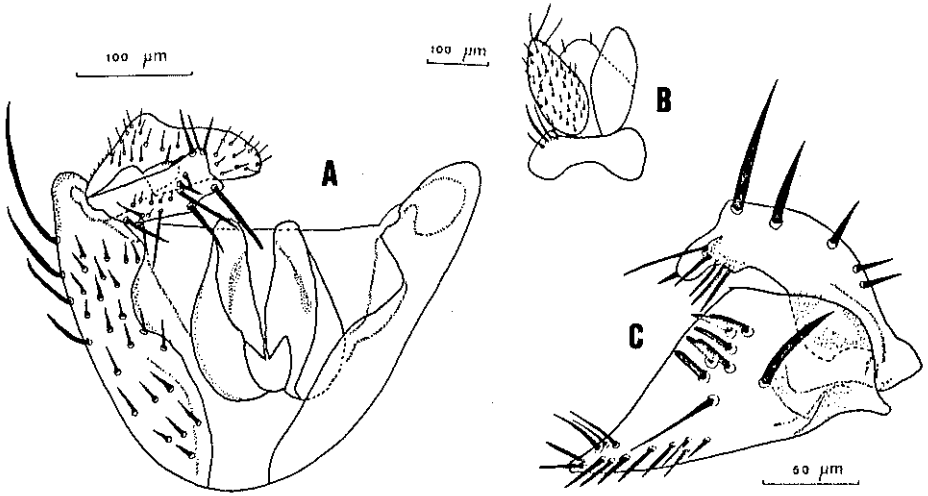


Fig. 64. Male genitalia of *Mycetophila trinotata* Staeger. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

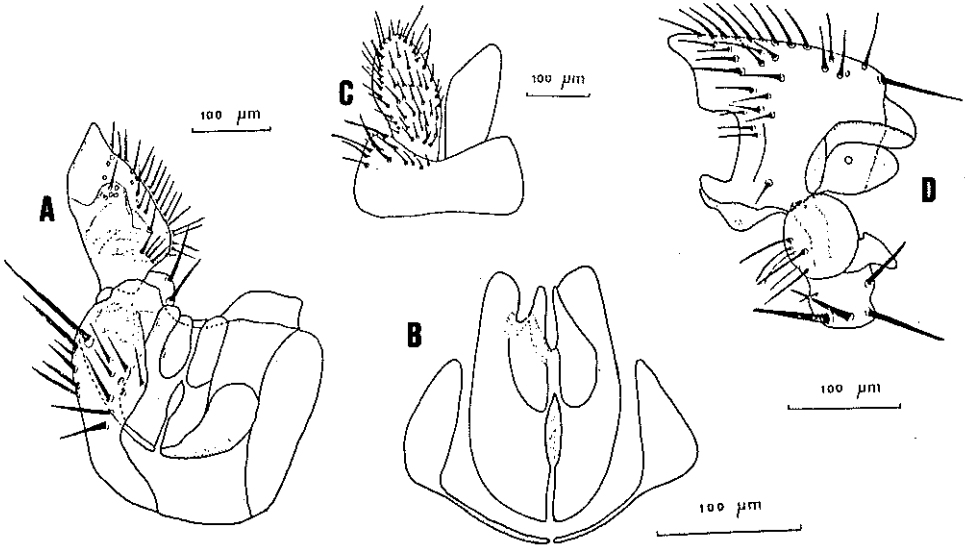


Fig. 65. Male genitalia of *Mycetophila pictula* Meigen. A. Gonocoxite and gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Lateral view of gonostylus.

