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The British species of *Aphelinus* with notes and descriptions of other European Aphelinidae (Hymenoptera)

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Abstract

A key is provided to eleven species of *Aphelinus*, and one misidentified European species is described as *thomsoni* sp.n. Redescriptions are given of four little known or misidentified species of *Coccophagus*. Some new synonymy is proposed in Aphelinidae, and lectotypes are designated for most of the species involved. Thirty-two species in eleven genera are discussed.

Introduction

Sound taxonomic work on European Aphelinidae has until recently been much impeded because the type-material of most of the earlier-described species had not been critically re-examined in the light of modern advances, or even examined at all since it was described. I began to study these types some 16 years ago and had begun preparation of the original draft of the present paper when Dr Ch. Ferrière wrote to me about his intention of revising the European Aphelinidae. In 1962 he courteously invited me to discuss with him various taxonomic questions concerning the family. Our exchange of views showed that, regarding those problems which could be resolved, we were in substantial agreement. Some problems, however, could not then be settled to our complete satisfaction, others had not been investigated. Since then I have tried to fill in some of the outstanding gaps in our knowledge of the earlier-described species, which are often poorly understood and indeed in some cases have been consistently misidentified. To fix the nomenclature on a firm basis I have designated lectotypes wherever possible. Redescriptions of some species, and a key to British *Aphelinus*, are given so as to present new information in a usable form.

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Depositories

Unless otherwise stated, the type material of species described by European authors is located as follows (BMNH refers to the British Museum (Natural History) throughout the text):

S. M. Alam. BMNH, London.
B. N. Blood. Hope Department of Entomology, University Museum, Oxford.
J. W. Dalman. Naturhistoriska Riksmuseet, Stockholm.
J. Erdös. Természettudományi Múzeum, Budapest.
C. Ferrière. Muséum d'Histoire Naturelle, Geneva.
A. Förster. Naturhistorisches Museum, Vienna.
A. H. Haliday. National Museum of Ireland, Dublin.
V. A. Jasnosh. Zoological Institute of the Academy of Sciences of USSR, Leningrad.
R. G. Mercet. Instituto Español de Entomologia, Madrid.
J. T. C. Ratzeburg. Collection for the most part destroyed; remnants in Eberswalde, near Berlin, East Germany.
C. G. Thomson. Zoologiska Institutionen, Lund.
F. Walker. Most in BMNH, London; a few in the Haliday collection, Dublin.
J. O. Westwood. Hope Department of Entomology, Oxford.
T. V. Wollaston. BMNH, London.

Aphelinus Dalman

Entedon (*Aphelinus*) Dalman, 1820:181. Type-species *Entedon* (*Aphelinus*) *abdominalis* Dalman, by monotypy.

Most of the European species of this genus have been keyed out by Ferrière (1965:60–61). His key relies heavily upon colour-characters which I find to be so variable in some species that no reliance can be placed on them. One encounters such difficulties particularly when dealing with the British fauna, which often produces unusually dark forms that superficially look very unlike Continental forms of the same species. The present key in fact includes most of the European species, exceptions being *toxopteraphidis* Kurdjumov (1913) and some described by Jasnosh (1963) whose status is uncertain; also *nikolskajae* Jasnosh which has been made the type-species of *Protaphelinus* Mackauer (1972). The terms 'speculum' and 'delta area', as applied to the fore wing, are used in the sense of DeBach (1964, Fig. 1).

Key to the British species of Aphelinus

(*Females*)

1 Body either wholly yellow with only the eyes and ocelli darker, or at most (*tetrataenion*) with 4–5 blackish transverse bands on the gaster and some of the thoracic sutures a little darkened; antennae and legs, except tips of tarsi, yellow; macropterous species 2

– At least the thorax wholly or almost wholly black; antennae and legs sometimes, gaster often, more or less darkened; macropterous or brachypterous species 4

2 Gaster not longer than the thorax, subcircular, obtuse at apex; ovipositor concealed in both dorsal and ventral views, not or only just reaching the apex of the gaster; antenna (Fig. 2) with third funicular segment slightly longer than broad; fore wing (Fig. 1) with costal cell 6–6·5 times as long as broad ..... *thomsoni* sp.n.

– Gaster about as long as head plus thorax, oblong to subtriangular, pointed at apex; ovipositor sheaths projecting beyond the apex of the gaster by a length about equal to that of the first segment of the mid tarsi, and inclined obliquely upwards; antenna with third funicular segment subquadrate or very slightly transverse; fore wing with costal cell 7–8 times as long as broad 3

3 Body wholly yellow; fore wing hardly more than twice as long as broad, with 4 or 5 lines of hairs in the 'delta area' just basad of the speculum ..... *fulvus* Jasnosh

– Gaster dorsally with 4 blackish transverse bands or lines, sometimes a fifth partially indicated; sutures of thorax tending to be slightly darkened; fore wing 2·2–2·3 times as long as broad, with 5 or 6 lines of hairs composing the delta area ..... (*tetrataenion* Erdös & Novicky)

4 Brachypterous; tip of fore wing, when the latter is laid back, not reaching apex of gaster ..... *asychis* Walker

– Macropterous; tip of fore wing, when the latter is laid back, reaching beyond apex of gaster 5

5 Costal cell of fore wing with only one complete row of hairs (as in *thomsoni*, Fig. 1), the cell slightly shorter than the marginal vein; speculum closed below by a line of hairs on the upper surface of the wing; apical spur of mid tibia two-thirds to three-quarters the length of the longer side of the first tarsal segment; gaster often more or less reddish or reddish-yellow 6

– Costal cell of fore wing with two or three complete rows of hairs (Figs. 4, 5); the cell fully as long as, or even slightly longer than, the marginal vein; speculum usually at least partly open below; spur of mid tibia (except in *flaviventris*) nearly or quite equal in length to the longer side of the first tarsal segment; gaster usually black, or partly yellow, though more or less reddish in some *flaviventris* 7

6 Hind ocelli larger, separated by less than their own major diameter from the orbits of the eyes; frontovertex narrower than an eye; antenna with third funicular segment subquadrate; fore wing with 6–12 hairs upon the basal vein, and with 4–6 lines of long hairs composing the 'delta area' basad of the speculum; black with at least the lower face, sometimes the whole head, yellowish; base of gaster reddish-yellow, sometimes also the ventral surface; legs varying from entirely yellow to moderately infuscate ..... *abdominalis* Dalman

– Hind ocelli very small, separated by more than their own major diameter from the orbits of the eyes; frontovertex slightly broader than an eye; antenna with third funicular segment slightly longer than broad; fore wing with 1–6 hairs upon the basal vein and with 3–4 lines of long hairs basad of the speculum; body either entirely black, or with the gaster more or less brown, reddish, or reddish-yellow; legs reddish, more or less extensively infuscate ..... *asychis* Walker

7 Legs, including fore and mid coxae and usually the distal part of the hind coxae, also the antennae, yellow; gaster reddish-yellow at least at the base beneath, sometimes mainly orange-yellow; spur of mid tibia somewhat shorter than the longer side of the first tarsal segment; gaster slightly longer than head plus thorax, in dorsal view strongly acute at apex; ovipositor sheaths nearly horizontal; apparently associated with *Phragmites* ..... *flaviventris* Kurdjumov

Legs usually more extensively darkened, if as pale as in the above then the gaster is wholly black; spur of mid tibia as long or virtually as long as the longer side of the first tarsal segment; gaster tending to be relatively less elongate; ovipositor sheaths usually obliquely ascending 8

8 All the femora broadly, or mainly, black; fore wing with speculum open below; gaster black; frontovertex much as in *chaonia* (Fig. 7), rather dull, with moderately large piliferous punctures, hardly broader than an eye (this character is only appreciable in undistorted specimens) ..... *daucicola* Kurdjumov

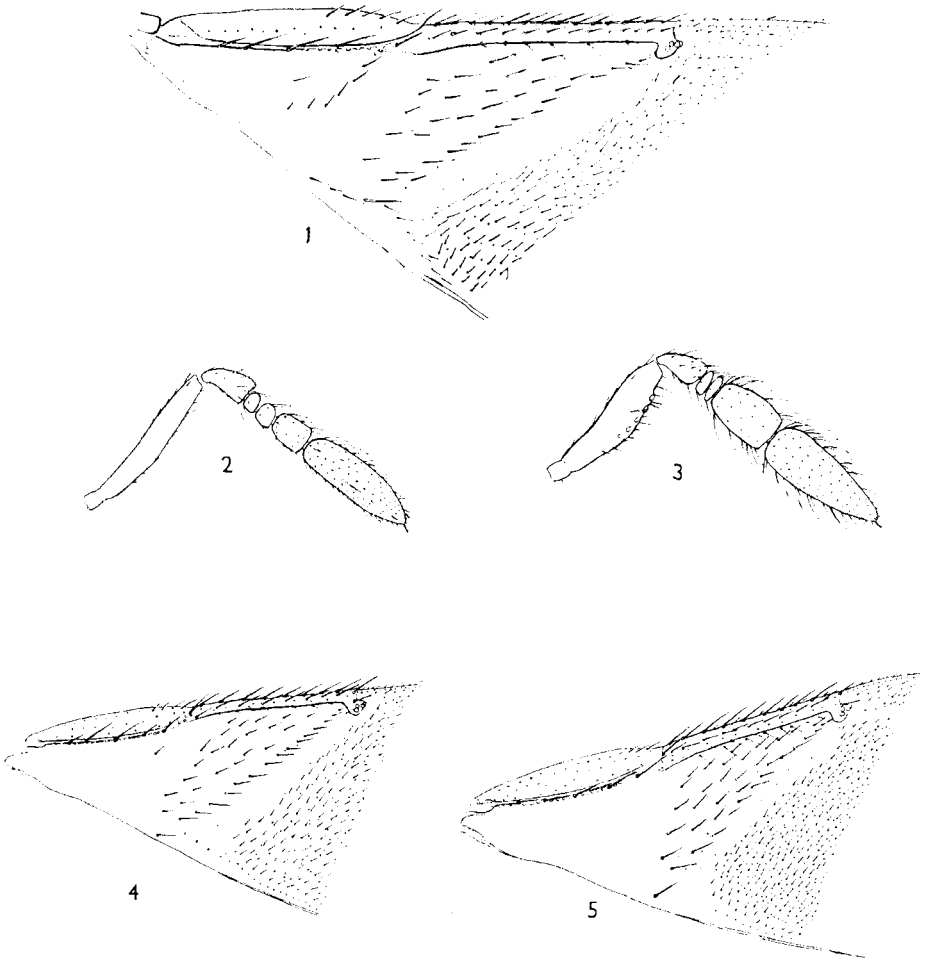
At least the hind femora entirely yellow, except in some *varipes* in which they may be very slightly infuscate medially (but that species has the speculum closed or nearly closed below and has the frontovertex broader than an eye); gaster black or partly yellow 9

9 Fore wing, just basad of the speculum, with only one complete line of hairs (the second line extends at most halfway down); frontovertex rather shiny, with only minute piliferous punctures from which arise fine bristles (see Fig. 9); fore and mid femora infuscate; gaster usually with its base narrowly yellowish, or with a yellowish spot on each side ofthe base, rarely entirely black ..... *mali* (Haldeman)

– Fore wing, just basad of the speculum, with more numerous hairs; if these form only two lines then the second line extends at least three-quarters of the way down, but usually there are three or more lines of hairs as in Figs. 4 and 5; frontovertex sometimes with more distinct punctures and stiffer bristles 10

10 All the femora entirely yellow 11

– At least the mid femora slightly infuscate medially; more often both the fore and mid femora broadly fuscous or black 12



Figs. 1–5. (1) *Aphelinus thomsoni* sp.n., ♀, fore wing; (2) *A.thomsoni* sp.n., ♀, right antenna; (3) *A.thomsoni*, ♂, right antenna; (4) *A.varipes* (Förster), ♀, fore wing; (5) *A.chaonia* Walker, ♀, fore wing.

