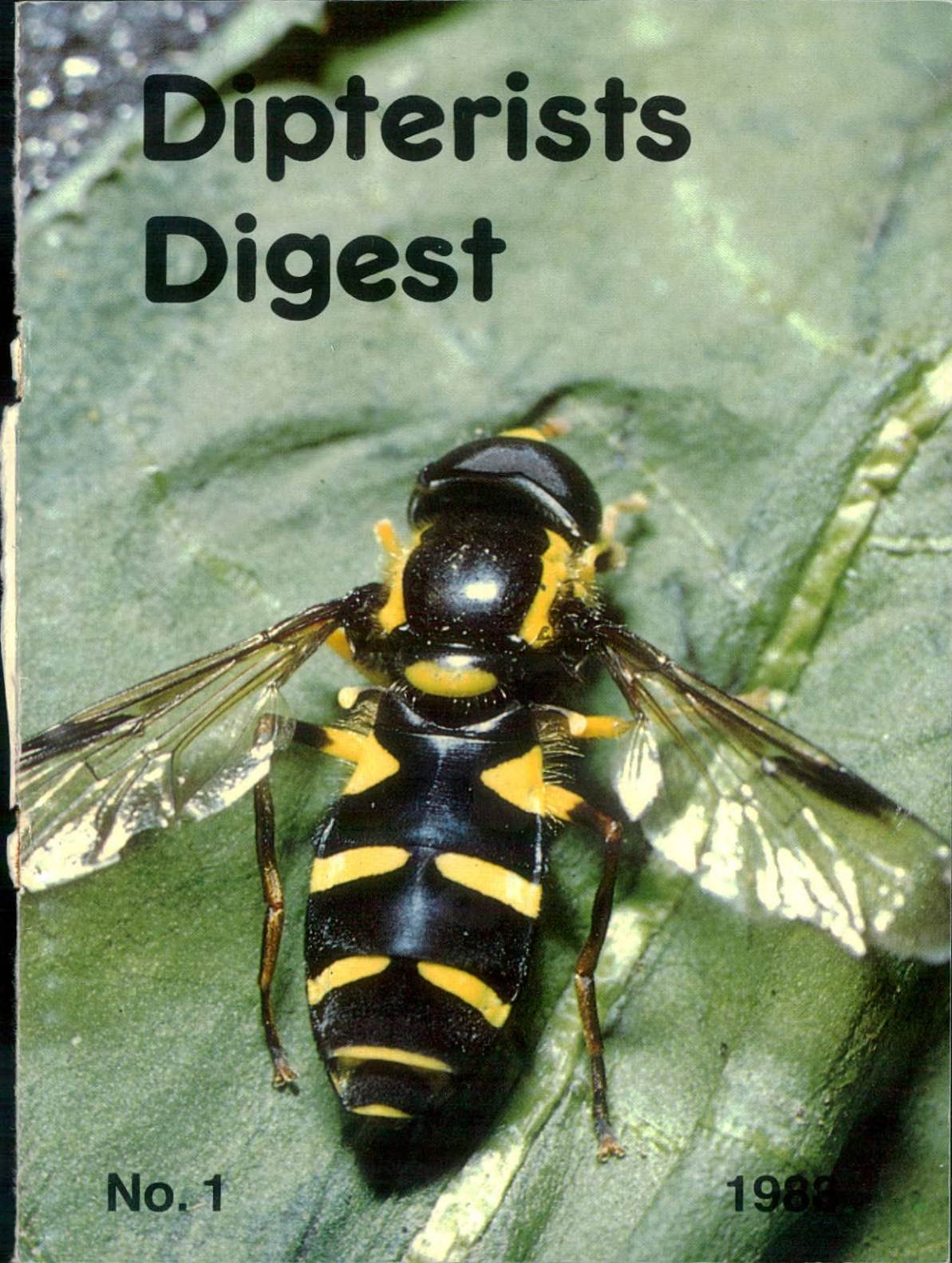
Dipterists Digest



No. 1 1988

Dipterists' Digest is a popular journal aimed primarily at field dipterists in the UK, Ireland and adjacent countries, with interests in recording, ecology, natural history, conservation and identification of British and NW European flies.

Articles may be of any length up to 3000 words. Items exceeding this length may be serialised or printed in full, depending on the competition for space. They should be in clear concise English, preferably typed double spaced on one side of A4 paper. Only scientific names should be underlined. Tables should be on separate sheets. Figures drawn in clear black ink, about twice their printed size and lettered clearly.

Enquiries about photographs and colour plates — please contact the Production Editor in advance as a charge may be made.

References should follow the layout in this issue.

Initially the scope of Dipterists' Digest will be:-

— Observations of interesting behaviour, ecology, and natural history.

— New and improved techniques (e.g. collecting, rearing etc.).

— The conservation of flies and their habitats.

— Provisional and interim reports from the Diptera Recording Schemes, including provisional and preliminary maps.

— Records of new or scarce species for regions, counties, districts etc.

— Local faunal accounts, field meeting results, and 'holiday lists' with good ecological information/interpretation.

— Notes on identification, additions, deletions and amendments to standard key works and checklists.

— News of new publications/references/literature scan.

Texts concerned with the Diptera of parts of continental Europe adjacent to the British Isles will also be considered for publication, if submitted in English.

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Syrphidae known from temperate Western Europe: potential additions to the fauna of Great Britain and Ireland and a provisional species list for N. France

Martin C. D. Speight

Summary

The 90 or so species of Syrphidae known from parts of continental Europe adjacent to the British Isles, but not recorded from either Great Britain or Ireland, are listed. Notes on habitat, status, range and identification are provided for more than 50 of these species, covering those whose discovery in the British Isles might be anticipated and those that are not easily determined using existing monographs. Revised keys are included where appropriate. A provisional species list of the Syrphidae of N. France is presented.

Sommaire

La centaine d'espèces des Syrphides connues d'Europe continentale près des Îles Britanniques, mais qui ne sont pas déjà recoltées des Îles Britanniques, sont catalogués. Les données d'habitat, de répartition et d'identification sont sommarisées pour la plupart de ces espèces, comprennant les espèces qui, très probablement, puissent être decouvertes dans les Îles Britanniques ainsi que les espèces mal connues. Clés de détermination sont presentés si necessaire. Il y a inclu une liste provisoire de la faune des Syrphides de la France Nord-ouest.

Introduction

Among the European Diptera, syrphids comprise one of the best-known groups. The syrphid fauna of Western Europe is becoming extremely well-known and that of Great Britain and Ireland is as well-known as that of any other part of Western Europe. Syrphidae are also potentially very useful bio-indicators of site quality, including in nature reserve assessment (Speight, 1986a). In these circumstances, it becomes both possible and worthwhile to consider which, of the European species not currently known in the British Isles, might be found there at some point in the not-too-distant future.

One cannot realistically assume that the fauna of the British Isles is so well known that few additions can be expected. Insect species have been added to British lists at a rate of one per month, every month, for the last ten years or more (Speight, 1988a). In the same period, syrphid species have been added at the rate of one a year. I have argued at length (Speight, 1988a) that one reason for this is the tradition of including only known British species in keys to the identification of British insects. I would add that, now English is regarded by so many Europeans as an appropriate vehicle for scientific communication, it is remarkable that there are still so few English language taxonomic monographs dealing with European insect groups. And of those which do exist for Diptera, such as Rozkosny (1982-83), almost none have been produced in the British Isles! Hopefully, the present text will go some way towards providing a basis upon which syrphidologists working in either Great Britain or Ireland can begin to sort out "doubtful specimens" which perhaps do not belong to syrphid species already known in these islands. But what is really needed is a revision of the entire European syrphid fauna, in English!

There is considerable similarity between the syrphid fauna of the British Isles and that of the Atlantic seabord region of Europe from Denmark southwest to the Loire valley (France). There is probably greatest similarity with the fauna of N. France (though this situation could perhaps change with more complete data for N. France). There is considerably less similarity between the

syrphid fauna of the British Isles and that of Fennoscandia, or that of other parts of Europe. For these reasons, the present text is largely confined to consideration of the known fauna of the states along Europe's Atlantic coast from Denmark to N. France. The precise area covered is given in Appendix 1.

It would be convenient if one could assume that all syrphids occurring in the British Isles must be included either in existing British Isles lists or in the present text. Unfortunately, this is not likely to prove entirely the case. At least four of the syrphid species already recorded from the British Isles are not known elsewhere in the part of Europe covered by the present text. These four are all Fennoscandian, so species which defy determination using existing British literature and the information presented here should perhaps first be searched for in texts on Fennoscandian syrphids. Further, additional species are being found each year in the continental area covered by the present text and they too require to be taken into consideration.

With the exception of that pertaining to N. France, the literature on the syrphid fauna of the various parts of the region of continental Europe covered by the present text is up-to-date and as reliable as one could hope it to be. In an attempt to improve the situation for N. France, in Appendix 2 I have given a provisional species list for the French Departements listed in Appendix 1.

A total of some 90 species present in the continental part of Europe considered here are not known from either Great Britain or Ireland. The question of which of these 90 species are likely to be found in the British Isles at some point is considered in the following section of this text. In the final section brief notes are provided on species considered to be the most likely additions to the British Isles syrphid fauna in the immediate future and on other species from this part of Europe to which attention needs to be drawn in case they should occur. In total, notes are provided on some 50 species.

Publications from which data have been drawn in compiling the species lists are given in the references section. In the lists, *Pipiza* species, other than *P. luteitarsis* and *P. quadrimaculata,* are omitted, since the nomenclature of the others is at present so confused.

The list for N. France is based primarily upon material examined in the collections of the Museum National d'Histoire Naturelle (Paris), the INRA collections at Versailles and records gathered from the author's own collecting activities. But additional data have been culled from Portevin (1904), Seguy (1961) and Villeneuve (1903). The N. French list cannot be regarded as definitive. It comprises only 225 species and there has been less collecting activity carried out in N. France than elsewhere in the region covered in this text. In comparison, the list for the rest of the continental region covered here comprises 345 species.

The syrphid fauna of the entire region of Europe on which this text is based, totals at least 350 species. There is no comprehensive, English-language text in which all of these are keyed-out, but most of them may be distinguished from the other species of their genus known from this region of Europe by means of the Dutch language keys in van der Goot (1981). Some are missing from van der Goot's otherwise very useful volume altogether, though in some instances there are English-language keys which include all of the European, or West European species of some particular genus. In other instances, there are more recent keys than van der Goot (1981) which either employ additional features or include further species.

In the notes section of the present text, reliable identification texts alternative to van der Goot (1981) are mentioned if published in English, or if they refer to identification features which usefully augment van der Goot. Similarly, literature which may be used to determine species not mentioned by van der Goot (1981) is noted. These references are given in full in the reference section of this account. Not infrequently, it has seemed advisable to include, in the notes, discussion on how one or another of the species can be determined and, in the case of certain

species, revised keys have been included here as aids to identification. No reference to determination of species is made in instances where van der Goot (1981) represents the most convenient and reliable text to use.

For ease of access, in both the species lists and the notes section, species and genera have been listed alphabetically, rather than according to any phylogenetic arrangement.

Syrphid species most likely to be added to the British or Irish lists in the immediate future

It could be assumed that, since the closest part of the continent to the British Isles is N. France, and N. France is closest to S. England, additions to the British Isles syrphid list are most likely to be species occurring in N. France and they are most likely to be found first in S. England. But the following additions have been made to the British Isles syrphid list during the last ten years:

Anasimyia contracta: GB (S. England to S. Scotland); IRL (Cork to L. Neagh)
Anasimyia interpunctata: GB (S. & E. England)
Cheilosia ahenea: IRL (West & N. West)
Cheilosia argentifrons: GB (N. England); IRL (centre & N. W.)
Dasysyrphus friuliensis: GB (centre to S. Scotland)
Melanostoma dubium: GB (Scotland & N. England)
Neoascia interrupta: GB (S. E. England)
Neocnemodon brevidens: GB (central England)
Paragus haemorrhous: GB (S. England to Scotland); IRL (Cork to Leitrim)

Three of these species have not yet been found in N. France and the majority of them have not yet been found in S. England. But all of them are known in the area between the Ardennes and Jutland. Only one is probably a recent arrival in the British Isles.

From the Notes section of the present text it can be seen that all but 11 of the syrphids known from N. France are known also from part or all of the rest of the area of continental Europe considered here. Conversely, more than 60 species found in the rest of the area occur in neither N. France nor the British Isles. Of the 10 species occurring in N. France only, within this region of Europe, 7 appear to be at the North edge of their range in N. France and the other 3 appear to be verging on extinction there. At the opposite extreme, species not yet known in the British Isles but included on the species lists for all parts of continental Europe considered here, including N. France, there are but 7: *Arctophila bombiforme, Cheilosia canicularis, Chrysogaster lucida, Epistrophe melanostoma, Eristalis pratorum, Eumerus sogdianus* and *Temnostoma bombylans.* These species are included in the Notes section of this text, but from what is said there it will be evident that inclusion of them on the lists for so much of Western Europe does not, of itself, indicate that they are likely to be found in the British Isles.

The previous paragraphs suggest that future additions to the British Isles syrphid list should be looked for not only among the species found throughout adjacent parts of continental Europe, but also among the 60 or so less widely recorded species found in the region. Amongst these, the species particularly likely to have been confused with others already known in the British Isles form one group obviously requiring consideration, and there are more than 20 such species in the region. These are all included in the Notes section. Then there are those species for which there is evidence of an extension of range occurring, toward the British Isles, during the present period. Most of these are conifer-forest insects, seemingly capable of invading the plantations of commercial conifer crops now comprising the greater part of the tree cover of the region. Interestingly enough, none of them are definitely recorded from N. France, unless the fauna of the Vosges mountains is brought into consideration. There is some indication that any species capable of surviving in conifer plantations which reaches N. France is likely to arrive in at least

Great Britain more or less synchronously, from the case of *Dasysyrphus friuliensis*. The earliest N. French specimens of this species I have located date from the same decade that *D. friuliensis* was first found in England. The apparent rapidity with which *D. friuliensis* spread into Western Europe and then through Great Britain suggests further conifer plantation syrphids might appear in the British Isles almost without warning. For this reason, I have included in the Notes section not only conifer forest syrphids already known in the region of Europe considered here, but also a few additional species occurring today in conifer forests of adjacent parts of Europe. *Meligramma cingulatum, Sphaerophoria infuscata* and *S. shirchan* fall into this category.

All together one could list 30-40 of the syrphids found in adjacent parts of continental Europe as likely to be added to the fauna of the British Isles. This would bring the total British Isles syrphid fauna to approximately 290-300 species, which is about the same number as is known from the Netherlands. Approximately 310 species are known from Belgium and 265 from Denmark. It is thus not unreasonable to suppose that there could be thirty-odd syrphid species awaiting addition to the British Isles lists in the immediate future. However, assessed in this way, it is also true that the majority of species recorded in adjacent parts of continental Europe but not yet from either Great Britain or Ireland are being judged as *unlikely* to be recorded from these islands during the next decades. The case of certain species is almost impossible to judge, because their existence has been recognised only recently. Some of these, in particular species not included in van der Goot's (1981) keys, have been included in the Notes section, as much to reduce confusion about their identity as because their occurrence in the British Isles is to be expected. *Sphaerophoria potentillae* and *Sphegina clavata* are examples.

Just in case geographical proximity is of more significance than I have judged it to be, all the species known from N. France, but not from the British Isles, have been included in the Notes section. But consideration of the notes on the individual species shows why so many of these N. French syrphids are not likely to turn up anywhere in Great Britain or Ireland. Eleven of them are large and/or striking species associated with ancient deciduous forest - if present they are unlikely to be overlooked or misdetermined. All of these species, and one or two less spectacular ancient deciduous forest species as well, are threatened with extinction in Western Europe. Their ranges are shrinking, not expanding. A second, smaller group of vanishing species is associated with dry grassland/old pasture. They, like the old forest syrphids, are being eradicated along with their habitat. The same is true for most of the few wetland species recorded in N. France but not the British Isles. With these three groups of declining species put on one side, there remain but three species unaccounted for. *Chalcosyrphus pigra* is associated with old pines and has vanished from much of its previous range in western Europe during this century. *Eumerus ruficornis* is similarly disappearing, perhaps because its host plant is becoming extinct, but since its host plant is unknown this remains conjecture! Finally, there is *Xylota ignava,* another conifer forest insect, which has remained very localised despite the spread of conifer plantations.

To consider briefly those syrphids from the rest of this region of Europe that I judge unlikely to be recorded from the British Isles, most of the old deciduous forest species involved occur also in N. France, but there is a larger group of wetland species to mention. Again, these wetland species are becoming increasingly localised as their habitats are drained or polluted, and it seems to me illogical to imagine they might colonise the British Isles under such circumstances. Further, the processes which are causing habitat loss on the continent are as evident in the British Isles as elsewhere in Western Europe, so if these apparently more sensitive wetland syrphids have been present in the British Isles for some time, but have been overlooked there so far, it seems to me that the chances of discovering them before they disappear are increasingly remote. A further recognisable enclave of species which seem unlikely to occur is that associated with montane pasture. Some unexpected faunal additions could come from this group though, because

montane faunas are relatively under-worked, particularly in Ireland. Finally, there is a small group of enigmatic species, typified by the *Fagus/Picea* forest syrphid *Olbiosyrphus laetus*. A large species, looking vaguely like some sort of *Xanthogramma* or *Eriozona erratica*, *O. laetus* has been recorded once in the Belgian Ardennes and is also known in W. Germany. Why it should be seen so rarely, or why it occurs where it does are questions with no answer at present. But, in some ways, the fact that such a magnificent insect, the only species in its genus in Europe, should be still so totally obscure is rather comforting: there is still a real chance of encountering the unexpected even on the well-trodden paths of Western Europe and I, for one, would be sad were this no longer true!

Notes on selected species of Syrphidae recorded from parts of continental Europe adjacent to the British Isles but not from Great Britain or Ireland (including all the species known from N. France but not from the British Isles)

N.B. In these notes, the following abbreviations are used: B = Belgium; (B) = Belgium, at high altitude in the Ardennes, only; D = Denmark; (e) = regarded as extinct; F = N. France; G = N. W. Germany; (G) = Harz mountains only; L = Luxembourg; N = Netherlands; (V) = Vosges mountains.

