Where necessary, dissection of the male and female genitalia has been carried out, both to assist the diagnosis of species and in the case of the males, to aid identification. Either the entire abdomen or the terminal part was removed and boiled for a short time in dilute KOH solution and subsequently transferred to a permanent mount attached to the same pin as the insect. Earlier preparations during the course of this study were mounted in Euparal (after transfer through glacial acetic acid and Euparal essence), but more recently the water soluble mountant DMHF (dimethyl hydantoin formaldehyde) has been used (after transfer through distilled water).

Terminology used in descriptions follows in most respects that adopted by McAlpine et al. (1987), which was followed by Chandler & Shatalkin (1998). The usage is described in detail in the account of adult morphology of Platypezidae.

Abbreviations used in text:

a anterior*
ac acrostichal seta
ad anterodorsal*
ad anterodorsal*
av anteroventral*
d dorsal*
dc dorsocentral seta
dc dorsocentral seta
hm humeral (= postpronotal) seta
ia intra-alar seta
ia intra-alar seta
npl notopleural seta
npl notopleural seta
p posterior*
pa postalar seta
pd posterodorsal*
ph posthumeral seta
pv posteroventral*
sa supra-alar seta
sa supra-alar seta
sc scutellar seta
sc scutellar seta
St stemite
St stemite
T tergite
T tergite
v ventral*
v ventral*
± more or less

I, II and III refer to the fore, mid and hind legs and their parts. Abbreviations marked * are used only in relation to the position of setae and spurs.

Historical review of studies of European Platypezidae and Opetiidae

Unlike many groups of Diptera, the earliest work on Platypezidae was not carried out in Scandinavia. They were ignored by 18th century authors except Rossi (1794) who described Musca properans and M. palmipes, undoubtedly Platypezidae, from Italy; these species cannot be satisfactorily identified and the names have not been used by subsequent authors. Later studies of the group stem from Meigen’s (1804) work in which he described three species of Platypeza and one of Callomyia, the first of which he had earlier (1803) proposed without named species. Because earlier still (1800) Meigen had proposed Clythia and Cleona, identified by Hendel (1908) with Platypeza and (less certainly) Callomyia respectively, these generic names were reintroduced following his republication of Meigen’s work. Clythia gained wide acceptance and the family name Clythiidae was used by many authors until the suppression of Meigen’s (1800) names (ICZN, 1963).

Several succeeding authors (Fabricius, 1805; Latreille, 1809; Lamarck, 1816) placed Meigen’s species in Dolichopus, although Panzer (1809) accepted his genera. Fallén (1810) proposed a genus Heteroneura, included in his family Anthracides, for one Swedish species, leptiformis and this was the first reference to a platypezid from Scandinavia. Then in his Diptera Suecica, Fallén (1815) proposed a family Platypezinae to include Platypeza and Callomyia (as Callomyza), placing his Heteroneura in synonymy with the latter; on this occasion he recorded five species from Sweden and proposed the new species boletina and elegantula from Swedish types. In a supplement (1826) he added furcata. Thus commenced the considerable work of 19th century authors on the
Scandinavian fauna, largely centring on the work of Zetterstedt whose publications relating to this group (1819-1859) spanned forty years.

Zetterstedt’s major works were in the Insecta Lapponica (1838) and Diptera Scandinaviae (especially 1844); altogether 27 species (including Platycnema and Opetia) referable to the Platypezidae were included, although synonymy has now reduced these to 20. He dealt with much material collected by Wahlberg, Boheman, Dahlbom, Holmgren, Deutsch, Stenhammar and Areschoug in Sweden, and to a small extent in Norway, and also some material obtained in Norway by Siebbe, in Denmark by Staeger and in Finland by Bonsdorff. Boheman (1858) described Platypeza connexa from Swedish types. Bonsdorff (1866) dealt with the Finnish fauna, recording 17 species (including Opetia), now reduced by synonymy to 13. Siebbe (1877) recorded 9 species from Norway.