11 First segment of hind tarsi yellow or yellowish; head black, brown in teneral specimens but never with any clear yellow markings; gaster black or fuscous, sometimes obscurely testaceous at apex; fore wing (Fig. 4) with speculum closed below in at least its distal half by a line of hairs on the upper surface of the wing; frontovertex, in undistorted specimens, broader than an eye ..... *varipes* (Förster)

— First segment of hind tarsi infuscate at least basally; occasionally the entire hind tarsus is fuscous; at least the face partly yellow, sometimes the head is mainly or entirely yellow, gaster with at least its apical part yellow (dark British females) but often the base is more or less yellowish and, in pale forms, the entire gaster is yellow with only a dark dorsal spot; fore wing: speculum open below (as in Fig. 5) ..... *humilis* Mercet

12 First segment of hind tarsi yellow or yellowish; fore wing (Fig. 4) with speculum partly to almost wholly closed below by a line of hairs on the upper surface of the wing; hind tibiae sometimes mainly brown to fuscous, but the dark part is never intense black; hind femora occasionally very slightly infuscate medially; frontovertex somewhat shiny, its piliferous punctures small ..... *varipes* (Förster)

— First segment of hind tarsi infuscate at least basally, or entirely so; fore wing (Fig. 5) with speculum open below; hind tibiae most often mainly intense black; hind femora entirely clear yellow 13

13 Gaster clear yellowish at least at apex, often also at its base, sometimes entirely yellow except for a dorsal spot; at least the face partly yellow, sometimes the whole head; antennae usually entirely yellow, rarely the pedicellus slightly infuscate proximally; frontovertex (Fig. 6) somewhat shiny, with small piliferous punctures ..... *humilis* Mercet

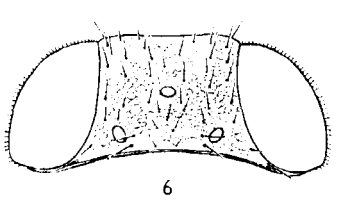
— Gaster and head entirely black; antenna with scape at least infuscate beneath, usually mainly to wholly black; pedicellus often more or less infuscate proximally; frontovertex (Fig. 7) rather dull, with moderate-sized piliferous punctures ..... *chaonia* Walker

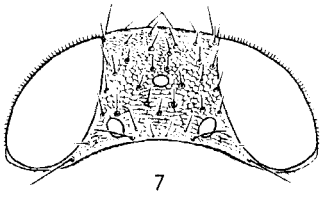
(*Males*)

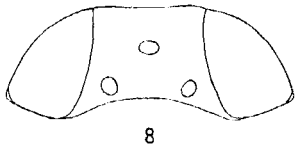
Note. The male of *fulvus* Jasnosh, which I have not seen, is omitted from the key. Presumably it has the

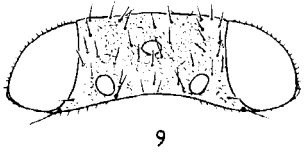
legs, as well as the body, entirely yellow, although Jasnosh does not specifically mention this feature; if so it would be distinguishable by this combination of characters from both *thomsoni* and *tetrataenion*.

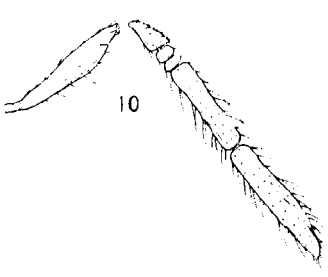
1 Body, antennae, and legs *either* entirely yellow apart from the eyes and ocelli; *or* at most with the tips of the mid tibiae and the first segment of the mid tarsi infuscate; *or* with 4 blackish transverse lines on the gaster, and some of the thoracic sutures darkened 2
– At least the thorax entirely black; antennae and legs sometimes more or less darkened 3
2 Tips of the mid tibiae, and the first segment of the mid tarsi, marked with fuscous; fore wing about twice as long as broad, with 3–4 lines of hairs composing the 'delta-area' just basad of the speculum; thorax and gaster entirely yellow ..... *thomsoni* sp.n.
– Legs entirely yellow; fore wing about 2·3 times as long as broad, with 5–6 lines of hairs composing the 'delta-area'; thorax having some of its sutures tending to be dusky; gaster with 4 blackish transverse lines ..... (*tetrataenion* Erdös & Novicky)

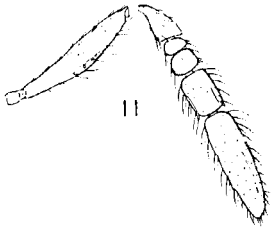


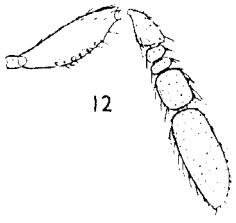


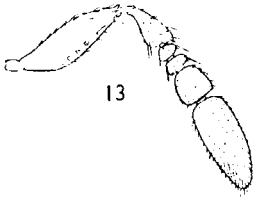


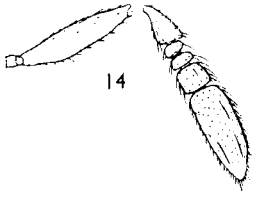


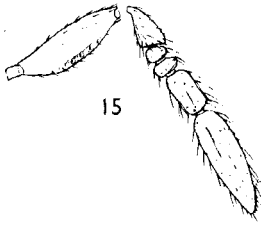












Figs. 6–15. (6–9) Heads of *Aphelinus* species in dorsal view: (6) *A.humilis* Mercet, ♀; (7) *A.chaonia* Walker, ♀; (8) *A.chaonia*, ♂ (sculpture and setae omitted); (9) *A.mali* (Haldman), ♀; (10–15) Right antennae of *Aphelinus* species: (10) *A.asychis* Walker, ♂; (11) *A.abdominalis* Dalman, ♂; (12) *A.varipes* (Förster), ♂; (13) *A.chaonia* Walker, ♂; (14) *A.chaonia*, ♀; (15) *A.mali* (Haldeman), ♂.

3 Antenna (Fig. 10) with third funicular segment very long, 3·5–5 times as long as broad, about twice as long as the pedicellus and about three-quarters the length of the clava; hind ocelli very small, separated by more than their own major diameter from the orbits of the eyes; spur of mid tibia two-thirds to three-quarters the length of the longer side of the first tarsal segment; brachypterous or macropterous; body either entirely black, or with the gaster more or less brown to reddish-yellow ..... *asychis* Walker

– Antenna with third funicular segment at most twice as long as broad, relatively much shorter in proportion to the pedicellus or clava; hind ocelli often relatively larger; spur of mid tibia usually longer; macropterous species 4

4 Spur of mid tibia two-thirds to three-quarters the length of the longer side of the first tarsal segment; costal cell of forewing with only one complete row of hairs, the cell slightly shorter than the marginal vein; speculum closed below by a line of hairs on the upper surface of the wing; 6–12 hairs on the basal vein, and 4–6 lines of long hairs basad of the speculum; antennal scape slender (Fig. 11), about 4·5 times as long as broad; black with the base of the gaster reddish-yellow, the head usually partly yellowish ..... *abdominalis* Dalman

– Spur of mid tibia as long as or virtually as long as the longer side of the first tarsal segment; costal cell of fore wing with 2 or 3 complete rows of hairs, the cell slightly longer than the marginal vein; speculum usually open below, occasionally almost closed in *varipes* which has the head and gaster black; antennal scape (Figs. 12, 13, 15) broader, about 3 times as long as broad 5

5 All the femora at least slightly infuscate proximally, most often mainly black 6

– At least the hind femora entirely clear yellow 7

6 Antenna with third funicular segment 1·5–1·7 times as long as broad; fore wing with speculum open below; hind femora mainly black ..... *daucicola* Kurdjumov

– Antenna (Fig. 12) with third funicular segment quadrate or only slightly longer than broad; fore wing with speculum nearly or quite closed below; hind femora more or less infuscate, at least proximally, but not intensely black ..... *varipes* (Förster)

7 Fore wing (see Fig. 4) with speculum closed below by a line of hairs on the upper surface of the wing; first segment of hind tarsi pale, or not noticeably darker than the following segments; fore and mid femora often entirely yellow; third funicular segment (Fig. 12) quadrate or only slightly longer than broad; gaster black ..... *varipes* (Förster)

– Fore wing with speculum open below; first segment of hind tarsi usually more or less infuscate, at least basally; fore and mid femora more or less darkened except in some *humilis*, which have the third funicular segment at least 1·5 times as long as broad 8

8 Antenna (Fig. 13) with third funicular segment quadrate or hardly longer than broad; fore wing with the second line of hairs basad of the speculum normally extending half way down or more; gaster entirely black; frontovertex relatively dull, less broad (Fig. 8) ..... *chaonia* Walker

– Antenna (Fig. 15) with third funicular segment 1·5–2·0 times as long as broad; gaster sometimes yellow-marked; frontovertex in *mali* relatively shiny and broader (Fig. 9) 9

9 Gaster usually with a yellow band across the basal tergite, occasionally this band is broken into lateral spots, or rarely (some British specimens) is absent; fore wing with the second line of hairs basad of the speculum extending at most hardly half way down ..... *mali* (Haldeman)

– Gaster not pale at base, though sometimes yellowish at apex; fore wing with the second line of hairs basad of the speculum normally extending half way down or more ..... *humilis* Mercet

Aphelinus abdominalis (Dalman)

Entedon (*Aphelinus*) *abdominalis* Dalman, 1820:181.
Agonioneurus basalis Westwood, 1833:122.
Aphelinus basalis (Westwood) Walker, 1839:2.
Myina flaviceps Förster, 1841:44. **Syn.n.**
Myina flavipes Förster, 1841:44. **Syn.n.**
Myina facialis Förster, 1841:44.
?Myina fusciscapus Förster, 1841:45.
Encyrtus Ultor Rondani, 1848:24–25. Synonymized by Bouček, 1974:271.
Agonioneurus polycyclus Förster, 1861:32.
Aphelinus abdominalis (Dalman); Thomson, 1876: 184.
?Aphelinus alius Jasnosh, 1963:179.
?Aphelinus bicolor Jasnosh, 1963:180.

Aphelinus abdominalis Dalman is the type-species of the genus. Dalman (1820:181) briefly diagnosed *Aphelinus* (as a subgenus) in his synoptic table to the genus *Entedon*; *abdominalis* was the only species included by him in *Aphelinus*. The species is validated by the subgeneric diagnosis and further by figures of the antenna and fore wing on Plate 8, Figs. 55 and 56. I have not found any specimens labelled as *abdominalis* in Dalman's collection and Thomson does not appear to have seen the type or types to judge from his footnote (1876:185) which states 'Jag har upptagit Dalmans namn, emedan hans figur öfver antennerna säger mera än både Walkers och Nees' beskrifningar'. The name *abdominalis* has been in general use and may be retained as it is also the type-species. Possibly the types have been misplaced and may eventually be found; for this reason it seems advisable not to designate a neotype at present.

Agonionerus basalis Westwood. There is only one specimen so labelled in Westwood's collection and no others which could be syntypes are placed near it. The specimen is mounted on a card-point which is gummed to the surface of an oblong card; three labels (all in Westwood's handwriting) read respectively 'apex of Ant^a fore leg intermed. do.' (in red ink); '14 B'; 'AGONIONEURUS basalis Westw. Mag. Nat. Histy'. The head, antennae and some of the legs are broken off; but the third funicular segment and clava of one antenna, and the legs of one side, are gummed to the label written in red ink mentioned above. The incomplete specimen agrees with the description and is now designated as LECTOTYPE.

Myina flaviceps Förster; syntypes, five specimens; LECTOTYPE, a card-pointed female bearing three labels reading 'Or. Ex.' [Original Exemplar]; 'Collect. G. Mayr'; and 'M. flaviceps Förster, Type'. I cannot distinguish this form from *abdominalis* by any structural character, and Ferrière (1965:74) suggested that it might be a colour form of that species.

Myina flavipes Förster. I have examined three specimens so named in Förster's collection. Two of them, both males, are pinned to a block of pith (which originally bore three other specimens which have been broken off their pins); the pin staging the block bears the following labels: (1) a tiny apple-green ticket, (2) 'Aachen' in Förster's handwriting, (3) 'Collect. G. Mayr', (4) 'Myina flavipes Förster Type'. I designate the lowermost male on the block as LECTOTYPE and have put a red spot against it. Both it and the other male syntypes belong to *abdominalis* Dalman. Another male syntype, conspecific with the above, stands amongst Förster's series of *flaviceps*, but is labelled 'Collect. G. Mayr'; M. flaviceps [sic] Förster, Type'; and (in Förster's handwriting) 'Myina flavipes m.'. Some misplacing of labels has clearly occurred. Förster described only the female, but as his series contains only males, he must have mistaken their sex.