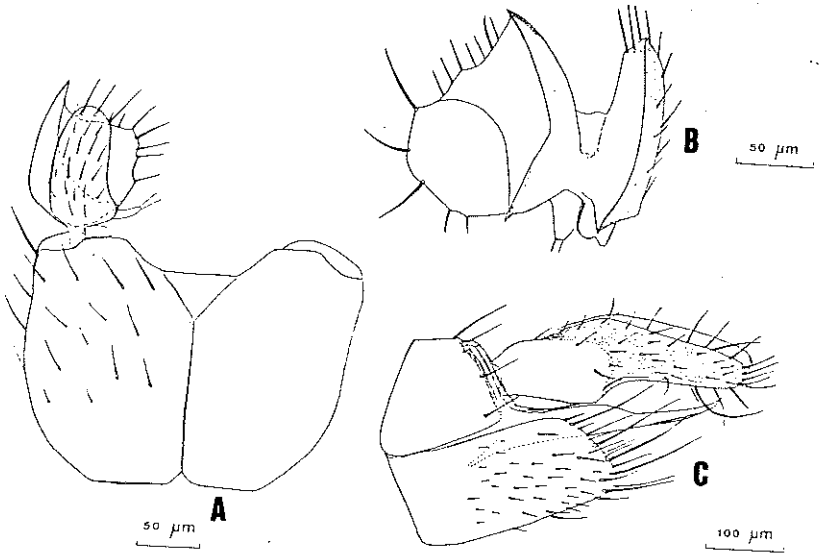


Fig. 66. Male genitalia of *Mycetophila storai* sp. nov. A. Ventral view of male gonocoxite and gonostylus. B. Internal view of gonostylus. C. Lateral view of female ovipositor.

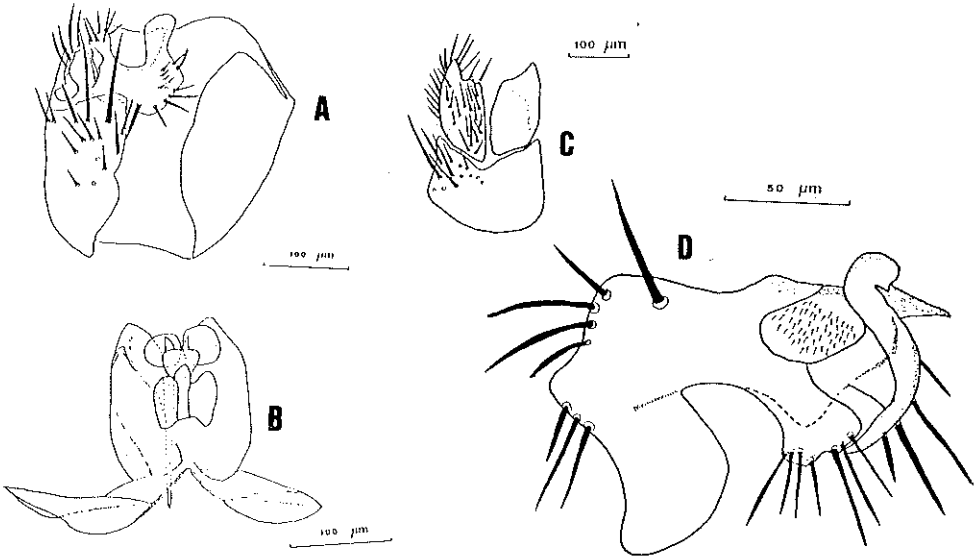


Fig. 67. Male genitalia of *Mycetophila madocella* sp. nov. A. Gonocoxite and gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Lateral view of gonostylus.