Obviously, Zetterstedt’s work was influenced by the contemporary works of Meigen (1824, 1830, 1838) and Macquart (1827, 1835) on the German and French faunas respectively. Meigen (1830) established the genus Opetia and also described the first Microsania in his Cyrtoma (i.e. the empid genus Bicellaria Macquart) which he had (1824) erroneously included in the Platypezinae. Zetterstedt (1837, 1838) initially placed his Microsania and Platycnema as subgenera of Cyrtoma in the Platypezinae but later (1842) removed them to the Empididae. Walker (1851), who provided the first account under the name Platypezidae, included Platycnema (with his Atelestus, very briefly described in 1837, as a synonym) without further comment as to its family position and he was followed in this by Verrall (1901a-b). Other non-Scandinavian authors, who described new species of European Platypezidae in the 19th century, were Wiedemann (1818), Walker (1836), Haliday (1838), von Roser (1840), Kowarz (1867), Wulp (1868), Loew (1869), Schnabl (1884) and Bezzi (1893).

The first author to attempt to unravel the confused synonymy which had arisen from the independent efforts of authors in different parts of Europe was Verrall (1901a-b), who largely achieved a stable specific nomenclature in Platypeza (equivalent to the present Platypezinae), which subsequent authors have followed. His conclusions on Callomyia, from which he separated Agathomyia, were of necessity incomplete because of lack of material. For the same reason he retained several Agathomyia species in Callomyia in his check list (1901b). His work on the British species recognised 16 species (including Platycnema and Opetia), all still regarded as valid. Verrall’s identifications of the several Callomyia and Agathomyia species added to the British list by Wood (1903, 1905, 1910) unfortunately resulted in several nomenclatural errors which remained unresolved until the study of types preparatory to the present work.

Wahlgren (1910a) described Platypezina for P. connexa Boheman and transferred to Agathomyia several of Zetterstedt’s species retained in Callomyia by Verrall. Then (1910b) he keyed 23 Swedish species, including Opetia and Atelestus but excluding Microsania, which was retained in the Empididae until Melander (1922) established its position in the Platypezidae; he only recognised 2 species in Callomyia (placing dives and leptiformis as synonyms of speciosa and amoena respectively) but accepted 9 species, now reduced to 6 by synonymy, in Agathomyia. Lundbeck (1927) monographed the Danish fauna dealing in detail with 16 species, again excluding Microsania which he had previously included in his work on Empididae (1910), but agreeing with Melander’s opinion; he made a few errors in identification which were corrected by Chandler (1974) or in the present work.

Czerny (1930) provided the only work hitherto dealing with the European species in their entirety; he excluded Atelestus, recognising six genera – Microsania, Opetia, Callomyia, Agathomyia, Clythia and Platypezina – and 42 species including one new species, Clythia miki and the 4 species described by Oldenberg (1916, 1928) from central Europe. The revision of Callomyia by Chandler (1974) and subsequent changes in other genera have reduced 9 of the species recognised by Czerny to synonymy. Collart (1933) provided a firm basis for studies of Microsania, recognising three good species but it has now been shown that his ‘M. stigmaticalis’ Zetterstedt was previously undescribed and a new name was necessary; later (1954, 1960) he added three further species of Microsania. Other new European taxa, subsequent to Czerny’s work, were described by Szilády (1941a), Duda (1942), Chandler (1976b), Vaňhara (1981b) and Shatalkin (1981a).

Since 1980 much has been published concerning the distribution and biology of Platypezidae in the Czech and Slovak Republics by Vaňhara (1980-1986), who provided a comprehensive account of the fauna of this region (Vaňhara, 1995).
During the same period the Russian fauna was studied by Shatalkin (1980a, 1980b, 1981a, 1981b, 1982), who particularly advanced knowledge of the eastern Palaearctic fauna of the Far East of Russia; he produced national keys (1985), subsequently adding further species (1992) and most recently provided further comprehensive keys to the far eastern Russian fauna (1999).