Myina facialis Förster. There is only one, headless, specimen so named in Förster's collection; it bears a label 'Frfld. 1874' and cannot be the type. It is a female *abdominalis*. In the old Westwood collection at Oxford there are two Förster specimens pinned to a block of pith and bearing two labels in Förster's handwriting, reading 'Myina facialis Foerst.' and 'Foerster'. They agree well with the original description (they might even be syntypes) and I am basing my interpretation of *facialis* on them; both are females of *abdominalis*.

Myina fusciscapus Förster. One female stands under this name in Förster's collection and is labelled 'fusciscapus m.' in his handwriting. It does not agree well with the description, hence I hesitate to designate it as type and have queried its synonymy with *abdominalis*. The description, however, would apply well enough to some colour forms of *abdominalis*.

Aphelinus polycyclus Förster. One female, which is now designated as LECTOTYPE, stands under this name. It agrees well with the original description and bears five labels reading 'Roseggthal' [in Förster's handwriting]; 'Collect. G. Mayr'; 'Agon. polycyclus Förster, Type'; 'Först.'; and [in Förster's handwriting] 'Agonioneurus (Myina) polycyclus m/138'. Kurdjumov's redescription (1913:267) states that *polycyclus* has the anterior coxae fuscous; but in the lectotype they are wholly yellow. Kurdjumov (1913) regarded *polycyclus* Förster, *flaviceps* Förster, *abdominalis* Dalman, and *facialis* Förster as distinct species. I can find no reliable structural differences between them and consider them as colour-forms of one variable species.

Aphelinus bicolor Jasnosh (1963) was regarded by Ferrière (1965:80) as a colour form of *asychis* Walker. It appears to be, rather, a form of *abdominalis* Dalman.

A. alius Jasnosh (1963) may also be a colour form of *abdominalis*.

Aphelinus asychis Walker

[*Myina abdominalis* (Dalman); Nees, 1834:190. Misidentification].
Aphelinus asychis Walker, 1839:2.
Aphelinus euthria Walker, 1839:3.
Myina affinis Förster, 1841:44.
Aphelinus brevicalcar Thomson, 1876:185.
Aphelinus dubia (Förster MS) Kurdjumov, 1913:268.
Aphelinus brachyptera (Förster MS) Kurdjumov, 1913:268.
Aphelinus asychis Walker; Ferrière, 1965:75–77.

The original description (1839:2) refers to British and Irish material only ('May and June; near London. Found by Mr Haliday near Belfast'). In the BMNH there are three specimens which are clearly syntypes of *asychis*; one specimen bears a circular label with serial number 123; two others mounted on another card bear a similar label with serial numbers 124–5. Under the name 'affinis Förster' there is a specimen bearing a circular label with serial number 120 which corresponds to an entry 'Aphelinus asychis' in the old register of accessions. I consider that all the above specimens should be regarded as syntypes. I designate as LECTOTYPE the female which bears the serial number 123; it also carries a second label reading 'Aphelinus asychis Walker. Stood under this name in the old B.M. collection. C. Waterhouse'; and a third, blue label 'as *asychis*'.

Haliday's collection (Dublin) contains five specimens which are conspecific with the lectotype of *asychis*; none is so labelled, but I believe they should be considered syntypes. One, a female, bears a label '2', which corresponds to the species number against *asychis* in Walker's paper.

Aphelinus euthria Walker. The original description refers to British and Irish material ('Common near London. Found at Belfast, by Mr Haliday'). In the BMNH there are four Walker specimens, all conspecific, which must be syntypes. Two are mounted on the same card and agree best with the description; although both lack the gaster, I designate one of them, the right-hand specimen, as LECTOTYPE. They bear two labels, a circular one with serial number 126–7, and an oblong one reading 'Aphelinus Euthria Walker. Stood under this name in the old British collection. C. Waterhouse'. Another specimen which bears only the Waterhouse label, has the base of the gaster reddish and may be Walker's var. γ.

A further syntype is in Haliday's collection in Dublin. This is a female labelled 'euthria' in his handwriting upon a green label (this colour indicating Irish origin).

Myina affinis Förster. There are two female syntypes in Förster's collection. One of these now designated as LECTOTYPE, is a macropterous female labelled 'Or. Ex'; 'Collect. G. Mayr'; and 'M. affinis Förster, Type'.

Aphelinus brevicalcar Thomson. There are thirteen syntypes in Lund. One of these, a macropterous female labelled 'Ang.' [Angermänland] and 'Stål', is here designated LECTOTYPE.

Aphelinus dubia Kurdjumov. There are sixteen syntypes in Förster's collection. The first pin carries six specimens pinned to a pith block, and bears four labels reading 'Collect. G. Mayr'; M. dubia Förster, Type; Myina dubia Foerst Aachen d.182c' (the latter label in Förster's handwriting); and 'dubia Förster'. I have marked one of these specimens, a macropterous female, as LECTOTYPE.

Aphelinus brachypterus Kurdjumov. Förster's collection contains one specimen, which is designated LECTOTYPE. It is a brachypterous female of *asychis* and bears five labels: 'd.182c'; a tiny green ticket; 'Collect. G. Mayr'; 'M. brachyptera Förster, Type'; and (in Förster's handwriting) 'M. brachyptera m. Aachen'.

Aphelinus chaonia Walker

Aphelinus Chaonia Walker, 1839:4.
[*Aphelinus Chaonia* Walker, 1839, var. ζ].
Myina flavicornis Förster, 1841:45.
Aphelinus transversus Thomson, 1876:185. **Syn.n.**
Aphelinus chaonia Walker; Ferrière, 1965:60, 69–70.

Walker's original records of *chaonia* were from Britain and Ireland (the latter 'Found at Belfast, by Mr Haliday'). In Haliday's collection two specimens which corresponded to the description of *chaonia* were found: a male (No. 1450) labelled 'flavicornis' and a female (No. 1452) labelled 'tibialis' (the labels in Haliday's handwriting). The label 'flavicornis' probably refers to a manuscript name 'Cyllomus flavicornis Walker' which is mentioned in Curtis' *Guide* (1829:113). The label 'tibialis' on the female specimen clearly means *Myina tibialis* Nees, which was queried as a synonym of *chaonia* by Walker (1839:4).

Further syntypes exist in Walker's collection in the BMNH. Some trouble was encountered in locating them because Walker's original material had been misplaced as a result of rearrangement. Two specimens which stood as *chaonia* in the collection were not received until 1904 and presumably do not represent original material of the species. However, ten specimens were found which were labelled as having originally stood under the name *chaonia*: seven under a modern label *chaonia*, two under a label *varipes* Förster, and one (a male, No. 129) under a label *transversus* Thomson. Of the seven specimens under the modern label *chaonia*, the last three do not belong to Aphelinidae and are clearly mis-labelled. The other specimens mentioned, seven in all, are taken to be syntypes of *chaonia*. The first four specimens under the modern label *chaonia*, all females, are conspecific; the second specimen has been labelled and is now designated LECTOTYPE of *Aphelinus chaonia* Walker, 1839. The six remaining specimens, and the two specimens in the Haliday collection, are designated paralectotypes. Of the six paralectotypes in the BMNH, three belong to *chaonia*, the two females standing as *varipes* actually belong to that species, whilst the male (No. 129) under *transversus* also belongs to *varipes*.

Aphelinus transversus Thomson. The nineteen syntypes on pins are a mixed series. The female here designated LECTOTYPE is labelled 'Dlc' and 'Bhn' [Boheman]. It has the antennae wholly yellow; the coxae are black, otherwise the legs are yellow with a dark band on the mid femora, a faint brown band on the mid tibiae, and the hind tibiae mainly fuscous. Thomson himself remarked (1876:185) that his *transversus* was probably the same as *chaonia* Walker.

Aphelinus daucicola Kurdjumov

Aphelinus daucicola (Förster MS.) Kurdjumov, 1913:268.

Aphelinus brunneus Jasnosh, 1963:181.
Aphelinus daucicola Kurdjumov; Ferrière, 1965:60, 65.

Förster's collection contains eighteen specimens which are here regarded as syntypes. Eight of these are mounted with micro-pins upon a large block of pith, the whole bearing four labels reading 'd. 182b.'; 'Collect. G. Mayr'; 'M. daucicola Förster, Type'; and (in Förster's handwriting) 'M. Daucicola m. Aachen'. I have chosen one, a female, as LECTOTYPE and have marked it with a small red ticket.

Aphelinus chaonia Walker, var. θ (1839:4) probably corresponds to *daucicola*. Ferrière (1965:65) remarked that *daucicola* could be a dark form of *chaonia* Walker. The two are certainly very close structurally, but *daucicola* consistently differs from *chaonia* in having mainly black hind femora, and I have seen no intermediates. Males which I refer to *daucicola* have the third funicular segment 1·6–2 times as long as broad, whereas in males of *chaonia* this segment is quadrate or virtually so. Ferrière (1965:80) suggested that *A.brunneus* Jasnosh might be a colour-form of *daucicola*.

This species is newly recorded from Britain on the following material: ENGLAND; Lincolnshire, Tetford Hill, 1♀, 17.vii.1951; Oxfordshire, Otmoor, 1♀, 27.viii.1957 (*Graham*).

Aphelinus flaviventris Kurdjumov

Aphelinus flaviventris (Förster MS.) Kurdjumov, 1913:268.
Aphelinus flaviventris Kurdjumov; Ferrière, 1965: 64–65.

This species passed unnoticed until Ferrière (1965) redescribed the female. He was unable to see the type, which has not yet been located. The only specimen I could find in Förster's collection in Vienna labelled as *flaviventris* was a female of *asychis* having the coxae dark and therefore disagreeing with the description. Possibly the true type still exists either in some other part of Förster's collection (which is rather dispersed) or amongst Kurdjumov's material. Meanwhile Ferrière's identification is followed provisionally.

This species is here newly recorded from Britain: ENGLAND; Suffolk, bank of River Stour near Flatford Mill, 2♀ amongst *Phragmites*, 13.ix.1968 (*Graham*); Surrey, Esher Common, Black Pond, many females on *Phragmites*, 20, 21. vi. and 12.vii.1970 (*Bouček*).

Aphelinus fulvus Jasnosh

[*Aphelinus subflavescens* (Westwood): Kurdjumov, 1913:267. Misidentification.]
Aphelinus fulvus Jasnosh; 1963:178.
Aphelinus fulvus Jasnosh; Nikol'skaya and Jasnosh, 1966:169, 172.

This species, previously known only from the European USSR, is here newly recorded from Britain. ENGLAND: Oxfordshire, Marston Ferry, 2♀ swept from foliage of *Salix purpurea*, 2.viii.1960 (*Graham*).

Aphelinus humilis Mercet

Aphelinus humilis Mercet, 1928:240; 1930:39, 45.
[*Aphelinus Chaonia* vars. γ, δ, ϵ, Walker, 1839:4.]
Aphelinus humilis Mercet; Ferrière, 1965:60, 66.
Aphelinus humilis Mercet; de Santis, 1969:121–123.

Mercet's types of *humilis* have not been found and the present identifications are based on his description. British specimens which I believe to represent the same species have the gaster and legs rather darker as a rule, but in many species British examples tend to be darker than Continental ones. There is a female of *humilis* from southern Sweden amongst the syntypic series of *A.transversus* Thomson. His description of *transversus*, 1876:185, includes the words 'capite rarissime pallido'. In all the female specimens studied the antennae are wholly yellow (in *chaonia* Walker the scape is more or less dark); the head is partly to entirely yellow; the legs are on the average more extensively pale than in *mali* or *chaonia*; the fore coxae are sometimes wholly, the mid coxae sometimes partly, yellow; all the femora may be yellow, though the mid ones are often, the fore ones occasionally, more or less dark; the gaster is more or less broadly yellow at the apex (sometimes narrowly so at the base also), rarely even the whole ventral surface is yellow. The male has the scape slightly dusky; the third funicular segment nearly or quite twice as long as broad and fully half the length of the clava.