Arctophila bombiforme
Preferred environment: *Fagus/Picea* forest with over-mature trees. Adult habitat: clearings, tracks, streamsides. Flowers visited: yellow composites, *Echium vulgare*, and various umbellifers, also *Cirsium, Knautia* and *Succisa* (Torp, 1984). Flight season: June into July, later at high altitude. Larva: undescribed. Range: F, Paris basin; D, G, N, B, (V); Scandinavia plus mountain ranges of much of Europe, including Pyrenees. Resembles *Bombus lucorum* group bumble bees.

Brachyopa panzeri
Preferred environment: *Fagus* forest with overmature trees. Adult habitat: stumps etc. in the sun, within forest; sap runs. Flowers visited: *Prunus spinosa, Salix* (Barkemeyer, 1986). Flight season: beginning of May/June. Larva: undescribed. Range: D, G, N, B, L; Southern Scandinavia to central France (Massif Centrale) and through central Europe to Czechoslovakia and Austria; range not yet well known due to recent date of species redefinition (Thompson, 1980). Range may be expanding. If present in Britain could have gone unrecognised.

Brachyopa testacea
Preferred environment: *Picea* forest. Adult habitat: males hover a few inches above ground around recently felled *Picea* stumps and settle on adjacent, low vegetation, often in numbers. Flowers visited: white umbellifers, also *Crataegus* and *Malus* (Torp, 1984). Flight season: May/June. Larva: undescribed. Range: D, G, N, B, L, (V); Scandinavia through to Asiatic USSR; central Europe. Likely to spread to wherever *Picea* plantations are established. Can only be distinguished from *B. obscura* using features of the male terminalia (Thompson & Torp, 1982).

Brachypalpus valgus
Preferred environment: Old *Quercus* forest. Adult habitat: tree trunks and fallen trees in the sun in glades, etc.; Flowers visited: *Sorbus* and *Crataegus*, but usually only at some height above ground (long-handled net advised!). Male with close resemblance to large, fast-flying bee. Flight season: April to beginning June. Larva: undescribed. Range: F, including Paris basin and Brittany (vicinity of Rennes); (G), N(e), B, (V); Europe W. and central to European parts of USSR, and S. to Pyrenees. Rare and decreasing, threatened at European level. Very similar to *B. laphriformis*, but usually larger. Males with eyes separated by distance slightly greater than diameter of anterior

ocellus (contiguous in *B. laphriformis*). Females with frons undusted and brightly shining over most of width (heavily dusted across entire width in *B. laphriformis*). If present in British Isles could have gone unrecognised.

Callicera macquarti
Preferred environment: Old *Fagus* forest. Adult habitat: tree tops, descending only to feed or drink?; Flowers visited: *Sorbus, Solidago* and *Allium,* also drinking at stream margins in sun, within forest. Most easily caught whilst drinking, but extremely rapid in flight and extremely wary. Flight season: April/beginning June and August/September. Perhaps only Spring generation towards N. end of range. Larva: undescribed. Range: F (Loire Atlantique); N, B; more prevalent in S. Europe. Most material from Northern parts of range referrable to varieties *bertolonii* and *obscura.* range uncertain due to confusion with *C. rufa.* Rare and decreasing, most records ancient except in S. Europe. Threatened at European level. Determination: see Speight (in press, b).

Ceriana conopoides
Preferred environment: Old deciduous forest. Adult habitat: clearings, tracksides etc.; Flowers visited: various umbellifers and *Rubus fruticosus.* Long flight season from May to September, but most records June/July. Larva: in damp tree-holes, but undescribed. Range: F, number of widely scattered records and still not infrequent in Foret de Rambouillet (Paris basin); G, N, B, L; Finland to S. and central Europe and on into Asiatic parts of USSR. Rare and decreasing in W. Europe. Probably present in GB in early 19th. cty. (see Verrall, 1901a) but not recorded there since.

Chalcosyrphus pigra
Preferred environment: Forest with overmature *Pinus.* Adult habitat; no data. Flowers visited: no data. Flight season: May/June, to July/August at altitude. Larva: larva and puparium described by Heiss (1938), from sappy hollows beneath bark of *Pinus.* Range: F, including Paris basin, but no recent records; (G), N(e), B; Scandinavia S. to Pyrenees, increasingly montane southwards; also through central Europe into Asiatic parts of USSR and in Nearctic. A particularly enigmatic species, now threatened at European level and approaching extinction in Western Europe. In general appearance and colouration very closely resembles *Chalcosyrphus (Brachypalpoides) lenta,* but has median, ventral, longitudinal, keel on hind femora (two, lateral, undeveloped, longitudinal ridges in *C. lenta*) and hairy metasternum (metasternum only micro-pilose in *C. lenta*). If present in GB could have been overlooked.

Chalcosyrphus valgus (*femoratus* of auct., not L.)
Preferred environment: Old *Fagus/Picea* forest, toward the upper altitudinal limit of the *Fagus.* Adult habitat: on stumps and logs of conifers. Flight season: May/July. Larva: undescribed. Range: F, ancient, unconfirmed record mentioned by Seguy (1961) from Britanny; D, G, N, B, (V); Scandinavia to Asiatic parts of USSR and S. into central Europe (Austria, Switzerland); also Pyrenees. Threatened with extinction at European level. Few 20th. cty. records from anywhere in Europe. Associated with ancient *Acer*? Very distinctive species, unlikely to be confused with others except *C. femoratus* (*curvipes* of auct.).

Cheilosia
The nomenclature of a number of European *Cheilosia* species will remain instable until a considerable amount of redefinition and redescription of species is carried out, based upon examination of types rather than interpretation of existing descriptions. Becker (1894), in particular, is a minefield of mis-information. There is also the problem that in the Eastern Palaearctic a separate nomenclature has developed for a whole range of species. Further, the problem of potentially holarctic species remains to be addressed. Species concepts in the genus

are becoming progressively well defined in Western Europe however, so that it is possible to have confidence that, in most instances, faunal lists for the different parts of the region of Europe covered here are now all using the same name for a given species, even if it later transpires that the name is incorrect! The doubtful taxa recorded in the continental part of this region are indicated in the Part 2 species list. Most of them seem likely to prove to be variants of species already known in the British Isles. However, this is not the case for either *C. canicularis* or *C. chloris*. These two species are problemmatic in that 2 or 3 species appear to be confused under each name. But *C. canicularis* group species are rather large and unlikely to be confused with any *Cheilosia* known in the British Isles already, apart from *C. grossa*. In *C. grossa* the third antennal segment is black, whereas in these other species it is orange/brown, a fact which should identify them as something different, should any of them be found. *C. chloris* and its relatives are likelty to be confused with *C. bergenstammi, C. fraterna* or *C. lenis*, but would identify as *C. chloris* using van der Goot's (1981) keys. With the exception of *C. canicularis* and *C. chloris*, the species of *Cheilosia* which seem most likely to occur in the British Isles are each treated in the notes following. Were it not for the distinctive nature of the larval mines in the leaves of *Allium ursinum*, I would have included *C. fasciata* below. But I think it unlikely this species could go un-noticed, since its larval workings are at their most obvious in June, when Dipterists are very active in the field. Large pale blotches in *Allium* leaves almost have to be due to *C. fasciata*. There is no possibility of confusing these workings with those of *Portevinia maculata* since the larvae of the latter are to be found in the *Allium* corm and are full-grown in March (Speight, 1986b).

Cheilosia flavipes

Preferred environment: conifer forest. Adult habitat: clearings, glades and tracksides etc. Flowers visited: *Ranunculus, Sorbus aucuparia*. Flight period: June. Larva: undescribed. Range: D, G, N, B, L. (V); Sweden and Finland Southwards, primarily through mountainous regions, to Pyrenees and Jugoslavia; Northern Europe to Western parts of Siberia; central Europe. Female noticeable on account of almost entirely yellow legs. Male more easily misdetermined, due to predominantly dark brown femora and, contrary to van der Goot's (1981) key, often brown-marked tibiae.

Cheilosia lenis

Preferred environment: deciduous woodland towards its upper altitudinal limits or otherwise experiencing a somewhat harsh climate. Adult habitat: clearings etc. Flowers visited: *Ranunculus*. Males hover at 2-3 metres. Larva: undescribed. Range: F, N. of Paris (Seguy, 1961); G, N, B, L. (V); Germany S. to Pyrenees; central Europe to European USSR. Not infrequent within beech forests of central European mountain ranges, but often misdetermined as *C. bergenstammi*. In *C. lenis* the eye hairs are long and extend to the ventral surface of the eyes. In *C. bergenstammi* they are shorter (especially in the female) and absent from the ventral quarter of the eye surface. Could be expected to occur in Wales or Scottish lowlands.

Chrysogaster basalis

I do not believe this Southern European species occurs within the region covered by the present paper, but there are records of supposedly this species from N. France. All of the specimens whose identity I have been able to check appear to be females of *C. solstitialis* with unusually yellow wing-bases and with the general wing surface only weakly infuscated. Females of *C. basalis* and *C. solstitialis* are very difficult to separate, however, and some of the specimens I have seen from N. France could not, with certainty, be consigned to *C. solstitialis*. Unless a male of *C. basalis* is collected within the region it nonetheless seems reasonable to regard the presence there of this species as unproven. Most specimens of *C. basalis* I have seen derive from the Mediterranean basin and Iberia, but I have seen a male collected in central France.

Chrysogaster lucida

Preferred environment: calcium-rich fens and marshes, also pond and stream-side vegetation in calcareous regions. Adult habitat: flies within a metre or so of the ground, through and over fen and wet meadow/pasture vegetation in the vicinity of standing water; easily swept on dull days. Flowers visited: *Ranunculus.* Flight season: May/June. Larva: described and figured by Hennig (1952). Range: F, common; D, G, N, B, L, (V); Sweden and Finland S. to central Spain and Eastwards through central Europe into European USSR. This is the *C. viduata* (L.) of various authors. It is quite peculiar that there are no authenticated records of this species from Great Britain. Prior to Verrall (1901a) *C. lucida* was regarded as a British species, but Verrall, writing on *C. hirtella,* stated "There is little to be said except that most probably all previous notices of British *C. viduata* or *C. macquarti* refer to this species". Since then, *C. lucida* has not been mentioned in British literature until it was included in a key by Speight (1980). It would be all-too-easy to dismiss a specimen of *C. lucida* as belonging to *C. hirtella* and I have found these species frequently confused in continental collections. Traditionally, keys seek to distinguish *C. lucida* from *C. hirtella* by referring to the brown blotch often present on the middle of wing of *C. ludica,* stating that while present in *C. lucida* this blotch is absent in *C. hirtella.* However, *C. lucida* can occur without any discernable wing blotch and *C. hirtella* can possess wings quite heavily infuscated in the anterior half. *C. lucida* is the only wetland syrphid common and widely distributed within the region covered by this text that is unknown from the British Isles.

Chrysotoxum intermedium

As generally interpreted, this is a Southern European species which only reaches as far North as the Paris basin in exceptionally hot summers. In this way it resembles *Scaeva albomaculata,* which **has** once been collected in GB, so *C. intermedium* might on occasion reach Southern England. It may be found in a wide variety of biotopes, but excluding wetlands, and ranges widely through Eurasia. A polyvoltine insect, it is on the wing from April to October in Southern Europe. Migrant specimens might be expected to reach GB in August/September, if at all.

Dasysyrphus

The taxonomy of some of the species in this genus is, in my opinion, in total chaos. I refer to *D. hilaris/venustus/friuliensis* and *D. lunulatus/nigricornis.* I am by no means convinced that *D. friuliensis* is any more than a conifer-forest phenotype of *D. venustus,* or that *D. hilaris* is anything more than a warm climate deciduous-forest phenotyupe of *D. venustus,* but for the moment there is little evidence of any useful sort to argue the case one way or the other, and at least the British and continental literature is referring to these taxa in the same way. The situation concerning *D. lunulatus/nigricornis* is more convoluted however, and likely to cause confusion for any syrphidologist attempting to use both British and continental literature, so I have attempted here to provide a history of the name *nigricornis* Verrall (1873), with the hope that it may both clarify matters and encourage someone to carry out some chemotaxonomic research into the genus *Dasysyrphus,* aimed at establishing just how many European species there are!

The only "species" of *Dasysyrphus* reported from that part of continental Europe under consideration here, but not recently referred to as existing in the British Isles, is "*D. nigricornis*". The name *nigricornis* derives from Verrall (1873), who introduced it as follows. "When at Loch Rannoch in June, 1870, I captured six specimens (4 male, 2 female) of a species which is, without much doubt, the *S. obscurus* of Zetterstedt's Insecta Lapponica (1838), but as the name *obscurus* was pre-occupied by Say (1824) for an American species, a new name is required, and I therefore propose that of *nigricornis.* The species is allied to *S. lunulatus,* but is blacker and rather narrower, the legs being much blacker, and the antennae quite black instead of yellowish-black, the pubescence on the scutellum is also black, instead of all yellow, and the yellow spots on the abdomen never extend to the edge."

It is noticeable that Verrall contrasts his *nigricornis* with a species in which the third antennal segment is partly yellow and the abdominal markings can be inferred to reach the side margins of the tergites. I conclude that this indicates his *lunulatus* was at that point in time the species we now know as *venustus,* an interpretation not confined to Verrall during that period. But, whatever species Verrall was naming *lunulatus* in his 1873 paper, I do not see how one can escape from the reality that his *nigricornis* is based on Scottish specimens. Evidently, he had no "*obscurus*" at his disposition and his description of *nigricornis* is based on his Rannoch material. In his List of British Diptera Verrall (1901b) gives both *D. lunulatus* and *D. nigricornis* as British species. But it is clear from his account of British Syrphidae (1901a) that his concept of *D. lunulatus* was not the same then as it appeared to be in his 1873 paper. His definition of *D. nigricornis* he pins (1901a) clearly to his Scottish specimens but states he is no longer convinced that *nigricornis* and *lunulatus* are different species. Thereafter, the name *nigricornis* has been ignored by British Dipterists, and does not appear in later Check lists of British Diptera at all.

Having seen Verrall's *nigricornis* material I would agree with Heese, as reported in van der Goot (1981), that Verrall's *nigricornis* is simply *D. lunulatus.* Certainly, *lunulatus* sensu auct. Brit. is the same species as that to which the lectotype of *lunulatus* belongs, as designated by Goeldlin (1974). So, if "*obscurus*" of Zetterstedt is **not** the same species as Verrall describes under the name *nigricornis,* does the name *nigricornis* apply to Verrall's Scottish species, which we can now see to be simply *lunulatus,* or to *obscurus* of Zetterstedt? It seems to me a perversion of logic to attempt to claim that, whatever Verrall **intended** to achieve when introducing the name *nigricornis,* he did other than to describe some Scottish specimens of *D. lunulatus* under the name **nigricornis,** making **nigricornis** a junior synonym of **lunulatus.** However, some continental authors, such as Hippa (1968) and Torp (1984) have employed the name *nigricornis* for a *Dasysyrphus* species believed to be different from *lunulatus* and which, if so, is not the same species as the Scottish specimens to which Verrall applied the name *nigricornis.* Van der Goot (1981) alludes to this problem, retaining the name *nigricornis* for apparently the same species as that to which Hippa (l.c.) applied it, but nonetheless pointing out that the name *nigricornis* is not, in his (van der Goot's) opinion available for that species. Van der Goot suggests an alternative name for his "*nigricornis*" would be *nigrolimbatus* of Duda. But to introduce another name without first checking the relevant type material would be to make the same mistake as Verrall. For myself, I have never seen any specimens which correspond wholly to the definition of *nigricornis/ nigrolimbatus* provided by van der Goot. I can only say that I do have specimens of *D. lunulatus* with black hairs on the face and black bristles mixed in with the yellow ones on the fore tarsi. The differences between *D. lunulatus* and "*D. nigricornis*" given by van der Goot (1981) are as follows: *D. lunulatus*: hind legs with tarsomeres 1 + 2 black; fore tarsi of male with yellow bristles; third antennal segment entirely black; facial hairs pale; legs pale, the base of the tibiae and the ends of the tarsi black.

D. nigricornis: hind legs with first two tarsomeres yellow; fore tarsi of male with black bristles; third antennal segment yellow ventrally; facial hairs black.

As to Hippa's genitalic distinctions between his (1968) *D. lunulatus* and *D. nigricornis,* the lingula varies from well developed to absent, in specimens of D. lunulatus I have examined, so I am unable to suggest that absence of a lingula in his *D. nigricornis* is a very useful diagnostic character. I have not, however, seen a specimen of *D. lunulatus* in which the tubus exhibited the peculiar shape he illustrates for the specimen of *D. nigricornis* he examined.

To summarise, Verrall's *nigricornis* was clearly based on Scottish material of *D. lunulatus* and *nigricornis* should thus be regarded as a synonym of *D. lunulatus.* But continental authors have in some instances used the name *nigricornis* for a *Dasysyrphus* species they regard as distinct from *D. lunulatus.* At present, it remains uncertain whether this latter taxon is, indeed, a good species

and, if it is, what name should be applied to it. Equally, if this continental insect is a distinct species, there is no evidence so far that it occurs in the British Isles. Conversely, it can be shown that *lunulatus* (Meigen), is the correct name for the *Dasysyrphus* species currently referred to by that name in the British Isles.

Epistrophe melanostoma

Preferred environment: *Fagus* or *Quercus* forest. Adult habitat: clearings etc., flight extremely rapid, especially in the case of the males. Flowers visited: *Euphorbia, Euonymus, Lonicera xylosteum, Chelidonium.* Flight season: May/June. Larva: undescribed. Range: F, scattered records, including Paris basin; D, G, N, B, L; Scandinavia to Iberia; throughout central Europe into Asiatic parts of USSR. The information provided by Verlinden & Decleer (1987) suggests *E. melanostoma* may have spread into Belgium only recently. The apparent absence of this species from the British Isles is most peculiar and I incline to the view that were it accurately keyed out in either Coe (1953) or Stubbs and Falk (1983) *E. melanostoma* would have been recorded from GB by now. I have not found the species in Ireland, but beech is not indigenous to Ireland and oak woodland is now extremely scarce there. In size, colour and general appearance *E. melanostoma* closely resembles *E. nitidicollis* but has wings entirely covered in microtrichia and a yellow-haired scutellum, whereas in *E. nitidicollis* there are extensive areas of the 1st basal and other wing cells bare of microtrichia and the scutellum is usually predominantly black haired.