The generic revision of the Platypezidae by Kessel & Maggioncalda (1968) was based primarily on North American material but new combinations were proposed for most of the European species hitherto included in Platypeza, introducing the new genera Paraplatypeza, Plesio­clythia and Polyporivora to the European fauna; Protocythia had earlier been proposed by Kessel (1949). Kessel & Buegler (1972b) proposed Orthovenia for furcata (Fallén), but this name has since been placed in synonymy with Bolopus Enderlein (1932), a name which had been largely overlooked. I established (1974) that obscuripennis (Oldenberg) belonged to Seri Kessel & Kessel (1966), but the generic placement of miki (Czer­ny) was uncertain until examination of the type showed it to be synonymous with Platypeza con­so­brina Zetterstedt.

Kessel & Maggioncalda (1968) proposed the recognition of three subfamilies, Opetiinae, Platyz­ezininae and Platy­pezininae of which the two latter constitute a monophyletic group. The name Callomynae, originally proposed (as Callomynae) by Rondani (1841) does, however, have priority over Platyz­ezininae and has been used instead of it in recent works.

Kessel & Maggioncalda (op. cit.) followed the earlier conclusions of Kessel (1960a) that Atele­stus was a platypezid, based on its superficial re­semblance to Melanderomyia Kessel but I now endorse the views of other recent authors that it should be excluded from the Muscomorpha (= Cyclorrhapha) and placed in a distinct sub­family or family of the Empidoidea. I also now support the recent exclusion of Opetia from the Platypezidae in the family Opetiidae and this is discussed below. With the exclusion of Opetia from the Platypezidae, Enderlein’s (1936) mon­otopic subfamily Microsaninae is recognised for Micro­sania and the subfamily Melanderomyinae is proposed for Melanderomyia.

Vaňhara (1981) proposed the new genus Kessel­i­myia. Consequently twelve genera including 43 species are here accepted in the European Platy­pezidae and 34 of these are here recorded from Scandinavia.

Subsequent to Lundbeck’s work, little was published on Platypezidae by Scandinavian authors prior to the 1980s. Frey (1941) listed 20 species (including Opetia and Atele­tus), 4 now placed in synonymy, from Finland and Hackman (1980) also listed 20 species (including Opetia and two species new to the regional list, Micro­sania strae­leni and Agathomyia woodella as a nomen nudum) in the Finnish check list. Ringdahl (1931, 1941, 1950, 1951, 1958, 1960) published a limited number of distributional records from Sweden, including Seri obscuripennis (Oldenberg) as new to Scandinavia. Andersson (1967) gave the first Scandinavian record of Agathomyia wankowiczii (Schnabl), from Sweden. In the early 1980s, Ull­mar Qvick actively studied Platypezidae in Sweden, culminating in a paper (1986) summarising his results concerning distribution within Sweden, phenology and behaviour; in particular he provided the fullest documentation of tree and shrub species utilised in adult activity yet published. In his work another five species were newly recorded from this region (Agathomyia lundbecki, A. sexmaculata, A. unicolor, Platy­peza hirticeps and Paraplatypeza bicincta). There has also been attention given recently to the biology of Mi­cro­sania in Sweden by Lars-Ove Wikars and Bert Viklund, observations on this having been published by Wikars (1994, 1997); M. vrydaghi was newly found in Scandinavia by Bert Viklund.

Knowledge of the European fauna has recently been consolidated by contributions to the several national checklists that have appeared in recent years for Belgium (De Meyer, 1991: 20 species), the Czech and Slovak Republics (Vaňhara, 1987 and revised in 1997: 34 species), Germany (Chan­dler, 1999: 23 species), Italy (Raspi, 1995: 16 spe­cies), Poland (Palacyzk, 1991: 22 species), Switzer­land (Chandler, 1998a: 28 species) and the Brit­ish Isles (Chandler, 1998b: 30 species from Britain, 15 species from Ireland). The species totals stated exclude Opetia nigra, which is included in all the national lists.

Finally, the contributions to the Palaearctic Man­ual on Opetiidae (Chandler, 1998c) and Platy­pezidae (Chandler & Shatalkin, 1998) provided di­agnoses of the two families, general accounts of their biology and keys to genera of both adults and early stages where known. Much of the prepara­tion for the present work was drawn on to compile these accounts and it has been necessary here to repeat some information and many of the figures used in the Manual.