This species is newly recorded from Britain on the following material: ENGLAND; Oxfordshire, Bald Hill near Lewknor, 2♀, 8.ix.1957 (*Graham*); Oxford, University Museum grounds, 1♂ emerged 22.vi. 1914, 1♀ emerged 26.vi.1914, from an aphid host, probably *Macrosiphoniella tanacetaria* (Kalt.), on *Chrysanthemum parthenium* (*H. Britten*). IRELAND: Co. Down, Newcastle, 1♀, 6.ix.1955 (*Stelfox*).

Unlocalized, but either British or Irish: 2♀ (Nos. 1451, 1453) in Haliday collection, Dublin.

***Aphelinus tetrataenion* (Erdös & Novicky)**

Mesidia tetrataenion Erdös & Novicky *in* Erdös, 1953:178–180.
Aphelinus tetrataenion (Erdös & Novicky) Ferrière, 1965:71.

This species previously known only from Hungary and Czechoslovakia, is here newly recorded from Britain. ENGLAND; Hampshire, Bournemouth, 1♀, 6♂, 1.viii.1970 (*Bouček*), in BMNH.

***Aphelinus thomsoni* sp.n.**

[*Aphelinus flavus* (Nees); Thomson, 1876:186. Misidentification.]
Aphelinus flavus Thomson [sic]; Ferrière, 1962:145; 1965:61–62.

Both Walker and Thomson considered that they were able to recognize *Eulophus flavus* Nees, but, in fact, neither Walker's nor Thomson's specimens accord with the original description of *Eulophus flavus* Nees (1834:167) which includes the statements '. . . abdomine conico-subulato . . . Alae hyalinae, ramulo stigmatico punctiforme *basi propiori*. *Abdomen* angustissimum, subulatum, dorso planum, ut in *Cleonyme bimaculato*'. The type female of *Eulophus flavus* has almost certainly been destroyed; it is not amongst the remnants of the Nees collection in Oxford. The description suggests to me that it might have been an Encyrtid, perhaps near the genus *Rhopus*. Nees himself remarked that the position of the stigmal vein in his *flavus* suggested an affinity with Encyrtidae, but thought that it had fewer antennal segments than any Encyrtid (although he was not sure of their exact number). Clearly both Walker and Thomson misidentified *flavus*. Article 49 of the International Code of Zoological Nomenclature (1961) states that 'The specific name used in an erroneous specific identification cannot be retained for the species to which the name was wrongly applied, even if the two species in question are in, or are later referred to, different genera . . .'. The logical course is to rename and redescribe the species misidentified by Thomson. The species referred to as *flavus* by Walker is treated below under *Mesidiopsis*.

Female: Body, antennae, legs, and wing-venation yellow; tips of mandibles reddish; ocelli reddish to brown; pretarsus of all the tarsi fuscous, likewise the fifth tarsal segment of the mid and hind tarsi. Wings hyaline or faintly yellowish-tinged. The colour of the living insect is a clear sulphur-yellow, but after death it sometimes changes partly or wholly to a more ochreous tint. Bristles and hairs of body, antennae, and legs, all pale. Length 0·9–1·1 mm.

Head in living specimens slightly broader than the mesoscutum, in dried specimens (owing to shrinkage) about as broad as the mesoscutum; malar space distinctly less than the length of an eye; eyes with dense but very short pubescence; ocelli moderately large, the hind ocelli probably separated from the eyes by about their own diameter, but this usually cannot be measured because the frontovertex collapses. Head with delicate and superficial reticulation, slightly shiny; setae pale. Antenna (Fig. 2): scape slender (not counting radicula, about six times as long as broad), slightly curved; pedicellus about twice as long as broad, about two-fifths the length of the scape and nearly equalling the combined lengths of the three funicular segments; first and second funicular segments subequal in length and breadth, both slightly transverse, third segment broader than the first and second, about as long as the combined length of the first and second, slightly longer than broad; clava slightly broader than the third funicular segment, about three times as long as broad.

Mid lobe of the mesoscutum somewhat broader than long (26:21); anterior two-thirds with numerous bristles arranged in irregular longitudinal series, these bristles very short in the front part of the sclerite but becoming longer posteriorly; the posterior third is bare except for a pair of conspicuously long bristles (almost as long as those of the scutellum), placed one on each side of the median line; very near each lateral margin of the sclerite, and a little behind the antero-lateral corner, there is a similar long bristle. Each side-lobe of the mesoscutum bears three bristles of moderate length. Each axilla bears a bristle which is nearly as long as those of the scutellum. Scutellum as broad as, but slightly shorter than, the mid lobe of the mesoscutum; with two pairs of very long bristles of which the two anterior bristles are slightly closer together than the two posterior. The thoracic bristles (especially the longer ones) appear slightly greyish in some lights, though in most aspects they look whitish owing to their reflecting the light. The mesoscutum, scutellum, and axillae are slightly shiny, finely and delicately reticulate (the sides of the mesoscutum and the axillae more weakly than the other parts). The

metanotum is shiny and almost smooth. The endophragma projects into the gaster to about half the length of the latter, and is broadly rounded apically. Prosternum hexagonal, its two anterior sides much longer than the others and forming an acute angle; the four posterior sides subequal in length, the two inner ones forming an angle between the fore coxae. Fore wing (Fig. 1) about 2·25 times as long as broad, extending far beyond the tip of the gaster; costal cell about six times as long as broad, its upper surface bare except for a short row of 4–5 hairs at the apex, its lower surface with one complete row of hairs; the speculum, on the side nearest the base of the wing, is delimited by a straight row of numerous hairs which extends from the stigma obliquely across the wing to the hind margin; basad to this row and running parallel to it, are three other rows of hairs which are incomplete and do not reach either the marginal vein or the hind margin of the wing; below the submarginal vein the wing is bare except for a row of 3–6 hairs on the fold which represents the basal vein. The marginal vein is not quite as long as the submarginal, which bears a row of 5 setae; the postmarginal vein is absent (the marginal being truncate at its apex); the stigmal vein is very short, composed wholly of the subtriangular sessile stigma, which bears four placoid sensilla arranged in a single row. Fore coxae touching each other. Spur of mid tibia slightly shorter than the first tarsal segment, thickly clothed with short hairs. Tarsal claws equal in length.

Gaster subcircular, usually obtuse apically but sometimes with a small point in the middle of the apical margin caused by the projecting last tergite, nearly or about as long as the thorax but somewhat broader, sunken dorsally, convex ventrally and often slightly keeled towards the base; ovipositor sheaths not quite, or only just, reaching the tip of the last tergite and so concealed in dorsal view, oblong elliptic, about 3·5 times as long as broad; the ovipositor itself is unusually short for the genus (somewhat less than half as long as the gaster or the hind tibia), relatively weak, and nearly straight.

Male: Differs from the female as follows:

Mid tibia with a fuscous streak on the inner aspect, extending over the distal quarter or third; sometimes the dark area is more extensive so that nearly the whole distal third is blackish; first tarsal segment brownish basally and blackish apically, the following segments sometimes brownish.

Antenna (Fig. 3): scape somewhat expanded and flattened, hardly four times as long as broad, its front edge with an elongate plaque in the upper half, bearing a row of placoid sensilla; pedicellus and flagellum stouter than in ♀, the flagellum more hairy; first and second funicular segments each nearly twice as broad as long; third funicular segment 1·6–1·7 times as long as broad, fully half as long as the clava; clava 2·7–2·9 times as long as broad. Gaster in dried specimens somewhat shorter and narrower than the thorax, its sides relatively straight, subparallel or converging slightly caudad; apex bluntly pointed; genitalia usually projecting slightly.

Holotype ♀, SCOTLAND; Inverness-shire, Isle of Rhum, Kinloch, bred from *Drepanosiphum platanoides* (Schr.) on Sycamore, 19.ix.1961 (*Graham*), in Hope Department, Oxford.

Paratypes: from same locality and host as holotype, 2♂, 11.ix.1961, 1♀, 14.ix.1961; SCOTLAND; Perth, Killin, near Finlarig Castle, several ♂ and ♀ on *Sequoia sempervirens*, 15.vii.1952 (*Graham*); ENGLAND; Berkshire, Wytham Wood, 2♀, 18.ix.1953, 1♀, 6.iv.1957 (*Graham*); IRELAND; Co. Down, Newcastle, Tipperary Wood, 1♀, 26.ix.1958 (*Stelfox*), all in Graham Collection.

The female of *thomsoni* differs from all the other European species of *Aphelinus* in having a subcircular gaster which is obtuse apically, and a short, weak and virtually straight ovipositor which does not project beyond the tip of the gaster. In the other European species the female has the gaster more subtriangular in dorsal view and acute apically, whilst the ovipositor is long, reaching nearly to the base of the gaster, strong, and at least slightly curved; often also it projects slightly beyond the tip of the gaster. The ovipositor sheaths are shorter and broader than in the other species, in this respect approaching those of *Protaphelinus nikolskayae* (Jasnosh). The female of *thomsoni* also differs from all the other European species, except *fulvus* Jasnosh, in having an entirely yellow body.

The male of *thomsoni* also differs from these of all the other European species, except *fulvus* Jasnosh, in the wholly yellow body; but it differs from the figure of the antenna of *fulvus* in Jasnosh (1963) in having the third funicular segment conspicuously longer than broad instead of quadrate. Jasnosh says nothing about any dark marking on the mid leg of the male of *fulvus*, such as exists in the male of *thomsoni*.

In facies, *Aphelinus thomsoni* much resembles *Mesidiopsis subflavescens* (Westwood) but is easily distinguishable in both sexes by having the first two funicular segments subequal in length and shorter than the third (in *subflavescens* all three funicular

segments are subequal in length). In the male of *thomsoni* the apex of the mid tibia is neither expanded nor flattened, and the first segment of the mid tarsus is cylindrical; whereas in the male of *subflavescens* the distal part (rather less than the distal half) of the tibia is expanded and flattened, whilst the first segment of the mid tarsi is also slightly flattened.

Ferrière (1962:145) records this species (under the name *flavus*) as a parasite of *Drepanosiphum gracile* in Holland, and of *Periphyllus* sp.n. in southern France. In Britain I have bred specimens from the aphid host *Drepanosiphum platanoides* (Schr.) on *Acer pseudoplatanus* L. The parasitized aphid turns black. The pupa of the parasite lies on its back within the hardened body of its host, its head pointing towards the caudal end of the aphid. When the adult *Aphelinus* emerges it makes a roughly circular hole on the dorsal surface of the host's body, between the caudal siphons.

Aphelinus varipes (Förster)

Myina varipes Förster, 1841:45.
Aphelinus varipes (Förster) Ferrière, 1965:78–79.

In Förster's collection there are nine specimens labelled as *varipes*. They comprise two different species and none of the specimens agrees perfectly with the description. One species, represented by two carded specimens, has the mid femora and tibiae, and the hind tibiae, mainly blackish, and this represents *chaonia* Walker. The other, represented by seven specimens, has the mid femora yellow, the mid tibiae yellow or very weakly infuscate, and the hind tibiae mainly fuscous. Förster's description of *varipes* states 'die Mittelschenkel und die Hinterschienen braun, mit Ausnahme der Basis und Spitze'. The old Hope-Westwood collection at Oxford contains a Förster specimen labelled by him as *varipes* and it belongs to the species which has the mid and hind femora yellow. Kurdjumov's key to the species of *Aphelinus* (1913:269) states that all the femora of *varipes* are yellow. It seems best to follow Kurdjumov's interpretation and to regard the species having all the femora yellow as *varipes*. Possibly Förster made a mistake in his description. The seven specimens mentioned above are taken as syntypes of *varipes*. The first block of pith in the series carries six specimens on micro-pins, arranged in three rows of two each. The pin on which the pith block is staged bears a tiny green square ticket; a label 'Aachen' in Förster's handwriting; another 'Collect. G. Mayr'; and a fourth 'M. varipes Förster, Type'. The left-hand specimen of the second (middle) row on this block, a female, is now designated LECTOTYPE of *Myina varipes* Förster, and a red spot has been marked on the pith against it.