Epistrophe ochrostoma

Preferred environment: Deciduous forest, from *Quercus/Carpinus* to *Fagus/Picea.* Perhaps in conifer forests also. Adult habitat: clearings etc., but flying rather high. Flowers visited: *Sorbus aucuparia.* Flight season: May/June, and July at higher altitudes. Larva: described and figured by Goeldlin (1974). Range: F, various records in Seguy (1961), but I have not seen specimens from N. France; D, G, N, B, (V); Scandinavia to Pyrenees and through central Europe into European USSR. Also across Asiatic parts of USSR. One of the larger *Epistrophe* species, similar in size and colouration to *E. grossulariae.* Its thoracic dorsum is dull, rather than shining as in *E. nitidicollis,* its face and antennae are entirely yellow (contrasting with *E. diaphanus* and *E. grossulariae*) and its scutellar hairs are yellow. Additional useful features are that its metasternum is hairy and its hind basitarsi are black.

Eristalis pratorum

Preferred environment: mature/overmature deciduous forest and mediterranean evergreen forest. Perhaps in conifer forests also - I have found the species at 1000m. in the Pyrenees, at a locality where only *Pinus* sp. were present. Adult habitat: males hover at 2-4 metres above woodland tracks. Both sexes sit in the sun on the trunks of standing trees. Females can be found investigating puddles and damp mud etc. up against fallen or felled trunks. Flowers visited: *Crataegus, Salix, Sorbus aria, Buxus* and *Euonymus.* Also at flowers of *Chaerophyllum*! Flight season: April-June and August. Larva: undescribed. Range: F, widely distributed with frequent records; D, G, N, B, L, (V); Finland to the Mediterranean basin; round the Mediterranean to Yugloslavia. Known through central Europe into European USSR and Eastwards into Asia. Malec (1986) presents data suggesting that *E. pratorum* has become more frequent within the last few years, in N. W. Germany. The presence of this syrphid in the British Isles would be expected, but *E. pratorum* has not been mentioned in English-language literature since Verrall's (1901) brief reference to it when discussing *E. pertinax* and I have not found *E. pratorum* in the British Isles myself, or in the British collections in the British Museum. The fact that *E. pertinax* and *E. pratorum* are well nigh identical in appearance could easily lead to specimens of *E. pratorum* being misdetermined as *E. pertinax,* particularly if keys like Coe (1953) or Stubbs and Falk (1983) are used, in which *E. pratorum* is not mentioned. In *E. pertinax* all the tarsomeres of the fore and mid

legs are yellow/orange in both sexes, whereas in *E. pratorum* at least the last two tarsomeres of the fore and mid legs are black/very dark brown. The male terminalia of *E. pertinax* and *E. pratorum* are quite distinct in the form of the sclerotised projections on the distal end of the theca, but unfortunately the terminalia of these species are not figured by van der Goot (1981) or other recent authors. I have thus taken the opportunity to figure them here (figs. 1A and 1B).

Eumerus

The European species of the genus *Eumerus* are badly in need of revision. Upwards of 50 species have so far been recognised in the European fauna and there are clearly others to add. Only *E. ruficornis, E. sogdianus, E. tarsalis* and *E. tricolor,* of the species considered here, are included in van der Goot (1981).

I have no knowledge of the French species *E. elaverensis,* beyond the fact that some of the specimens in Seguy's type series were collected north of Paris. It is possible that Seguy's (1961) key will serve to distinguish the male of this species from others occurring in this part of Europe, but I would be less optimistic about the possibilities for correctly determining the female. So far as I know, this species has not been mentioned in literature since its description.

If specimens of *E. amoenus* were found in the British Isles, they could be recognised as different from all the *Eumerus* species known there already because in *E. amoenus* the hind margin of tergite 4 is distinctly whitish-yellow. In the male, *E. ruficornis* exhibits this same feature. Both of these species, together with *E. pulchellus* and *E. elaverensis,* have largely red third antennal segments in both sexes, which segregates all four of them from *E. strigatus* and *E. tuberculatus.* They may all be distinguished from *E. ornatus* in that *E. ornatus* has the hairs on abdominal tergite 4 all black (excluding from consideration the silver-white dusting which makes up the pair of transverse white bars on the tergite), whereas in these other species tergite four carries a mixture of black and white hairs over most of its surface. They can all be distinguished from *E. sabulonum* by the fact that in the latter species the tergites are largely red-brown, there being no red-brown colouration on the tergites in the rest of these species. *E. tarsalis,* another *Eumerus* known from one or two localities in this part of Europe, belongs also to the group in which the abdominal tergites are mostly red. Like *E sabulonum* it has bare eyes. It can be distinguished from *E. sabulonum* using the keys in van der Goot (1981).

From my slight aquaintance with *E. pulchellus,* it would appear to be most likely to occur beside streams in deciduous woodland. I suspect that both *E. amoenus* and *E. ruficornis* are to be found in open country of some sort. I have no habitat data for *E. elaverensis.* Apart from *E. pulchellus,* these species evidently have a relatively long flight-period, from June to August. *E. pulchellus* is on the wing in June. Of these species, only *E. ruficornis* (and *E. tarsalis*) seems to have been recorded further North in Europe than N. France. *E. ruficornis* used to be found in S. Sweden and Denmark. Torp (1984) regards it as extinct in Denmark now.

If one of the additional species mentioned above were to occur in the British Isles, the features mentioned above would probably serve to detect specimens of it. Below, I have considered in detail the two species perhaps most likely to occur. However, since there are so many species of *Eumerus* in Europe and the status of many of them is confused, it is necessary to bear in mind the possibility that some species beyond any of those considered here might turn up in the British Isles.

Eumerus sogdianus

Preferred environment: farmland on sandy soils, especially coastal dune systems. Adult habitat: pathsides, hedges, flies close to ground. Flowers visited: white umbellifers. Flight season: May/June & end July/August. Larva: undescribed, but reared from *Allium* ssp., *Daucus carota* and *Solanum tuberosum.* Range: F (Maine et Loire); D, G, N, B, L; Denmark S. to Spain; central

Europe; European USSR; central Asia; China. The presence of this species in Western Europe has only been recognised recently. Its apparent association with household vegetables suggests it is only a matter of time before this species is recorded in the British Isles. In the male sex it may be distinguished from *Eumerus* species already known there using the key in Speight (1979). But I am not convinced that there is yet a reliable means of distinguishing females of *E. sogdianus* from females of *S. strigatus*. Verlinden & Decleer (1987) point out that *E. strigatus, E. sogdianus* and *E. tuberculatus* can be found flying together.

Eumerus tricolor

Preferred environment: scrub, hedgerows, dry, permanent pasture. Adult habitat: low down among pathside vegetation etc.; often settles on bare ground or low-growing vegetation; very fast flying. Flowers visited: *Euphorbia, Ranunculus,* white umbellifers. Flight season: beginning May/ July. Larva: undescribed, but reared from *Tragopogon.* Range: F (Eure); N, B; Netherlands to the Mediterranean; central Europe to European USSR; through Asiatic USSR to Pacific coast, including Sachalin peninsula. Decreasing within the part of the continent covered in this text and seemingly not associated with any crop vegetables. Since its abdomen is predominantly bright orange (less so, frequently, in male) this *Eumerus* is unlikely to be confused with any species but *E. sabulonum,* of those known in the British Isles. But in *E. tricolor* the eyes are distinctly hairy in both sexes, while in *E. sabulonum* they are bare.

Eupeodes flaviceps

This species is included here because Seguy (1961) mentions a record of "*Syrphus braueri* Egger" from N. France. According to Dusek and Laska (1976) *braueri* is a synonym of *flaviceps.* I have had little success in separating *E. flaviceps* from *E. luniger,* using Dusek & Laska's (l.c.) key, even using supposed *E. flaviceps* specimens determined by other workers, but if *E. flaviceps* is, indeed, a good species then their key is the only one available for this purpose. Certainly, other continental authors recognise *E. flaviceps* as a separate species. I can say only that even though Southern European *E. luniger* look different from typical *E. luniger* from the British Isles, attempting to subdivide them into separate taxa is at present a thankless task. I have examined the male terminalia, in an attempt to separate the species using Dusek & Laska's figures of aedeagal structures, but to no avail. To me it seems that variation in these features is as great intra-specifically in *E. luniger* as it is supposed to be inter-specifically between *E. luniger* and *E. flaviceps.* It would be timely if Dusek & Laska's excellent work on this genus could now be followed by a chemo-taxonomic study, particularly a chemotaxonomic study of the *luniger* complex! In the region from Denmark south to N. France, there are no records of *E. flaviceps* except that alluded to by Seguy.

Helophilus affinis

Preferred environment: wetland, wet meadows and pastures. Adult habitat: no data. Flowers visited: *Ranunculus, Rubus idaeus, Senecio jacobaea, Valeriana officinalis* (Nielsen, 1966). Flight season: end June/August. Larva: undescribed. Range: D, G, N; Scandinavia S. to Netherlands; through N. Europe into Asiatic USSR (Siberia); Poland. Appears to be extending its range Southwards. Torp (1984) suggests large migrations are occurring from S. Sweden into Denmark now, though previously only isolated specimens were seen in Denmark. Within last ten years recorded first from N. W. Germany and then from Netherlands. Records from E. coast of England could be expected. This species could very easily be mistaken for other *Helophilus* already known to occur in the British Isles, using existing keys, so a revised key is presented below. It will be noted that the traditional method of separating *H. pendulus* from other species has been abandoned here. This is because the extent of the black marking on the hind tibiae is prone to greater intra-specific variation than has previously been indicated, and the black portion may

extend for two-thirds or so of the length of the tibia in *H. pendulus* (the female of "*H. groenlandicus*" beautifully figured in colour in Stubbs & Falk, 1983, would appear to be one of these dark specimens of *H. pendulus*). I entirely agree the case made by van der Goot (1984), that the name *parallela* Harris cannot be used for the species otherwise known as *trivittatus* Fabricius and am thus referring to that species as *H. trivittatus* here.

1. Median stripe on face yellow-brown (fore and mid tibiae and tarsi all yellow/yellow-grey .... **trivittatus** (Fabricius)
   —— median stripe of face black **2**
2. Hind margins of all abdominal tergites black **3**
   —— hind margins of abd.t.3-5 (and often of t.2 also) yellow to yellow-brown **4**
3. Fore tarsi usually entirely yellow-brown; male with distance from anterior ocellus to anterior margin of lunule greater than three times width of frons at level of anterior ocellus; female with distance from anterior ocellus to anterior margin of lunule more than twice the width of frons at level of anterior ocellus ..... **affinis** Wahlberg
   —— fore tarsi usually entirely black; male with distance from anterior ocellus to anterior margin of lunule less than three times width of frons at level of anterior ocellus; female with distance from anterior ocellus to anterior margin of lunule less than one and a half times the width of the frons at the level of the anterior ocellus ..... **groenlandicus** (Fabricius)
4. Hind femora entirely yellow-haired on anterior and dorsal surfaces; male with fore basitarsus noticeably thicker than 2nd. tarsomere and abdominal sternite 4 yellow-dusted, dull; female with postero-lateral margin of eye distinctly sinuous and abdominal tergite 5 partly black-haired ..... **hybridus** Loew
   —— hind femora with black, bristly hairs at least a tip (in male more extensively black-haired); male with fore basitarsus no thicker than 2nd. tarsomere and abd.st.4 black or brown, undusted and shining; female with postero-lateral margin of eye a simple curve and abd.st.5. usually entirely yellow-haired ..... **pendulus** (L.)

Mallota fuciformis

Preferred environment: deciduous forest (*Fagus/Quercus*) with over-mature trees. Adult habitat: no data. Flowers visited; Seguy (1961) suggests the species visits the flowers of shrubs. When *M. fuciformis* is in flight virtually the only shrub in flower is *Salix*. Flight season: end of March to beginning of May. Larva: undescribed. Range: F, N. to Brittany; N, B; central Europe to European parts of USSR. South to central Spain and S. E. to Jugoslavia. Evidently much scarcer now than previously and probably threatened at European level, though not yet regarded as extinct in any W. European state. Totally unlike *M. cimbiciformis* in appearance, *M. fuciformis* is an almost perfect mimic, in size and appearance, of a worker of *Bombus pratorum*. Its early flight season must militate against capture.

Melangyna

Melangyna species show a most peculiar distribution in the part of Europe covered here and it is difficult to dismiss the notion that they are still being misdetermined to a significant extent. *M. arctica,* for instance, is known throughout the British Isles but not elsewhere in this region! On the continent, one recently described (Nielsen, 1980) species not known in the British Isles, *M. lucifera,* has now been found once in Denmark and another, *M. coei,* is known from the extreme South of Norway. Given the possible confusion existing over the identification of the *Melangyna* species of this part of Europe, I have put together a revised key, including *M. coei.* The key also mentions, at appropriate points, *Parasyrphus* and *Syrphus* species which are, in my experience, all-too-easy to confuse with *Melangyna* species. Further, I have tried to take into the account the

fact that melanic intersex specimens of other species (belonging to both *Melangyna* and other genera) can be mistaken for females of *Melangyna quadrimaculata.* Unfortunately, my information about the female of *M. lucifera* is inadequate for me to include this sex of the species in the key and I do not know whether the male of *M. lucifera* has black, bristly hairs on the mid and hind coxae. So the male of *M. lucifera* is keyed out twice and the female does not appear in the key at all. Finally, it should be noted that I can find no basis for regarding *M. compositarum* and *M. labiatarum* as separate species and consider the latter as a synonym of *M. compositarum.*

1. Compound eyes meeting above antennae (males) **2**
   —— compound eyes separate throughout (females) **12**
2. Abdominal tergite 2 without pale marks **3**
   —— pair of pale marks on abd.t.2 (may be very small, but nonetheless distinct) **4**
3. Eyes bare, or virtually so ..... **barbifrons**
   —— eyes densely hairy ..... **quadrimaculata**
4. Mid and hind coxae with black, rather bristly hairs and white hairs **5**
   —— only hind coxae (at most) with black hairs, coxal hairs otherwise white **10**
5. Black hairs on mesoscutum confined to lateral margins, sometimes few or even absent, disc otherwise brownish-yellow haired **6**
   —— black hairs occurring across entire width of mesoscutum, at least over middle third of length, hairs otherwise brownish-yellow or greyish-yellow **9**
6. Pale marks on abd.t.4 not distinctly triangular, not narrowing noticeably toward the mid-line, angle of approximation of eyes approximtely 90 ..... **7**
   —— pale marks on abd.t.4 distinctly triangular, narrowing progressively and evenly toward the mid-line; angle of approximation of frons distinctly greater than 90 .. **lucifera** Nielsen
7. Facial prominence projecting well beyond frontal prominence; post-orbital strip wide; scutellar hairs including many yellow towards anterior margin; long hairs on general body surface black and brownish-yellow **8**
   —— facial prominence projecting no further than frontal prominence; post-orbital strip narrow; scutellar hairs black; long hairs on general body surface black and white/ greyish-white ..... **coei** Nielsen
8. Antennal segment 3 partly yellow; fore and mid tibiae all yellow ..... **Syrphus nitidifrons**
   —— antennae all-black; fore and mid tibiae black for half of more of length . **lasiophthalma**
9. Wing membrane entirely covered in microtrichia; scutellar hairs no longer than the scutellum .. .. **arctica** (Zetterstedt)
   —— radial and basal cells with areas bare of microtrichia; scutellar hairs including many longer than scutellum ..... **ericarum** (Collin)
10. Angle of approximation of eyes distinctly more than 90° ..... **lucifera** Nielsen
    —— angle of approximation of eyes 90° or less **11**
11. Wing membrane entirely covered in microtrichia ..... **compositarum** (Verrall) (including **labiatarum,** Verrall)
    —— large areas of radial and basal cells bare of microtrichia ..... **umbellatarum** (Fabricius)
12. Frons undusted, shining, or with rudimentary dust spots **13**
    —— most, or all, of area from antennal insertions to ocellar triangle dusted, dull OR dust spots present which reach across two thirds or more of the width of the frons **14**
13. Pale abdominal markings absent ..... **quadrimaculata**
    —— pale marks present on abdominal tergires ..... **barbifrons**

14. Wings with radial and basal cells with areas bare of microtrichia **15**
—— wing entirely covered in microtrichia (except, occasionally, extreme base of radial cell) **17**

15. Presutural callus ("notopleural callus") of mesoscutum undusted, shining as much as post-sutural depression (abd. tergites usually with yellow marks, but melanic specimens occur in which the tergites are entirely unmarked) ..... **lasiophthalma**
—— presutural callus of mesoscutum heavily grey-dusted, dull, contrasting sharply with brightly shining post-sutural depression **16**

16. Mesoscutal hairs all pale and short; front and mid femora with only pale hairs, postero-laterally ..... **umbellatarum**
—— mesoscutum predominantly black-haired postero-laterally; fore and mid femora with a mixture of black and whitish hairs on postero-lateral surface ..... **ericarum**

17. Posterior part of mesoscutum with scattered black hairs mixed in across almost entire width of disc; haltere knob brown/yellow brown ..... **arctica**
—— mesoscutum with black hairs either entirely absent or confined to lateral margins; haltere knob clear lemon-yellow **18**

18. Hairs on face black or mixed black and whitish . **Parasyrphus macularis, P. punctulatus** & **Syrphus nitidifrons** (including melanic, intersex specimens of **P. punctulatus**)
—— facial hairs white **19**

19. Upper part of frons black, entirely undusted, shining, for distance wider than frontal dust-band ..... **coei**
—— no undusted, shining band across upper part of frons, though dusting may be patchy round ocellar triangle and generally thinner on upper third of frons than on lower two thirds of frons ..... **compositarum** (including **labiatarum**)

Meligramma cingulatum

Preferred environment: *Picea* forest. Adult habitat: flies round foliage of *Picea*, usually at some metres above ground. Flowers visited: *Sorbus aucuparia, Viburnum opulus*. Flight season: end May/June plus July at higher altitudes. Larva: undescribed. Range: (V); Poland through mountains of central Europe to Switzerland and Austria; Jugoslavia; Pyrenees. Frequent in the Vosges mountains. Lack of records from Ardennes surprising. Until recently consigned to *Melanostoma*. Recognised as belonging in *Meligramma* by Goeldlin (1974). Included here because it is a species which might be expected to expand its range towards British Isles. Absence of records from Vosges prior to 1980's may indicate recent colonisation there. Bears superficial resemblance to *Melanostoma*. Would run to *Melanostoma* in the keys of Coe (1953), Stubbs & Falk (1983) and van der Goot (1981), because its face is entirely, or almost entirely, black and shining and its scutellum is black and shining (the scutellum may be yellowish toward the hind margin, especially in the female). *M. cingulatum* may be distinguished from *Melanostoma* by the character of its abdominal markings, which widen progressively towards the lateral margins of the tergites, meeting the lateral margins at full width. The second tergite bears a pair of narrow, transverse, whitish yellow bars, which come to a point towards the mid-line, while tergites three and four each exhibit either a pair of bars or a narrow transverse band, of the same colour as the markings on tergite two.