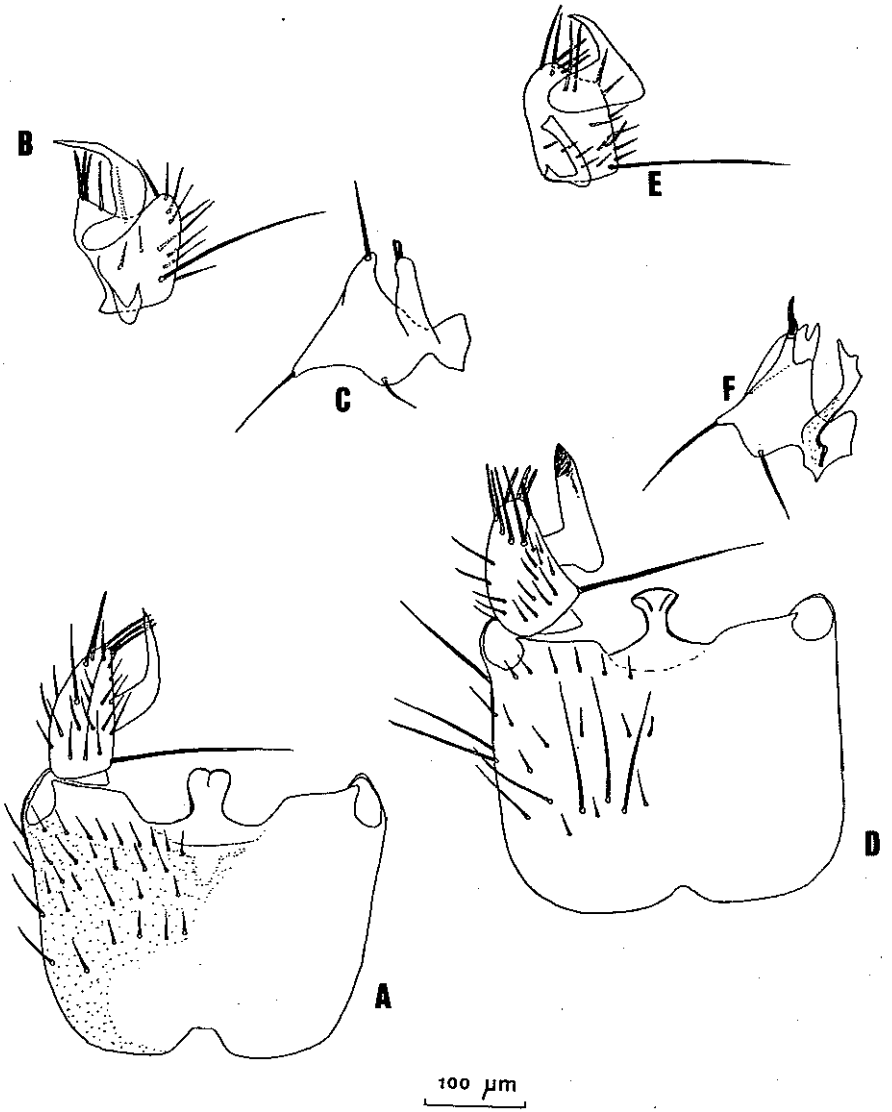


Fig. 68. Male genitalia of *Mycetophila* species. A-C. *M. parvifasciata* (Santos Abreu). D-F. *M. spectabilis* Winnertz. A. D. Ventral view of gonocoxite and gonostylus. B. E. Ventral stylomere of gonostylus. C. F. Dorsal stylomere of gonostylus.