The syntypic series of *Aphelinus transversus* Thomson includes a female specimen of *varipes* (Förster) from Lund. *A. hordei* Kurdjumov was synonymized with *varipes* Förster by Ferrière (1965: 78). I agree with this conclusion, although I have not seen the type of *hordei*. According to the description of *hordei*, it differs from *varipes* only in the colour of the legs and scape, and in the relative length of some of the antennal segments, characters which are variable in specimens which I refer to *varipes*.

Specimens from England are reasonably constant in colour. They may have the antennae wholly yellow, though usually the scape is more or less infuscate; the fore coxae vary from yellow to black; the mid femora may be wholly yellow or partly infuscate, likewise the mid tibiae. The Irish females are unusually dark, having both the fore and mid femora and tibiae partly infuscate; they could easily be confused with *chaonia*, but differ in having more numerous hairs on the fore wing just basad to the speculum, which is partly closed, and in having the first segment of the hind tarsi not fuscous at the base.

The following are additional records of *varipes* in Britain: ENGLAND; Berkshire, Wytham Wood, several females swept from grasses, 9.vii.1959 (*Graham*). IRELAND: Co. Down, Sliddery Ford, near Newcastle, 2♀, 22.viii.1957 (*Stelfox*); sand-dunes near Newcastle, 1♀, 7.viii.1957 (*Graham*).

Aphytis Howard

Aphytis Howard, 1900:168. Type-species *Aphytis chilensis* Howard, by monotypy.

Aphytis albidus (Westwood)

Agonioneurus albidus Westwood, 1837:442.
?Coccobius luteus Ratzeburg, 1852:196.

Novitzky (1961:195) transferred *albidus* to the genus *Aphytis* after examining the male syntype in Westwood's collection which is so labelled. This male is mounted on a small triangular piece of paper which is itself gummed to a card; it bears two labels in

Westwood's handwriting reading '120' and 'Agon. albidus'. The specimen belongs to the species-complex of *mytilaspidis* Le Baron. Above the male stands a card bearing two females which may be regarded as syntypes. They have a label in Westwood's handwriting 'on apple trees (end of June) infested by *Coccus conchiformis*, on which I saw one stationed so that I have no doubt it is its parasite'. These females also belong to the species-group *mytilaspidis*. Incidentally, Westwood's '*Coccus conchiformis*' is clearly the species now known as *Lepidosaphes ulmi* (L. 1758) and not *Lepidosaphes conchyformis* (Gmelin, 1789) which is now regarded as a distinct species (see Balachowsky, 1954:64).

Compere (1955:309–310, Figs. 3, 15) has re-described and figured *mytilaspidis* Le Baron, which is a well-known parasite of *Lepidosaphes ulmi* (L.) on deciduous fruit trees. The two female syntypes of *albidus* (Westwood) agree quite well with Compere's diagnosis of *mytilaspidis* and could be conspecific. However, in view of the known complexity of the taxonomic situation in *Aphytis* and the apparent existence of a number of sibling species, I do not venture to place these two species definitely in synonymy. The syntypes of *albidus* will be sent to Professor P. DeBach for more critical study.

Coccobius luteus Ratzeburg. Amongst the remains of Ratzeburg's collection in Eberswalde there are three card-pointed female specimens which are certainly syntypes of *Coccobius luteus*. Dr Bouček examined these in 1963 and I studied them in 1970. Two bear no original labels. The first specimen is labelled in Ratzeburg's handwriting 'Coccus Pini' and 'luteus Rtz'; it also bears two modern labels which read respectively 'Ex. coll. Eberswalde partim Ratzeburg' and (a red label) 'Lectotypus *Coccobius luteus* Ratzb. 1848 [sic] Bouček det. 1963'. Bouček (1964:667) designated this specimen as lectotype. The lectotype, and the other syntypes, belong to the species-group of *mytilaspidis*, and are in fact almost indistinguishable from the female syntypes of *albidus*.

Aphytis proclia (Walker)

Aphelinus Proclia Walker, 1839:9.
Aphytis proclia (Walker) Mercet, 1932:363–364 (in part).
Aphytis zonatus Alam, 1956:370.

There are three specimens standing under the name *proclia* in the BMNH. The first, which bears a red-bordered type label (and lacks the thorax and gaster) is probably not a syntype. The second, which bears a circular label with serial number 137, appears to belong to one of Walker's varieties (either var. β or δ). The third specimen, a female in good condition, is designated LECTOTYPE; it has now been beautifully slide-mounted by Professor DeBach. There is also a specimen (№. 1437) in Haliday's collection labelled *proclia*, evidently a Walker specimen, which appears to be a male.

The lectotype of *proclia* has the mesoscutum and scutellum somewhat rusty (probably discoloured) with a pale median line; the antennal pedicellus and the proximal two-thirds of the clava are paler than the rest, the first two funicular segments and the distal third of the clava are duskier; the third funicular segment is slightly dusky above; the mesoscutum has thirteen setae; the fore wings are relatively broad with their longest fringe less than one quarter the breadth of the wing, whilst the dusky clouds of the wing are fairly distinct.

I have examined a few other British females which have the characters noted above, except that the number of setae on the mesoscutum is variable, and I believe that these are also *proclia*. I consider the holotype female of *zonatus* Alam to be conspecific with *proclia* (Walker).

Archenomus Howard

Archenomus Howard, 1898:136. Type-species *Archenomus bicolor* Howard by monotypy.

Archenomus bicolor Howard

[*?Pteroptrix dimidiatus* Westwood; Walker, 1839:14. Misidentification.]
Archenomus bicolor Howard, 1898:138.
Pteroptrix callunae Alam, 1956:374.
Pteroptrix zonatus Alam, 1956:376.
Archenomus bicolor Howard; Ferrière, 1965:178–180.

Alam's two species, *Pteroptrix callunae* and *P.zonatus*, described from British material, were synonymized with *Archenomus bicolor* by Ferrière (1965:178). The latter name therefore replaces them in the British list.

Azotus Howard

Azotus Howard, 1898:138. Type species *Azotus marchali* Howard, by monotypy.

This genus was introduced to the British list by Alam (1956:377).

Azotus celsus (Walker)

Pteroptrix Celsus Walker, 1839:16.
Azotus celsus (Walker) Ferrière, 1965:107–108.

The original description states 'Taken by the Comte de Castelnau, near Paris'. There are four syntypes gummed to an oval card in the BMNH. The specimens, which are somewhat damaged, comprise three males and one female. The female specimen, which lacks a head and is here designated LECTOTYPE, has the fringe of the fore wing of moderate length only (breadth of wing 26; longest fringe 9).

Azotus atomon (Walker), redescribed by Ferrière (1965:105–106), appears to differ little from *celsus* and may prove to be a form of it. The length of the apical fringe of the fore wing relative to the breadth of the wing is a character which seems to vary with absolute size, and may not be valid for distinguishing these two species. Further synonymy is given by Ferrière (1965:107).

Centrodora Förster

Centrodora Förster, 1878:66. Type-species *Centrodora amoena* Förster, by monotypy.

Centrodora amoena Förster

Centrodora amoena Förster, 1878:67.
Centrodora amoena Förster; Ferrière, 1965:47–49.

The name *amoena* Förster should replace that of *speciosissima* (Girault) on the British list, the latter name being a misidentification of *amoena*. The specimens newly recorded from below from Britain agree well with the redescription by Ferrière who evidently saw Förster's type specimen: ENGLAND; Berkshire, Wytham Wood, 1♀ from soil under oak (trap k of Wytham Oak Survey, No. 22–1949) 21.viii.1949 (*G. C. Varley*); Middlesex, Southgate, 1♂, 1♀, swept from rough grassland with brambles where the Orthopteron *Metrioptera roeselii* (Hagenbach) was frequent, 1.vi.1971 (*Graham*).

Centrodora livens (Walker)

Myina livens Walker, 1851:211.
Paraphelinus varius Blood, 1929:40.
Centrodora danica Mercet, 1930:289. **Syn.n.**
Pechlaneria alpina Soyka, 1948:46. **Syn.n.**
Centrodora livens (Walker) Graham, 1961:141.
Centrodora livens (Walker) Ferrière, 1965:51–52.

The type material and synonymy was discussed in my earlier paper (Graham, 1961). I have not seen the type female of *alpina* Soyka, but accept Ferrière's view (1965:51) that it is the same as *danica* Mercet. Ferrière refers to my notes on the differences observed between the types of *livens* and the description of *danica* Mercet. The English specimens listed below which I consider to be *livens* are intermediate between the syntypes of *livens* and that of *danica* as redescribed and figured by Ferrière, so it seems that the two species are identical.

The following are additional records in Britain: ENGLAND; Oxfordshire, Otmoor, 2♂, 3♀ on *Carex vesicaria*, 18.viii.1959. These females fit the type of *livens* very well. Their antennae are not appreciably distorted by drying hence the proportions of the segments can be measured fairly accurately; the clava in all of them is slightly more than three times as long as broad and about 3·5 times the length of the third funicular segment. This is very near the measurement given for the type of *livens* (Graham, 1961:141).

Centrodora locustarum (Giraud)

Agonioneurus locustarum Giraud, 1864:1278.
Centrodora locustarum (Giraud) Ferrière, 1965:45–46.

Ferrière (1965:46) recorded having seen type material of *locustarum* in Vienna. A number of specimens, certainly syntypes, are preserved in the Giraud collection, Musée Nationale d'histoire naturelle, Paris. Some are pinned with minutien pins to pith blocks, others are enclosed in tiny glass tubes. One of the pith blocks bears two females, and carries the following labels reading: 'oefs de locusta'; 'Agonioneurus locustarum Giraud' in Giraud's handwriting; 'MUSEUM PARIS COLL. GIRAUD 1877'; '*Centrodora* ♀♀ types *locustarum* Giraud. Ghesquière rev. 1948'; and a red label 'TYPE'. I designate the first female as LECTOTYPE.

C.locustarum can be confirmed as a British species on the basis of the following specimens which agree well both with the syntypes of *locustarum* and Ferrière's redescription: ENGLAND; Berkshire, Wytham, bred from lichen found upon *Quercus* (tree no. 5), Wytham Oak Survey, 7.iv.1950 (*G. C. Varley*).

The BMNH collection contains one male and one female of a *Centrodora* which differs somewhat from the typical form of *locustarum*. The pair were reared in May 1948 from eggs of *Conocephalus dorsalis* Latr. collected at Freshwater, Isle of Wight, by K. G. Blair, and recorded by him (1948:276–7) as being probably *amoena* Förster. It is not, however, that species; the female has the third funicular segment subquadrate, the pedicellus slightly longer than the third funicular segment, the clava only about three times as long as broad. It represents a form of *locustarum* (Giraud), like the one mentioned by Ferrière (1965:46) from Germany and Czechoslovakia in which the antennae are slightly thicker than in the nominotypical form, with the third funicular segment in the female nearly quadrate. Three females with the same data as those in the BMNH are in the Manchester Museum, and Askew (1967:179) regards them as *locustarum*. The BMNH collection has a further series which links the two forms.

***Centrodora tibialis* (Nees), comb.n.**

Myina tibialis Nees, 1834:191–192.
?Centrodora ochrura Erdös & Novicky *in* Erdös, 1953:183–184.

The question of the identity of *Myina tibialis* Nees has never been discussed and unfortunately the holotype female of *tibialis* appears to be lost. Förster (1841:44–45) described several species of *Myina* but did not recognize *tibialis*. Kurdjumov retained *tibialis* in *Aphelinus* Dalman (= *Myina* Nees) and in his key to the European species (1913:268) gave as a diagnostic character of *tibialis* 'Female 3rd funicle joint and club subcylindrical and subequal in length'. He evidently based this statement upon Nees' original description and not on specimens, because no female *Aphelinus* having such an elongate third funicular segment appears to exist, although the male of *asychis* has this character.