Merodon albifrons

M. albifrons is primarily a Southern European species, recorded from Spain round to Jugoslavia. It occurs in central Europe as far North as Switzerland and its range extends East into the USSR. In my experience this is a syrphid of open ground in hot, rather arid country. It is keyed out by van der

Goot (1981), but there are closely related species not included by van der Goot. The *M. albifrons* group is currently in need of revision. I have compared my own material and a specimen from N. France with the Meigen type in Paris and believe them to belong to the same species.

Merodon avida

Preferred environment: *M. avida* quite clearly has a number of plant hosts which each occur in different biotopes. This fly is most frequently met with in deciduous woodland within the region covered by the present text. Further South in Europe it can also be found in dry *Pinus* forest or in evergreen oak (*Q. ilex*) woodland. Strangely enough, it may occur at some altitude towards the Northern edge of its range - I have collected it at c.750 metres, in *Fagus/Picea* forest in the Vosges mountains. But in the adjacent Rhine valley I have also found it in ancient pasture grassland on the arid foothills near Colmar that are now largely covered in vineyards! Adult habitat: adults fly fast and low through vegetation and settle most often on the ground, on bare patches of soil. For this reason, to be met with on woodland paths, or at the edges of tracks. Flowers visited: no first-hand data, but Seguy (1961) quotes Zimina as having recorded this species at flowers of *Achillea* and *Euphorbia.* Flight season: one generation, June/July, in Northern parts of its range, but also a second generation, August/September, further South. Larva: undescribed. Range: F, Paris basin; D, N, B; from S. Sweden South to the Mediterranean, including coastal states of N. Africa. Through Southern and central Europe into European parts of the USSR. Also in Asia Minor. Throughout the part of Western Europe covered by this text *M. avida* is now extremely localised and would seem unlikely to colonise any part of the British Isles in the forseeable future. Also, there are not even any old and doubtful records of this insect from even Southern England. The lack of such records for this widespread and distinctive syrphid suggests that it has not been present in Great Britain within the scientific period. *M. avida* has been referred to as *M. spinipes* (Fab.) in some recent literature.

Merodon clavipes

Preferred environment: no data. Adult habitat: no data. Flowers visited: Seguy (1961) mentions *Euphorbia, Leontodon* and *Solidago.* Flight season: May/August. Larva: apparently undescribed. Range: F, not infrequent; France to N. Africa and through central and Southern Europe to Austria and Greece. *M. clavipes* was recorded from Great Britain during the early 19th. century and a supposedly British specimen, from the Stephens collection, still exists in the British Museum collections. I have checked the identity of that specimen and it is *M. clavipes. M. clavipes* was recorded from Britain before *M. equestris.* The latter species appears to have been introduced by man, with bulbs of onion, narcissus or some other similar plant. Verrall (1901a) discounted Curtis's record of *M. clavipes* from S. Devon, on the grounds that the collector (Leach) may have mistaken the origin of his specimens and that *M. clavipes* is "almost entirely a South European species". However, Curtis's figure of the specimen is undoubtedly of *M. clavipes* and that species is stated by Seguy (1961) to be "Commun, parait plus frequent dans le nord de la France". Verrall's tendency to dismiss British records of distinctive species of syrphid which has not been seen in Britain for about 50 years at the time he was writing has probably done us great disservice. And subsequent authors have slavishly followed his conclusions without either questioning his logic or the likelyhood of the records involved. *M. clavipes* is a good case in point. Given the frequency with which this large, distinctive species has been collected in N. France, the absence of *M. clavipes* from Great Britain is much more peculiar than is the fact that reputable entomologists recorded the species from S. England early in the last century but not more recently. Verrall's suggestion that various of the early British records of *M. clavipes* probably involved misdetermined specimens of *M. equestris* seems a little far fetched, given that it is doubtful that *M. equestris* had even spread to Great Britain at the date that these British *M. clavipes* were recorded. And there is only a superficial resemblance between *M. clavipes* and *M. equestris*

anyway. Further, why should the existing figures and specimen of British *M. clavipes* all have been correctly named and there be no early 19th century figures of specimens of *M. equestris* from Britain mis-named as *M. clavipes*, if Verrall's interpretation is correct? The first British record of *M. equestris* is from Verrall's London back garden in 1869 and there is no evidence that *M. equestris* occurred in Great Britain prior to that date. However, when Verrall was writing, the notion that a significant number of insect species probably became extinct in Great Britain during the 19th. century would probably have been regarded as very peculiar. We now recognise that it is indeed very likely that many species disappeared during the last century and that this process of faunal eradication has not stopped yet! It is my considered opinion that *M. clavipes* should be regarded as an indigenous British insect, lost at some point during the last hundred or so years. There is no indication that *M. clavipes*, like *M. equestris*, has in Europe been introduced beyond its natural range by horticultural or agricultural activities, so I think it unlikely that the 19th. century British records were of introduced specimens. *M. clavipes* is not mentioned in van der Goot (1981). Like *M. equestris* and *M. constans*. *M. clavipes* is (at least in the male sex) a bumble bee mimic. But *M. clavipes* is big, with a body length of 14-20mm., whereas the other two species rarely exceed 14mm. in length. In the male, the hind legs of *M. clavipes* and *M. equestris* are of quite different appearance. The hind femora of *M. clavipes* are strikingly thickened, so that in side view they are less than 4 times as long as their median depth. The hind femora of males of *M. equestris* are nearly five times as long as they are deep at the middle. The hind tibiae of *M. equestris* males carry a triangular projection on the inner side, just beyond the middle and a long, finger-like projection on the inner side, at the tip. There is no projection either near the middle or the tip of the hind tibia in *M. clavipes* males. In both sexes, the third antennal segment of *M. clavipes* is twice as long as its maximum depth. In the females, abdominal tergites two and three of *M. clavipes* carry transverse bars of white dusting which are lacking in *M. equestris*.

Milesia crabroniformis

Preferred environment: deciduous forest with over-mature trees. Adult habitat: Adults tend to fly high among trees, decending only to feed, drink or oviposit. More frequently met with in the vicinity of streams than elsewhere. Settle in patches of sun at stream edge to drink, toward middle of day and in early afternoon. Flowers visited: *Cirsium* spp., *Lythrum salicaria, Scabiosa*. Flight season: July/October, peak at end August/beginning September. Larva: undescribed. Range: F, to Brittany; from N. France Southwards to central Spain and round Mediterranean, including islands, to Jugoslavia. Not in central Europe or recorded from USSR or N. Africa. Now very localised and apparently retreating at North edge of range. I have seen the female of this species ovipositing in the bark at the base of an old, living oak that was largely hollow and filled with a metre of tree humus. *M. crabroniformis* can be distinguished from the other European *Milesia, M. semiluctifera* (Villiers), using Seguy (1961).

Myolepta vara

Preferred environment: *Quercus* forest with over-mature trees. Adult habitat: adults very secretive; settle in patches of sunlight on tree trunks and on bare ground of paths etc. in sun; also on bare earth of stream banks or on cow pats in forest clearings. Their cryptic colouration makes them well-nigh invisible in all these situations and has probably resulted in a certain amount of under-recording of this species. Flowers visited: no first-hand data, but Seguy (1961) mentions *Euphorbia, Salix* and other shrubs. Flight season: May/June. Larva: undescribed. Range: F, Paris basin; N, B; Poland South to Pyrenees and through central and South Europe to Austria and Jugoslavia. Also, supposedly, from Pacific coastal region of Asiatic USSR. Appears to be under threat over most of European range.

Neoascia annexa

Preferred environment: usually, but not exclusively, in *Fagus/Picea* forest. Adult habitat: streamsides. Flowers visited: *Potentilla, Ranunculus*. Flight season: May/June and July at higher altitudes. Larva: undescribed. Range: S. Sweden to the Pyrenees, including D, G, N, B, L. (V); various localities in N. France given by Seguy (1961), but I have not seen any of these specimens and they are from unexpectedly low-altitude locations; mountainous parts of central and Southern Europe; European parts of USSR. When I examined the *Neoascia* material in MNHN determined by Seguy I discovered it to be in total confusion and in my opinion no reliance can be placed on published records of *N. annexa* from N. France. The most recent and comprehensive key to European *Neoascia* species is that of Barkemeyer & Claussen (1986). *N. annexa* may be determined using van der Goot (1981), where it appears as *N. floralis* (Mg.). The absence of this species from the British Isles seems sufficiently peculiar to suggest that means of distinguishing it from known British species might usefully be mentioned in the present text. It might be expected to occur in Wales, the Lake District or the Scottish lowlands. In *N. annexa* the wings are not marked with brownish infuscation over the cross-veins, the third antennal segment is elongate, there is a metapleaural bridge behind the hind coxae (I have not seen a specimen without this bridge - it may on occasion be absent in *N. podagrica*: see Speight, 1988b), the hind femora are pale only at the base and the pale abdominal markings reach the lateral margins of the tergites at full width. Typically, tergites two and three carry pale markings in both sexes.

Neoascia unifasciata

Preferred environment: streamside clearings in *Picea* forest? Adult habitat: flies in lush, streamside vegetation. Flowers visited: *Euphorbia cyparissias* (Barkemeyer & Claussen, 1986). Flight season: end May/July. Larva: undescribed. Range: (G), N; Austria. Re-instated as a separate species in the useful paper by Barkemeyer & Claussen (1986) on European *Neoascia*. May be determined using the key in that paper. May be distinguished from other *podagrica* group species using the key in Speight (1988b). Range yet to be established. Resembles *N. podagrica* without pale marks on abdominal tergite 2, but these marks may, on occasion, be absent in *N. podagrica* or present in *N. unifasciata*.

Orthonevra elegans

Preferred environment: wetland, springs in fens and wet meadows. Adult habitat: no data. Flowers visited: *Angelica, Berula, Cicuta* and *Filipendula* (Torp, 1984). Flight period: end June/August. Larva: undescribed. Range: F, Paris basin (Rambouillet, Villeneuve, 1903); D, B(E), F(E)?; Finland S. to N. France; central Europe to Austria and European USSR and on into Asia (Siberia). The fate of springs in meadows has been such throughout Western Europe that if *O. elegans* is indeed dependent on such a habitat its disappearance is more or less guaranteed. The old Belgian records are from extensive fens. Such sites are also rare today. This wetland syrphid is almost certainly under threat at the European level.

Paragus finitimus

Preferred environment: dune grassland and dry, permanent pasture. Adult habitat: among the thin vegetation cover of cropped grassland; flies low and settles on foliage as well as feeding at flowers. Flowers visited: *Galium* ssp., *Potentilla erecta, Pimpinella*. Flight season: End of May/August, with peak in July. Larva: undescribed. Range: F, Paris basin; so far recorded also from Denmark, Netherlands, Belgium, E. France (Rhine valley), Switzerland and Spain; extensions of range in central Europe can be expected as revisions of National lists are published, but given the habitat preferences of this species recent records will probably be few. Very probably endangered in Western Europe, at least. Can only be determined reliably by examination of the terminalia. To determine females it is necessary to refer to Goeldlin (1971), but males can be recognised using

van der Goot (1981). Colour differences between *Paragus* species are unfortunately unreliable. For instance, all-black specimens of *P. bicolor* are now known to occur. If *P. finitimus* were to occur in Great Britain it would not be detected using available English-language keys.

Paragus majoranae

Preferred environment: occurs in a wide range of biotopes; in N. France I have most frequently found the species in deciduous woodland; occurs also in overgrown dune slacks, the edges of marshes and, further South, in garrigue and dry grassland. Adult habitat: low down among vegetation beside woodland paths etc., flight quite rapid; in the heat of Summer seems to fly in morning and evening only. Flowers visited: *Potentilla erecta, Stellaria.* Flight season: May to September and October in S. Europe. Larva: described and figured by Goeldlin (1974). Range: F, frequent; D, G, N, B, L. (V); Denmark to Spain and Mediterranean islands; through central Europe to Czechoslovakia and Switzerland and S. E. to Turkey. Determination may be achieved with confidence on examination of terminalia. Colour characters of adults unreliable. Apparent absence of this species from Britain is unexpected. It would seem likely that *P. majoranae* will be found in Southern England sooner or later, somewhere such as woodland on the Isle of Wight undercliffs, perhaps.

Parasyrphus macularis

Preferred environment: *Picea/Abies* forest. Adult habitat: flight from 2-3 metres upwards above ground, especially around *Picea* and *Abies;* males hover at 3-4 metres in sunlit glades. Flowers visited: *Sorbus aucuparia.* Flight period: late May/July. Larva: undescribed. Range: D, G, N, (B), (V); Scandinavia and mountainous parts of central Europe. Seguy (1961) refers to records from N. France. I have not seen any French specimens from closer than the Vosges mountains. There is considerable confusion about this species in the literature. Van der Goot (1981) refers to a "*Melangyna macularis* (Zett.)", following Stackelberg, but comments that this should perhaps be regarded as a *Parasyrphus. P. macularis* is extremely similar to *P. punctulatus,* and if *P. macularis* is present in the British Isles, which one might expect it to be, then I doubt that specimens would have been recognised for what they are. I have put together a key which I hope will help to separate *P. macularis* from the other European *Parasyrphus* species in which the abdominal tergites normally exhibit a pair of yellow marks, rather than an entire yellow band. It should be noted that *P. punctulatus,* at least, may exist in a melanic intersex form in which the abdomen is entirely unmarked, so that the specimens bear a close resemblance, superficially to females of *Melangyna quadrimaculata.*

1. Flat portion of mesopleur immediately posterior to prothoracic spiracle (mesanepisternite 1: Speight, 1987) bare ..... **Melangyna** and **Syrphus**
   —— anterior flat portion of mesanepisternite 1 with long, outstanding hairs **2**
2. Hind tibiae entirely yellow, or with a narrow (up to one seventh or so of length of tibia) black ring at middle (eyes thickly hairy; antennae all black) ..... **tarsatus** (Zett)
   —— hind tibiae predominantly black **3**
3. Fore and mid tarsi all black; eye hairs in male dense and almost 2x as long as anterior ocellus; vertex in female usually thickly grey-brown dusted and dull over entire surface, including lateral to ocellar triangle (but sometimes only lightly dusted over entire surface), the area of the ocellar triangle being no more heavily dusted than the area lateral to it **macularis** (Zett.)
   —— fore and mid tarsi usually all greyish-yellow (but may be darker, varying to all-black in occasional specimens); eye hairs in male rather sparce and with few as long as anterior ocellus; vertex in female undusted, shining, black, lateral to ocellar triangle, contrasting sharply with surface of ocellar triangle itself, which is grey-brown dusted and dull ..... **punctulatus** (Verr.)

In the other European *Parasyrphus* species there is a pale band right across each of these tergites, except in the case of *P. dryadis* (Holmgren), which would run to *P. tarsatus* in the above key. I have seen a female of *P. malinellus* in which the transverse bands were each very nearly divided into two transverse bars. Such a female would run to *P. punctulatus* in the key given above. I have not seen specimens of *P. dryadis* and am so unable to suggest how it might be separated from *P. tarsatus*. These latter two species have so far only been definitely found in Scandinavia and Northern USSR, to my knowledge.

Pipiza quadrimaculata

Preferred environment: *Fagus/Picea* forest. I have rarely seen this species far from *Picea,* but Torp (1984) refers to *P. quadrimaculata* as "taken in mixed deciduous forests". There is an old specimen from the Foret de Rambouillet, which was until recently entirely deciduous forest, in the Herve-Bazin collection, in Paris. Adult habitat: tracksides, clearings and open, mature forest. Flowers visited: *Ranunculus.* Flight period: end of May/beginning July, with occasional later specimens. Larva: undescribed. Range: F, various records, including Paris basin (Rambouillet); D, G, N, B, L, (V); Finland S. to Pyrenees; through N. and central Europe into USSR as far as Sachalin (E. Asia). The discovery of this species in Britain is to be expected. It closely resembles *Trichopsomyia flavitarse* in general appearance, but usually has a pair of pale marks on both the second and third abdominal tergites and the anterior, flat part of the mesopleur immediately posterior to the prothoracic spiracle is bare. The male of *P. quadrimaculata* may be distinguished from males of other European *Pipiza,* except for *P. luteitarsis* (Zett.), in that its hind femora do not carry a pair of ventral, longitudinal ridges at the distal end. In the male of *P. luteitarsis* the thoracic pleura and the abdomen are almost entirely pale haired, while in the male of *P. quadrimaculata* these areas are almost entirely black haired. The female of *P. quadrimaculata* is more difficult to determine, but has an unusually short and broad abdomen - tergite 4 is fully 3x as wide as long.

Pipizella annulata

Preferred environment: deciduous forest. Adult habitat: thick vegetation beside tracks, at the edge of clearings or along old hedges; adults fly low in dappled sun and shade and frequently within vegetation such as bramble bushes; settle on low-growing plants in patches of sun. Flowers visited: *Chaerophyllum.* Flight period: end May/June, with some later records to August. Larva. undescribed. Range: F, not uncommon; N, B, L, (V); from Finland to N. Spain and East through central Europe to Hungary and round the Mediterranean to Jugoslavia. A neglected species, recently re-defined by Lucas (1976). If this species were present in Britain it could not be separated from *P. virens,* using English-language literature. Van der Goot (1981) provides a figure of the male terminalia. In both sexes of *P. annulata* the hairs on the hind tibiae are the same length as in *P. virens* and *P. maculipennis,* but the basitarsi of both the fore and mid legs are bright yellow, whereas in these other species, and *P. viduata,* the basitarsi of at least the fore legs are dusky brown/dark brown. It would seem extremely likely that *P. annulata* is present in Southern England, at least. Another *Pipizella* which could also turn up is *P. zeneggenensis* Goeldlin. This species is extremely similar to *P. maculipennis.* Even the male terminalia are very similar to those of *P. maculipennis.* Van der Goot (1981) unfortunately does not figure the terminalia of *P. zeneggenensis,* but they are figured by Lucas (1976). Males of *P. zeneggenensis* may be distinguished from those of *P. maculipennis* in that the abdominal tergites are clothed entirely in pale hairs, whereas in *P. maculipennis* bands of black hairs are present.