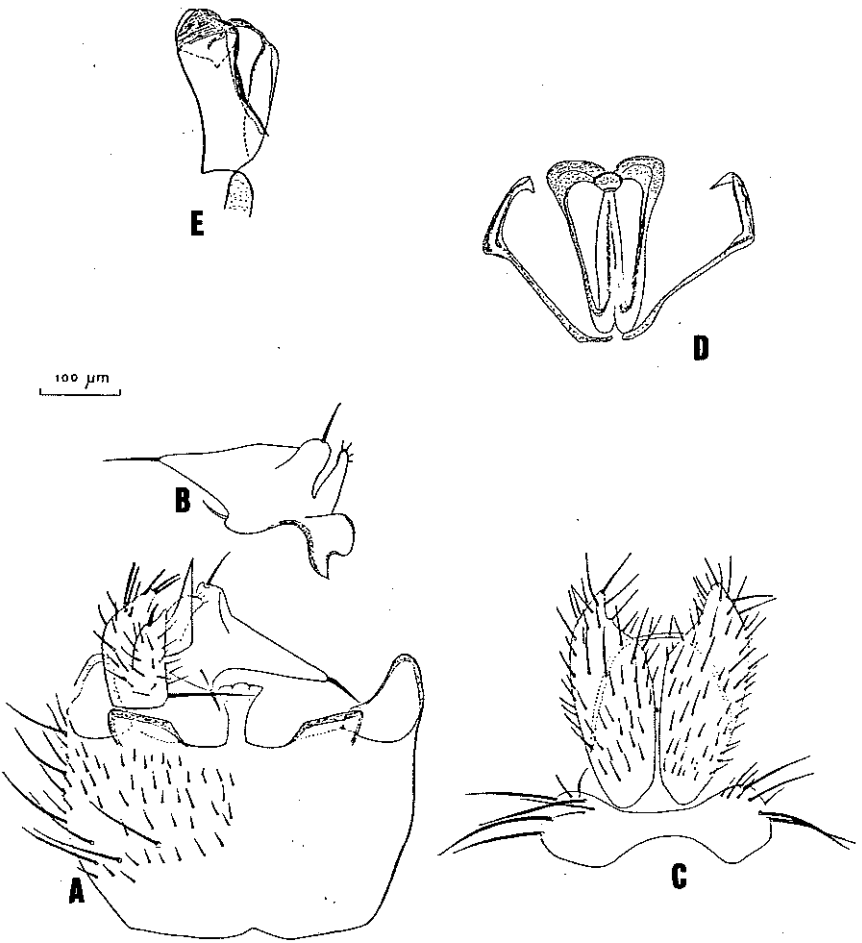


Fig.69. Male genitalia of *Mycetophila atlantica* Nielsen. A. Ventral view of gonocoxite and gonostylus. B. Dorsal view of dorsal stylomere of gonostylus. C. Tergite 9 and cerci. D. Dorsal view of aedeagus. E. Lateral view of aedeagus.

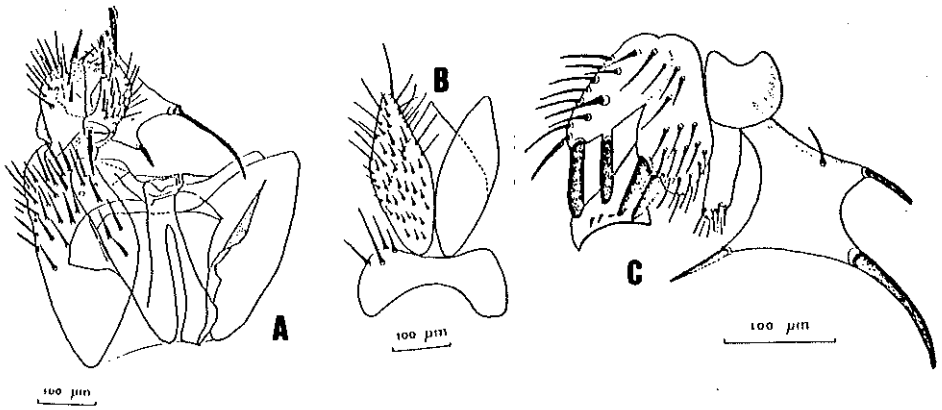


Fig. 70. Male genitalia of *Mycetophila nigromadera* sp. nov. A. Gonocoxite and gonostylus. B. Tergite 9 and cerci. C. Lateral view of gonostylus.

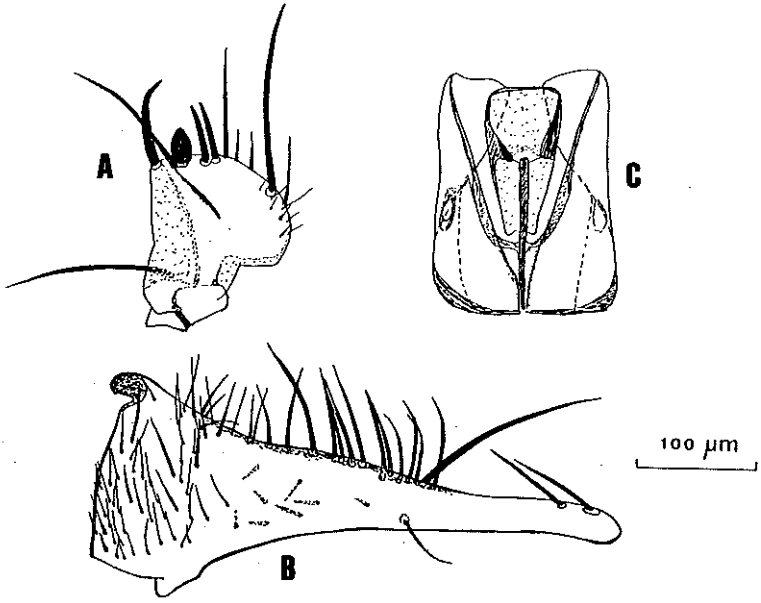


Fig. 71. Male genitalia of *Mycetophila perpallida* Chandler. A. Ventral stylomere of gonostylus. B. dorsal stylomere of gonostylus. C. Aedeagus.