If Nees actually had a female specimen of *tibialis* before him, and described its antenna correctly, then the only European genus to which the species could belong is *Centrodora* Förster. His description states (1834:191) '*Antennae* luteae; *scapo* fusco; *flagelli* articulis secundo et tertio subglobosis, distinctissimis; quarto et quinto subcylindricis, fere ut in mare praecedentis'. The male of his 'preceding species' is undoubtedly a male of *Aphelinus asychis* Walker, whose long antennae are very like those of some *Centrodora* species. Nees described the ovipositor of *tibialis* as follows: 'Terebra longitudine dimidii abdominis, subulata, pallida, glabra', which again suggests a *Centrodora*, assuming that the ovipositor sheaths were truly exserted and it was not just a case of the ovipositor itself being abnormally extruded. Finally, Nees described the wings of *tibialis* as 'omnino ut in praecedente'. This preceding species, which is *Aphelinus asychis*, he described as having 'Alae abdomine paullo breviores, obtusae, pubescentes, obscurae', which agrees fairly well with those of *Centrodora ochrura* Erdös & Novicky. The coloration of *tibialis*, as described by Nees, would also fit that of *C.ochrura* quite well.

***Coccophagoides* Girault**

Coccophagoides Girault, 1915:58. Type-species *Coccophagous abnormicornis* Girault, by original designation.

***Coccophagoides moeris* (Walker) comb.n.**

Aphelinus Moeris Walker, 1839:5.
Pteroptrix Janias Walker, 1839:17. **Syn.n.**
Prospalta similis Masi, 1908:148. **Syn.n.**
Coccophagoides parvipennis Ferrière, 1955:137–139. **Syn.n.**
Prospaltella silwoodensis Alam, 1956:367. **Syn.n.**
Coccophagoides similis (Masi) Ferrière, 1965:143.
Coccophagoides parvipennis; Ferrière, 1965:145.

One specimen under the name *Aphelinus moeris* in the BMNH collection was not received until 1904 and is probably not an original Walker specimen. There were five other Walker specimens under this name, in the 'foreign collection', but one at least is of British origin, as proved by the serial number on its label. This specimen is in good condition and agrees reasonably well with the description of *moeris*, hence it is now designated LECTOTYPE. It bears two labels: a circular one with serial number '38.4.5.133' and an oblong one reading 'Aphelinus Moeris Walker. Stood under this name in the old B.M. collection C. Waterhouse'. The old register of accessions confirms that this specimen (serial no. 133) was original material of *moeris*. The lectotype is a macropterous female *Coccophagoides*. Another specimen in the same series, a brachypterous female which appears to be conspecific with the lectotype, is clearly a syntype; it bears only the Waterhouse label and agrees with Walker's description of his var. γ. The Haliday collection in Dublin contains a Walker

specimen indicated as British and labelled *moeris*; it is a macropterous female conspecific with the lectotype. It should be regarded as a further syntype, and is now designated paralectotype.

Pteroptrix janias Walker. There is one male in the BMNH which agrees with the description and is here designated LECTOTYPE.

Prospaltella similis Masi. I have not seen the type, but from the description it must be the same as *moeris*.

Coccophagoides parvipennis Ferrière. Through the kindness of Dr Ferrière I have been able to examine five female syntypes (one of them, labelled 'type' by Ferrière, is here designated LECTOTYPE). I cannot distinguish them from *moeris* (Walker) by any constant characters and consider *parvipennis* to be a brachypterous form of *moeris*. Ferrière (1955) stated that the ♀ of *parvipennis* differed from that of *similis* (Masi) [=*moeris* (Walker)] not only by its shortened wings, but also in having the first and second segments of the antennal funicle subequal in length and distinctly shorter than the third. The antennal character does not work consistently even in the syntypes; the smallest female has the funicular segments short as described by Ferrière, the largest female has them intermediate in size between those of the smallest female and typical females of *moeris*. Thus there appears to be some degree of correlation between the size of the funicular segments and the absolute size of the specimens. This is confirmed by examination of a batch of females reared by Dr A. Huba (Ivanka pri Dunaji, Bratislava). Dr Huba's material also shows that the wings are very variable in size; among six females from the same batch one has the fore wings very short and not quite reaching the hind edge of the propodeum, in another the fore wing just reaches the tip of the gaster, whilst others are intermediate. The ratio length:breadth of the fore wing also varies considerably in this batch; two females in which the fore wing virtually reaches the tip of the gaster have this ratio 2·65 and 3·65 respectively. In typical macropterous females of *moeris*, in which the first and second funicular segments are relatively large, the fore wings reach just to, or somewhat beyond, the tip of the gaster, and the ratio wing length:breadth varies from 2·35 to 2·65. Thus in both antennal- and wing-characters the extreme forms, *moeris* and *parvipennis*, are linked by intermediates. Incidentally, it is interesting that Walker had both forms and in 1839 described the form *parvipennis* as *moeris* var. γ.

Prospaltella silwoodensis Alam. I have examined the holotype female and cannot distinguish it from typical *moeris*.

Additional records: ENGLAND; Gloucestershire, Hallen Wood, near Bristol, 1♀, 7.viii.1924, 1♀ without date, both macropterous (*B. N. Blood*).

Coccophagus Westwood

Coccophagus Westwood, 1833a, 344. Type-species *Entedon scutellaris* Dalman, designated by Westwood, 1840.

Coccophagus hemera (Walker), comb.n.

Pteroptrix Hemera Walker, 1839:14.

[*Coccophagus longifasciatus* Howard; Blood, 1929: 40. Misidentification.]

Coccophagus krygeri Mercet, 1929:217, ♀. **Syn.n.**

[*Coccophagus inaron* (Walker); Mercet, 1931:400. Misidentification.]

[*Coccophagus bivittatus* Compere; Zinna, 1961:317. Misidentification.]

[*Coccophagus inaron* (Walker) Ferrière, 1965:115–118. Misidentification.]

As may be seen from the above citations, this species has invariably been misidentified. One male agreeing with the description stands under the name *hemera* in the Walker collection, and this is here designated LECTOTYPE. The Blood collection at Oxford contains a male which is identical with the lectotype, also two females, all slide-mounted. The recognition of the female now makes it possible to place *hemera* satisfactorily.

C.hemera evidently comes very near to *bivittatus* Compere and *longifasciatus* Howard, although it differs from them in having two to four small supernumerary bristles on the scutellum (in addition to the six longer ones). As in those species, the antennae of female *hemera* have their funicular segments slightly asymmetrical with the peduncles that connect them placed somewhat ventrad (as seen in profile); the female of *hemera*, however, has relatively longer funicular segments. In *bivittatus* and *longifasciatus* females the first funicular segment is at most 1·5 times as long as broad and is distinctly shorter than the pedicellus, whilst the second and third (excluding their peduncles) are rather less than twice as long as broad; the clava is as long as the funicle. In female *hemera* the first funicular segment is nearly twice as long as broad and hardly shorter

than the pedicellus; the second is rather more than twice, the third is twice, as long as broad; whilst the clava is only slightly longer than funicular segments 2 plus 3. The ovipositor of *hemera* is relatively short, reaching from about the middle to the apex of the gaster, thus similar to that described for *bivittatus* Compere. The stigma of the fore wing has at most a very small almost imperceptible brownish cloud on its lower edge, whereas *bivittatus* has a fairly distinct cloud.

The following is a new record: ENGLAND; Gloucestershire, Hallen Wood, near Bristol, 1 ♂, 1 ♀, 3.viii. 1927, 1 ♀, 24.vii.1928 (*B. N. Blood*).

C.bivittatus Compere is known from Africa and Argentina; *C.longifasciatus* from Ceylon and China. The latter species is included in the British list by Kloet & Hincks (1945:302) but the record on which its British status is based is undoubtedly that of Blood (1929), which was a misidentification of *hemera*, hence the name *longifasciatus* should be deleted. The specimens mentioned above, taken near Bristol by Blood, are probably part of the material on which he based his record of *longifasciatus*. It should also be noted that Mercet based his description of *krygeri* partly on specimens taken at Bristol by Blood.

The female of *hemera* was incorrectly identified by Mercet (1931) as *inaron* (Walker). Its colour-pattern, yellow with longitudinal rows of dark spots along the sides of the body, is very distinctive and entirely disagrees with Walker's description of *inaron* which is said to have the body black with the exception of the mainly yellow abdomen. Mercet's identification was followed by Ferrière (1965) who redescribed both sexes of *hemera* under the name of *inaron*. I show later in this paper that *inaron* belongs in fact to *Encarsia*.

Coccophagus insidiator (Dalman)

Entedon insidiator Dalman, 1825:371.
Coccophagus insidiator (Dalman) Westwood, 1833a: 344.
Aphelinus insidiator (Dalman) Thomson, 1876:186.

Compere (1931:113) was unable to recognize this species. There is no evidence that any subsequent author has seen Dalman's types, and the species has been misidentified in recent works. Dalman (1825: 365) mentions that he had bred *insidiator* from '*Coccus Hordeolum*' on a bush of *Salix cinerea*. Further on (*ibid.*:371–372) when actually describing the species, he states that it emerged both from *Coccus hordeolum* and from other large species of *Coccus* ('som i synnerhet framkom ur så väl Coccus Hordeolum, som utur de andra storre Coccushonorna'). In his collection there are two series: (1) two carded specimens under a label 'insidiator e Coccis salicis cinereae, 1825'; (2) a series of eight pinned specimens and sixteen others mounted on eleven cards under a label 'insidiator e C. Betulae'. The labels are written in what I take to be Dalman's handwriting. The two specimens in series (1) are actually a male and female of *scutellaris* and must have been labelled erroneously. Those in series (2) are assumed to be syntypes. None agrees perfectly with the description, but too much must not be expected of this. A female in as good a condition as possible, with antennae complete and the scutellum visible, has been labelled as LECTOTYPE; it is pinned through the mesoscutum and bears no labels except my own lectotype label. It has the gaster narrowly testaceous at the base, but this is in part due to fading and is not an important discrepancy. The following characters have been noted:

Bristles of scutellum and axillae as in *scutellaris*; mesoscutum, axillae, and scutellum rather more shiny than in *scutellaris*. Antennal flagellum shorter than in female *scutellaris* (combined length of pedicellus and flagellum slightly less than the breadth of the head or mesoscutum) and moderately clavate; first funicular segment about twice as long as broad, second shorter and about 1·3 times as long as broad, third subquadrate; clava hardly more than twice as long as broad, slightly broader than the third funicular segment, its segments not longer than broad; sensilla of flagellum fairly numerous, but pale and not easy to see.

Fore wing: length 107, breadth 48; length of costal cell 31, breadth 2·5; upper surface of costal cell with a single row of five hairs in the distal quarter, the lower surface with one complete row of hairs; marginal vein, length 33·7, breadth at base 2; postmarginal vein 2·5, blunt at tip; stigmal vein length 2·5; length of longest fringe 1·8; submarginal vein with about eight dorsal bristles; disc of wing thickly though shortly pilose, the pilosity extending above close to the marginal vein and leaving only a narrow bare strip below it; there is also a bare strip above the anal margin, its length about equal to that of the submarginal vein; an oblique hairless line (speculum) is not very clearly defined and appears to be interrupted in the middle by some hairs. The stigma is very shortly petiolate, nearly sessile, and

the wing perhaps most resembles that of *signus* (Compere, 1931, Fig. 85).

The relative dimensions of the parts of the body are not readily measurable in the lectotype, but in one of the paralectotypes the thorax length is 55, that of head plus thorax 67, the length of gaster 68, breadth 41. Body blackish with sutures of head, hind margin of parapsides, and extreme base of gaster indefinitely paler (brownish or testaceous, probably partly due to fading). Antennae brownish-testaceous (probably slightly faded); pedicellus yellowish. Legs pale yellow; all coxae slightly dusky at the base; mid femora fuscous in their basal half, hind femora mainly fuscous. Length, 0·9 mm.

Male: resembles the female but has the flagellum slightly longer (combined length of pedicellus and flagellum about equal to breadth of mesoscutum); funicle slightly stouter, clava not broader than the funicle.

The lectotype of *insidiator* runs in Ferrière's key to European *Coccophagus* (1965:114–115) to couplet 3 and *philippiae* Mercet, but it differs in some respects from the description of that species.

Ferrière (1965:122) placed *obscurus* Westwood and *niger* Masi in synonymy with *insidiator*, but the species which he regarded as *insidiator* has numerous scutellar bristles and is clearly misidentified. I show elsewhere in this paper that *obscurus* is a valid species.