Platycheirus ovalis

Preferred environment: *Picea* forest, but also in deciduous forest. Adult habitat: tracksides, clearings etc.; males hover at 3 metres or more, in glades. Flowers visited: no data. Flight season: May/June, July at higher altitudes. Larva: described and figured by Goeldlin (1974). Range: G, N,

B, L, (V); Norway southwards to Ardennes and through Alpes in central Europe to European USSR; Western Siberia in Asiatic USSR. This species has been extending its range Westwards for the last 20 or more years. Its appearance in the British Isles should probably be regarded as imminent. It is a *peltatus* group species, easily distinguished in the male by an absence of the large, bristle-rimmed crater on the ventral surface of the mid femora, which characterises other *peltatus* group species, though otherwise it is extremely similar to *P. peltatus*. There are now five or six *peltatus* group species known in Europe (at least three of which are present in the British Isles) and their females cannot be distinguished at present.

Psarus abdominalis

Preferred environment: *Quercus/Fagus* forest with overmature trees. Adult habitat: no data. Flowers visited: *Geranium*? Flight season: end May/July. Larva: undescribed. Range: F, various localities to Britanny, recent record from Versailles; G (e?), N (e), B (e); Southern Sweden (e) S. to Italy and through central Europe into European USSR. *Psarus* is a monotypic genus and *P. abdominalis* is a highly distinctive insect. The only other European syrphid it resembles even remotely is the male of *Pyrophaena granditarsa,* which has likewise a bright orange-red abdomen. To judge from the remarks made by Verrall (1901a), *P. abdominalis* may well once have been present in Britain, but its discovery there today would be remarkable. Not only is this species evidently a victim of forest clearance and forest management throughout Western Europe, it is such an unmistakeable insect it is highly unlikely that its presence would go undetected. I have seen one or two recent specimens from the vicinity of Paris and from Northern Italy, but at the European level this syrphid must be regarded as one of the insects most seriously in danger of extinction. It is one of the few species of Diptera yet included on any continental European "Red List": see Andersson et al (1987). The fact that it is the only species in its genus and known only from Europe and adjacent parts of the USSR makes its status of greater significance. If ever there were a syrphid which required special protection measures to be taken to ensure its survival in Europe then *P. abdominalis* is the one. At present, it seems quite likely that this genus will disappear completely before anything much is known about it. I would be very grateful for any data other syrphidologists have at their disposal, pertaining to this species, however casual and ephemeral the data may be, including any recent (later than 1950) distribution records.

Sphaerophoria

When Coe (1953) produced his keys to the British Syrphidae four species of *Sphaerophoria* were recognised in the British Isles. By the time Stubbs & Falk (1983) produced their keys nine species had been recorded. In the same period a further four species had been found in continental Europe, all of them in, or close to, the part of Europe considered here. Nearly all these species can still only be determined in the male sex, by examination of the terminalia. Having struggled to produce a key not dependent upon the male terminalia I can only say I think that it is likely to be some time before a key to the females will be produced! Rather tentatively, I have included below a partial key to the males of the European *Sphaerophoria* known to me. It should be possible to correctly determine the vast majority of male specimens of the species known from the British Isles using this key, with the exception of specimens of *S. batava* and *S. taeniata* (which, in my view, can only reliably be determined using the figures in Torp, 1984), but identity should still be checked by examination of the male terminalia if at all possible. This is not only because the key may prove not to be sufficiently reliable, but also because of the potential occurrence of species not yet known from the British Isles. With that possibility in mind I have included figures of the surstyli of the additional species mentioned in the key and have provided notes on each of them below. Further, it must be acknowledged that it is likely that there are more species in continental Europe than have yet been recognised there.

Sphaerophoria chongjini
Preferred environment: dry grassland/scrub on permanent pasture. Adult habitat: low among sparse vegetation. Flowers visited: no data. Flight season: June. Larva: undescribed. Range: B; central France; European and Asiatic USSR through to Pacific; Japan. Yet another *menthastri* group species whose presence in Europe has recently been recognised. Distribution within Western Europe as yet unknown. Surstyli see fig 1C. Abdomen rather long - in the field resembles *S. scripta.*

Sphaerophoria infuscata
Preferred environment: upper limit of *Picea/Abies* forest. Adult habitat: unimproved montane pasture within open forest; flies low among grasses etc., in my experience close to streams. Flowers visited: *Potentilla erecta.* Flight season: June/July. Larva: undescribed. Range: (G), (V); mountainous parts of central Europe. Not confined to limestone regions, so could perhaps occur on mountains in Great Britain or Ireland. Surstyli, see fig 1D. Indistinguishable from other *menthastri* group species in the field.

Sphaerophoria potentillae
Preferred environment: low-altitude bog. Adult habitat: no data. Flowers visited: *Potentilla erecta* (Claussen, 1984). Flight season: beginning June/August. Larva: undescribed. Range: G. A quite distinct *menthastri* group species, so far known only from a series of bogs in N. W. Germany (Claussen, 1984). A species which could perhaps turn up in either Great Britain or Ireland. Surstli, fig 1E. A small species indistinguishable from others in the field.

Sphaerophoria shirchan
Preferred environment: *Fagus/Picea* forest. Adult habitat: tracksides etc. within forest. Flowers visited: no data. flight season: June. Larva: undescribed. Range: (V); Eastern parts of Asiatic USSR, including Sakhalin peninsula and Kunashir Is. Until recently, it has been reasonable to assume that the only *rueppellii* group species in Western Europe is *S. rueppellii.* Recognition of the presence of *S. shirchan* in the Vosges mountains changes this situation. There are 4 *rueppellii* group species known in the Eastern Palaearctic and it is conceivable that if the male terminalia of European "*S. rueppellii*" specimens are checked in future, more than 2 *rueppellii* group species could turn up. Surstyli of all four Asiatic species are figured (rather crudely) in Violovitsh (1983). *S. shirchan* is a small, dark species, indistinguishable from *menthastri* group species in the field. Surstyli fig 1F & G.

1. Antennae entirely, or almost entirely black (abdominal tergite two with blue, metallic band across posterior margin) ..... **loewi** Zetterstedt
   —— antennae entirely, or almost entirely yellow (may be somewhat infuscated, but not black) **2**

2. Mesoscutal and scutellar hairs short, scutellar hairs (except on posterior margin) shorter than half the length of the scutellum (face with broad, black, median stripe; lateral yellow stripe on mesonotum incomplete) ..... **shirchan** Violovitsh
   —— mesonotal and scutellar hairs longer, many of the scutellar hairs being longer than half the length of the scutellum **3**

3. Hind femora with lower half of postero-lateral surface thickly covered in short, black spinules, contrasting with longer, thinner hairs on rest of femur ..... **scripta** (L.)
   —— lower half of postero-lateral surface of hind femora with black hairs like those on rest of femur **4**

4. Abdominal tergite 2 with a pair of yellow marks **5**
   —— abd.t.2 with a yellow band **8**

5. Wing with second basal and anal cells entirely covered in microtrichia (occasionally anal cell may have short, narrow area along anterior margin bare, at base of cell, in *S. menthastri*) **6**
—— 2nd. basal and/or anal cells or wing with areas bare of microtrichia towards base **7**

6. Pale marks on abd. tergites 2-4 reaching yellow side margins of tergites ..... **abbreviata** (Zetterstedt)
—— pale marks separate from side margins on at least abd.t.2 ..... **menthastri** (L.)

7. Sub-scutellar fringe absent (pale, lateral mesoscutal stripe incomplete) ..... **rueppellii** Wiedemann
—— sub-scutellar fringe present laterally (pale, lateral mesoscutal stripe normally complete) ..... **philanthus** (Meigen)

8. Wing with second basal and anal cells entirely covered in microtrichia ..... **potentillae** ..... **virgata** Claussen & Goeldlin
—— 2nd. basal cell and/or anal cell with areas bare of microtrichia in basal half **9**

9. Eyes meeting for distance equal to 10-15 rows of ommatidia ..... **chongjini** Bankowska
—— eyes meeting for distance equalling less than 10 ommatidia .. **batava** Goeldlin, **infuscata** Goeldlin & **taeniata** (Meigen).

Sphegina clavata
Preferred environment: mature deciduous forest. Adult habitat: flies along edge of paths/tracks etc., in dappled sunlight, within 1-2 metres of ground, often in rather dry woodland. Flowers visited: *Viburnum opulus*. Flight season: June. Larva: undescribed. Range: F, (Paris basin, Thompson & Torp, 1986, map); N, B; mountainous parts of central Europe; Pyrenees and scattered records from Italy, Jugoslavia, Greece etc. This is the *S. nigra* of Verlinden & Decleer (1987). Van der Goot (1981, 1986) did not separate *S. clavata* from *S. verecunda* Collin. *S. clavata* may be distinguished from *S. verecunda* using the key in Thompson & Torp (1986). In *S. clavata* the antennae are usually bright orange, contrasting greatly with the brown/black antennae of *S. verecunda*. *S. clavata* may well be more widely distributed than is recognised at present.

Sphegina sibirica
Preferred environment: *Picea* forest. Adult habitat; in flight along streams and hovering round fresh-cut logs of *Picea*. Flowers visited: white umbellifers, *Crataegus, Viburnum opulus*. Flight season: end May/June. Larva: undescribed; have seen females ovipositing on cut *Picea* trunk lying across a stream, oviposition occurring toward underside of log where it reached the stream bank. Range: G, (B), (V); Scandinavia to central Europe through into European USSR and Asiatic USSR. *S. sibirica* seems to be spreading rapidly into that region of Europe covered by this text. It has been placed in a separate sub-genus by most recent authors, on account of its lack of a second abdominal sternite. However, although this sclerite is not visible in many specimens of *S. sibirica* it is recognisable, though poorly sclerotised, in others, a fact which requires to be born in mind when using the keys in van der Goot (1981) and Thompson & Torp (1986). A feature of *S. sibirica* which does not seem to be mentioned in the literature is the extreme variability of colour exhibited by its general body surface. The species varies from all black to entirely orange, with a range of intermediates between the two. In some intermediates there is a general infuscation of the body surface, with ill-defined darker patches, in others a pattern of sharply black patches is found on an otherwise orange insect.

Sphiximorpha subsessilis
Preferred environment: deciduous forest with over-mature trees, close to water. Adult habitat: adults come to sap runs on trunks in dappled sunlight, near streams etc. Flowers visited: no data. Flight season: April/June. Larva: probably in wet, under-bark cavities on old *Populus, Alnus* or

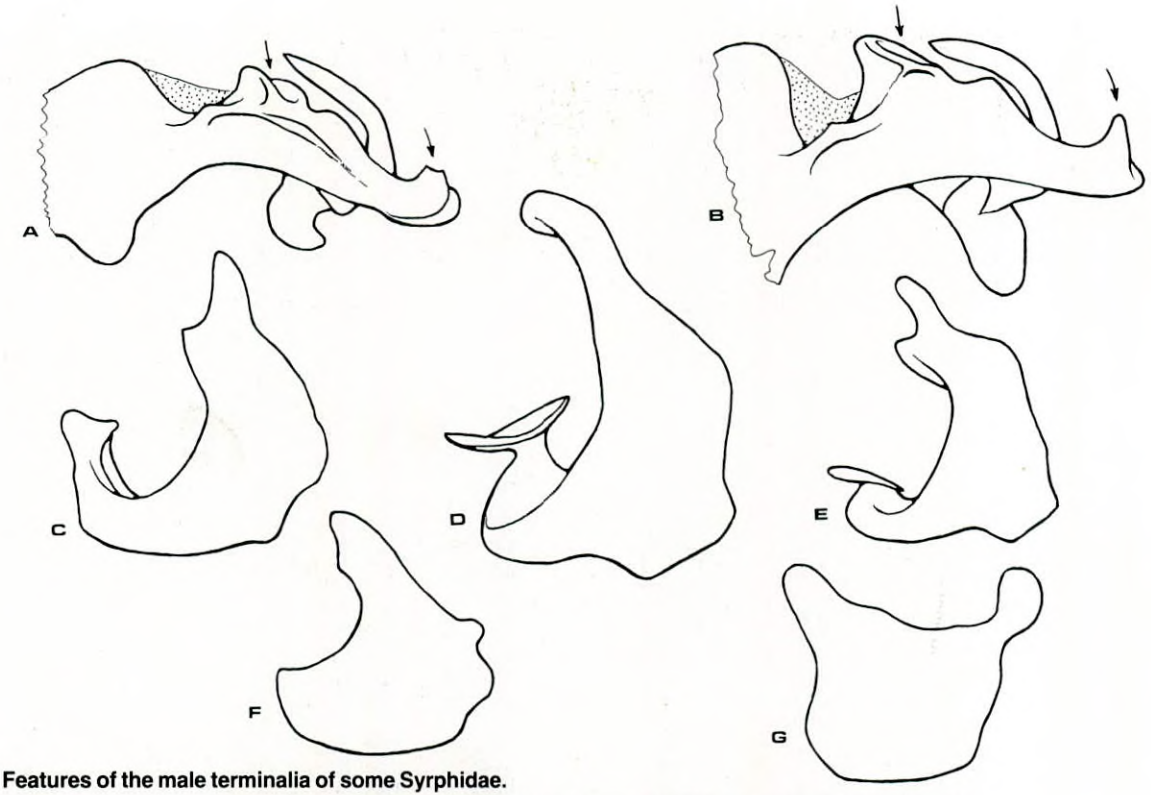

Fig. 1. Features of the male terminalia of some Syrphidae.

A, B = distal portion of theca, lateral view, in *Eristalis pratorum* (A) and *E. pertinax* (B), arrows indicate differences.
C-G = surstyli of *Sphaerophoria* species, lateral view, hairs omitted. C = *S. chongjini;* D = *S. infuscata*; E = *S. potentillae*; F & G = the same surstylus of *S. shirchan* from two different views. G gives a lateral view (area of attachment at right) and F gives a view more from the distal end, showing the lateral surface fore-shortened. In *rueppellii* group species, including *S. shirchan,* the reflexed inner margin of the surstylus, so prominent a feature of *menthastri* group species, is lacking.

Salix, but undescribed. Range: F, scattered records to N. coast Departements; N, B; Netherlands South to Pyrenees; central Europe to European USSR; through Southern Europe to Jugoslavia. Localised and decreasing; threatened at European level.

Spilomyia diophthalma
Preferred environment: deciduous forest of *Carpinus/Fagus/Quercus* with over-mature trees. Adult habitat: no data. Flowers visited: no data. Flight season: August. Larva: undescribed. Range: F (e?); Finland, Sweden, Germany (e?), European USSR; also Asiatic USSR to Sachalin. European distribution now apparently discontinuous. Probably endangered at the European level.

Spilomyia manicata
Preferred environment: *Quercus* forest with over-mature trees. Adult habitat: apparently a canopy species, descending only to visit flowers or drink; in flight a disconcertingly exact mimic of *Polistes* wasps; descends to drink from stream margins etc. around middle of day. Flowers visited: *Allium* sp. (one of the pink-flowered species); seems to visit flowers very infrequently. Flight season July/September. Larva: unknown. Range: F (North as far as Somme); N. France South to central Spain; Eastwards through Poland to European USSR and round Mediterranean to Jugoslavia, including some Mediterranean islands. I have seen recent specimens from the vicinity of Paris, but both in N. France and elsewhere in Europe this species appears to be very local and decreasing. Probably threatened at European level.

Spilomyia saltuum
Preferred environment: *Fagus* forest with over-mature trees. Adult habitat: as *S. manicata*. Flowers visited: *Solidago*, Umbelliferae. Flight season: August/September, with some records from July and October. Larva: undescribed. Range: F, scattered records, North to Somme; D (e), G, N, B (e); Sweden (e) S. to Pyrenees; through central Europe into USSR; round Mediterranean to Jugoslavia; also Japan (?). As with the other *Spilomyia* species known in Europe, the decrease in ancient forest has taken a toll of *S. saltuum* and there are few recent records. Another species under threat at European level. I have not seen Japanese specimens, but Shiraki's (1968) description of *S. saltuum* from Japan does not agree with *S. saltuum* as defined in van der Goot (1981).

Syrphus nitidifrons
Preferred environment: conifer forest. Adult habitat: clearings, tracksides etc. Flowers visited: *Amelanchier, Prunus serotina, Salix, Sorbus aucupariae* (Barendregt, 1983). Flight season: April/June. Larva: undescribed. Range: G, N, B, (V); N. W. Germany S. to Pyrenees; central Europe (Czechoslovakia, Switzerland); Jugoslavia. *S. nitidifrons* appears to be spreading into pine woodlands in that part of the continent covered by this text. The male is in size, shape and general appearance, extremely similar to *Melangyna lasiophthalma* and, since in *S. nitifrons* the long hairs on the squamae may be missing, males of *S. nitidifrons* are all-too-easy to misdetermine. The female is more similar in appearance to females of *Syrphus* species already known in the British Isles. In both sexes, *S. nitidifrons* has a pair of pale marks on abdominal tergites 2-4, rendering it distinguishable from typical specimens of *S. ribesii, S. torvus* and *S. vitripennis*. However, I have seen both males and females of each of these latter three species in which the yellow bands normally present on tergites 3 and 4 were reduced to a pair of transverse pale bars. Having found that keys based on degree of hairiness of eyes and extent of pale markings on the tergites are unreliable, I have put together a key which reduces dependence on these features to a minimum. I have included the other *Syrphus* species known in Europe, for completeness:

1. Wing membrane entirely covered in microtrichia **2**
   —— wing membrane with areas bare of microtrichia in basal cells (bare areas small in male *sexmaculatus*) **9**
2. Front femora black-haired behind, genae (face beneath eyes and posterior to tentorial pits) with black hairs **3**
   —— front femora entirely, or almost entirely yellow-haired behind; genae yellow-haired **4**
3. Eyes distinctly and densely hairy; fore and mid tarsi noticeably darker (brown to black) than corresponding tibiae ..... **torvus** 0.-S.
   —— eyes almost bare, the hairs very short and sparse; fore and mid tarsi as pale (yellowish) as corresponding tibiae ..... **nitidifrons** Beck.
4. Hind femora almost entirely yellow **5**
   —— hind femora continuously black for basal half or more of length ..... **ribesii** L.: male
5. Compound eyes meeting above antennae **6**
   —— compound eyes separate above antennae **7**
6. Abdominal tergite 3 with hairs on lateral margins one to one and a half times as long as apical depth of hind femur; scutellum normally almost entirely black-haired; abd.t3 and 4 each normally with a wide yellow band ..... **attenuatus** Hine: male
   —— abd.t.3 with hairs on lateral margins nearly twice as long as apical depth of hind femur; scutellum with wide band of yellow hairs across anterior half of surface; abd.t3 and 4 each with a pair of transverse, pale marks; (wing with small patches bare of microtrichia on basal cells) ..... **sexmaculatus** Zett.: male
7. All femora entirely yellow; arista yellow-brown; antennal segment two yellow on inner surface ..... **attenuatus**: female
   —— fore and mid femora distinctly dark brown/black at base (especially on dorsal surface); arista almost black; ant. seg. 2 dark brown on inner surface **8**
8. Hind femora yellow except at extreme base; ocellar triangle equilateral or wider than long; abd.t.6-8 hardly visible, t.6 noticeably wider than t.7 and t.8 ..... **ribesii**: female
   —— hind femora with black, median ring, as well as broadly black at base; ocellar triangle usually longer than wide; abd.t.6-8 prominent, of equal width; abdominal markings usually melanistic; eyes usually rather close together above antennae . **ribesii**: intersex
9. Hind femora entirely yellow; antennal segments predominantly orange ..... **sexmaculatus**
   —— hind femora black for most of length; antennal segments darkened grey-brown dorsally ..... **vitripennis** Mg.