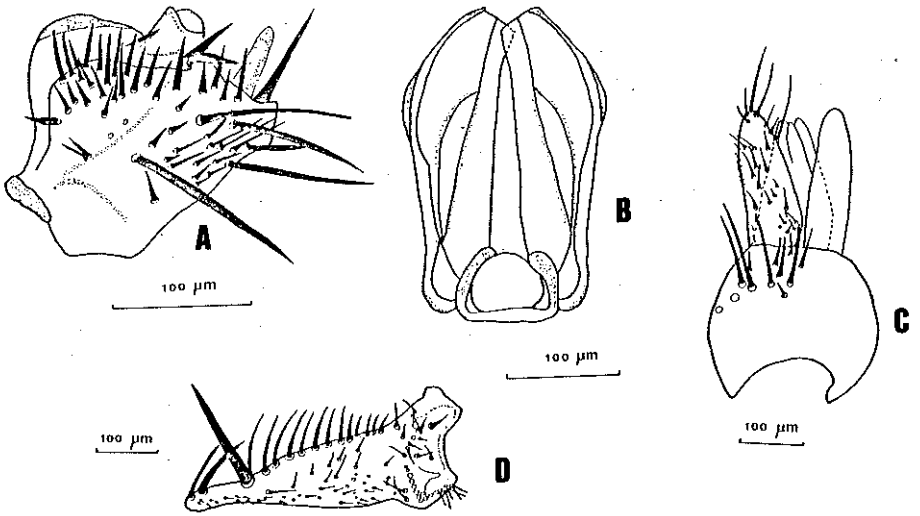


Fig. 72. Male genitalia of *Mycetophila suffusala* sp. nov. A. Ventral stylomere of gonostylus. B. Aedeagus. C. Tergite 9 and cerci. D. Dorsal stylomere of gonostylus.

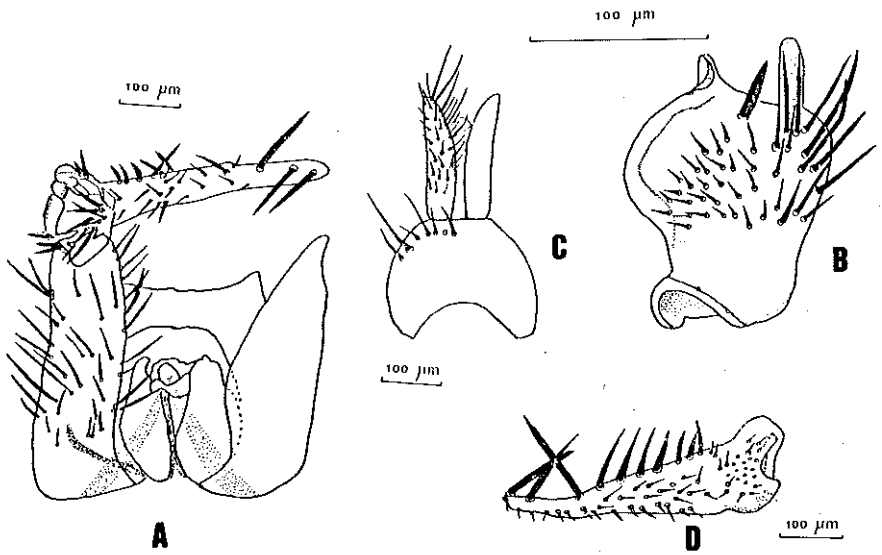


Fig. 73. Male genitalia of *Mycetophila britannica* Laštovka & Kidd. A. Gonocoxite and gonostylus. B. Ventral stylomere of gonostylus. C. Tergite 9 and cerci. D. Dorsal stylomere of gonostylus.