Coccophagus lycimnia (Walker)

[*Eulophus scutellaris* Nees, 1834:166. Preoccupied.]
Aphelinus lycimnia Walker, 1839:11.
Platygaster lecanii Fitch, 1859:805.
Coccophagus lycimnia (Walker) de Santis, 1948: 176–181.
Coccophagus corni Alam, 1956:364.
Coccophagus taxi Alam, 1956:365.
Coccophagus lycimnia (Walker); Ferrière, 1965: 118–120.

Walker stated in the original description 'Taken by Mr Haliday, in a greenhouse, near Belfast'. I cannot find any material in Haliday's collection, but two females stand under this name in the BMNH. They are mounted on card-points, staged on the same pin (probably remounted) and bear a label '*Aphelinus lycimnia* Walker. Stood under this name in the old B.M. collection. C. Waterhouse'. I take these to be syntypes. They are virtually identical, and agree with the description; one is designated LECTOTYPE and has been so labelled. They agree very well with the typical form of *lecanii* (Fitch) from North America as defined by Compere (1931:60·61) except that the hind tibiae are rather more extensively black (only the distal quarter being yellow). Haliday's specimens of *lycimnia* were taken in Northern Ireland, however, and Irish material of many Chalcidoidea tends to be rather darker than, for example, most southern English and Continental forms. The sensilla of the flagellum in *lycimnia* also appear to be rather more numerous than in the typical form of *lecanii*. I have compared specimens of *lycimnia* with the original description of *Eulophus scutellaris* Nees and consider it to have certainly been this species. The holotype of *scutellaris* Nees appears to be lost.

Ferrière (1965:119) synonymized *C.corni* Alam and *C.taxi* Alam with *lycimnia* and (*loc. cit.*: 120) stated that he could not separate them from *lycimnia* except by small differences in the colour of the legs. I have also examined the syntypes of Alam's species. The holotype of *corni* has the hind tibiae yellow with only a dark sub-basal mark on the outer aspect; two female paratypes, however, have the hind tibiae nearly as broadly black as in the lectotype of *lycimnia*. The holotype female of *taxi* has the legs relatively dark as in *lycimnia*, from which I cannot distinguish it (although Alam's description implies that the hind tibiae are mainly yellow!). Therefore I accept Ferrière's conclusion that Alam's species are colour-variants of *lycimnia*. Other synonyms of *lycimnia* are given by Ferrière (1965) and need not be repeated here.

Coccophagus obscurus Westwood

Coccophagus obscurus Westwood, 1833a:344.
[*Coccophagus insidiator* (Dalman) Walker, 1846:60. Misidentified.]
Coccophagus niger Masi, 1909:35–36. **Syn.n.**
[*Coccophagus insidiator* (Dalman) Mercet, 1912:248. Misidentified.]
[*Coccophagus insidiator* (Dalman) Ferrière, 1965: 115, 122. Misidentified.]

The syntypes of *obscurus* were found standing near the type of *pulchellus*. There are two undoubted syntypes, both females. One is broken and bears no data. The other carries two labels on which is written in Westwood's handwriting '120A. Bred fm Coccus aceris' and 'Cocc. obscurus'; it is now designated LECTOTYPE. The broken female appears to be conspecific with the lectotype. Below these specimens is a large card bearing twelve *Blastothrix*,

two *Coccophagus obscurus*, and some Coccids with emergence-holes; the two *obscurus* may also be syntypes, but bear no data.

Compere (1931:113) remarked of *obscurus* 'This species now stands as a synonym of *C.insidiator* (Dalman) but I suspect an error, for the descriptions are not in agreement. . . .' Compere's doubt is justified, because the lectotype of *obscurus* has several bristles scattered over the surface of the scutellum, whilst the type of *insidiator* (see above) belongs to the group of species which have only three strong bristles on the scutellum.

The lectotype of *obscurus* is black, with the face to above the level of the antennal toruli, and the genae testaceous; a transverse line in front of the ocelli, another behind them, and the area around the foramen magnum, are also testaceous. The hind margin of the side lobes of the mesoscutum (parapsides of Compere) are also broadly brownish-testaceous. The antennae are testaceous with the pedicellus and flagellum dusky above. The legs are pale yellow with the fore coxae slightly obscured, the mid coxae fuscous except apically, the hind coxae entirely fuscous; the fore femora are slightly dusky at the base, the mid femora are dusky over about their basal half, the hind femora are dusky except at their tips; the hind tibiae are perhaps faintly darkened at the extreme base. The wings are hyaline. Westwood does not mention paler areas on the head or thorax, but the front surface of the head of the lectotype was gummed down and not visible; the paler hind margins to the side lobes of the mesoscutum do not seem obvious when specimens are fresh (in fact I feel sure that the paleness of the areas mentioned is largely due to fading). The antennae have the combined length of the pedicellus and flagellum apparently slightly less than the breadth of the mesoscutum; the pedicellus is about two-thirds the length of the first funicular segment; the flagellum slightly clavate, with the first funicular segment rather less than twice as long as broad, the third only slightly longer than broad; the clava is slightly more than twice as long as broad, its segments slightly transverse. The funicular segments each have two rows of sensilla; the claval segments only one row each. The antennae much resemble those of *mexicensis* Girault as figured by Compere (*loc. cit.*, Plate 9, Fig. 63) except that each funicular segment has more numerous sensilla which are arranged in two series (one in the proximal, the other in the distal, half of each segment). In my own specimens recorded below as *obscurus*, however, there is variation in the number of sensilla, so that this feature may not be an important one. The fore wing is rather more than twice as long as broad; the costal cell slightly longer than the marginal vein; stigma subtriangular and sessile; postmarginal vein about as long as the stigma; fringe of apical margin very short; the wing has a small oval bare spot opposite the base of the marginal vein, connected to the basal hairless streak. The spur of the mid tibia is slightly shorter than the first tarsal segment.

Westwood's description includes the words 'tibiisque posticis basi fuscis'. The hind tibiae in the lectotype are slightly discoloured in parts, but look as though they were originally yellow (at most faintly infuscate at their extreme base). The dark colour is so hard to see that the tibiae may to all intents and purposes be described as yellow.

In Compere's key to *Coccophagus* (1931:11) *obscurus* would run to couplet 72: then, if the body is considered to be 'entirely black or dark brown' (i.e. discounting the parts which are probably faded) it would go to couplet 75 (*niger* Masi and *mexicensis* Girault).

The name *obscurus* Westwood must be reinstated in the British list. It was wrongly placed in synonymy with *insidiator* (Dalman) by Walker and this was followed by some later authors. For this reason also *obscurus* is not included in Kloet & Hincks (1945) although they list (*loc. cit.*: 302) *insidiator* (Dalman) with *niger* Masi incorrectly cited as a synonym.

The following are new records: ENGLAND; Berkshire, Wytham Wood, 2♀, 13.vi.1959, 1♀, 20.vi.1959 (*Graham*); IRELAND; Co. Dublin, Lucan Demesne, 1♀, 20.viii.1954 (*Graham*).

My specimens agree with the type of *obscurus* except that they have the genae, and mesoscutum entirely black. They also agree well with Masi's description of *niger* though in two of them the pale lines on the head are rather indistinct, the wings are subhyaline, and the mid femora are rather less darkened. The type of *niger* has not been examined. The number of sensilla on the funicular segments of the antennae is variable in my specimens; the largest female has two rows on all the segments, the smallest female has only one row on the second and third segments.

***Coccophagus pulchellus* Westwood**

Coccophagus pulchellus Westwood, 1833a:344.
Myina scutellaris Förster, 1841:44.

Coccophagus pulchellus Westwood; Compere, 1931: 107.

Coccophagus pulchellus Westwood; Ferrière, 1965: 126.

After looking in vain for the types of this species (and of *obscurus* Westwood) amongst the Parasitica of the Westwood collection, I eventually located them in the British collection of Coccoidea in the Hope Department. They were placed amongst a series of Chalcidoid parasites reared from Coccids together with their hosts. A female specimen is selected as LECTOTYPE of *C.pulchellus*; it bears two labels on which is written in Westwood's handwriting 'June 10.1834.reared fm. the impregnated ♀ of the Coccus' and COCCOPHAGUS pulchellus Westw. Ph. Mag.'. Westwood's original statement regarding *pulchellus* was 'Exclusis e Cocc. aceris, Jun. 1833'. In spite of the date '1834' on the label attached to the lectotype (which might be a lapsus), I think it appropriate to select this specimen which is the only one actually bearing the species name. Next to the lectotype stands a second broken specimen, further down the drawer a large card with twelve male and one female specimens, all conspecific with the lectotype and now designated paralectotypes.

Compere (1931:107) has correctly interpreted *pulchellus*; his description and figures accord almost perfectly with the characters of the lectotype. The following is a new record: ENGLAND; Oxfordshire, Bald Hill, near Lewknor, 1♀, 18.vii.1957 (*Graham*).

Coccophagus scutellaris (Dalman)

Entedon scutellaris Dalman, 1825:365.

Coccophagus scutellaris (Dalman) Westwood, 1833a: 344.

As this is the type species of the genus it is important that it should be investigated carefully. It appears that none of the subsequent authors who have mentioned *scutellaris* have possessed any first-hand information about the species, and there is no evidence to show that Dalman's types have ever been re-examined. As the species has consistently been misidentified, some notes upon the types are given here, but they must be regarded as of a preliminary nature.

In Dalman's collection five imagines and three pupae stand under a label in his handwriting 'scutellaris e Coc. Salix ciner—1825'. The data on this label accords with that given by Dalman, who says that *scutellaris* was reared with other parasites from '*Coccus Hordeolum*' upon *Salix cinerea*. [*Coccus hordeolum* Dalman, 1825 does not seem to have been positively identified. Signoret (1876:617) says that it was very probably based on a male scale, and that Dalman's original figure of the scale might represent either a male *Lecanium* (perhaps *capreae*) or a Diaspidine (perhaps *Chionaspis salicis*)]. These are clearly the syntypes of *scutellaris*. I have selected and labelled as LECTOTYPE a female in which the antennae are complete because in most of the syntypes they are broken. The lectotype is gummed to a small card and bears no label other than my lectotype label.

The lectotype runs in Compere's key (1931:11) to *japonicus* Compere in couplet 35, but it disagrees with the description of that species in having the fore coxae entirely yellow, the antennal scape brownish-testaceous instead of black, and especially in having much more numerous sensilla on the flagellum. The antenna of *scutellaris* (female) is more like those illustrated in Compere's Plate 8, Fig. 39 (*pulvinariae*) or Fig. 42 (*tibialis*). The lectotype of *scutellaris* has the following characters:

Scutellum with six long bristles, and two shorter ones near the foremost pair of long ones; axilla with two bristles; mesoscutum, axillae, and scutellum rather dull, the mesoscutum having a slightly rough appearance owing to its sculpture being slightly raised. Antennal flagellum fairly long (combined length of pedicellum and flagellum slightly greater than the breadth of the mesoscutum); pedicellus slightly shorter than the first funicular segment; funicular segments subequal in length (decreasing in length only very slightly from the first to the third), the first about 1·75 times as long as broad, the third about 1·6 times as long as broad; the funicle hardly increases in thickness distad; clava about 3·5 times as long as broad, only slightly broader than the funicle, its first segment slightly longer than broad, the second hardly longer than broad; sensilla of flagellum numerous, dark and therefore rather conspicuous. Fore wing about 2·1 times as long as broad (109 × 50); length of costal cell 32, of marginal vein 33; postmarginal vein 1·4, a blunt stub; stigmal vein 2, subtriangular, much like that illustrated by Compere (1931, Fig. 96) for *mexicensis* Girault; the wing has a small subcircular bare spot at the lower end of the speculum (='oblique hairless streak' of Compere); length of wing-fringe 2·2.

Body black with some parts of the head, and the hind margin of the parapsides, indefinitely paler (brownish); scutellum, except its base, yellow.

Antennae brownish. Legs bright yellow with the mid and hind coxae, and the hind femora mainly, blackish.