Temnostoma bombylans

Preferred environment: *Fagus/Picea* forest with over-mature trees. Adult habitat: clearings and tracksides etc.; flies 1-2 metres from ground; settles on low-growing vegetation. Flowers visited: *Ranunculus*. Flight season: May/June and July at higher altitudes. Larva: described and figured, with puparium, by Heiss (1938); found in *Acer* by Metcalf (1933) and *Fagus* stumps by Derksen (1941). The latter author indicates metamorphosis takes 2 years and the larvae inhabit stumps of trees felled 7-8 years previously. *Temnostoma* larvae bore holes in solid wood within part-rotted stumps and logs. Range: F, to Channel coast; D, G, N, B, L; Finland and Sweden S. to Pyrenees; through N. and central Europe to Asiatic USSR; round Mediterranean to Jugoslavia; also in Nearctic. In Europe, probably the most frequently met with *Temnostoma* species, but nonetheless very local. Threatened at European level.

Temnostoma vespiforme

Preferred environment: deciduous forest containing over-mature trees. Adult habitat: open forest, especially near streams; males hover at 3 metres and higher; both sexes frequently visit flowers and settle on shrub foliage etc.; in flight an exact mimic of *Vespula*; when settled carries black tarsi of fore legs in position of black *Vespula* antennae and vibrates them as *Vespula* does its antennae. Flowers visited: *Crataegus, Lonicera xylosteum, Rubus idaeus, Umbelliferae.* Flight season: May/June. Larva: described and figured by Stammer (1933); distinctions from larva of *T. apiforme* in Heqvist (1957); bred from *Betula* and *Alnus.* Range: F, to Channel coast; D, G, N, B, L; central Scandinavia to Pyrenees and through Eurasia to Japan; also in Nearctic. Recorded from Britain at the beginning of the last century but records dismissed by Verrall (1901) on the grounds that the insect would have been found subsequently if it had been correctly recorded then. Seems more likely that *T. vespiforme* was present in Britain at the beginning of the 19th. century but has since been exterminated by woodland management. Now very localised over much of its European range and probably threatened at European level.

Trichopsomyia lucida

Preferred environment: old deciduous forest (Verlinden & Decleer, 1987). Adult habitat: no data. Flowers visited: no data. Flight season: end May/June & mid July/August. Larva: undescribed. Range; G, N, B. I admit to being unconvinced as to the existence of this species, since the sole key character van der Goot (1981) gives for distinguishing it from *T. flavitarse* is manifestly unreliable. In *T. flavitarse* the position of the r-m cross-vein is intra-specifically variable, from the condition defined by van der Goot (l.c.) for *T. flavitarse* to the condition he defines for *T. lucida.* However, in his 1986 paper he provides a character for distinguishing the females of these species. The female of *T. flavitarse* is given as possessing entirely black-haired hind tibiae. I have not seen any females of *T. flavitarse* with white-haired hind tibiae. It is unfortunate that no figures have been published of the male terminalia of *T. lucida.* If no differences can be detected between the male terminalia of these two species and no further characters can be found to separate them, it is difficult to see a basis for regarding *T. lucida* as a separate species. But, if *T. lucida* is a good species, from what is known of its range it would seem possible that it might occur in the British Isles.

Tropidia fasciata

Preferred environment: fen-edged pools in deciduous forest. Adult habitat: no data. Flowers visited: *Daucus, Euphorbia, Mentha* (Seguy, 1961). Flight season: June-September. Larva: undescribed. Range: F, including various localities close to Channel coast; B (e?); Finland, Poland, Germany (Harz mountains) and widely scattered localities in France down to Pyrenees; also in Asiatic USSR. The known distribution of *T. fasciata* is perhaps the most enigmatic exhibited by any European syrphid. It is difficult to believe that this species has been overlooked by nearly all syrphidologists in Europe except those who have collected in France and museum collections I have examined give no grounds for assuming that *T. fasciata* has been consistently misdetermined as some other species. But France, from the Ardennes to the Pyrenees, is the only part of Europe in which *T. fasciata* has been collected frequently. It is strange that it remains unrecorded in Britain, since it is found in a number of the Channel coast Departements of N. France. Admittedly, English-language literature provides no precise basis for distinguishing *T. fasciata* from *T. scita* and continental keys fail to mention a number of diagnostic characters. But even so, it is hardly credible that *T. fasciata* could remain undetected in Great Britain until now. In the unlikely event that *T. fasciata* is lying, unrecognised, in someone's collection of British syrphids, the following characters should help to distinguish it from *T. scita*:

T. fasciata: ventral surface of hind femora covered in pale hairs as long as one third the depth of the femur; many scutellar hairs as long as the scutellum; male without brushes of

hairs on the apical margin of abdominal sternite four; female with face at level of antennal insertions about one quarter of the total width of the head at that level.

T. scita: ventral surface of hind femora with only short, black bristles; scutellar hairs all shorter than scutellum; male with a brush of bright yellow hairs at each side of the apical margin of abd.st.4, the hairs outstanding and abruptly bent in a right angle half way along their length; female face at level of antennal insertions only one fifth to one sixth of the total width of the head at that level.

Xylota ignava

Preferred environment: *Picea* forest, down to altitude of mixed *Fagus/Picea* forest. Adult habitat: on logs and fallen trunks in the sun, or on ground beside them; often in abundance at *Picea* debarking stations. Flowers visited: *Crataegus, Galium, Ranunculus, Sambucus.* Flight season: May/June and July at higher altitudes. Larva: undescribed. Range: F, only record is one quoted by Seguy (1961) originating from Macquart in the last century, probably from the Ardennes and so not from the part of France covered by the present text; N, B, L; Finland and Sweden S. to Pyrenees; central Europe to European USSR; S. Europe to Jugoslavia; also Asiatic USSR. Included in the key in Speight (1981).

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APPENDIX 1: THE GEOGRAPHICAL CONTEXT

The Syrphidae discussed in the present text are the species known to occur within that part of Europe comprising the following elements: Great Britain and Ireland, Denmark, the states of the Federal Republic of Germany listed below, the Netherlands, Belgium, Luxembourg and the French Departements listed below. On occasion, data are presented also for the Vosges mountains of N.E. France, but not all the species known from the Vosges are mentioned. A complete list of the Syrphidae known from the Vosges is given in Speight (1984).

N.W. Germany

The part of German Federal Republic considered here as N.W. Germany (G in the lists and notes) comprises the following: Hambourg, Nieder-Sachen, Nordrhein-Westfalen and Schleswig-Holstein. Species occurring within Nieder-Sachen only in the Harz mountains have been indicated by the symbol (G).

N. France

The part of France considered here as N. France (F in the lists and notes) comprises the following: Aisne, Calvados, Cotes du Nord, Essonne, Eure, Eure et Loir, Finisterre, Hauts de Seine, Ille et Vilaine, Manche, Marne, Mayenne, Morbihan, Nord, Oise (Seine et Oise), Orne, Pas de Calais, Sarthe, Seine et Marne, Seine Maritime, Seine St. Denis, Somme, Val d'Oise, Val de Marne, Ville de Paris, Yvelines.

APPENDIX 2: SYRPHIDAE KNOWN FROM N. FRANCE

N.B. In List 1 below, the following symbols are used: * = species not recorded from the British Isles; [?] = doubtful taxon; [valgus] = species believed extinct in N. France; [LR] = literature record only, from reference source indicated, no specimens from N. France seen by author.

Species very doubtfully recorded from N. France, or erroneously recorded from N. France, are given in List 2.

List 1: Species of Syrphidae known from N. France

ANASIMYIA: contracta Claussen & Torp; interpuncta (Harris); lineata (Fabricius); transfuga (L.)
ARCTOPHILA: *bombiforme (Fallen); superbiens (Mueller)
BACCHA: elongata (Fabricius)
BLERA: fallax (L.) [LR: Seguy 1961]
BRACHYOPA: bicolor (Fallen); insensilis Collin; pilosa Collin; scutellaris Robineau-Desvoidy
BRACHYPALPUS: laphriformis (Macquart); *valgus (Bigot)
CALIPROBOLA: speciosa (Rossi)
CALLICERA: aurata (Rossi); *macquarti Rondani; spinolae Rondani
CERIANA: *conopoides (L.)
CHALCOSYRPHUS: lenta (Meigen); nemorum (Fabricius); *pigra (Fabricius); [*valgus (Gmelin)] [LR: Portevin, 1904]
CHEILOSIA: albipila (Meigen); albitarsis (Meigen); barbata (Loew); bergenstammi Becker; *canicularis (Panzer) [?]; carbonaria Egger; chrysocoma (Meigen) [LR: Villeneuve 1903]; fraterna (Meigen); grossa (Fallen) [LR: Seguy 1961]; illustrata (Harris); impressa Loew; intonsa Loew; *lenis Becker [LR: Seguy 1961]; mutabilis (Fallen); nebulosa Verrall [LR: Portevin 1904]; pagana (Meigen); praecox (Zetterstedt); proxima (Zetterstedt); ruffipes (Preyssler); scutellata (Fallen); semifasciata Becker; variabilis (Panzer); velutina Loew; vernalis (Fallen); vulpina (Meigen)
CHRYSOGASTER: *basalis Loew [?]; coemiteriorum (L.) hirtella Loew; *lucida (Scopoli); solstitialis (Fallen); virescens Loew
CHRYSOTOXUM: arcuatum (L.); bicinctum (L.); cautum (Harris); elegans Loew; *intermedium Meigen; octomaculatum Curtis; vernale Loew; verralli Collin.
CRIORHINA: asilica (Fallen); berberina (Fabricius); floccosa (Meigen); ranunculi (Panzer)
DASYSYRPHUS: albostriatus (Fallen); friuliensis (van der Goot); lunulatus (Meigen); tricinctus (Fallen); venustus (Meigen)
DIDEA: alneti (Fallen); fasciata Macquart; intermedia Loew [LR: Portevin 1904]
DOROS: profuges (Harris)
EPISTROPHE: diaphana (Zetterstedt); eligans (Harris); grossulariae (Meigen); *melanostoma (Zetterstedt); nitidicollis (Meigen); *ochrostoma (Zetterstedt) [?]
EPISTROPHELLA: euchroma (Kowarz)
EPISYRPHUS: balteatus (De Geer)
ERIOZONA: erratica (L.)
ERISTALINUS: aeneus (Scopoli); sepulchralis (L.)
ERISTALIS: arbustorum (L.); cryptarum (Fabricius); horticola (De Geer); interrupta (Poda); intricarius (L.); pertinax (Scopoli); *pratorum Meigen; tenax (L.)
EUMERUS: *amoenus Loew; *elaverensis Seguy; ornatus (Meigen); *pulchellus Loew; *ruficornis Meigen; sabulonum Fallen; *sogdianus Stackelberg; strigatus (Fallen); *tricolor Meigen; tuberculatus Rondani
EUPEODES: corollae (Fabricius); *flaviceps (Rondani) [?]; lapponicus (Zetterstedt); latifasciatus (Macquart); latilunulatus (Collin); luniger (Meigen); nitens (Zetterstedt)
FERDINANDEA: cuprea (Scopoli);
HAMMERSCHMIDTIA: ferruginea (Fallen) [LR: Seguy 1961]
HELOPHILUS: hybridus Loew; pendulus (L.); trivittatus (Fabricius)
LEJOGASTER: metallina (Fabricius); splendida (Meigen)
LEJOPS: vittata (Meigen)
LEUCOZONA: glaucia (L.); lucorum (L.)
MALLOTA: cimbiciformis (Fallen) [LR: Villeneuve 1903]; *fuciformis (Fabricius)
MELANGYNA: lasiophthalma (Zetterstedt); umbellatarum (Fabricius)
MELANOSTOMA: mellinum (L.); scalare (Fabricius)
MELIGRAMMA: cincta (Fallen); guttata (Fallen); triangulifera (Zetterstedt) [LR: Portevin 1904]
MELISCAEVA: auricollis (Meigen); cinctellus (Zetterstedt)
MERODON: [*albifrons Meigen]; *avida (Rossi); *clavipes (Fabricius); equestris (Fabricius)
MICRODON: devius (L.); latifrons Loew
MILESIA: *crabroniformis (Fabricius)
MYATHROPA: florea (L.)
MYOLEPTA: luteola (Gmel.); *vara (Panzer)
NEOASCIA: *annexa (Muller) [?]/[LR: Seguy 1961]; interrupta (Meigen); meticulosa (Scopoli); podagrica (Fabricius); tenur (Harris)
NEOCNEMODON: brevidens (Egger); pubescens Delucchi & Pschorn-Walcher; vitripennis (Meigen, sensu Collin)
ORTHONEVRA: *elegans (Meigen) [LR: Villeneuve 1903]; nobilis (Fallen); splendens (Meigen)
PARAGUS: albifrons (Fallen); *finitimus Goeldlin; haemorrhous Meigen; *majoranae Rondani; tibialis (Fallen)
PARASYRPHUS: annulatus (Zetterstedt) [LR: Villeneuve 1903]; lineolus (Zetterstedt); *macularis (Zetterstedt) [?]; punctulatus (Verrall); vittiger (Zetterstedt) [LR: Villeneuve 1903]
PARHELOPHILUS: consimilis (Malm); frutetorum (Fabricius); versicolor (Fabricius)
PELECOCERA: tricincta Meigen
PIPIZA: luteitarsis (Zetterstedt); *quadrimaculata (Panzer)
PIPIZELLA: *annulata (Macquart); heringii (Zetterstedt); maculipennis (Meigen); viduata (L.); virens (Fabricius)
PLATYCHEIRUS: ambiguus (Fallen) [LR: Portevin 1904]; angustatus (Zetterstedt) [LR: Villeneuve 1903]; clypeatus (Meigen); cyaneus (Muller); fulviventris (Macquart); manicatus (Meigen); peltatus (Meigen); perpallidus Verrall [LR: Seguy 1961]; scutatus (Meigen); sticticus Meigen [LR: Portevin 1904]
POCOTA: personata (Harris) [LR: Villeneuve 1903]
PSARUS: *abdominalis (Fabricius)
PYROPHAENA: granditarsa (Foerster); rosarum (Fabricius)
RHINGIA: campestris Meigen; rostrata (L.)

SCAEVA: pyrastri (L.); selenitica (Meigen)
SERICOMYIA: silentis (Harris)
SPHAEROPHORIA: batava Goeldlin; loewi (Zetterstedt) [LR: Seguy 1961]; philanthus (Meigen); rueppellii Wiedemann; scripta (L.); taeniata (Meigen)
SPHEGINA: *clavata (Scopoli) [LR: Thompson & Torp. 1986]; clunipes (Fallen); elegans Schummel
SPHIXIMORPHA: *subsessilis (Illiger)
SPILOMYIA: [*diophthalma (L.)] [LR: Seguy 1961]; *manicata (Rondani); *saltuum (Fabricius)
SYRITTA: pipiens (L.)
SYRPHUS: ribesii L.; torvous Osten-Sacken; vitripennis Meigen
TEMNOSTOMA: *bombylans (Fabricius) [LR: Seguy 1961]; *vespiforme (L.)
TRICHOPSOMYIA: flavitarse (Meigen) [LR: Seguy 1961]
TRIGLYPHUS: primus Loew
TROPIDIA: *fasciata Meigen: scita (Harris)
VOLUCELLA: bombylans (L.); inanis (L.); inflata (Fabricius); pellucens (L.); zonoria Poda
XANTHANDRUS: comtus (Harris)
XANTHOGRAMMA: festivum (L.); pedissequum (Harris)
XYLOTA: abiens Meigen; coeruleiventris Zetterstedt; florum (Fabricius); *ignava (Panzer) [LR: Seguy 1961]; segnis (L.); sylvarum (L.); tarda Meigen; xanthocnema Collin.

List 2: Additional Species recorded from N. France in Seguy (1961)

Brachypalpus meigeni Schiner: this is *B. laphriformis* (Macqt.).
Callicera aenea (Fabricius): all the specimens I have seen from N. France are *C. aurata* (Rossi)
Cheilosia langhofferi Becker: this is *C. nebulosa* Verall (see Claussen & Speight, 1988)
Criorhina pachymera Egger: all of the French specimens standing under this name, in both the general collection and the Herve-Bazin collection, in the Museum National d'histoire naturelle (MNHN), in Paris, belong to *v. ruficauda* of *C. ranunculi. C. pachymera* may occur in N. France - I have seen specimens from the Belgian part of the Ardennes, but the only actual French material I have seen in the MNHN is one female, misdetermined as *C. asilica* (which it closely resembles), from the Massif Centrale. I have also collected the species myself from the Pyrenees Orientales.
Ferdinandea ruficorne (Fabricius): all the French specimens I have seen consigned to this species belong to *F. cuprea* (Scop.)
Neocnemodon fulvimanus (Zetterstedt): all the French material of this species I have seen, determined by Seguy or other French authors, is *N. vitripennis* (Mg.) sensu Collin or *N. pubescens* (D. & P.-W.).
Paragus bicolor (Fabricius): the comprehensive revision of European *Paragus,* published by Goeldlin (1971), rendered all prior records of *P. bicolor* suspect. I have not seen any genuine *P. bicolor* from N. France, though the species could occur. Its occurrence in Belgium has been reaffirmed by Verlinden & Decleer (1987) and in the Netherlands by van der Goot (1986). But it is probably extinct in Belgium now and it is not evident from the data van der Goot provides that *P. bicolor* has been seen in the Netherlands recently. *P. bicolor* is a dry grassland species.
Syrphus sexmaculatus (Zetterstedt): some of the French specimens I have seen consigned to this species have been other *Syrphus* species that normally have transverse yellow bands on the abdominal tergites, but in these specimens the bands are divided to give a pair of yellow marks on each tergite. Other specimens have been *Parasyrphus* species and two (from the Pyrenees) were *Syrphus nitidifrons* Beck. I have seen no genuine *S. sexmaculatus* from France.

APPENDIX 3: SYRPHIDAE KNOWN FROM TEMPERATE PARTS OF THE ATLANTIC SEABOARD OF EUROPE OTHER THAN N. FRANCE AND THE BRITISH ISLES

Part 2: Lists of species known from the atlantic seaboard of Europe but not from the British Isles (excluding species listed above, for N. France)

N.B.: in the list below, the following symbols are used: (?) = doubtful taxon; [ ] = species probably extinct throughout the region; ! = species which could be misdetermined as a known Brit.Is. species, using Coe (1953) or Stubbs & Falk (1983) - in extreme cases the symbol !! has been used;

Preferred environment: cf = conifer forest; df = deciduous forest; ff = forest, undefined; nd = no data; og = open ground; we = wetland

Range data: B = Belgium; (B) = Belgium, at high altitude in Ardennes only; D = Denmark; (e) = extinct; G = N.W. Germany; (G) = N.W. Germany in Harz mountains only; (V) = Vosges mountains.

BRACHYOPA:
dorsata Zetterstedt: cf; D, (V).
!! panzeri Goffe: df; D, G, N, B, L.
testacea (Fallen): cf; D, G, N, B, L, (V).
vittata (Zetterstedt): cf; G, N, (B), L, (V).

CHALCOSYRPHUS:
femoratus (L.): df; (G), N, B(e).
CHAMAESYRPHUS:
lusitanicus Mik: og; D, N, B(e).
CHEILOSIA:
acutilabris Becker (?): probably C. mutabilis (Fallen)
caerulescens (Meigen): nd; (G); B.
! chloris (Meigen): df; D, G, N, B, L, (V).
! fasciata Schiner & Egger: df; N, B, L.
flavipes (Panzer): df; D, G, N, B, L, (V).
frontalis Loew: cf/og; D, G, (B), L.
omissa Becker (?): a proxima group species.
pictipennis Egger (?): currently under revision by Claussen.
rotundiventris Becker (?): probably C. vernalis (Fallen).
ruficollis Becker (?): probably C. vernalis (Fallen).
! rufimana Becker: ff; G, B.
! trisulcata Becker: df; B, L.
CRIORHINA:
! pachymera Egger: df; N, B.
DASYSYRPHUS:
! nigricornis (Verrall) (?): cf; D, G, N, B.
EPISTROPHE:
melanostomoides (Strobl): cf; G, N, B, (V).
ERISTALIS:
alpinus (Panzer): we; D, G, N, B(e).
! anthophorinus Fallen: we; D, G, N.
!! jugorum Egger: f/we; (G), N, B, L, (V).
oestraceus (L.): we; D, G.
vitripennis Strobl (?): the type is another, well known species; specimens of *E. horticola*, *E. nemorum* and *E. rupium* can be found under this name in collections.
EUMERUS:
flavitarsis Zetterstedt: og; D, N, B.
EUPEODES:
lundbecki Soot-Ryen: cf; D, G, N.
HELOPHILUS:
!! affinis Wahlberg: we; D, G.
MELANGYNA:
!! lucifera Nielsen: cf; D.
MERODON:
aeneus Meigen: og; B.
ruficornis Meigen: df; B.
rufus Meigen: f; N(e), B.
NEOASCIA:
!! unifasciata (Strobl): we; G, N, B.
OLBIOSYRPHUS:
! laetus (Fabricius): ff; (G), B.
ORTHONEVRA:
! intermedia Lundbeck: we; D, G, N, B.
PARAGUS:
! [bicolor (Fabricius)] og; N(e?), B(e).
PARASYRPHUS:
!! macularis (Zetterstedt): cf; D, G, N, (B), (V).
PIPIZELLA:
! divicoi (Goeldlin); og; G, B.
! zeneggenensis (Goeldlin): df; B.
!! senilis (Sack): og; N, B.
PLATYCHEIRUS:
!! ovalis Becker: f; G, N, B, L, (V).
SPHAEROPHORIA:
!! chongjini Bankowska: og; N.
!! infuscata Goeldlin: cf/og; (G), (V).
!! potentillae Claussen: we; G.
SPHEGINA:
sibirica Stackelberg: cf; G, (B), (V).
SYRPHUS:
!! nitidifrons Becker: cf; G, N, B, (V).
TEMNOSTOMA:
apiforme (Fabricius): df; D, G, B, (V).
TRICHOPSOMYIA:
!! lucida (Meigen): df; N, B.
XYLOTA:
! meigeniana Stackelberg: df; D, G, N, B.

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Some Diptera of Buckinghamshire Wetlands.

David Gibbs

From July to October 1987 I was contracted by Buckinghamshire County Museum to survey wetland habitats in the county for their potential conservation value. A wide range of sites were visited, some large others tiny spring fens, varying from recently created areas with much bare substrate right through the spectrum of vegetative succession to *Alnus* and *Salix* carr.

Samples, taken by sweepnet, mostly consisted of Diptera and included a number of rare and unusual species. Specimens are retained in the Buckinghamshire County Museum.

The most productive site, College Lake, is a relatively recently created chalk quarry being worked by Castle Cement near Pitstone. It has been dug well below the water table allowing many wet flushes to develop along the sloping banks. Much mud is still exposed providing excellent habitat for Stratiomyidae and Dolichopodidae. Three species of *Oxycera* were found together *O. morrisii* Curtis, *O. rara* Scopoli and *O. trilineata* Fabricius. Single females of *Dolichopus agilis* Meigen and *Syntormon spicatus* (Loew) and one male *Melanostolus melancholicus* (Loew) were taken together with many *Teucophorus monocanthus* Loew from wet chalky flushes with sparse vegetation. Sciomyzidae included the scarce *Dichetophora obliterata* (Fabricius) and several *Tetanocera punctifrons* Rondani both of which proved to be frequent in Buckinghamshire.

Another good site is Fulmer Mere in the south of the county. It is a large *Carex* dominated fen with a diverse abundance of emergent vegetation as well as open water and exposed mud. Here I found the impressive fly *Stratiomys singularior* (Harris). The many Dolichopids included *Raphium laticorne* (Fallen). The uncommon Sepsid *Themira superba* (Haliday) was frequent. It proved particularly productive for Sciomyzidae, *Pherbellia dorsata* (Zetterstedt) and *Psacadina verbekei* Rozkosny being the most notable.

The marshy *Juncus* dominated Tingewick Meadow produced another *Oxycera morrisii* Curtis & few *O. nigricornis* Oliver and one *Vanoyia tenuicornis* (Macquart). Good numbers of Dolichopodidae were found notably *Syntormon monilis* (Haliday) and *Teucophorus spinigerellus* (Zetterstedt).

Western Turville Reservoir produced a good diversity of Dolichopodidae mostly from the *Typha, Phragmites* and *Glyceria* fringe around the lake. However the most unusual species were taken in the surrounding *Populus* and *Salix* carr, single females of *Medetera oscillans* Allen and *M. parenti* Stackelberg both of which have as yet rarely been taken in Britain. (Jonathan Cole has a paper in press formally adding *M. parenti* Stackleberg to the British list on the basis of material bred from poplar by Ivan Perry in Cambridgeshire).

Adjacent to College Lake is the small reserve of Pitstone Fen, the remains of a disused chalk pit. Much more heavily vegetated than College Lake it proved less productive, however *Oxycera trilineata* Fabricius and *Campsicnemus picticornis* (Zetterstedt) were notable finds.

A well vegetated part of the gravel pit complex at Great Linford proved surprisingly good for Sciomyzidae including *Pteromicra angustipennis* (Staeger), *Dichetophora obliterata* (Fabricius) and *Psacadina verbekei* Rozkosny.

Shardloes Lake, artificially created by damming the River Misbourne, is heavily choaked with *Glyceria* being encroached upon by *Salix*. Here I found two more *Oxycera morrisii* Curtis and a good diversity of Dolichopodidae including *Hercostomus assimilis* (Staeger), *H. chetifer* (Walker) and *H. nanus* (Macquart).

In the Thames Valley near Medmenham an unimproved winter wet meadow produced the scarce Sciomyzid *Dichetophora finlandica* Verbeke not far from where I have taken it on the other side of the Thames in Berkshire.

A fairly mature *Alnus* carr at Old Rectory Wood in south east Buckinghamshire produced the Dolichopodidae *Hercostomus plagiatus* (Loew), *Bathycranium bicolorellum* (Zetterstedt) and *Teucophorus simplex* Mik, the latter two in some numbers.

Cublington Fen in central Buckinghamshire is a small *Juncus* dominated spring fen. It produced few Diptera but a single male *Lonchoptera nitidifrons* Strobl was found.

I would like to thank all those who helped me with the project particularly Peter Dyte and Jonathan Cole who determined some critical Dolichopodidae for me.

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Hoverflies in a City Environment: experiences in Coventry.

Adam Wright

Introduction

The West Midlands is a densely populated area, and many would think of it as being barren in terms of sites of ecological significance. Coventry, with a population of 320,000, is unlikely to be of particular attraction to Syrphids. Coventry's economy was built on the car industry and light engineering, and the city became a "boom-town" in the 1920's and 1930's. Habitat loss was scarcely understood, and certainly not a consideration when executing industrial developments.

Unfortunately, this attitude has not yet changed greatly in Coventry. Although industry is now in serious decline, leaving many factory sites derelict or deserted, there is still a frustrating tendency to build on "new" land, or land which has been lying undeveloped for many years, and thus had a chance for new communities to become established.

With this somewhat gloomy picture in mind, work commenced in 1982 to assess the wildlife potential of remaining undeveloped or derelict land in Coventry, in the hope that major sites could be preserved. Success to date has been mixed - we now have management plans for all Council-owned woodlands, a new LNR and (in the pipeline) an invertebrate SSSI. However, we have lost a geological SSSI and are currently fighting a losing battle on Herald Way Tip, a reclaimed coal tip site which has produced several interesting coastal insects and several marsh species including the nationally vulnerable Stratiomyid *Oxycera morrisii*.

One thing which has been brought to light is the diversity and sheer numbers of invertebrates which manage to maintain a hold in Coventry (Lane & Piekarczyk; Lane and Warren). During the last five years we have recorded 130 species of hoverfly within a radius of five miles from Coventry city centre.

I do not propose to list all species encountered, but feel it may be worthwhile to mention some of the more unexpected finds, and the situations in which they have been met.

Platycheirus ambiguus. This spring species has been recorded at three sites within the Coventry city boundary where mature Hawthorn bushes occur. Specimens are taken whilst hovering close to the Hawthorn blossom. 22nd April-5th June.

Playcheirus perpallidus. A solitary specimen has been taken by J. E. Maskrey at Coombe Pool, a 30 hectare lake, 20.5.1982.

Platycheirus scambus. Recorded from the two largest expanses of water in the city and a third site just outside the city boundary. Numerous at one site. 12th May-30th July.

Platycheirus tarsalis. Although nationally considered scarce, recorded from thirteen sites in Coventry since 1986. Most sites are old woodland sites, although grassland sites with maturing scrub have also yielded this species. 28th April-23rd June.

Xanthandrus comtus. An example of this nationally vulnerable species was taken from a Hogweed flower (13.9.1985) at Coombe Park. (A. Wright). It was encountered in an area of tall herb adjacent to a damp flush, surrounded by Rhododendron.

Chrysotoxum verralli. This is Coventry's second commonest *Chrysotoxum* species. First encountered in 1982, it is now regularly seen at grassland sites across the city. Coventry appears to be close to the western limits of its midland range - it has not yet been encountered at Clowes Wood (M. N. Pugh, pers. comm.) or in the Sandwell Valley (M. G. Bloxham, pers. comm.).

Dasysyrphus friuliensis. A single specimen was taken from Brandon Wood (SP3976), 7.5/1985 by the author. The fly was hovering at about 1.2m above ground level, in bright sunlight adjacent to a larch tree. The only other known Warwickshire specimen is from Sutton Park (SP09), taken in 1895!

Didea fasciata. Encountered twice at Brandon Wood in 1987, once in flight, once sat on a Hogweed flower (A. Wright). Not a common insect locally.

Epistrophe nitidicollis. Known from five sites in the survey area, of which two, perhaps surprisingly, are not woodland sites. Although less frequent than *Epistrophe grossulariae*, *E. nitidicollis* is present in good numbers on Hogweed flowers during May and June, particularly at the woodland sites.

Erizona syrphoides. A single specimen was found in central Coventry by J. E. Maskrey (27.5.82). It was picked up dead on the pavement of one of the busiest roads leading into the city - and I feel it is extremely unlikely that it was truly a "Coventrian"!

Melangyna quadrimaculata is known from only one site in the survey area; a single female was taken from a ride margin at Brandon Wood (SP3976) on 25.4.1986 (A. Wright), but in 1988 30 specimens were found in one morning.

Melangyna triangulifera. Three records from different sites, between April 30th and July 9th. Two of the sites are woodland, the third being predominantly wetland but with a small spinney.

Parasyrphus annulatus. This tiny hoverfly was found sitting on a bramble leaf in shade under mature Scots pine, 6.5.1987 (A. Wright).

Sphaerophoria batava. The only known Warwickshire record was taken at Brandon Wood, investigating a Tormentil flower on a ride, 30.8.1985. (A. Wright).

Xanthogramma pedissequum. Although nationally not common, this has been recorded from many grassland sites in the city. Also found in the author's last two gardens (both less than a mile from the city centre). 1st June-27th August.

Chrysogaster virescens. Swept from grass adjacent to a marsh area, Herald Way Tip, 30.6.1987 (S. A. Lane). Sadly, this highly productive site is likely to be lost in the near future.

Neoascia geniculata. Present in low numbers at two sites; may well occur at others, but has been overlooked. 9th July-30th September.

Neoascia interrupta. A single female on a Marsh Marigold flower at Stonebridge Meadows LNR (SP3575) on 13.5.1987 (S. A. Lane) was a welcome addition to the County fauna.

Anasimyia contracta. A wetland species recorded at six sites, usually taken whilst flying low amongst vegetation. 14th May-17th August.

Anasimyia transfuga. Both the known Warwickshire sites to date fall within the area under discussion. Present only in low numbers. 12th May-11th August.

Eristalinus aeneus. A single close to the city boundary at Hawkesbury, 9.7.1982 (J. E. Maskrey) must obviously have strayed considerably! The M6 runs near the site and assisted passage cannot be ruled out. However, a second individual from a much more remote part of Warwickshire (Red Hill, (SP1356), 31.8.1987, R. J. Juckes) perhaps is less likely to have been a car or lorry passenger.

Parhelophilus frutetorum. Although nationally notable, this is locally quite frequent (as common as *P. versicolor*) and has even been taken at sites which are predominantly woodland rather than wetland. Often seen sunning itself on bramble leaves. 21st May-14th August.

Eumerus ornatus. Only recorded from one site in the area under discussion (Brandon Wood, 25.7.1985, C. J. Palmer), but also present in low numbers at two other sites a little further from Coventry. In the field, the elongate abdomen makes it look more like a tiny *Xylota abiens* than another *Eumerus* species. Encountered several times sitting on, or walking across, silver birch leaves.

Heringia heringi. Two sites in May 1987 for this species, which enjoyed a good year. Seen several times hovering low to the ground.

Pipiza bimaculata. Known from only two sites in the area, where small numbers may be found in early-mid May.

Pipizella maculipennis. A single female exhibiting characters fitting this species was taken from a woodland ride margin in 1986 (A. Wright). However, there is currently some confusion over characters for separating *Pipizella* ssp. (A. E. Stubbs, pers. comm.).

Pipizella virens. This species which favours umbel flowers, has been recorded at four sites. 17th June-9th July.

Brachypalpoides lenta. Present in low numbers during May and June at three sites in the study area, *B. lenta* appears to have a passion for the flowers of the Guelder Rose.

Criorhina asilica. Not infrequent at two sites, May 13th-June 20th. Has been encountered several times flying about 1m. above ground level. So far only seen visiting flowers of Hogweed and Guelder Rose.

Criorhina berberina. Recorded from four sites, and quite common at two of these. May 7th-July 6th. Appears less dependent on woodland than *C. asilica.*

Criorhina flocossa. Recorded at five sites, May 13th-June 18th. Several specimens taken at Hawthorn blossom.

Tropidia scita. Recorded from five sites, and present in good numbers at two of these, but localised. May 13th-July 25th. Definitely a wetland-dependent species.

Xylota abiens. Taken from a woodland edge, 17.7.1986 at Tile Hill Wood (C. J. Palmer).

Xylota tarda. A seemingly scarce species, only recorded at two sites, and localised within these to woodland edge/ride margin. Hours of checking "*X segnis*" at other sites have proved fruitless! 9th July-15th August.

Xylota xanthocnema. A flourishing colony discovered in 1986 at Tile Hill Wood (SP2779), where the species was frequently encountered sunbathing on leaves in a wood margin area well-liked by Xylotini in general. Time of day had considerable bearing on success in seeing this colony (Wright, in press). 9th July-15th August.

In addition to the above, there are tantalising "old-records", supported by voucher material housed at the Herbert Art Gallery and Museum, Coventry. These include *Platycheirus discimanus, Xanthogramma citrofasciatum* (from several sites) and four specimens of *Lejogaster splendida* from central Coventry taken in 1927 and 1928.

If the species described above can survive in Coventry, then their chances of survival in other industrial areas are perhaps not as bleak as one might have thought. Certainly, the value of retaining the most productive sites within inner City areas or industrial landscapes may be greater than originally suspected. The problem which must now be addressed is that of convincing local authorities that this is the case.

Acknowledgements
I extend my thanks to all those who have helped to extend our knowledge of Coventry Syrphids, particularly John Maskrey, Chris Palmer, John Piekarczyk, Steve Lane, Darren Mann and Dean Warren.