The male resembles the female, but has the scape bright yellow; the scutellum is black except for a yellowish streak along each lateral margin; the antennal clava is not broader than the funicle and is about four times as long as broad.

In Ferrière's key to European *Coccophagus* (1965:114–115) *scutellaris* runs fairly well to couplet 5 and *piceae* Erdös, but it does not agree in some respects with the description of that species and may not be the same.

Coccophagus semicircularis (Förster)

Myina semicircularis Förster, 1841:44.
Encyrtus xanthostictus Ratzeburg, 1852:188.
Coccophagus nigrifrons Wollaston, 1858:27.
Coccophagus lunulatus Howard, 1894:232.
Coccophagus nigrifrons Wollaston: Mercet, 1927: 494–496.
[*Coccophagus scutellaris* (Dalman); Compere, 1931: 99–102. Misidentified.]
[*Coccophagus scutellaris* (Dalman); Annecke, 1964: 34–36. Misidentified.]
[*Coccophagus scutellaris* (Dalman); Ferrière, 1965: 123. Misidentified.]

I have not seen the types of *Myina semicircularis* Förster, and it is desirable to check the identity of the type material so that the name of the present species can be confirmed. Gahan saw the types of *Encyrtus xanthostictus* Ratzeburg, which were probably destroyed in 1945, and considered them to be identical with *lunulatus* Howard (see Compere, 1931:100).

Coccophagus nigrifrons Wollaston. The syntypes, three females, are in the BMNH collections. I designate as lectotype the first female, which is carded and bears the Hymenoptera Type no. 5.1162 label, also other labels reading 'Madeira Wollaston'; 'Coccophagus nigrifrons W.' (on a blue label); '=Coccophagus scutellaris Dlm. Ch. Ferrière det'. The lectotype runs in Compere's key (1931) to 'scutellaris Dalman' and agrees with his concept of that species. The third syntype, which is in poor condition, is probably conspecific with the lectotype. The second syntype is either *lycimnia* Walker, or a species extremely near to it. The lectotype disagrees with Wollaston's description of *nigrifrons* in having only the hind femora black, but in other respects it agrees better with the description than do the other syntypes. Probably Wollaston overlooked the colour of the fore and mid femora, as Mercet (1927:495) suggested.

Encarsia Förster

Encarsia Förster, 1878:65. Type-species *Encarsia tricolor* Förster by monotypy.

Encarsia inaron (Walker), comb.n.

Aphelinus Inaron Walker, 1839:10.
Aphelinus Idaeus Walker, 1839:12. **Syn.n.**

There are three specimens under the name *inaron* in the BMNH collections. One is an *Encarsia* with a label 'Inaron' in Walker's handwriting. This specimen, which lacks head and antennae, bears the date of accession 1904 and is therefore very unlikely to be the type. Probably it was one of Walker's duplicates. The second specimen is a female Encyrtid from Fontainebleau. The third specimen is a female *Encarsia* which is represented by fragments only, but the antennae are present and exactly resemble those of the Haliday specimens mentioned below. The BMNH register of accessions for 1838 lists *Aphelinus inaron* against the serial number 138 but this specimen has not been traced.

The Haliday collection in Dublin contains two female specimens mounted on a card and labelled *inaron*. From the style of mounting they are certainly Walker material; they are also from England because the head of the pin which bears the card is marked with red sealing-wax, one of Haliday's methods of indicating English origin. Therefore I conclude that these two females can be regarded as syntypes of *Aphelinus inaron* Walker and I designate the left-hand specimen on the card as LECTOTYPE. The second, right-hand, specimen fits the description of Walker's var. β. Both specimens belong to *Encarsia* and appear to be conspecific. The lectotype is in fairly good condition although the tip of the gaster has been slightly damaged by Psocids.

Aphelinus idaeus Walker. After looking in vain amongst the Walker Aphelinidae, I searched elsewhere and at length found, in one of the Mymaridae drawers, a male *Encarsia* with a printed label 'Idaeus' and a bluish label 'Mymaridae'. This specimen agrees with the description of *idaeus* and is now designated LECTOTYPE. It appears to be conspecific with *inaron* (Walker).

The lectotype of *inaron* has the funicular segments of the antenna subequal in length, about 2·25 times as long as broad, the first slightly longer than the pedicellus; viewed in profile, each segment shows two sensilla. The mesoscutum has ten bristles, eight of which are arranged in two longitudinal submedian rows, the other two bristles being placed one at each antero-lateral angle of the sclerite; the mesoscutum is subnitid and weakly reticulate (not strongly granulate and subopaque as in *formosa* Gahan). The eyes are hairy. All the tarsi have five segments. The spur of the mid tibia is slightly less than half the maximum length of the first tarsal segment. The head and thorax are black (the side lobes of the mesoscutum brownish); the gaster is yellow, narrowly black along the base and broadly fuscous apically, the sides slightly darkened; the antenna and legs are yellowish, except the coxae which are fuscous.

The material considered to be *inaron* which is available for study shows that the proportions of the funicular segments of the antennae vary somewhat. Thus the first funicular segment is 2–2·4 times as long as broad, whilst segments 2–4 vary from 2·25 to 2·4 times as long as broad; the first funicular segment is usually hardly shorter than the second (and is as long as, or even very slightly longer than, the pedicellus). The coxae are mainly or wholly dark in some specimens, dark at the base only in others; the femora are wholly pale, or slightly darkened at the base.

Of the species of *Encarsia* given in Ferrière's monograph (1965) *inaron* comes nearest to the description of *aleyrodis* Mercet. The latter may well be a synonym of *inaron* but as I have not seen the types of *aleyrodis* I reserve judgment.

The following are new records: ENGLAND; Cambridge, several reared from *Aleyrodes proletella* (L.) (*C. G. Butler*); London, Buckingham Palace, several reared from *Siphoninus phillyreae* (Haliday) on *Crataegus* 4.ix.1961 (*V. F. Eastop*), in BMNH.

Mesidia Förster

Mesidia Förster, 1856:30. Type-species *Mesidia pumila* Mayr, by monotypy.

Mesidia annulipes (Walker)

?Aphelinus Argiope Walker, 1839:9.
Myina annulipes Walker, 1851:211.
Mesidia annulipes (Walker) Mercet, 1928a:509.
Mesidia annulipes (Walker); Graham, 1961:140.
Mesidia longicornis Ferrière, 1962:141. **Syn.n.**

Aphelinus argiope Walker. The type material, probably a holotype, appears to be lost. Walker's description suggests that *argiope* may be the same as *Mesidia annulipes*, the main difficulty being that the latter species is hardly 'pallide viridis'. By this phrase, however, he probably did not imply a metallic green, and if so the difficulty is less.

Myina annulipes Walker. As reported previously (Graham, 1961:140) the type material of *annulipes* has not been located. At that time I accepted Mercet's view (1928) that *Mesidia pumila* Mayr, 1904, was the same as *annulipes*. Following this, Ferrière (1962:140) employed *annulipes* (Walker) as the valid name for this species. At the same time (1962:141) he described a new European species *longicornis*. After reading his redescription of *annulipes* and description of *longicornis*, it was clear that the species which I had identified as *annulipes*, and the only species so far found in Britain, was the same as his *longicornis*. Dr Ferrière did not wish to take up the matter and suggested that I should deal with it.

Mesidia pumila Mayr

Mesidia pumila Mayr, 1904:588–589.
[*Mesidia annulipes* Walker; Ferrière, 1962:140–141. Misidentification.]

The name *Mesidia pumila* Mayr is now the valid one for the present taxon, following the corrected synonymy given above under *annulipes*.

Mesidiopsis Nowicki

Mesidiopsis Nowicki, 1930:178. Type-species *Agonioneurus subflavescens* Westwood, by original designation.

This generic name may be added to the British list provisionally, although it is not very distinct from *Mesidia* and may eventually be united with that genus. *Agonioneurus subflavescens* Westwood, placed in *Aphelinus* by Kloet & Hincks (1945:302), belongs to *Mesidiopsis*.

Mesidiopsis subflavescens (Westwood)

Agonioneurus subflavescens Westwood, 1837:442.
[*Aphelinus flavus* (Nees) Walker, 1839:8. Misidentification.]

Mesidiopsis subflavescens (Westwood) Novitzky, 1961:195; Ferrière, 1962:143.

This species was originally designated as type-species of *Mesidiopsis* by Nowicki (1930:178) although the type material had not been examined. More recently (1961:195) he confirmed that his earlier identification of *subflavescens* was correct. A female in Westwood's collection is now designated LECTOTYPE; it is mounted on the tip of a card-point which is gummed to an oblong card, and bears a label in Westwood's handwriting 'Agon. subflavescens'. Another bears only a pink label with the word 'hedges'; it is conspecific with the lectotype.

Ferrière (1962:143) gives a redescription and figures of *subflavescens*, with host records. He also cites *Mesidia maculipes* Nikol'skaya (1952:283) as a synonym of *subflavescens*. Walker recorded the species under the name *flavus* Nees as 'Found on oaks at Holywood near Belfast, and in the Isle of Skye, by Mr Haliday'. For further discussion of the name *flavus* Nees see *Aphelinus thomsoni*.

Physcus Howard

Physcus Howard, 1895:43. Type-species: *Coccophagus varicornis* Howard, 1881:360, by monotypy.

Howard (1895:10) suggested that *Coccobius annulicornis* Ratzeburg, the type-species of *Coccobius* Ratzeburg, 1852, might prove to belong to *Physcus*. Mercet (1912:92–93) referred to Howard's idea but considered that Ratzeburg's description was not precise enough for deciding to which genus his *annulicornis* belonged. Dr S. Novitzky informed me a few years ago that he had seen Ratzeburg's type of *annulicornis* before it was destroyed in 1945, and that it belonged to the genus *Physcus*. This appears to settle the identity of the genus *Coccobius*. Whether the earlier name *Coccobius* Ratzeburg should be adopted in preference to *Physcus* Howard is a debatable point, and I retain the latter meanwhile as it is a well-known name, until the matter can be considered further by other specialists.

Pteroptrix Westwood

Pteroptrix Westwood, 1833a:344. Type-species *Pteroptrix dimidiata* Westwood, by monotypy.
Casca Howard, 1907:83. Type-species *Casca chinensis* Howard, by monotypy.

Until recently the genus *Pteroptrix* had been misidentified. For a note on its true identity see Novitzky (1961:193). Except for *dimidiata* Westwood, all the species listed under *Pteroptrix* by Kloet & Hincks (1945:301) should be removed to other genera. The species which Alam (1956:374, 376) placed in *Pteroptrix* should be referred to *Archenomus* Howard.

Pteroptrix dimidiata Westwood

Pteroptrix dimidiata Westwood, 1833a:344.
Casca occidentalis Silvestri & Mercet *in* Mercet, 1928:289–291.
Casca brittanica Alam, 1957:380.
Pteroptrix dimidiata Westwood; Ferrière, 1965:174 175.

The holotype female of *dimidiata* is in the Westwood collection at Oxford. It is mounted on a card-point which is gummed to a rectangular card, and bears two labels in Westwood's handwriting: (1) 'Richm[d] Pk. Aug. 33'; (2) PTEROPTRIX dimidiatus Westw. Phil. Mag.'.

Ferrière (1965:174) has synonymized *Casca occidentalis* Silvestri & Mercet, and *Casca brittanica* Alam, with *Pteroptrix dimidiata* Westwood and I agree with his conclusions. I have examined the holotype female of *Casca brittanica* and find that it differs from *dimidiata* only in small details of coloration. Alam (1957:380) stated that the pedicellus of *brittanica* was longer than the first segment of the funicle, but I find these two segments to be subequal in length.

The following is a new record: ENGLAND; Buckinghamshire, Hell Coppice, near Oakley, 1♀ swept from foliage of *Quercus robur* L., 11.viii.1958 (*Graham*).

Incertae Sedis

Aphelinus Acaetes Walker, 1844:185.

This species was described 'From the collection of the Rev. G. T. Rudd', whose collection is preserved in the Yorkshire Museum, York. I examined it some years ago but could not locate any material of *acaetes*. No original material has been found in the BMNH. From the description I believe that *acaetes might be a species of the* Encyrtid genus *Rhopus*, perhaps near to or identical with *semiapterus* (Mercet).

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