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Postscript
Platycheirus discimanus rediscovered in survey area since writing the text (Brandon Wood, 5.5.1988 A. Wright)

Some Notes on the Hoverflies of the North Merseyside Coastal Dune System.

Chris Palmer

During 1986 I moved house to Formby from Coventry. This has left me ideally situated to study the hoverflies of the extensive north Merseyside coastal dune system which stretches for some 10 miles between Crosby and Southport. Most of this coastal strip is of SSSI status and much is administered as a series of adjoining national and local nature reserves and National Trust properties. Of course I have been unable to do as much fieldwork on the dunes as I would have wished but early impressions are extremely encouraging, as so far I have recorded 77 species. These include a number of nationally noteable species including *Xanthandrus comtus* (Harris), *Didea fasciata* Macquart, *D. intermedia* Loew, *Epistrophe nitidicollis* (Meigen), *Melangyna guttata* (Fallen), *Metasyrphus latilunulatus* (Collin), *Scaeva selenitica* (Meigen), *Cheilosia mutabilis* (Fallen), *Neocnemodon latitarsis* (Egger), *Triglyphus primus* Loew and *Criorhina floccosa* (Meigen). At this stage I felt that some notes concerning some of the more interesting records might be appropriate.

Chrysotoxum festivum (L.) is common during July and August throughout this system and on the Wirral dunes. This situation contrasts sharply with the comment in Stubbs and Falk (1986) about the species rarity in Lancashire and Cheshire.

Both *Didea fasciata* and *D. intermedia* are frequently encountered at Ainsdale NNR between May and September. Indeed one afternoon in mid-May 1987 I counted 26 *Didea* at various places on the reserve mainly at hawthorn blossom. The two species occurred in roughly equal numbers and even on the same bush at the same time. I have not found these species elsewhere on the dunes.

To start with I found difficulty in distinguishing between the two species in the field as there was no obvious size difference (the smallest specimen encountered was a male *D. fasciata* with a body length of 9mm and wing length of 8mm!). Also there seems to be a great deal of variation in the extent of the black rim to the scutellum in *D. intermedia* which makes this feature difficult to assess without the aid of a microscope. Even the haltere clubs can seem somewhat dusky in a few *D. fasciata*. However, two field characters which appear constant in the specimens I have captured and which work equally well for both sexes are the colour of the front and mid tibia and particularly the shape of the dip in vein R 4+5. In *D. fasciata* the front and mid tibia are a fairly clear bright orange/yellow while in *D. intermedia* they have a more dusky appearance with a distinct dark ring towards the apex. The dip in the vein R4+5 is fairly shallow and even sided in *D. intermedia* but deeper and very lop-sided in *D. fasciata,* a feature previously recognised by Verrall (1901). In addition, in males the hind margin of the orange/yellow markings of tergite 3 are more deeply incised in *D. fasciata* giving the lateral portions a more globular appearance behind. I would be extremely interested to hear of other peoples experience with these two species. Indeed are there any other localities where the two species regularly fly together in this way?

Four males and two females of *Metasyrphus latilunulatus* were captured between the 6th and 18th May at two separate localities on the dunes. I took a further female at Bidston Moss on the Wirral during August. These specimens were not seen at flowers but were taken either hovering above paths or at rest on vegetation.

It should be noted that the flight period given by Stubbs and Falk (1983) and Coe (1953) is July to September. In addition to my specimens there is a series of 15 males in the Liverpool Museum collected by C. M. Jones from Wallasey and Hoylake on the Wirral between 1961 and 1964 during the months of May, June, July and September. Thus it seems that the true flight period for the species is at least May to September. As a further note I should add that all the *M. latilunulatus* I

have examined have the 2nd basal cell less than half bare of microtrichia which could cause problems with Stubbs and Falk's key for males. This observation is shared by Dusek and Laska (1976).

Between May and August *Sphaerophoria batava* Goeldlin de Tiefenau are almost as common as *S. scripta* (L). The only other member of the genus recorded is one specimen of *S. philanthus* (Meigen).

During May one of the most frequently encountered members of the genus *Cheilosia* is *C. honesta* Rondani. This is perhaps surprising as it is mainly a southern species which is considered rare in the Sheffield area (Whiteley 1987).

C. mutabilis is frequent from July to early September especially on the open dunes. It is attracted to umbels, particularly *Pastinaca sativa*. In January 1987 I sent a pair of *C. mutabilis* to Alan Stubbs and Steven Falk as I was concerned that the pale knees and dusky front tarsi found in many females could cause difficulties when applying their key to *Cheilosia* (Stubbs and Falk 1983). Colin Plant highlighted this same problem in a recent Hoverfly Newsletter (No. 6).

Seven specimens of *Triglyphus primus* were taken at various sites within the dune system during 1987, mostly on wild carrot, *Daucus carota*. One specimen was taken on 18th May at Freshfield Dune Heath (June to early October, Stubbs and Falk 1987). I also captured specimens at Bidston Moss on the Wirral during September 1986 and August 1987. These appear to be the first records in north west England for this elusive mainly southern species (Jefferies 1976).

Meanwhile fieldwork on the dune system continues and I would be extremely grateful to receive species lists or comments from anyone who has visited the area in the past or does so in the future.

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Courtship of Dolichopus plumipes (Scop.) (Dolichopodidae).

Alan Stubbs

One penalty for using a sweep net to record the species on a site is that many fascinating aspects of the behaviour of flies are so easily overlooked. The following observations were made at the edge of marshes near Cardigan on 15 July 1987 and give a preliminary insight into the use of the conspicuous black flange-like brushes of hairs on the mid metatarsi of the male of *Dolichopus plumipes*.

Courtship was observed about mid day, despite rain, on an almost horizontal bramble leaf at the edge of a hedge. The male faced the female, standing on tip toe. It vibrated its wings laterally for just over a second, then for a fraction of a second (? 1/3 second) it folded its wings over its back. This rapid wing flashing went on for about half a minute. Then it vibrated its wings laterally in a continuous blur, raised its mid legs off the leaf whilst keeping the fore and hind tibiae vertical - after several seconds the mid legs were raised slowly and alternately either side, stretching up rather more than horizontal. This semaphore action displayed the flag-like plumed metatarsi to good effect. After about 15 seconds of semaphore (comprising about 3 or 4 raising of the middle legs either side) the male flew round behind the female and dropped its genital lamellae in preparation to mount her. The female, however, was not interested and moved stance. The male again faced the female and repeated the performance but this time the female flew off towards completion of the programme. The male was promptly caught to confirm identification, though it had already been possible to get close enough to see the distinctive stripe on the mid tibia.

It is probable that the antennae of the two flies were in contact whilst the male was flag-waving - certainly the male was very close to the female. There are no doubt other details of the display that could be clarified, including greater accuracy in the timing of events. Such behaviour really deserves cine film and in any case it may prove possible to stage this courtship behaviour by taking some of the flies home and placing them in an aquarium suitably equipped with the right environment. A number of other species of *Dolichopus* have fancy legs, including the very similar *D. wahlbergi* Zett, so there is plenty of scope for seeing what different styles of display be involved.

The above observations are very similar to the type of semaphore used by male lycosid and salticid spiders where distinct differences in display is found between closely related species.

Hopefully readers will be encouraged to extend my very embryonic observations. Opportunities tend to arise by chance through being in the right place at the right time, but it ought to be possible to set out quite deliberately to locate and observe courtship for a range of species.

Observations on the Behaviour of Swarming Flies in a Suburban Garden.

Alan E. Stubbs

On 19 May 1987 there was a dull calm start to the day, with the sun breaking through by 11.00 hours BST. My garden in Peterborough had numbers of the stratiomyid *Beris chalybeata* (Forster) sitting on the leaves of herbaceous plants and shrubs. However, I had never seen a swarm, in the garden or elsewhere although a few such observations have been recorded by other dipterists.

At 11.30 hours I realised that large swarms of flies had assembled out of reach beside a lime tree. A long handled net was needed, proving that these were indeed *B. chalybeata*. By 12.00 hours there must have been in excess of 150 individuals, mostly on the south side of the tree but with fewer individuals on the other sides. They mainly kept to a height of 3 to 5 metres, the tree rising to 7 metres. Individuals, presumably mostly males, maintained a cruising and darting flight in a nearly horizontal plane (very similar to that of *Fannia*) though over time the swarm would move vertically and horizontally. The swarm, or swarms, kept within 2 to 3 metres of the lime foliage.

After lunch a breeze had picked up but the swarm was still there, though rather weaker in numbers and there were some *Beris* only 2 to 3 metres up adjacent to a nearby birch. By now there ought to have been mated pairs, but none were to be seen (females were present earlier on foliage nearer to the ground). Thus binoculars were used to scan the tree foliage - various flies, including a few solitary *Beris* were there but no mated pairs. During this period, at about 14.30 hours, it became apparent that large numbers of flies, almost indisputably *Beris*, were swarming above the tree to a height of 8 to 9 metres and almost invisible without binoculars. The drop in numbers at lower height would seem to have been compensated for by this higher swarm because most individuals had moved to a higher level.

I am prepared to believe that I must have overlooked such swarming by *Beris* in the past, especially since I am not over enthusiastic about the calypterate flies that are so commonly noticed (ignored!) swarming. Thus I checked other swarms in the garden during the morning session to see what similarities or differences there were. Under the low branches of two apple trees, *Fannia manicata* (Mg.) was plentiful flying at about 1.5 metres above long grass and just below the canopy, mainly about the outer edge of the branches. In the narrow gap between an apple tree and a birch, with open daylight above, the closely related and rather small *F. monilis* (Hal.) formed a small swarm at a height of about 2.5 metres, corresponding with the height of the nearest adjacent apple tree branch. Deepest under the canopy, where the two apple trees coalesce, the anthomyid *Pegohylemyia fugax* (Mg.) had a swarm of about 20 individuals at a similar height and similar relationship to underlying and overlying conditions. In essence the general behaviour of these swarms were similar, but the *Beris* were the only flies present that chose such open situations.

My thanks are passed to J. Cole for identifying the anthomyiid.

Cryptaciura rotundiventris **(Fall.) in Warwickshire.**

On 25th July 1987 whilst visiting Whichford Wood in S. Warwicks I noted some mines in *Angelica sylvestris* that were unfamiliar to me. Two specimens were collected and the larvae pupated on 27th & 28th July, and one imago emerged on 23rd Aug. It was, as I had hoped, *C. rotundiventris,* a species new to the county. This record confirms (as I had suspected) that the species is bivoltine, though Hering (1957) in his **Bestimmungstabellen der Blattminen von Europa** gave only an autumn-mining generation. I should be interested to hear from readers if any other plant host is known in Britain. Hering lists both *Aegopodium* and *Pimpinella*; but many miners exhibit more narrow host plant selections in Britain than they do in continental Europe.

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Mating behaviour of Liancalus virens (Scop.), (Dolichopodidae)

Roy Crossley

An ancient stone pack horse bridge spans the River Washburn at Dobpark, c.5 km. north of Otley, Yorkshire, (SE/197508), at which point the river banks are lined with trees of various species and age. At 10.30 hrs. on 11 October, 1987, I was walking across the bridge, and on looking over the low wall I saw that large numbers of *Liancalus virens* (Scop.) were congregating in areas where the masonry was illuminated by dappled sunlight.

The flies were facing upwards and many were resting with their bodies pressed close to the stonework, their wings being folded over the abdomen. However, many males were displaying, their bodies being raised high off the surface by a straightening of all the 'knee' joints, and with the abdomen held parallel to the stones. In addition, the wings were held out from the thorax, and upwards at an angle of about 30°; in some cases the wings were held quite still in this position and in others they were spinning rapidly whilst being maintained at the same angle.

Displaying males approached resting flies from behind, walking up towards them. Many of the flies thus approached remained motionless, but sometimes they moved away and the displaying male pursued them with outstretched wings spinning rapidly. Occasionally, if the resting fly was another male its reaction to the close approach of the suitor was to jump up and turn to face the displaying male, whereupon a brief conflict ensued, followed by one, or both insects flying off. In some cases where males were seen to mount other males the breaking of contact did not result in conflict. In a number of instances two or even three displaying males were seen to be moving upwards behind each other.

Observation of coupled pairs was possible in only two cases; in one the male continued with the wing spinning action whilst coupled, and in the other the wings were folded over the abdomen in the resting position. When I returned two hours later the displaying activity was still continuing.

On 23 October, 1987, specimens of *L. virens* were again displaying in the same place and in similar circumstances. Numbers were much reduced, and on this occasion I paid particular attention to the sex of the flies being approached, many of which proved to be males, there being few females present. One male, on being approached by a displaying male flew off and itself began to display to another fly, whose sex it was not possible to determine.

Mr. C. E. Dyte has kindly drawn to my attention two published references, albeit brief ones, to the mating activities of *L. virens*. The first is included in a note by A. E. J. Carter, 'Diptera in Scotland', (1905, **Entomologist's mon. Mag.,** 41:163-164), the relevant section being, "At Aberlady I took, in June, *Dolichopus clavipes*, Hal. (one of the few localities given by Mr. Verrall for this species), and at Callander in September, *Arctophila mussitans*, F., *Rhamphomyia spinipes*, Fln., and *Liancalus virens*, Scop. The last was in some numbers on the sides of a bridge over a stream near Loch Vennacher, and I was greatly interested in watching the antics of the male, as it raised itself on its long legs, lowered its wings, each with a silvery spot at the tip, and displayed itself before the female in much the same way as do certain spiders."

The second, by F. Vaillant in his paper, 'Les premiers stades de *Liancalus virens* Scop. (Dolichopodidae)', (1948, **Bull. Soc. Zool. France,** 73.118-130), translates, "In 1947 I observed the mating of *Liancalus* on the surface of seepages between April and November. In November males were almost one and a half times greater in numbers than the females, but after severe frosts the proportion of the sexes was about one male to 60 females. I was able to notice the females laying throughout the year, even in January and February. The larvae are especially abundant from April to June, then they become more rare. They spend their time in wet soil bordering rock seepages". Mr. Dyte presumes that the observations of Vaillant were made in the Grenoble area.

I am obliged to Mr. Dyte for sending me copies of the notes and to my friend Mr. Eric Pratt for help with the translation from the French.

Roy Crossley, 46 St. David's Road, Otley, West Yorkshire, LS21 2AW.
(new address on back cover)

Checklist Changes - Hoverflies

The following changes in Syrphidae are due to Thompson, F.C., Vockeroth, J.R. & Speight, M.C.D., 1982. *Mem. Entomol. Soc. Wash.* **10:** 150-165.

Megasyrphus erraticus (Linnaeus, 1758) = *M. annulipes* (Zetterstedt, 1838).

Doros profuges (Harris, 1780) = *D. conopseus:* acutt., nec (Linnaeus, 1758).

Xanthogramma festiva (Linnaeus, 1758) = *X. citrofasciata* (de Geer, 1758).

Pipizella viduata (Linnaeus, 1758) = *P. varipes* (Meigen, 1822).

Chrysogaster cemiteriorum (Linnaeus, 1758) = *C. chalybeata* (Meigen, 1822).

Eoseristalis arbustorum (Linnaeus, 1758) = *E. nemorum* (Linnaeus, 1758).

Eoseristalis interrupta (Poda, 1761) = *E. nemorum:* auctt., nec (Linnaeus, 1758).

The following changes in Syrphidae are due to Torp, E., 1984. *De danske svirrefluer, Fauna Boger* (keywork).

Platycheirus cyaneus (Müller, 1776) = *P. albimanus* (Fabricius, 1781).

Arctophila superabiens (Müller, 1776) = *A. fulva* (Harris, 1780).

Eupeodes Osten-Sacken, 1877 = *Metasyrphus* Matsumura, 1917. Vockeroth, J.R., 1986. *Can. Entomol.* **118:** 199-204. (Syrphidae).

Sphegina elegans Schummel, 1843 = *S. kimakowiczi* Strobl, 1897. Thompson, F.C. & Torp, E., 1986. *Ent. Scand.* 17: 235-269. (Syrphidae).

The following changes in Syrphidae are due to Speight, M.C.D. & Claussen, C. 1987. *Annls Soc. ent. Fr.* **23:** 299-308.

Cheilosia ahenea von Roser, 1840 = *C. laskai* Speight, 1978.

Cheilosia argentifrons Hellén, 1913. New to Britain.

Editorial Postscript

As I write, **Dipterists Digest** No. 1 is only a few days away from the final production stage; a time of immense excitement for me. It is hard to believe that it is only a year ago (exactly) since I announced my plans to go ahead with the production and launch of a new publication, conceived on 3 October 1987 at the British Museum (Natural History). A full year of frenzied activity has followed — seeking advice and opinions, advanced publicity, chasing up articles, funds, sponsorship, estimates, editing, proof marking, getting an editorial team together, pre-publication subscriptions, advertising and finally printing. We are now on the home stretch!

It goes without saying that the production of Dipterists Digest No. 1 would not have been possible in such a short time without a lot of help. Firstly, my sincere thanks to Alan Stubbs, for masses of support, useful advice and encouragement, particularly in the early stages when the going got rough. Thanks Alan! Also great thanks to Martin Speight for producing the lead article almost overnight, for loads more encouragement and persuading me to aim for a western European market. When Martin's paper dropped through the postbox last January spirits were lifted, and confidence boosted. Thanks too to all other contributors, and those who didn't make it, but whose work will appear in issue No. 2. Gathering together an editorial team for 1989/90 proved to be easier than anticipated, thanks to the enthusiastic responses from fellow dipterists listed on the inside back cover.

I must say that this issue is very atypical, and that future editions will contain a larger number of shorter papers dealing with hoverflies **and** other families. Having said that, Martin's paper has got us off to a flying start, and has attracted the attention of our European colleagues.

On the financial side, the following organisations and individuals have made the production of a bumper first issue a reality.

Irish Wildlife Service (An tSeirbhís Fiadhúlra) Office of Public Works for a generous grant towards the publication of Martin Speight's paper.
Bioscan UK (Steve Church) for sponsoring the colour cover.
Marris House Nets (Bob George) for generous assistance with postage costs.

Finally, I have been overwhelmed by the support from grass roots dipterists, initially at the 1987 Dipterists Day meeting, followed by many letters expressing good wishes, success and anticipation. Your comments have been much appreciated.

Dipterists Digest has now been launched. Its future success depends on your continuing support.

Derek Whiteley
Sheffield, U.K.

3 October 1988

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Xanthogramma pedissequum

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